

Legal Regulatory Framework for the Sustainable Extraction of Australian Offshore Petroleum Resources

A Critical Functional Analysis

Tina Hunter



Dissertation for the degree philosophiae doctor (PhD)
at the University of Bergen

April 2010

... 'the object of the exercise is to find oil [] in commercial quantities and to produce it in such a way as to give maximum return on capital spent...'

An Introduction to Petroleum Exploration
for Non-Geologists, by Robert Stony
(1995).

... 'we, of course, want [private] investment partners, and we want them to profit, but we should also be the absolute owner of the land and resources'

Bolivian President Evo Morales, in an
interview in *Time*, 5 June 2006.

Acknowledgements

Like all doctoral theses, this thesis is not the sum total of my own work. Intellectually, certainly, otherwise I could not claim it to be my own. However, there have been some very important people who have been with me throughout this process. To them I owe everything.

Professionally, there are three very special men that I want to thank. Firstly, Ernst Nordtveit, who understood a long time ago my need to challenge the Australian system of petroleum regulation, and recognised what I wanted to achieve. Distance and Deanship made it hard, but in the end we made it. Thanks, you have taught me much.

To Duncan Bentley, former Dean of Bond University. You took a chance on me, and I hope I have not disappointed you. You have been there the whole way, through your own tribulations, with your kind and gentle manner, words of advice, and nurturing support.

Finally, to Mike Weir who not only provided support when there was no-one on the ground to do so, but in the last year as supervisor, led and drove me to be the best I could possibly be. More so, Mike saw a rough diamond in me and worked tirelessly to polish it. Your advice has been inspirational, and support phenomenal. Thanks seem so inadequate, but it is all I have to offer.

I extend many thanks to the Law Faculty of the University of Bergen. However, I have also had the support of some wonderful friends in the faculty, particularly Linda Johanna, Annika, Ingvill and Ivan. Thanks also to Rune, Eivind B, and Mari. In addition, my wonderful Norwegian friends Ragnhild, Stig, Marit, Amund, Greta, Johannes, Ivan, Elisabeth and Rolf.

At Bond University there are so many to thank that I fear I shall leave some out. I shall extend a blanket thanks to my wonderful faculty, but there are a number

of people I want to single out. My wonderful administration assistant, Angela, without whom the oceans between Bergen and Bond would have seemed enormous, but instead she made the gap feel like a small rivulet. Annette, who has moved heaven and earth to try and source the pens I obsessively required and without which I seemed to be gripped with writers block. Christine, who has tirelessly organised (and reorganised) travel plans. Emma, whose support and friendship has been unwavering and so appreciated. William, John F. and John W., whose experience and knowledge have been invaluable. To Paul White and the Bond Library Service, thanks for your unwavering support and patience with late books. To Gerard, your support and advice has been truly appreciated.

I have been blessed with a number of wonderful research assistants, and for that I thank Itati, Sara-Jane and Jesse. Thanks also to Bond University for providing me with research and financial assistance for this doctorate.

Finally, my family. My beautiful PPP, who has washed so many dishes, cooked so many meals and endured so many absences of her mother while completing this thesis. Thanks has a name, and I believe it is 'New York'. To Mimi, your humour, hugs and parties have been wonderful and I have been grateful for you throughout this. To Andrew, thanks for it all. For Mum, thanks for loving me and believing in me. I can't promise this is the last one, but I appreciate the opportunities in life you gave me which has enabled me to come this far. Lastly but not least, my sister and family in the Northern Hemisphere, thanks!!!

To Dad, I wish you could have lived long enough to see me come so far, but your legacy made all of this possible.

Foreword

This thesis is aimed at Australian petroleum regulators, as they continue to seek the best method to regulate the extraction of non-renewable resources in Australia. It is purposefully aimed at the principle and policy level, to assist in the management of mineral and petroleum resources in Australia in the 21st century.

The study of petroleum was undertaken since there was the opportunity to directly compare the regulation of petroleum resources in two first world countries, so that Australia may benefit from the experiences of Norway in the management of non-renewable resources.

Whilst this thesis addresses the regulation of petroleum resources, it is intended that many of the recommendations are applicable to the extraction of other non-renewable resources that occur in abundance in Australia.

Abstract

The sustainable development of petroleum resources in Australia forms the study of this thesis. Sustainable development in this thesis is defined as development that meets the needs of the present without compromising the ability of the future generations to meet their own needs. It encompasses three interconnected pillars: economic development, social development and environmental protection. This thesis is confined to an analysis of the sustainable socio-economic extraction of Australia's offshore petroleum resources. In extracting petroleum resources, there is a necessity for the State and private oil companies to enter into a long-term relationship to be able to exploit these resources. This brings many challenges: political, regulatory, economic, commercial and technological. These challenges are discussed, particularly in light of the tension that occurs between the commercial imperatives of private oil companies to generate profit, and the socio-economic imperatives of the State to ensure sustainability for future generations.

This thesis considers these challenges in Australia, analysing whether petroleum resources have been sustainably developed. Where it has identified that sustainable development has not yet been attained, it analyses other jurisdictions to determine whether lessons can be learned from these jurisdictions. In particular, this thesis focuses on how Norway has been able to utilise the legal regulatory framework to encourage sustainable socio-economic development of petroleum resources for the benefit of all of Norwegian society.

Firstly, this thesis considers Australian offshore petroleum policies, identifying that although the focus of Australia's petroleum policies for the last decade has been towards encouraging international investment, it recently has been expanded to encompass a policy of sustainable development. However, an analysis of Australia's policy finds that it fails to encourage the maximisation of the value of Australian petroleum for the benefit of the Australians. The

commercial focus of Australia's petroleum policy prevails, mandating commercial investment and strong industry control. An analysis of Norwegian petroleum policy demonstrates a policy built on a platform of State direction and control over resources to ensure that present and future Norwegians benefit from the conversion of Norwegian petroleum wealth to societal wealth. The tenets of Norwegian petroleum policy provide a number of valuable lessons for Australia, demonstrating the need for stronger State control in the development of petroleum resources, and the need for policy to focus on the development of resources for current and future generations.

An analysis of the Australian petroleum legislation suggests it is a prescriptive, rule-based legislative framework that creates unnecessary regulatory burden, and generates economic and social costs. In contrast, an analysis of legislative frameworks from other jurisdictions, namely Norway and South Australia (onshore petroleum legislation), indicates that a principle-based legislative framework with broad enabling legislation and complementary regulations reduces regulatory burden, thereby encouraging sustainable development. Furthermore, this type of legislation encourages the State and oil companies to develop petroleum resources to meet the interest of the State whilst still realising a profit for the oil companies. This analysis also identifies the need for a single regulatory authority and the use of model contracts as part of the legislative framework in order to encourage the sustainable socio-economic development of Australia's petroleum resources.

The allocation of a petroleum licence is important for the sustainable development of petroleum resources in Australia. It is crucial since it not only identifies the best partner for the State in exploiting petroleum resources to ensure maximum extraction, it also establishes the relationship between the State as owner of the resource and the oil companies that extract the resource. It is through the allocation of a licence that the State has the opportunity to ensure that the interests of the licencees and the State are aligned as closely as possible.

An analysis of the methods of allocation of petroleum licences demonstrates that where a State seeks to gain economic return for its resource, then the use of the bid system is appropriate. However, where a State seeks to gain sustainable benefits, the bid system is inadequate. Furthermore, analysis of the Australian work program bidding system and the current good standing provisions identifies a system that undermines Australian petroleum policy objectives. The current process for the allocation of petroleum licences encourages neither certainty nor sustainable development. An analysis of the Norwegian and United Kingdom system of petroleum licence allocation demonstrates that the use of discretion in the allocation of petroleum licences is able to meet respective national policy objectives for each State.

The sustainable development of petroleum resources relies on extracting as much petroleum as possible from a field. To determine whether sustainable extraction of petroleum is occurring in Australia, there is an analysis of whether State regulation of the rate and method of petroleum extraction is necessary in order to achieve sustainable development. An analysis of the Australian regulatory framework pertaining to field extraction and the current practices of oil companies in the extraction of petroleum suggests that optimal extraction is not occurring in many fields, and the present petroleum legislation provides little capacity for the State to regulate extraction. An analysis of Norwegian field extraction regulation, and the mandatory requirement for the development and use of technology to ensure the optimisation of extraction from field demonstrates that State regulation of petroleum extraction, particularly the method of extraction, has the capacity to encourage the sustainable extraction of petroleum.

Abbreviations

AIPN	Association of International Petroleum Negotiators
AMC	Australian Marine Complex
APA	Award in Predefined Area
APEA	Australian Petroleum Exploration Association
APPEA	Australian Petroleum Production and Exploration Association
ASR	Annual Status Report
bbl	barrel (of oil)
BNOC	<i>British National Oil Company</i>
BP	British Petroleum
CA	<i>Concession Act 1917</i> (Norway)
CoAG	Council of Australian Governments
CTH	Commonwealth (of Australia)
DA	Designated Authority
DMP	Western Australian Department of Minerals and Petroleum
EEA	European Economic Area
EC	European Community
ECT	European Community Treaty

EEZ	Exclusive Economic Zone
EFTA	European Free Trade Agreement
EOR	Enhanced Oil Recovery
EU	European Union
FDP	Field Development Plan
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GOP	Good Oilfield Practice
IMF	International Monetary Fund
IMO	International Maritime Organisation
IOR	Increased Oil Recovery
JA	Joint Authority
JOA	<i>Joint Operating Agreement (Norway)</i>
JV	Joint Venture
JVA	Joint Venture Agreement
LCS	Licensing and Concession System
MARPOL	Marine Pollution Convention
MFJOA	Model Form Joint Operating Agreement
MPE	Ministry of Petroleum and Energy

NCS	Norwegian Continental Shelf
NPD	Norwegian Petroleum Directorate
NOPSA	National Offshore Petroleum Safety Authority
NPV	Net Present Value
OCSLA	<i>Outer Continental Shelf Land Act 1953 (US)</i>
OPAGGSA	<i>Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)</i>
OPAGGSR	<i>Offshore Petroleum and Greenhouse Gas Storage Regulations 1985 (Cth)</i>
OSPAR	<i>Oslo Paris Convention</i>
PAA	<i>Petroleum Activities Act 1997 (Norway)</i>
PASA	Petroleum Act South Australia
PDO	Plan for Development and Operation
PIAF	Performance Indicator Analysis for Fields
PR	<i>Petroleum Regulations 1997 (Norway)</i>
PSA	Production Sharing Agreement
PSC	Production Sharing Contract
PRSA	<i>Petroleum Regulations South Australia</i>
PSLA	<i>Petroleum (Submerged Lands) Act 1967 (Cth)</i>
R&D	Research and Development

scm	standard cubic metres (of gas)
SDFI	State Direct Financial Interest
SPREP	South Pacific Regional Environment Program
SRR	Social Rate of Return
SSLA	<i>Sea and Submerged Lands Act 1973 (Cth)</i>
toe	tons of oil equivalent
TRD	Technological Research and Development
UJV	Unincorporated Joint Venture
UK	United Kingdom
UK CS	United Kingdom Continental Shelf
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Program
USA	United States of America
WPB	Work Program Bidding

Contents

ACKNOWLEDGEMENTS	5
FOREWORD	7
ABSTRACT	9
ABBREVIATIONS	13
CONTENTS	17
1. INTRODUCTION AND THESIS PROBLEM	23
1.1 INTRODUCTION.....	23
1.2 RESEARCH QUESTIONS AND OBJECTIVES	27
1.3 METHODOLOGY AND LEGAL PROBLEMS	29
1.3.1 <i>Mitigation of potential problems of comparing countries</i>	33
1.4 SUSTAINABLE DEVELOPMENT OF PETROLEUM RESOURCES.....	49
1.5 NORWEGIAN REGULATORY FRAMEWORK AS BENCHMARK FOR THE EVALUATION OF AUSTRALIAN REGULATION	59
1.6 CHALLENGES IN THE EXPLOITATION OF PETROLEUM RESOURCES.....	62
1.6.1 <i>Introduction</i>	62
1.6.2 <i>Economic challenges</i>	64
1.6.3 <i>Commercial challenges: diverging goals of State and company</i>	74
1.6.4 <i>Technical challenges</i>	77
1.6.5 <i>Regulatory challenges</i>	78
1.6.6 <i>Challenges in exploiting petroleum resources in Australia</i>	89
1.7 THESIS STRUCTURE	90
2. COMPARING PETROLEUM PRODUCING COUNTRIES: AUSTRALIA AND NORWAY 94	
2.1 INTRODUCTION.....	94

2.2	PETROLEUM IN AUSTRALIA AND NORWAY	95
2.2.1	<i>Petroleum fields and production</i>	97
2.2.2	<i>Development of petroleum regulation</i>	100
2.3	THE STATE AS OWNER OF PETROLEUM RESOURCES	104
2.4	PETROLEUM PROPERTY RIGHTS	106
2.4.1	<i>Alteration of legal rights</i>	110
2.5	COMMONALITY OF INTERNAL SYSTEMS.....	113
2.5.1	<i>Law and legal structure</i>	113
2.5.2	<i>Welfare and social justice</i>	117
2.5.3	<i>Economy and economic development</i>	122
2.5.4	<i>Government, political systems, and policy development</i>	130
2.6	PETROLEUM POLICY AND ITS INFLUENCE ON PETROLEUM REGULATION	136
2.6.1	<i>Development of petroleum policy in Australia and Norway</i>	139
2.6.2	<i>Current policy failures in Australia</i>	152
2.6.3	<i>Choices for policy change – lessons from Norway</i>	155
2.6.4	<i>A new petroleum policy for Australia?</i>	162
2.7	CONCLUSION	165
3.	STRUCTURE OF REGULATORY LEGISLATIVE FRAMEWORKS FOR SUSTAINABLE DEVELOPMENT OF PETROLEUM RESOURCES	168
3.1	INTRODUCTION.....	168
3.2	LEGAL PROBLEMS ARISING FROM THE ROLES OF THE STATE IN PETROLEUM ACTIVITIES	170
3.2.1	<i>The State as a regulator</i>	171
3.2.2	<i>The State as a participant in petroleum activities</i>	172
3.2.3	<i>Economic and commercial challenges for participants</i>	173

3.3	STRUCTURING LEGISLATIVE REGULATION.....	174
3.3.1	<i>Principles of legislative regulation: rule based or principle based?</i>	174
3.3.2	<i>Challenges of a Federalist system in regulatory legislative frameworks for sustainable petroleum development</i>	176
3.3.3	<i>Method of regulation: rule based or principle based regulation?</i>	180
3.3.4	<i>Construction of a regulatory legislative framework for sustainable resource management.</i> 192	
3.4	ADMINISTRATION OF PETROLEUM REGULATION.....	203
3.4.1	<i>Principle of a competent administrative authority</i>	203
3.4.2	<i>Administration of petroleum activities in Australia and Norway</i>	203
3.4.3	<i>A critical analysis of Australian administration of petroleum activities</i>	206
3.5	STATE REGULATION OF PETROLEUM ACTIVITIES AND PARTICIPANTS THROUGH THE PETROLEUM CONTRACT	211
3.5.1	<i>Types of petroleum contracts in Australia and Norway</i>	212
3.5.2	<i>Petroleum contracts as regulatory tools</i>	217
3.5.3	<i>Does State participation in petroleum activities and the JOA encourage sustainable development?</i>	225
3.6	CONCLUSION.....	229
4.	AWARD OF PETROLEUM LICENCES	234
4.1	INTRODUCTION.....	234
4.2	AWARD OF LICENCES AND SUSTAINABLE DEVELOPMENT	236
4.2.1	<i>Process of award of licence</i>	242
4.3	AWARD OF LICENCE BY BIDDING.....	247
4.3.1	<i>Cash bid system</i>	247
4.3.2	<i>Work Program Bidding</i>	251

4.4	DISCRETIONARY ALLOCATION OF PETROLEUM LICENCES	273
4.4.1	<i>Outline and objective of the discretionary system</i>	273
4.4.2	<i>Use of the discretionary system in the North Sea</i>	277
4.4.3	<i>Discretionary allocation of petroleum licences and national petroleum objectives</i>	290
4.5	METHOD OF ALLOCATION AND SUSTAINABLE DEVELOPMENT	294
4.5.1	<i>Introduction</i>	294
4.5.2	<i>Risk and award of petroleum licences</i>	295
4.5.3	<i>The award of petroleum licence and economic diversification</i>	297
4.5.4	<i>Transparency, discretion and sustainable development</i>	319
4.6	ALLOCATION OF LICENCES AND SUSTAINABLE DEVELOPMENT: BID OR DISCRETION?.....	324
4.7	CONCLUSION: WHICH SYSTEM OF LICENCE ALLOCATION HAS THE CAPACITY TO IMPLEMENT AUSTRALIA'S PETROLEUM POLICY OBJECTIVES?.....	328
5.	REGULATING OF PETROLEUM EXTRACTION	336
5.1	INTRODUCTION.....	336
5.2	REGULATION OF RATE OF DEPLETION OF OIL RESOURCES.....	337
5.2.1	<i>Introduction</i>	337
5.2.2	<i>State interests in regulation of the rate of depletion?</i>	337
5.2.3	<i>How can the rate of depletion be regulated?</i>	350
5.2.4	<i>Regulation of depletion rate as tool for sustainable development of petroleum resources</i> 356	
5.3	STATE REGULATION OF PETROLEUM EXTRACTION FOR SUSTAINABLE DEVELOPMENT	358
5.3.1	<i>Why should field production be regulated by the State?</i>	358
5.3.2	<i>How can field depletion be regulated for sustainable development?</i>	371
5.4	CONCLUSION	408

6. SUMMARY, REFLECTIONS AND CONCLUSIONS.....	411
6.1 INTRODUCTION, HYPOTHESIS AND RESEARCH QUESTIONS	411
6.2 SUSTAINABLE PETROLEUM DEVELOPMENT AND PETROLEUM POLICY	413
6.3 LEGISLATION AND SUSTAINABLE PETROLEUM DEVELOPMENT	417
6.4 THE AWARD OF LICENCES AND SUSTAINABLE PETROLEUM DEVELOPMENT	421
6.5 THE IMPACT OF STATE REGULATION OF PETROLEUM PRODUCTION ON SUSTAINABLE PETROLEUM DEVELOPMENT	426
6.6 CONCLUSION	428
BIBLIOGRAPHY	430

1. Introduction and Thesis Problem

1.1 Introduction

Ownership of petroleum resources is a tremendous asset for any State, and gives a country great opportunities for economic, technical and social development.¹ Nevertheless, experience has shown that the management of petroleum resources, similar to other non-renewable natural resources,² poses great challenges for a State.³ These challenges may be of technical, political, regulatory and economic character.⁴ The way the states handle these challenges is decisive for the ability of a State to attain sustainable development⁵ of the petroleum resources.

As a result of the superprofit that can be obtained from petroleum activities and the magnitude of such operations, particularly offshore, these activities can have

¹ Within the confines of this thesis *the State* refers to the government (a self governing political entity) of a country that exercises effective sovereignty over its territory and its population as defined in *Merriam-Webster Online Dictionary* <http://www.merriam-webster.com/dictionary/State> on 12 January 2009. The term *state* within the confines of this report refers to the six individual government areas (states) of Australia (note the use of capitalisation).

² Mineral resources are non-renewable or exhaustible resources that do not regenerate, and include petroleum. See Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, 21 June 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.

³ Examples of these challenges can be seen in many developed and developing States, including Nigeria, Venezuela, and Sierra Leone. See Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz, 'Introduction: What is the Problem With Natural Resources Wealth?' in Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 1-2.

⁴ These challenges arise since petroleum activities are a complicated activity, and are analysed in detail in section 1.6 below.

⁵ The World Commission on Environment and Development defines sustainable development as '*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*'. See *Report of the World Commission on Environment and Development* UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987) <http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007. At the heart of sustainability is inter-generational equity, which is defined in the Australian Intergovernmental Agreement on the Environment (IGAE) as a concept where '*the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*' Australian Government, Department of the Environment and Water Resources, *Intergovernmental Agreement on the Environment* (1990) <http://www.environment.gov.au/esd/national/igae/index.html> at 18 November 2007. In a broader context, sustainable development includes the development of resources in a responsible manner for the optimal use of that resources, and is discussed in detail in section 1.4 below.

a huge impact on that State's economy. This impact can particularly affect employment and long-term resources income. The State has to develop a policy and regulatory framework that makes it possible to integrate the petroleum activity in the country's economy in a balanced and sustainable way.

The financial and technical challenges in exploration for and production of petroleum, and the international character of the petroleum industry, has led to development of large international companies that dominate international petroleum activity. It is necessary, or at least desirable, for most States to allow private or state-owned international oil companies to participate in the activity. A central challenge for the State therefore is to try to reconcile the objectives of the State against the objectives of the international oil companies that are required to extract the petroleum.

The extraction of petroleum creates numerous demands on a State, including the effective and sustainable extraction of the petroleum, protection of the environment in which petroleum extraction occurs, security for personnel, and protection of other uses of areas where petroleum activity occurs (for example fisheries). To meet these demands, States needs to establish an appropriate regulatory framework with legal and administrative institutions that will balance the demands of petroleum extraction with the sustainable development of the petroleum resources to ensure that future generations reap the benefit of the extraction of petroleum. In addition, to establish regulations with rights and obligations, it is necessary to create an incentive system that makes the participants and stakeholders manage the activity in a sound and long-term perspective.

The exploitation⁶ of petroleum resources has economic consequences since the extraction of petroleum liquidates the asset, and the State can no longer realise

⁶ Within the confines of this thesis, the term 'exploitation' is used to encompass all upstream activities required for the production of petroleum. This includes petroleum exploration, the development of a potential petroleum deposit, and the extraction of petroleum from the field.

revenue from this asset.⁷ Once petroleum is extracted and sold, like any other asset, it is permanently lost, or more precisely, transferred into financial capital. This creates a risk that the capital might be consumed without leaving any lasting values in the country. It is necessary for the State to develop a regulatory framework that regulates⁸ petroleum exploitation in a way that makes it possible to avoid the risk of depleting the resource and ending up in a worse economic and social position than prior to the discovery of the resource. Developing a legal regime for the sustainable development of petroleum resources has proved to be complicated and difficult to obtain. However, there are ways to improve the sustainability of petroleum development in States through the petroleum regulatory system.

In this thesis I will critically analyse a number of fundamental aspects of Australian offshore petroleum regulation, in order to evaluate whether the current petroleum regulation is suited to achieving sustainable development of petroleum resources. In particular, I will analyse how Australian petroleum policy, the legislative framework,⁹ the award of petroleum licences¹⁰ and the regulation of petroleum field development have addressed the numerous challenges in exploiting petroleum resources to achieve optimal extraction and sustainable development of Australia's petroleum resources.

⁷ For a discussion of the economic value of petroleum see Myungan Lee, 'Measure of the Insitu Value of Exhaustible Resources: An Input Distance Function' (2006) 62 *Ecological Economics* 490.

⁸ The term regulation can have a number of meanings, as defined in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007). In its narrowest form, regulation may be seen as 'deliberate attempts by the State to influence socially valuable behaviour ...by establishing monitoring and enforcing legal rules' (p3). At its broadest, regulation can be seen as 'encompassing all forms of social control, whether intentional or not, and whether imposed by the State or other social institutions' (p3-4). In the context of this thesis, petroleum regulation means the deliberate attempt of the State to establish, monitor and enforce legal rules relating to the exploitation of petroleum.

⁹ The legislative framework includes the principal Acts, enabling Regulations, and the contractual framework between the participants.

¹⁰ The term licence can be spelt either license (US and European spelling), or licence (UK and Australian spelling). Since this thesis is written using Australian form of referencing, by an Australian, then it shall maintain the use of the Australian spelling of all words, including licence. The exception to this is in footnotes, where the original spelling used by the author will be retained.

I will analyse the capacity of the current Australian petroleum regulatory framework to encourage the sustainable socio-economic development of Australia's offshore petroleum resources,¹¹ by critically analysing the Australian petroleum regulatory framework in a functional and comparative perspective. I will analyse how offshore petroleum resources can best be managed to contribute to Australia's economic and social development by examining at how Australian petroleum policies and the legislative regulatory framework has been able to accomplish the sustainable extraction of petroleum. To make this critical analysis, I examine a number of petroleum functions, including regulatory legislative frameworks, the award of licences, and the regulation of petroleum production. I do not focus on a detailed evaluation of the rules regulating petroleum functions. Rather, the prime objective is to analyse the legal framework regulating the extraction¹² of offshore petroleum resources in Australia.

I will engage in a functional analysis of the petroleum legislative frameworks in Australia in order to evaluate the regulatory systems ability to contribute to a sustainable development of Australia's petroleum resources. I will focus on an examination of the structure and function of the legislation and regulatory framework, rather than the detailed content of the legislation. I will compare and contrast the structure and function of the central elements in the Australian regulation and the legislative and administrative tools utilised to achieve the policy goals, with Norway's regulation of petroleum activity. I will especially evaluate the regulation of the two countries by drawing upon examples of the legislation pertaining to the award of a petroleum licence and regulation of the extraction of petroleum in the two countries.

¹¹ It considers offshore petroleum resources, since the majority of petroleum in Australia occurs offshore. Commonwealth (federal) legislation regulates the offshore jurisdiction in Australia, making comparison with other jurisdictions possible.

¹² Extraction refers to upstream petroleum activities, where petroleum is taken from the ground and lifted to the wellhead ready for transport .

The Australian State¹³ acknowledges that the ownership of petroleum resources ‘confers a responsibility to ensure that present and future generations of Australians derive optimal benefit from its petroleum resources.’¹⁴ This arises out of Australia’s recognition that State sovereignty over petroleum resources confers the capacity to develop its resources, which according to the UN Resolution on Permanent Sovereignty over Natural Resources,¹⁵ ‘must be exercised in the interest of their national development and of the well-being of the people of the State concerned.’¹⁶ Incorporated in the principle of sustainable development is the concept of deriving optimal benefit for present and future generations. Therefore, the Australian State accepts its responsibility to develop its offshore petroleum resources in a sustainable manner to ensure economic benefit and social development for present and future generations. Therefore, in this thesis I will analyse whether this can be achieved under the current regulatory system, and discuss alternatives that could improve the ability of Australia to secure the sustainable extraction of petroleum resources.

1.2 Research questions and objectives

It is my hypothesis that there are aspects of the Australian offshore petroleum regulatory system that are problematic in encouraging the sustainable development of Australia’s offshore petroleum resources.

¹³ The Australian State is defined as the government (a self governing political entity) of Australia that exercises effective sovereignty over its territory and its population, with the sovereignty to develop its petroleum resources. Its government is known as the Commonwealth Government.

¹⁴ The Commonwealth claims this responsibility over the development of offshore petroleum resources of the seabed beneath the Commonwealth’s marine jurisdiction. Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 7.

¹⁵ United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, *Permanent Sovereignty Over Natural Resources*. Adopted by General Assembly Resolution 1803 (XVII) of 14 December 1962.

¹⁶ United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, *Permanent Sovereignty Over Natural Resources*. Adopted by General Assembly Resolution 1803 (XVII) of 14 December 1962, Article 1.

This hypothesis raises two research questions. Firstly, is the current Australian offshore petroleum regulatory framework effective in encouraging the sustainable development of Australia's petroleum resources? Secondly, if the Australian regulatory framework is inadequate for sustainable development, is there a more effective way the Australian regulatory framework could manage the development of petroleum resources to encourage the sustainable development of these resources?

To address this hypothesis, I have delineated the scope of this thesis, limiting it to a consideration of the regulation of upstream petroleum activities, namely the award of a petroleum licence and the regulation of the extraction of petroleum from a petroleum field.

To test my hypothesis, I examine a number of fundamental legal tools¹⁷ that can be utilised to encourage or secure sustainable petroleum resource management, securing the values generated from petroleum exploitation for Australian society. Within the confines of this thesis it is not possible to examine all of the regulatory tools, therefore I have confined the scope of this thesis to four regulatory tools.

Firstly, I analyse Australia's offshore petroleum policy, to determine if the current policy is aimed toward sustainable development of petroleum resources.

Secondly, I consider whether the current Australian offshore petroleum regulatory framework regime and the administrative practice are appropriate for the sustainable development of its petroleum resources.

Thirdly, I consider the award of petroleum licences, analysing whether the method of licence allocation in Australia encourages the sustainable development of petroleum resources.

¹⁷ This has been referred to as a 'regulatory toolbox,' where regulation occurs through the combination of a number of techniques rather than relying upon any single instrument. See Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 9.

Finally, I examine whether government control over the method and timing of petroleum depletion is effective in the sustainable development of petroleum resources. I focus on State regulation of field development, considering whether this regulation contributes to the sustainable development of petroleum resources through the control of the method and rate of petroleum production

If this analysis identifies weaknesses in Australian regulatory framework for sustainable development, I consider whether there is a more effective way the Australian regulatory framework could manage the development of petroleum resources to encourage the sustainable development. To identify more appropriate regulatory frameworks, I will compare, contrast, and assess the sustainability of the Australian regulatory framework with the petroleum regulatory framework of especially Norway, although I will also consider the United Kingdom and the United States where appropriate. The analysis of other petroleum regulatory frameworks, and comparing the solutions to regulatory issues, may provide ideas for changes in Australian petroleum regulation in order to achieve a more sustainable extraction of the petroleum resources.

1.3 Methodology and legal problems

I do not aim to discuss in detail all legal questions in Australian petroleum regulation, even in the areas I focus on in this thesis. Rather, the aim is to discuss the function of the regulation and the possible legal tools that can be used to achieve a sustainable exploitation of Australian petroleum resources. This discussion will largely be based on a comparative analysis, using different models of regulation, as well as and regulation in other jurisdictions as a background or benchmark for the discussion.

The use of comparative analysis as a legal methodology in law is well established.¹⁸ The historical methodological and scientific assumption of comparative law is that ‘only similar legal systems can be compared’.¹⁹ Arguably, a fundamental tool in comparative analysis is functional analysis, since incomparables cannot usefully be compared.²⁰ Rather, in law only legal concepts, principles and rules that are comparable are those that fulfil the same function.²¹

It is recognised that using comparative law to study another countries legal style²² (the system’s history, mode of thought in legal matters, sources of law, and legal ideology) may make it possible to understand, appreciate and evaluate the country of study’s legal regime in a systematic and productive way.²³ I will examine and compare petroleum regulatory frameworks in a number of jurisdictions. In particular, I will examine the Norwegian petroleum regulatory framework to demonstrate how regulatory tools can be utilised in regulating petroleum resources to encourage sustainable petroleum development.

The Norwegian system has been selected as the main jurisdiction of comparison, both historically and contemporaneously, since it offers valuable insight into possible strategies in regulating petroleum activities for sustainable development. The Norwegian regulatory framework is considered one of the most successful in the world, but this does not mean that the Norwegian system offers a one-size-

¹⁸ The first International Congress of Comparative Law was held in Paris in 1900, assembling experts from Europe to consider this area of legal methodology. See J M Smits (ed), *Elgar Encyclopaedia of Comparative Law* (1998), 75.

¹⁹ A Essin Orucu, ‘Methodology of Comparative Law’ in J M Smits (ed), *Elgar Encyclopaedia of Comparative Law* (1998), 442.

²⁰ Konrad Zweigert and Hein Kotz, *An Introduction to Comparative Law* (2nd ed. 1998), 34.

²¹ Konrad Zweigert and Hein Kotz, *An Introduction to Comparative Law* (2nd ed. 1998), 34.

²² Peter de Cruz, *Comparative Law in a Changing World* (2nd ed. 1999), 29.

²³ Peter de Cruz, *Comparative Law in a Changing World* (2nd ed. 1999), 29.

fits-all 'model' for petroleum regulation.²⁴ Nor does any other regulatory framework. Rather, it is suggested that the Norwegian petroleum regulation is a successful system that encourages sustainable development throughout the value chain.²⁵ In addition, Norway appears to have avoided the worst manifestations of the natural resource curse because of many factors.²⁶ These include good governance,²⁷ transparent and accountable bureaucracy,²⁸ public ownership and management,²⁹ cohesive and coordinated policy,³⁰ structural reforms to address the growing oil sector,³¹ public control of oil revenue,³² and a social contract with strong social norms that assisted in preventing disruptive rent-seeking.³³

²⁴ It is important to realise that Norway does not necessarily provide an example of the 'best' system of petroleum regulation. Rather, Norway provides an example of a successful system where petroleum resources have been developed for the benefit of all Norwegians, including future generations.

²⁵ The value chain refers to the chain of activities in the exploitation of petroleum resources by a State, and these are regulated by the State at each stage. The sustainability of the development of petroleum depends upon policies and the regulatory framework that regulates petroleum activities across the value chain. See World Bank, *Using Extractive Industries for Sustainable Development* (2008) World Bank International Oil and Gas Resources Management Seminar Libreville, Gabon, April 27-30, 2008, 23.

²⁶ Macartan Humphreys, Jeffrey Sachs and Joseph E Stiglitz (eds) *Escaping the Resource Curse* (2007), 273.

²⁷ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 21.

²⁸ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 22.

²⁹ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 21.

³⁰ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 21.

³¹ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 21.

³² Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 22.

³³ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 22.

To avoid the effects of natural resource curse, Norway has not only regulated petroleum extraction, but also regulated many other factors through fiscal policy, industrial policy and development, and mandatory research and education.³⁴ These factors are also important in avoiding natural resource curse. However, in this thesis, I confine my analysis to how Norway uses the legislative framework, the award of petroleum licences, and the regulation of petroleum extraction to encourage the sustainable extraction of petroleum resources, analysing whether these tools provide valuable lessons for sustainable development of petroleum in other jurisdictions.

By using a functional approach, it is possible to compare the regulation of petroleum activities under the licencing and concession system in Australia and Norway to ascertain the capacity of each regulatory framework to engender sustainable development of petroleum resources. Both Australia and Norway have addressed the same fundamental legal question³⁵ relating to petroleum regulation: how is the petroleum regulatory framework utilised to regulate petroleum extraction for the sustainable development of petroleum resources?

Both jurisdictions have responded to the challenges of petroleum regulation primarily by using the same regulatory tools. These include a petroleum exploration and production licencing system, terms relating to the award of the petroleum licence, and a general regulatory framework for petroleum activities. However, each jurisdiction has applied the legal tools differently. In this thesis, I analyse how legal remedies have been applied to encourage sustainable

³⁴ See Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 22.

³⁵ The acknowledgement of a fundamental legal problem is important in comparative law. Zweigert and Kotz note that 'in order for an intellectual enterprise to be considered as a comparative law enterprise, there must be specific comparative reflections on the problem to which the law is devoted, and this is best done by the comparatist, stating the essentials of the foreign law, country by country, as a basis for critical comparison, concluding the exercise with suggestions about the proper policy for the law to adopt, which may require him to interpret his own system. See Konrad Zweigert and Hein Kotz, *An Introduction to Comparative Law* (1977), 5 in Peter de Cruz, *Comparative Law in a Changing World* (2nd ed. 1999), 8.

development, to determine a suitable regulatory framework for the sustainable development of Australian offshore petroleum resources.

An analysis of the sustainability of Australia's current regulatory framework is undertaken by assessing how these regulatory tools are used to encourage sustainable development in the Australian and Norwegian jurisdictions. By using aspects of the Norwegian legal regulatory approach to petroleum resource development, as a benchmark for sustainable development,³⁶ it may be possible to assess the capacity of Australia's current regulatory framework to encourage sustainable development of petroleum resources.

If my analysis concludes that the Australian petroleum regulatory framework is less capable of sustainably developing its resources, the Norwegian experience of petroleum regulation using the same regulatory tools may provide Australia with alternatives to accomplish sustainable development of petroleum resources.

1.3.1 Mitigation of potential problems of comparing countries

It is recognised that there are problems inherent with a comparison of legal issues between different jurisdictions. In this thesis, there is a comparison of civil and common law jurisdictions. However, there are a number of unique features of petroleum regulation in general, and the Norwegian and Australian licencing and concession systems in particular, that mitigate the usual difficulties associated with comparative international law.

Internationally recognised models for the exploitation of resources

Different countries have developed different strategies and legal models for managing their petroleum resources and dividing the risks between the State and the oil companies. The regulation of petroleum interests is based on two internationally recognised natural resources licencing models that incorporate

³⁶ How Norway has sustainably developed its petroleum resources is demonstrated in section 1.5 below.

both national and international law. These are classified into two distinct systems: concessionary systems (typically the licencing and concession system), and contractual systems (either production sharing contracts or service contracts).³⁷ The fundamental difference between these two systems is the ownership of the produced petroleum resources.³⁸

The tool used by many developed States to interact with and govern the conduct of participating oil companies, and to maximise financial gains is the licencing and concession system (LCS).³⁹ The LCS is defined as a system of petroleum regulation where a licence is granted over a 'concession' or area. That licence grants proprietary rights to the licence holder, which are generally also imbued as contractual rights between the participating parties. Unlike the production sharing contract, (PSC) the concession system assumes that the operating oil companies obtain a licence from the State at certain terms and conditions, most of which are fixed by legislation and some of which are negotiated case by case between the State and the relevant oil companies. An important characteristic of the concession systems is that since legislative power is a State prerogative, the State remains at considerable liberty to modify at any time those terms and conditions that are not negotiated but fixed by legislation.⁴⁰

The LCS grants specific contractual and proprietary rights to the participants who have been awarded petroleum licences. Although the LCS is used in many countries to regulate the exploitation of petroleum, the level of government

³⁷ Daniel Johnson, *International Petroleum Fiscal Systems and Production Sharing Contracts* (1994), 25.

³⁸ It is important to note that licensing and concession system allow private ownership of mineral resources upon production of the resources, whilst under contractual systems, the State retains ownership of the mineral. See Daniel Johnson, *International Petroleum Fiscal Systems and Production Sharing Contracts* (1994), 21.

³⁹ See Guiditta Cordero Moss, 'Contract or Licence? Regulation of Petroleum Investment in Russia and the Role of Foreign Legal Advice' (1998) 3-11 *CEPMLP Internet Journal* <http://www.dundee.ac.uk/cepmlp/gateway/index.php?news=28136> at 12 January 2008.

⁴⁰ Guiditta Cordero Moss, 'Contract or Licence? Regulation of Petroleum Investment in Russia and the Role of Foreign Legal Advice' (1998) 3-11 *CEPMLP Internet Journal* <http://www.dundee.ac.uk/cepmlp/gateway/index.php?news=28136> at 12 January 2008.

control over oil companies and their activities exerted by a State differs in oil producing States. Furthermore, there are two main recognisable systems of regulation in licencing and concession systems – the long established ‘North American’ model and the ‘North Sea’ model, developed by the UK and Norway when exploiting the petroleum resources in the North Sea. In this thesis, the countries of comparison utilise the licencing and concession system for petroleum exploration and production.

The North American system refers to the regulatory model that had been implemented in the management of petroleum resources in the United States and Canada.⁴¹ Generally, the North American model of petroleum exploitation is typified by a minimalist approach to State intervention.⁴² It originated in the United States, and is categorised by minimal government involvement in the development of petroleum resources, with a preference for free market forces to direct the exploitation of these resources.⁴³ In addition, this model tends to award petroleum licences through a bid system (both cash and work program), again allowing capitalist forces to influence the exploitation of petroleum.⁴⁴ The State regulates the award of the petroleum licence as well as establishing and enforcing laws and regulations that protect workers and the environment.⁴⁵ The private oil companies are given de facto control over the licence area, with companies retaining autonomy over issues relating to the development of petroleum

⁴¹ See Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licencing Systems* (2004) Background Paper: BC Offshore: Potential and Problems: A MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 2.

⁴² See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

⁴³ Bernard Taverne, *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008), 165-8.

⁴⁴ Bernard Taverne, *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008), 168.

⁴⁵ See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

resources.⁴⁶ This includes field development, rates of depletion, and other issues relating to production.⁴⁷ Usually, these licences are awarded using an auction bidding system. This may include either cash or work program bidding.⁴⁸ This North American model of petroleum exploitation has been adopted by Australia for the exploitation of its offshore petroleum resources.

The North Sea model was established by the licencing and concession activities of the United Kingdom and Norway in the exploitation of petroleum resources in the North Sea.⁴⁹ The primary difference in this regulatory model is the high level of State intervention,⁵⁰ as the State controls the award of petroleum licences through the administrative allocation of petroleum licences. Generally, the allocation of licences is through the use of established criteria, although allocation is at the discretion of the State.⁵¹ The State also exerts high levels of control over the development of a petroleum field for the life of the field.⁵²

As a consequence of these two recognisable and distinct systems of regulation of petroleum activities, there is a substantial traversing of the differences normally inherent in comparing legal systems and traditions.

⁴⁶ Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980), 31.

⁴⁷ See Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licencing Systems* (2004) Background Paper: BC Offshore: Potential and Problems: A MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 2.

⁴⁸ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 6-7.

⁴⁹ See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 23.

⁵⁰ See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 8-9.

⁵¹ Such as the requirement for objective criteria set out in s3-5, *Petroleum Activities Act 1996* (Norway), and the criteria outlined in s10 of the *Petroleum Regulations 1997* (Norway).

⁵² Norwegian Petroleum Directorate, *Guidelines To Plan For Development and Operation of a Petroleum Deposit (PDO) and Plan for Installation and Operation of Facilities for Transport and Utilisation of Petroleum (PIO), 2000* (2000) http://www.npd.no/regelverk/r2002/frame_e.htm at 22 March 2009. See also Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980) 32.

Application of international law and instruments

UN Resolutions

Australia and Norway both claim their sovereign right to own and develop their petroleum resources under UN resolution 1803.⁵³ Furthermore, both countries exercise their rights over mineral and petroleum resources offshore in the Exclusive Economic Zone⁵⁴ and the Continental Shelf,⁵⁵ under the United Nations Convention on the Law of the Sea. Both countries are signatories to this Convention.⁵⁶

United Nations Convention on the Law of the Sea (UNCLOS)

UNCLOS defines and delineates international maritime boundaries.⁵⁷ The current UNCLOS was agreed to in 1982. At present there are 153 parties to the Treaty, including most oil producing nations with the exception of the United States and most nations in the Caspian Sea Region.⁵⁸ Thus both Australia and Norway are signatories to UNCLOS.⁵⁹ The primary functions of UNCLOS are to define

⁵³ United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, Permanent Sovereignty Over Natural Resources.

⁵⁴ The Exclusive Economic Zone (EEZ) has been defined in Art. 57 of The *United Nations Convention of the Law of the Sea* (UNCLOS) as extending from the baseline to no more than 200nm seaward.

⁵⁵ The Continental Shelf has been defined in a 76 (1) of the *United Nations Convention of the Law of the Sea* as the seabed and subsoil of the submarine areas that extend beyond a States territorial sea throughout the natural prolongation of that States land territory to the outer edge of the continental margin. Under a76 (5), the Continental Shelf shall not exceed 520nm from the baselines from which the breadth of the territorial sea is measured.

⁵⁶ For a comprehensive list of all members and ratification of UNCLOS see United Nations, *Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements as at 20 July 2009* (2009) http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea at 4 August 2009. Historically, Norway exerted its right to the continental Shelf in the *Act of 21 June 1963 Relating to Exploration for and Exploitation of Submarine Natural Resources*, based on Article 2 of the 1958 Convention on the Continental Shelf. See United Nations, *Convention on the Continental Shelf, 1958* (1958) United Nations, *Treaty Series*, vol. 499, 311.

⁵⁷ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982.

⁵⁸ United Nations, Division for Ocean Affairs and the Law of the Sea (2007) *Chronological Lists of Ratifications of, Accessions and Successions to the Convention and Related Agreements as at 5 March, 2007* (2007) http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea at 22 March 2007.

⁵⁹ United Nations, Division for Ocean Affairs and the Law of the Sea (2007) *Chronological Lists of Ratifications of, Accessions and Successions to the Convention and Related Agreements as at 5 March, 2007* (2007) http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea at 22 March 2007.

maritime borders, protect the environment, preserve freedom of navigation, and establish clear guidelines for businesses that depend on the sea for resources.⁶⁰ It defines the legal status of the territorial sea, airspace over the territorial sea, as well as the seabed and subsoil.⁶¹

Pursuant to the 1982 UNCLOS, all rights to resources in an area are vested in mankind as a whole, and all coastal States are assigned an Exclusive Economic Zone (EEZ) and a Continental Shelf (CS).⁶² Under UNCLOS, the EEZ extends 200 nautical miles (nm) seaward from the baseline,⁶³ subject to delimitation where two States' EEZ converge.⁶⁴ The EEZ confers sovereign rights with respect to the natural resources of the seabed and subsoil, living or non-living.⁶⁵ Within this EEZ, a coastal State has jurisdiction with regard to the establishment, construction, operation and use of artificial islands, installations, and structures, including the right to establish exclusive safety zones around such structures.⁶⁶

UNCLOS also confers rights over the Continental Shelf for all coastal States. The Continental Shelf is defined as the seabed and subsoil of the submarine areas that extend beyond the territorial sea⁶⁷ through the natural prolongation of land territory to the outer edge of the continent or to a distance of 200nm from the

⁶⁰ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 284-5.

⁶¹ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 2.

⁶² United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art.82.

⁶³United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 57.

⁶⁴ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art.74.

⁶⁵ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 285.

⁶⁶ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 60.

⁶⁷ The Territorial sea is the first 12nm seaward from the baseline, as defined in United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 3.

baseline, and extends at least 200nm.⁶⁸ Whilst UNCLOS does not confer sovereign rights on the Continental Shelf, since the area and its mineral resources are the common heritage of mankind, it does extend exclusive jurisdiction over installations and operations to coastal States operating within the EEZ and Continental Shelf.⁶⁹ Thus, the State has exclusive powers conferred under UNCLOS, including the exclusive right to authorise and regulate drilling for all purposes,⁷⁰ and the responsibility for domestic implementation of rules, standards, and procedures agreed to in the operation of activities on the Continental Shelf.

International Convention for the Prevention of Marine Pollution (MARPOL)

MARPOL provides an international framework for the prevention of pollution in the marine environment.⁷¹ It seeks to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances.⁷² MARPOL is the main international Convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. It is a combination of two Treaties adopted in 1973 and 1978 respectively, and updated by amendments and annexes since the initial convention.⁷³

⁶⁸ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 286; United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 76.

⁶⁹ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 56 (1b), 60 (EEZ) and Art. 80, which applies Art. 60 *mutatis mutandis* to the Continental Shelf.

⁷⁰ United Nations, *Convention on the Law of the Sea* (1982) 10 December 1982, Art. 81.

⁷¹ International Maritime Organisation, *International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL): Introduction* (2009) http://www.imo.org/Conventions/contents.asp?doc_id=678&topic_id=258#2 at 24 August 2009.

⁷² *MARPOL Objective* (2007) <http://www.portwaste.com/services/marpol.htm> at 23 October 2008.

⁷³ International Maritime Organisation, *International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL): Introduction* (2009) http://www.imo.org/Conventions/contents.asp?doc_id=678&topic_id=258#2 at 24 August 2009.

The Convention is regulated by the International Maritime Organization (IMO), a body of the United Nations.⁷⁴ It sets international maritime vessel safety and marine pollution standards. It consists of representatives from 152 major maritime nations, including the United States. The IMO implements the MARPOL Convention. Both Norway and Australia are signatories to the MARPOL Convention. Therefore, both States have the same responsibilities for marine pollution arising from petroleum activities in offshore areas.

Regional treaties

The OSPAR Agreement⁷⁵ is an international Instrument that governs and guides international cooperation for the protection of the marine environment in the North Atlantic. It originated from the *Oslo Convention of 1972 on the Dumping of Waste at Sea* and the *1974 Paris Convention*, which governs land-based sources of marine pollution.⁷⁶ In particular, the objective of the *OSPAR Offshore Oil and Gas Industry Strategy*⁷⁷ is the prevention and elimination of marine pollution from offshore petroleum activities, and to restore marine environs and ecosystems where adverse effects have occurred.⁷⁸ The OSPAR Agreement, and the Commission that enforces it, operates under the umbrella of customary international law.⁷⁹ This is codified by UNCLOS, especially in Part XII and

⁷⁴ See www.imo.org at 12 August 2009.

⁷⁵ OSPAR is the mechanism by which fifteen Governments of the western coasts and catchments of Europe, together with the European Community, cooperate to protect the marine environment of the North-East Atlantic See www.ospar.org at 12 August 2009.

⁷⁶ OSPAR Commission, <http://www.ospar.org/eng/html/welcome.html> at 3 April, 2007.

⁷⁷ The objective of the Commission with regard to the setting of environmental goals for the offshore oil and gas industry and the establishment of improved management mechanisms to achieve them is to prevent and eliminate pollution and take the necessary measures to protect the maritime area against the adverse effects of offshore activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected. See Summary Record OSPAR 03/17/1-E, Annex 31 at http://www.ospar.org/html_documents/ospar/html/Revised_OSPAR_Strategies_2003.pdf#nameddest=offshore_o_a at 12 August 2009.

⁷⁸ OSPAR Commission, *Overview* (2006) <http://www.ospar.org/eng/html/welcome.html> at 3 April, 2007.

⁷⁹ OSPAR Commission, *Principles* (2008) http://www.ospar.org/content/content.asp?menu=00320109000000_000000_000000 at 24 August 2009.

Article 197 on the global and regional cooperation for the protection and preservation of the marine environment.⁸⁰ As this is a regional Treaty, it is limited only to North East Atlantic countries, with members including Denmark, Germany, the Netherlands, Norway, the United Kingdom and Spain.⁸¹ As such, Australia is not a signatory to this treaty.

A regional treaty for the protection of the marine environment exists in the South Pacific region: *The South Pacific Regional Environment Program* (SPREP).⁸² SPREP is an independent, intergovernmental agency providing technical assistance and advisory services to the governments of member States and Territories in the protection and management of their environment to ensure they achieve sustainable development for present and future generations.⁸³ SPREP's membership comprises twenty-one Pacific Island countries and territories, and four developed countries, including Australia.

The objective of this intergovernmental program is to promote cooperation and to provide assistance in order to protect and improve the Pacific Islands environment, and to ensure sustainable development for present and future generations.⁸⁴ A component of the agreement is an action plan to reduce

⁸⁰ OSPAR Commission, *Principles* (2008) http://www.ospar.org/content/content.asp?menu=00320109000000_000000_000000 at 24 August 2009.

⁸¹ OSPAR Commission, *About OSPAR* (2008) http://www.ospar.org/content/content.asp?menu=00010100000000_000000_000000 at 24 August 2009.

⁸² South Pacific Regional Environmental Program, *Agreement Establishing the South Pacific Regional Environment Programme (SPREP)* (1993) <http://www.sprep.org/legal/documents/AgreementEstablishingSPREP.PDF> at 24 August 2009.

⁸³ South Pacific Regional Environmental Program, *Fact Sheet: About SPREP* (2008) <http://www.sprep.org/factsheets/pdfs/aboutsprep.pdf> at 24 August 2009.

⁸⁴ South Pacific Regional Environmental Program, *Agreement Establishing the South Pacific Regional Environment Programme (SPREP)* (1993) <http://www.sprep.org/legal/documents/AgreementEstablishingSPREP.PDF> at 24 August 2009, Art. 2.

atmospheric, land based, fresh water and marine pollution through prevention and management.⁸⁵

Although only an intergovernmental agreement, SPREP has goals analogous to OSPAR, seeking to ensure that the coastal States in a region are united under a common agreement to protect the marine environment from dumping and waste discharge. Thus, both Australia and Norway are members of regional treaty agreements that seek to protect the regional marine environ.

Energy Charter Treaty (ECT)

An international instrument influential in petroleum licencing is the Energy Charter Treaty.⁸⁶ This international agreement has its origins in the European Energy Charter Treaty of 1991 (EECT). The ECT contains a declaration of principles for international energy, encompassing diverse areas such as trade, transport and investment in the energy sector.⁸⁷ In addition, Article 18 of the 1994 European Energy Charter Treaty reaffirms the sovereignty of each state to exploit its natural resources.⁸⁸

A distinctive feature of the ECT is that it provides a set of rules covering the whole energy chain, not just investments in production and generation. It also establishes the terms and conditions under which energy can be traded and

⁸⁵ South Pacific Regional Environmental Program, *Agreement Establishing the South Pacific Regional Environment Programme (SPREP)* (1993) <http://www.sprep.org/legal/documents/AgreementEstablishingSPREP.PDF> at 24 August 2009, Art. 2.

⁸⁶ This international agreement contains a declaration of principles for international energy, encompassing diverse areas such as trade, transport and investment in the energy sector. To date there are 80 member countries, including the European Union, Norway and Australia. See *The Energy Charter* (2006) <http://www.encharter.org/index.php?id=5> at 3 April 2007.

⁸⁷ OSPAR Commission, *Principles* (2008) http://www.ospar.org/content/content.asp?menu=00320109000000_000000_000000 at 24 August 2009.

⁸⁸ It states: 'The Contracting Parties recognise State Sovereignty and sovereign rights over energy resources (defined as to include Petroleum). They reaffirm that these must be exercised in accordance with and subject to the rules of international law.' See Bernard Taverne, *Petroleum Industry and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed, 2008), 120-1.

December 2009, EU is one entity. EU, and former EC, regulates the legal situations in the member states through regulations and directives.

An EC Directive is a legislative act of the European Union, arising from the European Commission.⁹³ The Directives require all member States to achieve a particular result, but do not dictate the particular means on how to achieve that result. They are binding upon each Member State as to the result to be achieved, but leaves to the national authorities the choice of form and method of implementation.⁹⁴

The legal basis for the enactment of EC Directives is Article 288 of the *Treaty of the Functioning of the European Union*. EC Directives are harmonizing measures, used primarily in areas where the diversity of national laws could prevent the effective functioning of the European Union. They are distinguishable from EU Regulations, which are directly applicable and demand absolute uniformity.⁹⁵ EC Directives allow a member State flexibility in the implementation of the law.

The primary European Union document related to petroleum exploration and production is *EC Directive 94/22/EC (94/22/EC)*,⁹⁶ which establishes the guidelines for the exploration and exploitation for hydrocarbons in the twenty-seven EU member countries⁹⁷ and three EFTA-countries that are EEA

⁹³ Europa, *The European Commission* (2008) http://europa.eu/institutions/inst/comm/index_en.htm at 24 August 2009.

⁹⁴ *Treaty Establishing the European Community*, Art 249 (3).

⁹⁵ Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 61.

⁹⁶ *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

⁹⁷ The member countries of the EU are Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and The United Kingdom.

members, including Norway.⁹⁸ The *Petroleum Activities Act 1996* (Norway) (PAA) incorporates the requirements of 94/22/EC.⁹⁹ This Directive outlines a number of requisite conditions for petroleum activities, including procedures for the granting of hydrocarbon licences that ensure equality of all participants,¹⁰⁰ and objective criteria for the granting of a hydrocarbon licence,¹⁰¹ requiring the licencing to be advertised in the Official Journal of the EU.¹⁰² The Directive also requires reasons for the rejection of the application to be provided to unsuccessful applicants.¹⁰³

Whilst the EU and its requisite EC Directives are a form of supranationalism,¹⁰⁴ there is an argument that the EU is also a type of Federation.¹⁰⁵ If the current

⁹⁸ The member countries in the EEA are Norway, Iceland and Lichtenstein.

⁹⁹ *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

¹⁰⁰ *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 2.

¹⁰¹ *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 5.

¹⁰² *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 5.

¹⁰³ *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 3.

¹⁰⁴ The EU is a form of supranationalism, where EC supremacy ensures that member states transcend national boundaries or interests to share in the decision-making and vote on issues pertaining to the wider European Community. Without the supremacy of EC law, the institutions would be deprived of supranational effect and uniformity would be sacrificed to national self-interest. See Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 138 and 155. German Foreign Minister Joschka Fisher proposes a 'European Federation' composed of a 'European Parliament and a European government which really do exercise legislative and executive power within the Federation.' This European federation is to be based on a constitutional treaty that regulates, among others, the 'division of sovereignty' between the European institutions and the nation-states. Thus, he distances himself from the concept of a European super-state transcending and replacing the national democracies. See Tanja A. Börzel and Thomas Risse, Who is Afraid of a European Federation? (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer, 1.

¹⁰⁵ See Charles Leben, 'A Federation of Nation States or a Federal State' (2000) *Harvard Jean Monnet Working* © Tina Hunter

structure of the EU is compared to the concept of ‘Federation’ as used in the literature on federalism, the EU looks like and behaves like a federation, with the exception of two features.¹⁰⁶ First, the EU lacks ‘taxing and spending’ power. Second, the Member States continue to be masters of the constitutive treaties.¹⁰⁷ Since the EU exhibits many of the features of a federation, it is possible to compare Norway and its position in the EU with the federalist system of Australia, but there are clearly also great differences in this respect.

Reliance on statutory regulation of petroleum exploitation

Offshore petroleum activities in Norway are primarily regulated by the *Petroleum Activities Act 1996* (Norway) (PAA) and the *Petroleum Regulations 1997* (Norway) (PR). Offshore petroleum activities in Australia are primarily regulated by the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA), and the *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth) (OPAGGSR).¹⁰⁸

Whilst statutory dominance is expected in a civil law jurisdiction such as Norway, it is unusual in common law jurisdictions. However, in order to address

Paper (Symposium), part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer, 1.

¹⁰⁶ Tanja A. Börzel and Thomas Risse, Who is Afraid of a European Federation? (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer, 2.

¹⁰⁷ Tanja A. Börzel and Thomas Risse, Who is Afraid of a European Federation? (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer, 2.

¹⁰⁸ It is important to note that there has been a history of legislative name changes to the Australian offshore petroleum legislation. The initial legislation was the *Petroleum Submerged Lands Act 1967* (Cth). This Act was rewritten and renamed the *Offshore Petroleum Act 2006* (Cth), and entered into force on 1 July 2008. The name of this Act was changed to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) and entered into force on 22 November 2008. For a history of OPAGGSA see <http://www.comlaw.gov.au/ComLaw/Legislation/ActCompilation1.nsf/all/search/B852B89FDB82AECACA25758D001909BD>. The statutory regulation of Australia and Norway is analysed in section 4.2 below.

constitutional and policy issues, a detailed statutory framework has been established for the regulation of petroleum in the Australian jurisdiction.¹⁰⁹

Common functions and requirements

When examining and comparing Norwegian and Australian petroleum legislation and regulation, parallels exist between petroleum activities regulation in each jurisdiction, since each have common internalised functions. In particular, this includes a petroleum legislative framework that comprises acts,¹¹⁰ regulations,¹¹¹ and administrative guidelines in each jurisdiction.¹¹²

Both countries award petroleum licences to participants, and may also stipulate conditions for the award of petroleum licences. Although Norway uses the North Sea model, and Australia the North American model, both jurisdictions use the award of petroleum licences in formal licencing rounds to establish and maintain a relationship between the State and the oil companies during the exploitation of petroleum resources in the concession area.¹¹³ In addition, there are administrative provisions in each jurisdiction for the allocation of petroleum licences outside of these formal licencing rounds. In Norway, this includes the award of licences in pre-defined areas.¹¹⁴ In Australia, this includes the provision

¹⁰⁹ Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 93. The legal framework for petroleum regulation is discussed in greater detail in section 2.5 below.

¹¹⁰ *Petroleum Activities Act 1996* (Norway), and the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

¹¹¹ *Petroleum Regulations 1997* (Norway), and the *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth).

¹¹² For both jurisdictions, these administrative guidelines provide applicants and participants with a wide range of guidelines relating to petroleum activities, including applying for exploration and production licences, field development plans, and decommissioning of structures. These can be found at www.ret.gov.au at 26 August 2009 (Australia), and www.npd.no at 26 August 2009 (Norway).

¹¹³ In Australia licences are awarded under division 2 (ss104-109) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). In Norway this requirement is outlined in s3-5, *Petroleum Activities Act 1996* (Norway).

¹¹⁴ See Norsk Oljedirektoratet, *Mange Søkere til TFO 2008* (2008).

for the award of a licence over a surrendered block.¹¹⁵ In each jurisdiction there is also a requirement for the approval of field development plans prior to the commencement of petroleum production.¹¹⁶ In addition, each jurisdiction requires decommissioning of petroleum structures when petroleum production has ceased.¹¹⁷

The protection and preservation of the environment is critical in both jurisdictions, with participants required to ensure that petroleum operations are carried out in a manner that ensures that environmental harm does not occur.¹¹⁸ Similarly, the protection and preservation of workers safety in petroleum activities is also critical, with both jurisdictions creating a national body that specialises in ensuring the safety of offshore petroleum industry workers.¹¹⁹

It is this commonality in internal regulatory functions that enable direct comparisons to be made between the regulatory frameworks of two jurisdictions of different legal traditions.

¹¹⁵ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s115.

¹¹⁶ In Australia, approval for production is required under s175 *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). Approval is required under s4-2 and s4-6 of the *Petroleum Activities Act 1996* (Norway).

¹¹⁷ In Australia, this is required under s590 *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). This is required under s4-2 and 5-1 of the *Petroleum Activities Act 1996* (Norway).

¹¹⁸ In Australia, this is required under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth), *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), *Environmental Protection (Sea Dumping) Act 1981* (Cth), *Protection of the Sea (Prevention of Pollution From Ships) Act 1983* (Cth) and the *Historic Shipwrecks Act 1976* (Cth). This is required under s1-1, 4-2 and 5-1 of the *Petroleum Activities Act 1996* (Norway), as well as the *Pollution Act 1981* (Norway).

¹¹⁹ In Australia, that body is the National Offshore Petroleum Safety Authority (NOPSA), with safety regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). In Norway the safety regulatory body is the Petroleum Safety Authority Norway (PSA) and is regulated by chapter 9 of the *Petroleum Activities Act 1996* (Norway), and the *Regulations Relating to Health, Environment and Safety in Petroleum Activities* (NPD).

The role of international companies in the exploitation of petroleum resources

Exploitation of petroleum resources is carried out by oil companies, which are often international companies based in Europe or North America.¹²⁰ These companies need to comply with the legal regime and regulatory framework within the country of activity, as well as the legal regime operational within the country of corporate registration. As such, international oil companies are obliged to work within a number of legal regimes to exploit petroleum resources. This largely internationalises the legal requirements of petroleum exploitation, as companies are required to comply with multiple legal systems in numerous jurisdictions.

The level of regulation in petroleum activities for many countries is influenced by the interaction between the State and large international oil companies that wield considerable power. The regulation of petroleum is largely related to the relationship between the international oil companies and the State. This relationship exists in all petroleum producing States, and influences the regulatory system in those States.

1.4 Sustainable development of petroleum resources

A central concept in this thesis is ‘sustainable development’, which is seen as the goal for development of petroleum resources, which the regulatory framework is set to achieve.

‘Sustainable development’ is a principle first defined by The World Commission on Environment and Development (The Brundtland Commission)

¹²⁰ These companies include ENI, Chevron, Exxon, Shell, BP, and Total.

in its report to the United Nations General Assembly.¹²¹ In this thesis, I use the Brundtland Commission definition of sustainable development, which is defined as ‘development which meets the needs of the present without compromising the ability of the future generations to meet their own needs.’¹²² Emphasising the notions of fairness and intergenerational equity, the Commission stated that sustainable development provides ‘successive generations [with] not only man-made wealth but also natural wealth...in adequate amounts to ensure continuing improvements in the quality of life.’¹²³ The concept of sustainable development was recommended as a guiding principle to governments and private enterprises, encouraging all countries to pursue policies aimed at sustainable and environmentally sound development.¹²⁴

Although sustainable development was first applied to the environment, it has been expanded and reaffirmed by the United Nations to encompass three interdependent and mutually reinforcing pillars – economic development, social development and environmental protection.¹²⁵ This is affirmed by the United Nations Development Program (UNDP) and the World Energy Council in its energy assessment, who define sustainable development as ‘energy produced and used in ways that support human development over the long term, in all its social, economic and environmental dimensions’.¹²⁶

¹²¹ *Report of the World Commission on Environment and Development* UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987) <http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007.

¹²² *Report of the World Commission on Environment and Development* UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987) <http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007, 1.

¹²³ *Report of the World Commission on Environment and Development* UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987) <http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007, 1.

¹²⁴ *Report of the World Commission on Environment and Development* UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987) <http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007, 1

¹²⁵ *World Summit Outcomes*, [48] UN GAOR 60th sess. UN Doc A/60/L.1 (2005), [48].

¹²⁶ United Nations Development Program, *The World Energy Assessment: Energy and the Challenge of Sustainability* (2000), 3.

Many oil companies have embraced the Brundtland Commission definition of sustainable development, translating this into a triple bottom line of accountability that meshes business strategy with economic, environmental and social progress.¹²⁷ This triple bottom-line congruence for both companies and the State is reflected in three areas.

First is corporate economic growth, measured in terms of revenue, earnings, and shareholder return, analogous to a State's economic growth based on taxes, royalties, profit-sharing, revenue and access to domestic petroleum reserves to reduce import of petroleum.¹²⁸

Secondly, the triple bottom line comprises environmental stewardship, measured in terms of increased energy efficiency, pollution reductions and mitigation projects.¹²⁹ This is analogous to a State's environmental goals for clean air water and land, and the preservations of valued ecological areas.¹³⁰

Thirdly, it comprises social progress. For the corporation, this is measured in terms of community outreach, human rights and labour standards, and diversity

¹²⁷ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 45.

¹²⁸ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 45.

¹²⁹ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 45.

¹³⁰ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 45.

in the workplace.¹³¹ This is paralleled in a number of United Nations Resolutions, and the social goals of many nations.¹³²

Today, the United Nations specifies that protecting and managing the natural resources base for economic and social development are overarching objectives of, and essential requirements for, sustainable development. Dr Hasna argues that an important outcome in the pursuit of these three pillars is the development of technology.¹³³ Norway has utilised this strategy in the sustainable development of its petroleum resources.¹³⁴ As such, this thesis will consider whether the development of technology is crucial in the sustainable development of petroleum resources.¹³⁵

This thesis does not consider the environmental sustainability of the exploitation of petroleum resources. Rather, it focuses on the social and economic aspects¹³⁶ of sustainable development of petroleum resources. As such, where the term sustainable development is used in this thesis, it refers to maximising the economic and social benefits from the exploration and production of petroleum resources, and not environmental sustainability.

¹³¹ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 46.

¹³² Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 46. An example of such a social goal for a nation is that defined in s1-2 of the *Petroleum Activities Act 1996* (Norway), which requires petroleum to be developed for the benefit of Norwegian society as a whole.

¹³³ Abdullah M Hasna, 'Dimensions of Sustainability' (2007) 2 (1) *Journal of Engineering for Sustainable Development* 47, 49.

¹³⁴ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 11-12.

¹³⁵ This will be considered in Chapter five.

¹³⁶ Economic benefits include, but are not confined to, economic diversification of industry, and the capturing of production cost spending. Social development includes increases in knowledge, development of skills and competence, and increased social welfare.

The legal regime regulating resource exploitation is crucial in encouraging sustainable development of petroleum resources.¹³⁷ The central element of the legal regime for petroleum activity is the regulation of the granting of licences and concessions for the development of that resource. Yet it should also encompass much more. A regulatory regime should incorporate policy factors¹³⁸ and an appropriate taxation system in order to provide economic return to the State.¹³⁹ It should also achieve good governance and transparency in the management of natural resources, in order to contribute to the national and regional economic development.¹⁴⁰

An important consideration in the sustainable exploitation of non-renewable resources is intergenerational equity - how much of a State's endowment of a resource should each generation consume, and how much should be retained in the ground for future generations.¹⁴¹ The question that arises is what the optimal rate of generational exploitation ought to be. This is an economic question, but also raises the legal question how intergenerational equity should influence the regulation of petroleum activities, and what obligations to secure intergenerational equity a national or international law imposes on a State today.

The principles for intergenerational equity and justice arise from Rawls' Theory of Justice, incorporating the 'veil of ignorance'.¹⁴² From the 'original position,'

¹³⁷ Allen K Kneese, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281, 284-5.

¹³⁸ Allen K Kneese, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281, 283-5

¹³⁹ Allen K Kneese, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281, 284-5

¹⁴⁰ Allen K Kneese, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281, 284-5

¹⁴¹ Robert Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141, 141.

¹⁴² Rawls' Theory of Justice arises from the concept of justice as fairness. Under this concept, each person has an equal right to the most extensive basic liberty compatible with similar liberty for others. In addition, the social and economic inequalities are to satisfy two conditions. Firstly, they must be attached to positions and offices open to all, under conditions of fairness, and equality of opportunity. Secondly, the social and economic conditions created

© Tina Hunter

every generation has a duty to preserve resources, since those in the ‘original position’ would not know which generation they were going to be part of.¹⁴³ At the core of this intergenerational equity is the appropriate temporal and spatial distribution of the economic and social benefits associated with the exploitation of a resource.

In his model of exhaustible resources, Solow defines intergenerational equity to mean equal consumption per capita at each date.¹⁴⁴ It requires that the development of resources be managed so that the resource, and the benefits from that resource, are maintained or enhanced for future generations who are not disadvantaged by the exploitation of natural resources.¹⁴⁵ The aim of intergenerational equity is to find a path, after arbitrary initial conditions, which is efficient between generations (inter-temporally efficient), equitable, and does not conflict between equity and efficiency.¹⁴⁶ This is akin to Rawls’ concept of distributive justice.¹⁴⁷

This creates what can be termed intergenerational sustainability, where the development of resources by one generation provides economic sustainability for generations to come. However the concept of intergenerational sustainability is

must ensure the greatest benefit for the least advantaged members of society. Rawls argues that the two principles would be chosen by representative parties in the original position of equality, which corresponds to the state of nature in the traditional theory of the social contract. The principles of justice for the basic structure of society are selected from behind a veil of ignorance. This veil deprives the representatives of information about the particular characteristics (such as wealth and natural abilities) of the parties that they represent. See John Rawls, ‘A Theory of Justice’ in J C Smith and David N Weisstub *The Western Idea of Law* (1983), 479-80.

¹⁴³ Allan V Kneese, ‘The Economics of Natural Resources’ (1988) 14 Supp *Population and Development Review* 281, 299.

¹⁴⁴ S Dasgupta and T Mitra, ‘Intergenerational Equity and Efficient Allocation of Exhaustible Resources’ (1983) 24 (1) *International Economic Review* 133, 133.

¹⁴⁵ S Dasgupta and T Mitra, ‘Intergenerational Equity and Efficient Allocation of Exhaustible Resources’ (1983) 24 (1) *International Economic Review* 133, 133-4.

¹⁴⁶ S Dasgupta and T Mitra, ‘Intergenerational Equity and Efficient Allocation of Exhaustible Resources’ (1983) 24 (1) *International Economic Review* 133, 133-4.

¹⁴⁷ J Rawls, *A Theory of Justice* (1971).

contested,¹⁴⁸ with competing views disagreeing on what exactly needs to be sustained for the next generation, and what intergenerational obligations, if any, intergenerational sustainability imposes on the current generation.¹⁴⁹ Some argue that sustainability requires that future generations be left no worse off than earlier ones,¹⁵⁰ whilst others argue that the needs and entitlements of contemporaries should be weighed against the obligations of sustainability for the future generations.¹⁵¹ The World Commission notes that a balance should be struck between the needs of the people of the present and those of the future, although what that balance is remains controversial.¹⁵² Yet the general problem with intertemporal welfare economics is whether an appropriate concept of intergenerational equity is compatible with the efficient allocation of resources.

The question of how much of a country's endowment of exhaustible natural resources should a generation consume, and how much should be left for generations to come,¹⁵³ raises practical policy questions relating to the allocation and consumption of natural resources.¹⁵⁴ The future generations have no active voice in contemporary decisions, and the decisions have to be made by the current generation.

¹⁴⁸ See Michael Jacobs, 'Sustainable Development as a Contested Concept' in A Dobson (ed) *Fairness and Futurity* (1999) 21-45.

¹⁴⁹ Janna Thompson, *Intergenerational Equity: Issues of Principle in the Allocation of Social Resources Between This Generation and the Next* (2003) Department of Parliamentary Library Information and Research Services, Australian Parliament House. www.aph.gov.au/library at 12 November 2007.

¹⁵⁰ John Pezzey, *Sustainable Development Concepts, An Economic Analysis* (1992) World Bank Environment Paper No. 2.

¹⁵¹ Wilfred Beckerman, 'Economists and Sustainable Development: the OECD Report on Policies for Sustainable Development' (1997) 5 (4) *World Economics* 1, 1.

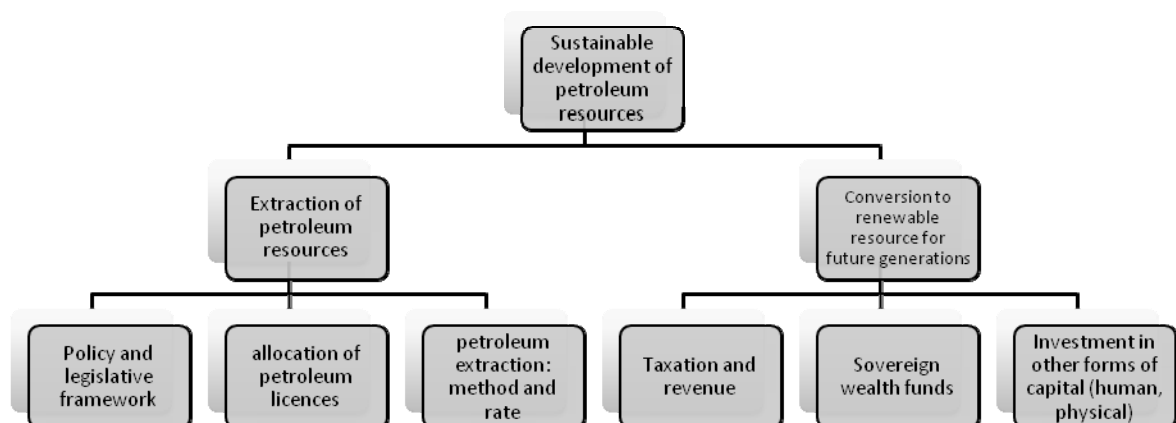
¹⁵² Janna Thompson, *Intergenerational Equity: Issues of Principle in the Allocation of Social Resources Between This Generation and the Next* (2003) Department of Parliamentary Library Information and Research Services, Australian Parliament House. www.aph.gov.au/library at 12 November 2007, 8.

¹⁵³ Robert M Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141, 141.

¹⁵⁴ Robert M Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141, 142.

Dialogue pertaining to the sustainable exploitation of petroleum resources should, out of necessity, include all stakeholders: the State, the community, and oil companies.¹⁵⁵ The outcome of such dialogue should be the development of a coherent policy, which is essential for sustainable petroleum resource development. The role of policy in sustainable development of Australia's petroleum resources is considered in Chapter three.

The sustainable development of non-renewable resources for economic and social development can be divided into two discrete areas: the sustainable extraction of non-renewable resources, and the conversion of non-renewable resources into renewable resources for future generations (figure 1 below).



¹⁵⁵ Alain Dangeard, 'Sustainable Development Indicators for the Minerals Industry: Who Needs Them? What Stakes Justify Producing Them?' in Elizabeth Bastida, Thomas Walde and Janet Warden-Fernandez (ed), *International and Comparative Mineral Law and Policy* (2005) 622.

Figure 1: Sustainable development, encompassing the delineation of non-resource extraction and conversion to renewable resource for the future (compiled by author).

Extraction of petroleum resources can be defined as the production of petroleum from the ground, thereby liquidating the petroleum asset for sale.¹⁵⁶ It is the extraction of petroleum resources that create many economic commercial and technical challenges. Economic challenges arise since by extracting the petroleum, a State depletes a valued resource that cannot be replaced. Once the petroleum is extracted and sold, it is permanently lost.¹⁵⁷ Since these resources are precious, and the development of the resource is permanent, the focus of resource extraction in sustainable development is optimising the extraction of the petroleum to ensure that as much of the resource is recovered. This creates regulatory challenges for the State in how they regulate the extraction of petroleum.

Another issue in petroleum extraction is how to balance the commercial imperatives of the companies that extract the petroleum and the aims of the State in the development of the petroleum resources. This is also addressed through the regulatory framework. Finally, the extraction of petroleum itself creates many technical challenges, as a consequence of field geology complexities and the need to balance the maximisation of extraction with commercial imperatives of companies. In regulating petroleum extraction a State is required to balance the needs of the participants, using technology and regulation to maximise the amount of petroleum recovered from a field, whilst still remaining an attractive province for oil companies. The issues that Norway and Australia have confronted in sustainably extracting petroleum, and the

¹⁵⁶ This can be delineated as upstream petroleum activities. Upstream Petroleum is defined as all of the petroleum activities that occur up to the point of transfer of the petroleum for the transport, sale and refining of the product. It includes exploration and production activities. See <http://www.offshore-technology.com/glossary/upstream.html> at 17 January 2009.

¹⁵⁷ John M Hartwick, 'Intergenerational Equity and the Investing of Rents from Exhaustible Resources' (1977) 67 (5) *The American Economic Review* 972, 972.

regulatory framework that each State has developed in order to encourage sustainable extraction, are the focus of this thesis.

Since the extraction of petroleum lowers the wealth of a country,¹⁵⁸ it is essential that the non-renewable resources be converted to a renewable source of wealth in order to secure the sustainable development of petroleum resources.¹⁵⁹ This is because oil wealth is different from other sources of national income.¹⁶⁰ The income stream from the extraction of oil is resource rent rather than return from reproducible capital.¹⁶¹ Therefore, it is essential to convert the wealth generated from non-renewable resources resource rent to other forms of wealth for future generations.¹⁶² Converting this wealth requires social,¹⁶³ political and economic strategies.¹⁶⁴ This conversion can be accomplished through the development of appropriate taxation strategies that adequately capture the value of the resource rent,¹⁶⁵ the establishment of sovereign wealth funds,¹⁶⁶ and the investment of petroleum wealth in human

¹⁵⁸ Joseph Stiglitz, 'Making Natural Resources into a Blessing rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), 14.

¹⁵⁹ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 174-5

¹⁶⁰ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 180.

¹⁶¹ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 180.

¹⁶² Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 180.

¹⁶³ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 175.

¹⁶⁴ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 178-80.

¹⁶⁵ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 178-80.

¹⁶⁶ For a discussion on the utility of Sovereign Wealth Funds see Tore Eriksen, *The Norwegian Petroleum Sector and the Government Pension Fund – Global* (2006) http://www.regjeringen.no/upload/FIN/Statens%20pensjonsfond/The_Norwegian_Petroleum_Sector_te.pdf at 7 November 2009.

capital and infrastructure.¹⁶⁷ A country can only retain the wealth that petroleum resources bring if it reinvests that income earned through petroleum extraction into capital, be it human, physical or natural capital, to offset the loss of the wealth from natural resources.¹⁶⁸

The optimisation of the extraction of petroleum is the primary focus of sustainable development within the confines of this thesis. Whilst this thesis acknowledges that the sustainable development of petroleum resources necessarily requires the conversion of natural resource wealth to other forms of wealth, conversion of petroleum resources is outside the confines of this thesis.

1.5 Norwegian regulatory framework as benchmark for the evaluation of Australian regulation

The Norwegian regulatory framework is used as benchmark for the Australian system for a number of reasons. Norway was a modern developed State even before it discovered petroleum in the late 60's. The regulatory framework has been developed over short time, but Norway is a State with a long experience in regulating exploitation of natural resources and foreign investments in natural resource exploration in the country.

In developing its petroleum regulatory framework, Norway thus could rely on previous experience of State controlled natural resource development including the control of foreign companies that developed those resources. The petroleum licencing system utilised the principles of the Norwegian natural resource

¹⁶⁷ For a discussion on the conversion of natural capital to human capital see Joseph E Stiglitz, 'Making Natural Resources into a Blessing rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), 16; and Macartan Humphreys, Jeffrey D Sachs, and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007).

¹⁶⁸ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 178-80.

management system that had its roots in the management of hydropower resources in the early twentieth century.

After independence in 1905, a series of laws were passed from 1906, culminating in the *Concession Act 1917* (Norway) (CA).¹⁶⁹ Under this Act, any foreign company wishing to invest in hydropower plants were required to gain approval from the Norwegian parliament.¹⁷⁰ The companies had to comply with certain corporate structure and governance rules, as laid down by the CA, including the use of capital, the price of goods exported, amount of processing required prior to export, the use of Norwegian goods and services, and the relinquishment of property to the State after the expiration of the licence.¹⁷¹

Although the State did not exert control over hydrological resources through ownership of companies developing the resources (Norsk Hydro was established in 1905,¹⁷² and only eight percent of the company was held by Norwegians),¹⁷³ the State nonetheless exerted control through regulation of companies developing the water resources. Whilst the motivation for control over companies exploiting water resources in the early twentieth century was the desire for Norway to retain its recently gained economic and political independence, the concession system was successful in providing the Norwegian State with control over the generation of hydroelectricity.¹⁷⁴ This

¹⁶⁹ Sima Liberman, *The Industrialization of Norway 1800-1920* (1970), Chapter 1.

¹⁷⁰ Sima Liberman, *The Industrialization of Norway 1800-1920* (1970), Chapter 1.

¹⁷¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991) 22-3.

¹⁷² Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 44.

¹⁷³ Norsk Hydro 1905: A New Working Day – 2 December 1905 (2006) <http://www.hydro.com/en/About-Hydro/Our-history/1900---1917/1905-A-new-working-day--2-December-1905/> at 17 March 2009.

¹⁷⁴ The success was primarily attributable to the drive for the modernisation process through ‘State-initiated capitalism’. Under this process the State initiated social and economic development where the free market was subordinate to government institutions and government led development. The Norwegian government utilised the development of hydropower and water resources as the first form of this State-initiated capitalism. See Francis Sejersted, ‘Nationalism in the Epoch of Organised Capitalism – Norway and Sweden Choosing Different Path’ (in Alice Teichova (ed), *Nation, State and the Economy in History* (2003) 106-7.

was particularly important given that Norway was dependant upon foreign capital for the development the hydropower resources.¹⁷⁵

When Norway contemplated the development of a petroleum licencing and concession system in the 1960s, it reflected on its previous experience in the management of its water resources to generate hydroelectricity. In particular, it utilised its experience in managing foreign investment and companies that are utilised to develop the resource. The resulting system of petroleum resource management had been recognised by a number of institutions as best practice.¹⁷⁶ It is acknowledged by the International Energy Authority¹⁷⁷ and scholars¹⁷⁸ that the Norwegian system of petroleum regulation for sustainable development of resources represents best practice. Norway represents a ‘potent example of the successful development of the petroleum sector and surrounding industry’,¹⁷⁹ since it successfully exploited petroleum resources through State

¹⁷⁵ Patrick Salmon, *Scandinavia and the Great Powers 1890-1940* (1997), 38-9.

¹⁷⁶ Organisation for Economic Cooperation and Development, *Economic Survey: Norway* (2005) 11.

¹⁷⁷ See International Energy Agency (IEA), *Energy Policies of IEA Countries – Norway 2005 Review* (2005); Amar Inamdar, *International Best Practice In Sustainable Development* (2002) Government of Papua New Guinea <http://www.mineral.gov.pg/GreenPaper/WorkingPaper8.htm> at 22 December 2008; International Energy Agency (IEA), *IEA Commends Norwegian Energy Policy For Exemplary Management of Resources and Wealth, but Outlines challenges on Climate change and Energy Security*. (2005) http://www.iea.org/textbase/press/pressdetail.asp?PRESS_REL_ID=165 at 21 March 2008. The IEA notes that ‘Norway’s skill in the development of its large oil and gas resources has made Norway Europe’s largest exporter of oil and gas, and is contributing significantly to Europe’s security of supply’. It also noted that ‘The government’s transparent and forward-looking way in which it intends to manage the expected decline is commendable as well as its plans to extend production for as long as possible. It has taken strong action to increase exploration for new fields and to open the industry further to smaller companies. It has also made important progress since the last review in reducing state involvement with the partial privatisation of Statoil. Altogether, Norwegian management of its petroleum resources is an example of best practice for the management of valuable natural resources in a small economy’.

¹⁷⁸ Norway’s petroleum policy and framework is recognised as ‘a potent example of the successful development of the petroleum sector and surrounding industry’, since it successfully combined the development of State- owned Oil Company and international oil companies as it sought to develop petroleum resources whilst transforming the economy and creating an industry. See Richard Gordon and Thomas Stenvoll, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University http://www.rice.edu/energy/publications/docs/NOCs/Papers/NOC_Statoil_Gordon-Stenvoll.pdf at 12 December 2009. 1. In addition see Michael Bunter, ‘A New Approach to Petroleum Licencing’ (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

¹⁷⁹ Richard Gordon and Thomas Stenvoll, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University http://www.gordonenergysolutions.com/files/publications/Statoil_-_A_Study_in_Political_Entrepreneurship--Study.pdf at 12 December 2007, 1.

participation in the exploitation of petroleum. It has exerted State control over petroleum licencing, activities and oil companies, whilst transforming the economy and creating a new petroleum industry.¹⁸⁰ However, it must be noted that as the Norwegian petroleum regulation system matures, there have been a number of weaknesses identified with the system. In particular, the system has been criticised for providing insufficient incentive to develop small, difficult, or high-risk fields.¹⁸¹

Whilst Norway has been recognised as demonstrating best practice in the regulation of petroleum for sustainability,¹⁸² it is acknowledged that the Norwegian system may not be the most suitable for the sustainable development of Australian petroleum resources.

1.6 Challenges in the exploitation of petroleum resources

1.6.1 Introduction

In the introduction in section 1.1, I outlined some of the main challenges for a State that wishes to establish the sustainable exploitation of its petroleum resources. In this section, I will provide a more comprehensive analysis of these challenges.

¹⁸⁰ Richard Gordon and Thomas Stenvoll, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University http://www.rice.edu/energy/publications/docs/NOCs/Papers/NOC_Statoil_Gordon-Stenvoll.pdf at 12 December 2009, 1.

¹⁸¹ Criticism by Farouk Al-Kasim, in Bjorn Rasen, 'Great Regime – But Time for a Revision Says Architect' (2009) 2 *Norwegian Continental Shelf* 7, 8.

¹⁸² Organisation for Economic Cooperation and Development, *Economic Survey: Norway* (2005) 11.

Petroleum has a unique role in the global economy and world energy. The mechanised transportation sectors of all States in the world are dependant upon products derived from petroleum.¹⁸³ This dependence is at the heart of global geopolitical factors that not only transcends economies, but also national borders.¹⁸⁴ In addition, the increased global demand for petroleum,¹⁸⁵ the volatility of petroleum prices¹⁸⁶ and the superprofit realised in the sale of petroleum mean that a difficulty facing States is the rate at which the petroleum resources should be developed. Yet another is how the resource revenue should be integrated into the State's economy so that the revenue generates the greatest benefit for the State, rather than economic harm. How fast the resources are developed, and how a State uses the revenue generated has a major impact on the economy and development of a State. If resources are developed quickly, too much money may be released into a national economy. If this occurs, a State runs the risk of developing resource curse,¹⁸⁷ and will not benefit from the resource revenue.¹⁸⁸

Resource curse (also known as the 'paradox of plenty') is the paradox of a country having an abundance of non-renewable natural resources such as oil and

¹⁸³ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 49.

¹⁸⁴ Jacqueline Lang Weaver, 'Sustainable Development in the Petroleum Sector' (2003) in Adrian Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47, 49.

¹⁸⁵ Petroleum demand has grown every year for the last 20 years, with the first halt in demand occurring in 2008-9 as a result of the global financial crisis. See EIA, *Short Term Energy Outlook 2009-10* (2009) <http://www.eia.doe.gov/steo> at 17 January 2009.

¹⁸⁶ The price of petroleum swung wildly in the years 2004-2008. Crude was priced at around US\$30 per barrel in January 2004, rising to a record high of almost US\$150 in July 2008, and then quickly plummeting to around US\$40 per barrel in December 2008. See oil prices history at EIA, *Petroleum Price Navigator* (2009) <http://tonto.eia.doe.gov/dnav/pet/hist/wtotworldw.htm> at 12 October 2009.

¹⁸⁷ For a discussion on the causes of resource curse, see Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993).

¹⁸⁸ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993), 12-13.

gas, yet failing to achieve economic growth as these resources are developed.¹⁸⁹ Furthermore, often these resource rich countries are characterised by worse development outcomes than similar countries with fewer natural resources. This is hypothesised by Auty to occur due to a number of reasons, particularly the decline in the competitiveness of other economic sectors in the economy, which is caused by the appreciation of the real exchange rate as resource revenues accumulate in the country.¹⁹⁰ Other causes include natural resource revenue volatility due to global commodity market variations, government mismanagement of the allocation of resource licences or contracts, or weak, ineffectual, unstable or corrupt institutions.¹⁹¹

Together these create many other challenges for those States exploiting petroleum, including the non-renewable nature of petroleum,¹⁹² and the physical and technical challenges associated with the extraction of petroleum.¹⁹³

1.6.2 Economic challenges

When petroleum resources are depleted, there is no continuing revenue stream for either the State or the oil companies that exploit the petroleum. Thus, the resource needs to be exploited in a manner that provides financial benefits to both the oil companies and the State during petroleum exploitation. However, it should also provide economic benefits and social development for the State after the resource has been depleted, when the State no longer has the petroleum resources to exploit and earn revenue.

¹⁸⁹ Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 5.

¹⁹⁰ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993) 12-13.

¹⁹¹ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993); Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 5.

¹⁹² John M Hartwick, *Non-renewable Resources: Extraction Programs and Markets* (1989), 115.

¹⁹³ Norwegian Petroleum Directorate, 'Recovering Progress on IOR' (2008) 2 *Norwegian Continental Shelf* 9, 10.

The economic challenge for any State is how to sustainably develop its petroleum resources. To achieve such sustainable development, and to ensure intergenerational stability, wealth and prosperity after the petroleum resource has been exhausted, is a complicated and demanding task. The State needs to develop the social and political institutions and infrastructure to adequately manage the development of the petroleum resource as well as the revenue that is generated from the exploitation of that resource. Many economic factors, both internal and external, may affect a State's capacity to sustainably develop its resources.

The petroleum market

The volatility and uncertainty of the petroleum market, and therefore the revenue stream generated from the exploitation of petroleum is a challenge for States in the regulation of petroleum exploitation activities. Research by the International Monetary Fund (IMF) demonstrates that the oil market exhibits monthly price changes greater than 8%, and there is little evidence of a consistent pattern to oil prices.¹⁹⁴

Coupled with this volatility is the huge value of petroleum in the international market. The petroleum markets generate super-profits of five to ten times the cost of production, making petroleum an important source of income for a State. Indeed, for some States, the petroleum resource comprises the vast majority of the State's income.¹⁹⁵ It also makes petroleum exploitation extremely profitable for oil companies, driving these companies to seek regulatory regimes that enable the profit to be maximised.

¹⁹⁴ Jeffrey Davis, Roland Ossowski, James Daniel and Steven Barnett, *Stabilisation and Savings Funds for Non-Renewable Resources: Experience and Fiscal Policy Implications* (2001), 6.

¹⁹⁵ In 2000, petroleum revenue accounted for over 90% of export earnings. This included Nigeria (99.6%), Algeria (97.2%), and Saudi Arabia (92.1%) Furthermore, for some countries petroleum exports comprised more than 40% of the GDP. This included Bahrain (50.9%), Turkmenistan (493.7%), Nigeria (48.7%), Saudi Arabia, 44.7%), and Trinidad and Tobago (41.1%). In comparison, in the same year, petroleum exports comprised 23.7% of Norway's GDP. See Michael L Ross, *Nigeria's Oil Sector and the Poor* (2003), 19.

The profitability and market volatility of petroleum affects the development of petroleum fields. Generally, the smaller a petroleum field is, the more vulnerable it is to market volatility. When the price of petroleum is high, a small field is more likely to be developed, since the price of petroleum at that time can support the necessary infrastructure and start-up costs for that field.¹⁹⁶ However, when the price of petroleum drops, it is likely that bigger fields, which yield more petroleum compared to infrastructure and start-up costs, are more likely to be developed.

Value of petroleum and extraction of the resource

The usefulness of petroleum resources to society and humanity dictates the value of the resource both insitu and after exploitation. Generally, the more necessary a resource is and the less capacity to synthetically reproduce the resource, the higher the value of the natural resource. The value of that resource will vary, but generally the insitu value of a non-renewable resource is recognised as the best indicator for the scarcity of a resource.¹⁹⁷ Given the increased global demand for petroleum, the volatility of petroleum prices¹⁹⁸ and the superprofit realised in the sale of petroleum, a potent challenge for States is determining when the petroleum should be developed, and when it should be left in the ground. Since once the non-renewable resource is exploited, it is lost forever, and at the same time its undisturbed rate of growth is nil, it is difficult to decide at what rate the exploitation shall take place.¹⁹⁹

¹⁹⁶ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 80.

¹⁹⁷ Myungan Lee, 'Measure of the Insitu Value of Exhaustible Resources: An Input Distance Function' (2006) 62 *Ecological Economics* 490, 490.

¹⁹⁸ The price of petroleum swung wildly in the years 2004-2008. Crude was priced at around US\$30 per barrel in January 2004, rising to a record high of almost US\$150 in July 2008, and then quickly plummeting to around US\$40 per barrel in December 2008. See oil prices history at EIA, *Petroleum Navigator* <http://tonto.eia.doe.gov/dnav/pet/hist/wtotworldw.htm> at 12 November 2009.

¹⁹⁹ Partha Dasgupta and Geoffrey Heal, *Economic Theory and Taxable Resources* (1979) 153, 153.

There are a number of economic models that consider the value and consumption of exhaustible resources. It is important to consider theories of exhaustible resource pricing and consumption since the development of an effective regulatory system necessarily must consider the rate of depletion, to ensure that the resources are developed at a pace that optimises the economic return from the resource.²⁰⁰

Capture of production cost spending

Another economic challenge is how to capture the revenue generated from production cost spending.²⁰¹ This refers to the expenditure made by oil companies in the exploration and production of oil (production costs), when the oil companies purchase goods and services required for the production of petroleum. Often industries in a State are initially unable to provide oil companies with the goods and services they require for oil production, since they do not have the capacity to produce the specialised goods and services required. Where domestic industries do not initially have appropriate goods, services and skills to meet the supply needs of the petroleum industry, the State will fail to capture the economic benefits generated by production cost spending on required goods and services. Instead, the requisite goods and services will be purchased in foreign countries. Therefore, if a State can adequately capture the economic benefits from the exploitation of petroleum by capturing production cost spending, then it is more likely to sustainably develop its petroleum.

If industries within a petroleum producing State have the opportunity and incentive to develop the requisite industrial and technological goods and services required for the production of petroleum, it is possible that economic

²⁰⁰ Partha Dasgupta and Geoffrey Heal, *Economic Theory and Taxable Resources* (1979) 153, 153. These models include Hotellings Rule and Hartwicks Rule, and are considered in Chapter five below.

²⁰¹ The author has defined production cost spending as the expenditure by oil companies on costs associated with the exploration, development and production of oil, and includes both goods and services.

sustainability will occur. This is because economic diversification may enable the State to capture the production cost spending on goods and services oil companies require when exploiting oil resources. Economic diversification creates opportunities for the development of new industries and technologies that not only capture production cost spending in the petroleum value chain, but are also sustainable after petroleum production ceases.²⁰²

This capacity to diversify may be generated through a national procurement policy that favours domestic suppliers, and implemented as part of the award of the petroleum licence.²⁰³ By diversifying, a State creates industries and technologies that are sustainable after petroleum production has ceased. At the same time, it captures the revenue generated by costs associated with the production of petroleum, rather than the revenue flowing to countries external to that State. The impact of economic diversification and the sustainable development of petroleum is considered in section 4.5.3 below.

Avoiding resource curse

Resource curse is a phenomenon where resource-rich countries tend to grow slower (using aggregate output per capita as measure) than similar non resource-rich countries.²⁰⁴ Auty hypothesises that this occurs as a result of a number of reasons, particularly the decline in the competitiveness of other economic sectors in the economy, which is caused by the appreciation of the real exchange rate as resource revenues accumulate in the country.²⁰⁵ Other causes include natural

²⁰² For example the development of steel and concrete technologies in Norway by companies such as *Aker Solutions*. See Ole Andreas H Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No. 20070605, 45.

²⁰³ See Brent F. Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991) for examples of how Norway was able to capture production cost spending through the petroleum licensing rounds, especially from the second licensing round.

²⁰⁴ Erling Røed Larsen, 'Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors' (2006) 65 (3) *American Journal of Economics and Sociology* 605, 608.

²⁰⁵ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993), 15-16.

resource revenue volatility due to global commodity market variations, government mismanagement of the allocation of resource licences or contracts, or weak, ineffectual, unstable or corrupt institutions.²⁰⁶

Resource curse is a surprising, negative relationship between resource wealth and economic growth.²⁰⁷ It is a paradox where a country has an abundance of non-renewable natural resources such as oil and gas, yet fails to have economic growth as these resources are developed.²⁰⁸ The sixteenth century Spanish author Miguel de Cervantes Saavedra first articulated this malady:

... 'the gratification of wealth is not found in its mere possession or in lavish expenditure, but in its wise application.'²⁰⁹

When exploiting its petroleum resources, a State runs the risk of developing resource curse,²¹⁰ and therefore failing to benefit from the resource revenue.²¹¹ The causes of resource curse are complex, and regulatory factors that influence the development of resource curse includes the process of allocation of petroleum licences, the regulation of petroleum activities, the rate and method of resource extraction. It is these factors that may contribute to resource curse that are considered in this thesis. However, there are also many other factors that have a major impact upon whether the exploitation of petroleum resources will lead to a State developing resource curse. These include how much revenue a State

²⁰⁶ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993), 15-16.

²⁰⁷ Erling Røed Larsen, 'Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors' (2006) 65 (3) *American Journal of Economics and Sociology* 605, 607.

²⁰⁸ Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 5.

²⁰⁹ Miguel de Cervantes Saavedra, in Christine Ebrahim-Zadeh, 'Back to Basics - Dutch Disease: Too Much Wealth Manage Unwisely' (2003) 40 (1) *Finance and Development* International Monetary Fund <http://www.imf.org/external/pubs/ft/fandd/2003/03/ebra.htm> at 4 December 2006.

²¹⁰ For a discussion on the causes of resources curse, see Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993).

²¹¹ Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 5.

generates from the exploitation of its petroleum resources, and how a State integrates resource revenue into its economy to ensure the revenue generates the greatest benefit rather than harm. The management of resource revenue is a complex interaction of fiscal management, socio-political factors and government policy, and is outside the confines of this thesis.

Countries that are rich in resources may also suffer from the closely related phenomenon known as Dutch disease. This is an economic illness characterised by factor movement, excess demand, and loss of positive externalities.²¹² This concept was first postulated in the late 1960s when the development of large gas deposits discovered in the Netherlands in the 1950s began to have a negative effect on the Dutch economy.²¹³

In Dutch disease, as resource deposits are developed, the traded goods sector are exposed to foreign competition abroad or domestically, and begins to shrink or disappear.²¹⁴ Resource exports lead to a rapid contraction of the non-resource traded goods sector.²¹⁵ Typically, there is an inflow of foreign capital from resource sector earnings, which increases the domestic money supply. A consumer preference for foreign currency translates into higher demand for non-traded goods, and the real exchange rate appreciates. This then makes the domestic tradable sector less competitive and leads to resource reallocation to the non-tradable sector or in extreme cases to de-industrialisation.²¹⁶ A major consequence of this is that the abundance of a resource renders the export

²¹² Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993).

²¹³ Thorvaldur Gylfason, *Lessons From Dutch Disease: Causes, Treatment and Cures* (2001) Institute of Economic Studies, Working Paper W01:06, 2.

²¹⁴ Erling Røed Larsen, 'Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors' (2006) 65 (3) *American Journal of Economics and Sociology* 605, 607.

²¹⁵ Erling Røed Larsen, 'Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors' (2006) 65 (3) *American Journal of Economics and Sociology* 605, 608.

²¹⁶ Amar Inamdar, 'International Best Practice In Sustainable Development', (2002) Government of Papua New Guinea <http://www.mineral.gov.pg/GreenPaper/WorkingPaper8.htm> at 22 December 2007.

sectors uncompetitive, retarding a resource-abundant countries' ability to successfully pursue export-led growth.²¹⁷

The dramatic increase in a nation's wealth often has adverse consequences on a nation's economy as a result of a large influx of foreign currency, the 'spending effect', and a shift in capital and labour into the production of domestic non-traded goods to meet the increase in domestic demand and the booming oil sector.²¹⁸ This malady has occurred in a number of oil rich nations in the last quarter of the twentieth century, including Mexico, Indonesia,²¹⁹ Nigeria, Venezuela, Bolivia, and Argentina.²²⁰ Often, the State does not have the capacity, capability or incentive to implement good fiscal management, instead choosing to spend the resource income or squander it through corruption. 'Dutch disease,' primarily gains a foothold in nations characterised by political instability, poor governance, weak institutions, corruption and undue influence by external States, compromising or neglecting the rights of the citizens of a State.²²¹

There is the potential for 'Dutch disease' to affect developed nations with newly discovered mineral resources, such as Norway in the 1970s.²²² To counter the

²¹⁷ Jeffrey Sachs and Andrew Warner, *The Curse of Natural Resources* (2001), 835.

²¹⁸ Christine Ebrahim-Zadeh, 'Back to Basics - Dutch Disease: Too Much Wealth Manage Unwisely (2003) 40 (1) *Finance and Development* International Monetary Fund <http://www.imf.org/external/pubs/ft/fandd/2003/03/ebra.htm> at 4 December 2006.

²¹⁹ Norio Usui, 'Dutch Disease and Policy Adjustments to the Oil Boom: A Comparative Study of Indonesia and Mexico' (1997) 23 (4) *Resources Policy* 151, 152.

²²⁰ Thorvaldur Gylfason, *Lessons From Dutch Disease: Causes, Treatment and Cures* (2001) Institute of Economic Studies, Working Paper W01:06, 6-8.

²²¹ For an example of this, refer to the long running battle between the citizens of Nigeria and the Nigerian State which has a long history of corruption, fiscal mismanagement and a blatant disregard for the people: Thomas Baunggaard, *Fiscal Policy in Nigeria: Any Role for Rules?* (2003) International Monetary Fund IMF Working Paper WP/03/155 <https://www.imf.org/external/pubs/ft/wp/2003/wp03155.pdf> at 3 December 2006, 5; Andrew Walker, 'Blood Oil' Dripping From Nigeria (2008) *BBC New* 27 July 2008 <http://news.bbc.co.uk/2/hi/africa/7519302.stm> at 12 December 2008.

²²² Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 11.

effects of oil money in the Norwegian economy, the Norwegian State implemented fiscal policies and regulatory systems to manage the inevitable structural changes in the economy resulting from resource development.²²³ At the core of this fiscal reform was the recognition of the importance of the labour force as the most important asset.²²⁴ To assist in achieving economic balance based on the labour force, sustainable macroeconomic policies encouraging economic diversification were developed alongside a pension and tax system that encouraged the labour force to continue working.²²⁵

There is a concern that the exploitation of non-renewable resources in Australia has led to an increased susceptibility to Dutch disease. The Australian economy has experienced unprecedented growth in the last few decades, as a result of the resources boom.²²⁶ This has brought about a broad-based assumption that the resource-based economy of Australia has successfully diversified whilst retaining a foundation in agricultural exports and minerals.²²⁷ However, this boom may well be a curse in disguise, and the start of the insidious Dutch disease.²²⁸ This thesis will consider the threat of resource curse and Dutch disease in Australia as part of the analysis of sustainable extraction of petroleum

²²³ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 11-12.

²²⁴ Fridjof Berents, *Norway's Management of the Petroleum Revenues* (2006) UNCTAD Expert Meeting on FDI in Natural Resources, 20-22 November 2006 http://www.unctad.org/sections/wcmu/docs/com2em20p007_en.pdf at 3 December 2006, 2.

²²⁵ Fridjof Berents, *Norway's Management of the Petroleum Revenues* (2006) UNCTAD Expert Meeting on FDI in Natural Resources, 20-22 November 2006 http://www.unctad.org/sections/wcmu/docs/com2em20p007_en.pdf at 3 December 2006, 2.

²²⁶ Australian Bureau of Resources, *The Economy and Economic Resources* (2008) [http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1383.0.55.001Main%20Features52008%20\(Edition%201\)?opendocument&tabname=Summary&prodno=1383.0.55.001&issue=2008%20\(Edition%201\)&num=&view=](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1383.0.55.001Main%20Features52008%20(Edition%201)?opendocument&tabname=Summary&prodno=1383.0.55.001&issue=2008%20(Edition%201)&num=&view=) at 12 October 2009.

²²⁷ James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 201.

²²⁸ As postulated in James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 203.

resources in Australia, and whether the regulation of petroleum extraction can mitigate the potential threat.

Fundamental to Norway avoiding resource curse in general, and Dutch disease in particular, has been the prudent regulation of petroleum extraction, coupled with transparency and accountability of government processes.²²⁹ In addition, Norway has been financially prudent, with mandatory saving of resource revenue through the *Government Pension Fund – Global* (formerly the Petroleum Fund).²³⁰ Although the management of resource revenue is essential to avoid resource curse, this thesis will be confined to a consideration of how Norway has utilised the regulation of petroleum extraction to avoid resource curse and Dutch disease. In particular, it will focus on how it is possible to use the award of petroleum licences to encourage economic diversification, and thus stave off the effects of resource-led Dutch disease.

Capture of petroleum revenue

A difficulty facing all States in the exploitation of petroleum resources is balancing the economic interests of the oil companies that are crucial for the exploitation of the resources, with the need for the State to capture appropriate economic returns for the development of its resources. Thus an imperative for any State is to develop a regulatory framework that provides economic incentives for oil companies to exploit petroleum resources, while at the same time capture lasting benefits for present and future generations. Generally, this regulatory

²²⁹ Fridjof Berents, *Norway's Management of the Petroleum Revenues* (2006) UNCTAD Expert Meeting on FDI in Natural Resources, 20-22 November 2006 http://www.unctad.org/sections/wcmu/docs/com2em20p007_en.pdf at 3 December 2006, 2.

²³⁰ Fridjof Berents, *Norway's Management of the Petroleum Revenues* (2006) UNCTAD Expert Meeting on FDI in Natural Resources, 20-22 November 2006 http://www.unctad.org/sections/wcmu/docs/com2em20p007_en.pdf at 3 December 2006, 2.

framework will include a taxation regime that will capture the resource rent in the form of taxation or royalty.²³¹

There is a complex interrelationship between economic benefit and control of the exploitation of the resources, since control may be a method of supervision that secures a part of the revenue for the State.²³² By delegating a portion of control of petroleum exploitation to oil companies, the State is effectively renouncing a certain part of economic rent and control over resources to oil companies that use private capital to exploit these resources. However, the State has the capacity to mitigate through the method of allocation of petroleum licences to ensure it is able to capture the maximum economic rent in the most appropriate manner. Whilst resource taxation regime is outside the confines of this thesis, it will consider how a State can utilise the system of licence allocation to maximise its opportunities to capture economic rent.

1.6.3 Commercial challenges: diverging goals of State and company

Whilst the petroleum is owned by the State, the exploitation of these resources is rarely undertaken solely by the State, since it lacks the competence and skill to develop the resources, and is reluctant to invest public capital into high-risk exploration ventures.²³³ Oil companies, who have the necessary expertise, capital, technology and knowledge to develop essential petroleum resources, generally undertake the exploitation of petroleum resources. Consequently, the exploitation of offshore petroleum resources establishes a symbiotic relationship between a State and private oil companies. Each party requires the other for petroleum

²³¹ Department of Resources, Energy and Tourism, *Resources Taxation Legislation* (2008) <http://www.ret.gov.au/resources/enhancing/taxation/Pages/ResourcesTaxationLegislation.aspx> at 12 November 2008.

²³² Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 20.

²³³ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 19.

exploitation to occur. The oil companies need the State since the State is the owner of the resource the companies wish to exploit. The State requires the oil companies to contribute the financial strength and technology needed to explore the resources, and assume the exploration and production risk.

Therein lies the conundrum. A resource that is owned by the State, linked to military might and economic growth, and capable of generating 'super profits' is largely developed by private companies, whose allegiance is to shareholders rather than the States that own the resources, and entrusted to develop these finite resources for the benefit of the society as a whole. This relationship between State and company is usually one of interdependence with diverging interests, needs, perceptions and demands, since each participant has different goals in the development of the petroleum, yet requires the participation of the other to accomplish their goals.²³⁴ The State's primary focus is to satisfy national objectives as defined in its petroleum policies. Often these objectives are focused on the development of petroleum resources for the benefit of present and future generations.²³⁵ This encompasses the need to generate appropriate revenue for the State from the exploitation of the petroleum resources, but often also includes generating lasting economic benefit and social development, thus requiring the sustainable development of the resources.²³⁶ Unlike the State, oil companies have a single goal. Their aim is to exploit petroleum resources to maximise profit for the company and its shareholders.

This symbiotic relationship yet incongruent goals between the participants involved in the exploitation of petroleum resources creates an enormous

²³⁴ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 19.

²³⁵ An example of this is the Australian Government's stated responsibility to ensure that present and future generations of Australians derive optimal benefit from its petroleum resources. See Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 7.

²³⁶ Deborah J Shields, 'Nonrenewable Resources in Economic, Social and Environmental Sustainability' (1998) 7 (4) *Nonrenewable Resources* 251, 255.

challenge for the State. How does the State regulate petroleum activities to ensure that it generates appropriate socio-economic benefit for the State, as well as establishing appropriate incentives to ensure oil companies are attracted to the petroleum province²³⁷ to develop the resources? The difficulty for any State is to establish a regulatory framework that attracts companies to extract petroleum, enabling them to fulfil their commercial objectives, whilst at the same time developing the petroleum resources in a manner that enables a State to accomplish its socio-economic objectives. An effective regulatory framework is one that reconciles this challenge, uniting the divergent interests of the participants to create a balanced relationship where each of the parties is able to fulfil their objectives.

Where the objectives of one or both of the parties are not being met, then the regulatory framework is not effective. If an oil company's objectives are not being realised, it is possible the company will withdraw from petroleum activities in that jurisdiction, expending its resources in another jurisdiction. The regulatory framework and policies of a State may need to be revised and altered if necessary, in order to enable the requisite oil companies to achieve its commercial objectives.

This conundrum has been illustrated in the Australian jurisdiction. Although Australia sees itself as a competitive location for investment,²³⁸ all participants do not hold this view of Australia as a competitive province. APACHE Energy notes that the current regulatory framework provides impediments to oil company investment in Australia:

‘Australia competes with all other nations to attract upstream oil and gas investment. At all times, irrespective of the level of oil and gas

²³⁷ A petroleum province is defined as a biogeographic division, characterised by particular structural or petrological features. See <http://www.merriam-webster.com/dictionary/province> at 13 January 2009.

²³⁸ Department of Resources, Energy and Tourism, *An Overview For Applicants 2009* (2009), 3.

prices, this competition is fierce. Governments need to be aware that oil and gas companies factor in the costs and risks associated with the regulatory regime when allocating capital.’²³⁹

This thesis addresses how the petroleum regulatory framework balances the objectives of the State and oil companies to achieve sustainable development of petroleum resources for the benefit of the State, whilst remaining an attractive province for oil companies. It assesses Australia’s capacity to balance the objectives of the participants. It also examines how Norway has successfully balanced this relationship through a combination of policy, legislation, the allocation of petroleum licences and the regulation of petroleum field development.²⁴⁰

1.6.4 Technical challenges

It is the extraction of petroleum that provides the economic and commercial benefits for the participants. These economic and commercial imperatives, combined with complex field geology, and recovery of petroleum from increasingly deeper offshore fields, creates numerous challenges for oil companies that extract the petroleum, and the States that own the petroleum. These challenges include increased petroleum production costs, physical difficulties in extracting petroleum as a field matures, and the need to develop fields with complex geologies as ‘easy oil’ fields are depleted.

Therefore, one of the most important requirements is to profitably extract as much petroleum as possible whilst at the same time ensuring the sustainable extraction of petroleum. These technical requirements create additional regulatory challenges for the State as it tries to determine whether, as owner of

²³⁹ APACHE Energy, *Submission to the Australian Productivity Commission of Regulatory Burden on the Upstream Petroleum Sector* (2008) Submission 14 <http://www.pc.gov.au/dissertations/study/upstreampetroleum/initialsubmissions/sub014.pdf> at 16 September 2008.

²⁴⁰ Field Development is regulated using the *Plan for Development and Operation (PDO)*, as required in s4.2 of the *Petroleum Activities Act 1996* (Norway).

the petroleum, it should regulate field extraction methods and use of technology, or should such technical requirements be left to the oil companies that specialise in the extraction of petroleum as their core business.

1.6.5 Regulatory challenges

History of regulation

The majority of the twentieth century has been dominated by government regulation over the ‘commanding heights’²⁴¹ of the economy, those segments and industries in an economy that effectively control and support other segments of the economy. Typical examples of this include oil, railroad, banking and utilities.²⁴² This control over the ‘commanding heights’ has been traditionally exerted through one of two ways: either through ownership of government resources, or through economic regulation of the commanding heights.²⁴³

This traditional concept of government regulation over the important aspects of the economy is largely attributable to John Maynard Keynes,²⁴⁴ although it had its roots in the work of Adam Smith.²⁴⁵ Whilst Smith advocated free markets, he also recognised that in certain areas of an economy, there is legitimacy in certain forms of State intervention. Smith utilised the metaphor of the ‘invisible hand’, describing the sophisticated allocative powers of the free market that ensures that demand and supply for goods and services are constantly kept in

²⁴¹ A term coined by Vladimir Illich Lenin in November 1922 at the Fourth Congress of the Communist International. See Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 12.

²⁴² Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 12-13.

²⁴³ Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 12-13.

²⁴⁴ John Maynard Keynes, *The General Theory of Employment, Interest and Money* (1936), 378.

²⁴⁵ Adam Smith is widely recognised to be the founder of modern economics. He wrote his seminal text *An Enquiry into the nature and causes of the Wealth of Nations* in 1776.

alignment, as a result of the self interested efforts of producers working to meet the demands of consumers.²⁴⁶

The Great Depression and the World Wars had a great impact on global economics, and signalled a shift toward State regulation and nationalisation of the commanding heights of national economies. Keynes, in his great work the *General Theory of Employment, Interest and Money*, advocated State intervention in the economy, to mitigate the adverse effects of economic recessions and depressions, as well as the cyclical nature of business.²⁴⁷ He rebutted neoclassical economic thought that free markets would be able to provide for workers as long as workers were flexible in their wage demands, as advocated by Smith and his devotees.²⁴⁸ Rather, he argued the need for a mixed economy, comprising a predominately private sector, with a role of government to regulate important aspects of the economy. This government control over the ‘commanding heights’ was implemented in the later half of the depression in many developed nations including Australia, the United States and United Kingdom. It was seen as necessary after the destruction of World War II, and deemed efficient and effective until the 1970s.²⁴⁹

During the late 1970s and 1980s the importance of government control of the ‘commanding heights’ receded, primarily as a consequence of expansive, ambitious governments who had become the main player rather than the referee in national economies.²⁵⁰ Globally, governments sought to divest themselves

²⁴⁶ Adam Smith, *The Invisible Hand* (2008), 54-5.

²⁴⁷ John Maynard Keynes, *General Theory of Employment, Interest and Money* (1936), chapter 22.

²⁴⁸ John Maynard Keynes, *General Theory of Employment, Interest and Money* (1936), chapter 22.

²⁴⁹ Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 13.

²⁵⁰ Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 13.

from government owned businesses, such as utility companies, airlines, and railways, turning them over to the marketplace.²⁵¹

This shift away from government control has ushered in a period where the governments own less and plans less, instead allowing the market economy to expand.²⁵² The economic basis of this shift in the role of government in the regulation of the ‘commanding heights’ is grounded in the Chicago School²⁵³ approach to economics, which adheres to free market libertarianism.²⁵⁴ Under the Chicago School approach, Keynesian economic principles were denounced, instead replaced by a faithful adherence to neoclassical economics advocating free markets and minimal government regulation of the economy.²⁵⁵

This shift to neoclassical economics brought a changing role of the government, from participant to regulator in States where the State was owner of many of the commanding heights of the economy. An example of this was Australia in the 1980s and 1990s under the Hawke and Keating governments, systematically selling or deregulating such commanding heights as banking, airlines, and telecommunications.²⁵⁶ Similarly, the United Kingdom, under the control of Thatcher who was heavily influenced by free market economics,²⁵⁷ sold or

²⁵¹ Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 12.

²⁵² Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 13-14.

²⁵³ The ‘Chicago School’ refers to the approach of the members of economics from the University of Chicago’s School of Economics over the last century. More broadly, it refers to a brand of economics which strictly adheres to neo-classical economic theory and free-market libertarianism. See Juan Gabriel Valdes, *Pinochet’s Economists: the Chicago School of Economics in Chile* (2008), chapter 1 for an overview of the Chicago School.

²⁵⁴ Milton Friedman, *Capitalism and Freedom* (1962), 9-10.

²⁵⁵ Milton Friedman, *Capitalism and Freedom* (1962), 9-10.

²⁵⁶ James R Green and David J Teece, ‘Four Approaches to Telecommunications Deregulation and Competition: the USA, the UK, Australia and New Zealand’ (1998) 7 (4) *Industrial and Corporate Change* 623, 623-5.

²⁵⁷ In particular, Thatcher was influenced by Hayek’s warning about the growth of the State and its impact on individual freedom and enterprise in his book *The Road to Serfdom* (1945). For a discussion of this see David Parker, *The History of Privatisation: Volume 1: The Formative Years 1970-1987* (2009), 19-20.

deregulated many commanding heights. This included the denationalisation of national industries such as railways, transport, coal mines and the steel industry,²⁵⁸ and the denationalisation and subsequent sale of the British National Petroleum Company from 1982.²⁵⁹ For the United States, although government role in the commanding heights of the economy was confined to regulation rather than nationalisation, the impact of Reaganomics²⁶⁰ was immense. Regan implemented a program designed to reduce government spending and reduce regulation.²⁶¹ Deregulation of the crude oil occurred in 1981 as a consequence of Executive Order 12287,²⁶² with all crude and petroleum products exempted from price and allocation controls, effective immediately.

The Global Financial Crisis (GFC) of 2009 has been attributed to the fundamental faults of this neo-classical economic paradigm, particularly deregulation, privatisation, and unsustainable debt.²⁶³ The failure of free-market economics implemented in the 1980s, resulting in the deregulation of the financial sector, has been identified as a major causal factor of the GFC.²⁶⁴ Consequently, the issue of government regulation of the banking sector, and

²⁵⁸ David Parker, *The History of Privatisation: Volume 1: The Formative Years 1970-1987* (2009), 17-18.

²⁵⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 159-161.

²⁶⁰ Reaganomics refers to the economic policies of President Ronald Reagan during the 1980's where he advocated a return to free-enterprise principles that had been favoured prior to the Great Depression and the Second World War. See William A Niskanen, *The Concise Encyclopaedia of Economics* (2002) <http://www.econlib.org/library/Enc1/Reaganomics.html> at 12 October 2009.

²⁶¹ William A Niskanen, *The Concise Encyclopaedia of Economics* (2002) <http://www.econlib.org/library/Enc1/Reaganomics.html> at 12 October 2009.

²⁶² United States Congress, *Executive Order 12287 – Decontrol of Crude Oil and Refined Petroleum Products January 28 1981* (1981) <http://www.reagan.utexas.edu/archives/speeches/1981/12881a.htm> at 12 October 2009.

²⁶³ United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009) [http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009.

²⁶⁴ Luci Ellis, *The Global Financial Crisis: Causes, Consequences and Counter Measures* (2009) Reserve Bank of Australia, Paper Presented at the Conference 'Australia in the Global Storm: A Conference on the Implications of the Global Financial Crisis for Australia and its Region' Victoria University, Melbourne 15 April 2009. http://www.rba.gov.au/Speeches/2009/sp_so_150409.html at 12 October 2009.

government regulation in general, has been revisited. The United States and the United Kingdom, great bastions of the free market and government deregulation, have both analysed the need for increased role of government regulation in the banking sector.²⁶⁵ Both concluded that greater regulation of this sector is required,²⁶⁶ with the United States' advisory committee concluding that principle based regulation should be implemented, focusing on effective reduction of systematic risk in the financial sector.²⁶⁷

Regulatory challenges

The historical development of regulation in developed countries has a major impact on the regulation of petroleum activities undertaken by oil companies, and how much the State should exert during the exploitation of resources. Some States, such as Australia, the United States, and Canada, have minimal regulation of petroleum activities, a feature that typifies the North American system of petroleum regulation.²⁶⁸ In this system, the State awards petroleum licences, and enforces the laws and regulations protecting workers and the environment. The

²⁶⁵ The United Kingdom recommended the need for greater government regulation of products and markets in the Turner Review that considered a regulatory response to the Crisis. See United Kingdom Financial Services Authority, *The Turner Review: A Regulatory Response to the Global Banking Crisis, March 2009* (2009) http://www.fsa.gov.uk/pubs/other/turner_review.pdf at 15 October 2009. Similarly, the United States had advocated greater government regulation of the financial sector. See United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009) [http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009.

²⁶⁶ See United Kingdom Financial Services Authority, *The Turner Review: A Regulatory Response to the Global Banking Crisis, March 2009* (2009) http://www.fsa.gov.uk/pubs/other/turner_review.pdf at 15 October 2009, chapter 3, and United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009) [http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009, i-iv.

²⁶⁷ United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009) [http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009, i.

²⁶⁸ In this system, the State awards petroleum licenses, and enforces the laws and regulations protecting workers and the environment. The company is left to exert control over field development, rates of depletion and other issues relating to production. See Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems. A MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 2. For a further discussion of this system see section 1.4.1 below.

company is left to exert control over field development, rates of depletion and other issues relating to production.²⁶⁹

In other states, such as Norway, the North Sea system of petroleum regulation has been developed.²⁷⁰ In this system, the State not only regulates the award of licences, but is also involved in the petroleum exploitation through the scrutiny and approval of oil company activities, the review of oil company activities, and the regulation of petroleum depletion.²⁷¹

The regulatory framework of the LCS enables the State to define the parameters of petroleum exploitation within which the participants operate. The host government is faced with the challenge of regulating its interaction with the oil company in the exploitation of oil resources. In developing these resources, three distinct regulatory challenges arise, and are addressed by this thesis.

Firstly, how does the State utilise the award of petroleum licences to identify and select the best participants to find the petroleum?²⁷² Secondly, how and why does the State establish a contractual agreement with the selected participants, to regulate the relationship between the State and the participating oil companies?²⁷³ In some States, such as Norway, this is governed by the relevant joint venture agreement. In other States, such as Australia, this relationship is administrative, governed by the existing legislative framework of acts and regulations. Thirdly,

²⁶⁹ See Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems. A MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 2. For a further discussion of this system see section 1.3.1 above.

²⁷⁰ The North Sea model refers to the regulatory model developed by Norway in particular (but also by the United Kingdom), for the exploitation of North Sea oil resources, which had its origins in the regulation of hydro resources in Norway since the early twentieth century. See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 23.

²⁷¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁷² Knut Sinding, *Auctions and Discretion in Oil and Natural Gas Licensing* (1999) CEPMLP Publication 1/99, 3.

²⁷³ Knut Sinding, *Auctions and Discretion in Oil and Natural Gas Licensing* (1999) CEPMLP Publication 1/99, 3.

how does the State supervise the exploitation of petroleum resources,²⁷⁴ fulfilling not only the terms of the award of the licence, but also the national objectives of the State for the exploitation of petroleum?

Another regulatory challenge facing a State in the development of its petroleum resources is the unique nature of the petroleum regulatory legal system. Petroleum laws are unique as they require the State to regulate a resource the State not only owns, but also has a vested interest in as licensee, regulator of the resource, and beneficiary of the profits and benefits that exploitation of the resource realises. This creates a complex legal situation since the State's role in the regulation of resource exploitation may conflict with one or some of its other roles in the exploitation of petroleum. Compounding this legal complexity is the multi-national nature of petroleum activities. This conflict occurs as a result of complex contractual arrangements between oil companies, who are subject to national and international laws, treaties and conventions, yet are usually only accountable for operations in their home State.²⁷⁵

Role of the State in regulation

The regulatory role of the State in petroleum exploration and production is critical, creating many regulatory challenges for the State. Without legal institutions to develop suitable regulatory regimes for the exploitation of petroleum, there is a danger that the State will lose control over resource production and revenue, becoming beholden to the petroleum companies that exploit the petroleum.²⁷⁶

²⁷⁴ Knut Sinding, *Auctions and Discretion in Oil and Natural Gas Licensing* (1999) CEPMLP Publication 1/99, 3.

²⁷⁵ See Hans Jarle Kind, Petter Osmundsen and Ragnar Tveterås, 'Critical Factors in Transnational Companies' Localisation Decisions: Cluster and Portfolio Optimisation' in Solveig Glomsrod and Petter Osmundsen, *Petroleum Industry Regulation Within Stable States* (2005), chapter 3 for a general discussion on the multinational nature of oil companies.

²⁷⁶ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

The State, as owner of the resources for the people, assumes control over, and development of, these petroleum resources. A regulatory challenge for the State is how much control should be exerted by the State during the exploitation of the petroleum. There are a number of possible levels of State regulation in petroleum exploitation: *minimal intervention*, *regulatory intervention* and *participatory intervention*.²⁷⁷ One of the greatest regulatory challenges for a State is determining which form of State regulation is suitable for that State. The level of regulation depends on the outcomes that a State is seeking to achieve, and may change over time as the regulatory needs of the State alters in response to economic, commercial, political and technical factors.

With minimal intervention, the State assumes the role of the referee in the exploitation of the resources. The State primarily engages in the enforcement of laws regulating the protection of workers and the environment, as well as regulating the distribution of offshore provinces to oil companies.²⁷⁸ The oil company is left to exert control over field development plans, equipment purchases, production levels and profits.²⁷⁹ In this level of intervention, the State remains content to allow the industry to regulate itself, so long as conflict among the companies is minimal and competition is fair.²⁸⁰ With this type of regulation, it is usually the goals of the oil companies that are paramount, with the State content to be guided by the oil companies' goals and knowledge. It is this form of regulation that Australia currently applies.

²⁷⁷ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁷⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁷⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁸⁰ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

Where regulatory intervention has been implemented, the State assumes the role of overseer of petroleum activities.²⁸¹ The State is not content to merely referee from the sideline. Rather, the State is deeply involved in regulating day-to-day petroleum operations, without actually engaging in those operations. The State intervenes by creating, enforcing and monitoring strict regulations. This enables the State to scrutinise and approve almost every action taken by the oil companies, including regulation (either directly or indirectly) of the rate of petroleum depletion. This form of regulation seeks to balance the interests of the State with the need to maintain the presence of oil companies within the jurisdiction. It was the form of regulation that was adopted by the United Kingdom in the early exploitation of petroleum resources in the North Sea, particularly in the 1960s and 1970s.²⁸²

When a State opts for participatory intervention, the State enters into the petroleum industry as a shareholder and active participant.²⁸³ In adopting a policy of participatory intervention, the State maintains all of its duties as set out in regulatory participation, but also assumes the role of entrepreneur. By entering the industry, the State acquires greater control of the petroleum activities, gaining expertise and inside information, exerting regulatory influence on offshore activities from both inside and out, as well as adding to taxation revenues by turning a profit.²⁸⁴ The Norwegian approach has been to not only highly regulate petroleum activities, but to also participate within petroleum activities on the Norwegian Continental Shelf (NCS) through Statoil and State Direct Financial Interest (SDFI).

²⁸¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁸² This was adopted in the early 1970's in response to voter demands. See Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 9.

²⁸³ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 9.

²⁸⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 9.

Some States, such as Australia, the United States, and Canada currently have a regulatory framework that provides for minimal State regulation, relying instead on market forces. In these jurisdictions, licences are awarded either through work program bidding or monetary bidding, once it has been ascertained that the applicant has the requisite financial and technical capacity to effectively exploit petroleum.²⁸⁵ Once production licences have been awarded, the oil companies are left to control field depletion, relying on market forces and company economic imperatives to dictate the rate and amount of extraction of petroleum.²⁸⁶

With the discovery of North Sea oil reserves, the United Kingdom and Norway considered using the North American model of petroleum regulation to regulate North Sea petroleum. However this model was dismissed, primarily because the auction system gave these governments too little power over the regulation of petroleum activities, particularly through the award of licences.²⁸⁷ Instead, the governments of these States developed a new system of regulation, referred to as the North Sea system of petroleum regulation.

Like the long established North American model of petroleum regulation, the North Sea system of petroleum regulation permits international oil companies to participate in petroleum exploration and production, and transfers ownership of petroleum at the well-head.²⁸⁸ The major distinction between the two systems is the higher level of control exerted by the State in the exploitation of petroleum resources under the North Sea system. This control is exerted in the allocation of petroleum licences, and the development of petroleum fields.²⁸⁹ As part of the

²⁸⁵ For the award of licences in Australia, refer to ss104-109 of the *Offshore Petroleum and Greenhouse Gas Exploration Act 2006* (Cth). A detailed analysis of the award of petroleum licences is found in Chapter four below.

²⁸⁶ The capacity of the Commonwealth to regulate the depletion of a field is regulated under Part 2.4 of the *Offshore Petroleum and Greenhouse Gas Exploration Act 2006* (Cth). This company control of field depletion is analysed in Chapter five.

²⁸⁷ Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980), 32.

²⁸⁸ Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980), 33.

²⁸⁹ In Norway this is regulated under s3-3 and 3-5 of the *Petroleum Activities Act 1996* (Norway).

award of a petroleum licence, the State not only selects the joint venture (JV) participants for a licence, but also selects the operator.²⁹⁰ The State also regulates petroleum exploitation through the scrutiny, approval and review of oil company activities, and the regulation of petroleum depletion.²⁹¹ These two regulatory challenges will be considered in Chapters four and five respectively.

The State as a regulator has a responsibility to establish, maintain and enforce a suitable regulatory system for the exploitation of oil resources, ensuring adequate control over petroleum production, producers and the environment. This regulation is justified since a State regulatory regime can often do what the market cannot.²⁹² Often market forces and private law cannot provide an effective solution to ensure the sustainable development of petroleum resources, particularly where there has been a failure of the market.²⁹³ In instances such as these, there is a prima facie case for regulatory intervention in the public interest.²⁹⁴ It is important to note that the regulatory solution may be no more successful in correcting the inefficiencies of the market or private law.²⁹⁵

The Norwegian petroleum resource management model seeks to balance the competing interests of the participants. The regulatory framework enables companies to maximise profits, as well as incentives for oil companies to fulfil the States objectives.²⁹⁶ Through direct State financial participation in

²⁹⁰ *Petroleum Activities Act 1996* (Norway), s3-7.

²⁹¹ *Petroleum Activities Act 1996* (Norway), Chapter 4. See also Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8.

²⁹² Anthony Ogus, 'Regulation' (2004) in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 18.

²⁹³ Anthony Ogus, 'Regulation' (2004) in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 18.

²⁹⁴ Anthony Ogus, 'Regulation' (2004) in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 18.

²⁹⁵ Anthony Ogus, 'Regulation' (2004) in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007), 18.

²⁹⁶ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 19.

petroleum activities²⁹⁷ and the taxation system, the State receives a substantial portion of the petroleum revenue.

In this thesis I will examine whether Australia's petroleum regulatory system promotes sustainable development of petroleum resources. I will also examine whether the Norwegian framework has been successful in the sustainable development of petroleum resources, and whether the Norwegian regulatory experience can provide lessons for Australia.

1.6.6 Challenges in exploiting petroleum resources in Australia

Australian offshore petroleum is characterised by vast unexplored offshore basins, located in the southern hemisphere and remote from European and American markets and resources.²⁹⁸ As Australia's known petroleum resources are depleted, there is a pressing need to discover and exploit new resources to ensure Australia's future petroleum and energy security.²⁹⁹ This places a new set of challenges on the Australian government for the regulation of its petroleum resources.

Australia has traditionally approached the challenge of economically sustainable petroleum resource exploitation by providing a policy and legal framework designed to promote investment and attract investors to the Australian petroleum

²⁹⁷ Direct State participation is undertaken through the State Direct Financial Interest (SDFI), presently managed by and awarded to the State-owned management company Petro. This is an arrangement whereby the State is awarded interests in a number of fields (at the time of award of licence), pipelines and onshore facilities. This take varies from field to field and is essentially dependant on the likely profitability of the field. As one of the participants in the field, the State pays its share of the investments and costs, and receives a corresponding share of income from the production licence. See Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 25. See section 4.5.3 below for a discussion on the role of the State in petroleum activities.

²⁹⁸ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008), 9-13.

²⁹⁹ Department of Resources, Energy and Tourism, *Energy Security* (2008) http://www.ret.gov.au/energy/energy_security/Pages/EnergySecurity.aspx at 2 October 2008.

provinces.³⁰⁰ This is characterised by the Australian approach of minimal intervention in petroleum exploitation, the use of the work program bid system in awarding petroleum licences, and retention titles that allow acreage to be reserved by companies for later development when they become commercially viable fields.³⁰¹ To date, Australia's legislative framework encourages oil companies to largely regulate themselves in relation to field development and depletion.³⁰² However, in order to sustainably develop Australia's petroleum resources, there may be a need for alteration to the current regulatory framework. This will be considered in detail in Chapter four.

1.7 Thesis structure

This thesis comprises six chapters.

Chapter one provides an introduction, thesis statement, methodology, and background to challenges in petroleum regulation.

Chapter two provides a comparative analysis of Australia and Norway, which is essential if the petroleum regulatory systems are to be compared. Firstly, I examine the role and importance of petroleum in each jurisdiction, including the parallel history of petroleum exploitation in each State. I then compare a number of indicia of each country, including the political system, legal framework,

³⁰⁰ This policy framework will be comprehensively explored in section 2.6 below.

³⁰¹ Department of Resources, Energy and Tourism, *Release of Offshore Petroleum Exploration Areas Australia 2008: An Overview for Applicants* (2008) <http://www.ret.gov.au/Documents/acreagereleases/2008/site/page2.htm> at 12 June 2008.

³⁰² This is demonstrated in s161 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) which confers upon the licensee the right to recover petroleum and to carry on such operations (s161 (1) (a)) and execute such works in the licence area as necessary for the purpose of exploring for and recovering petroleum (s161 (1) (d)). Furthermore, the Australian government notes that it neither undertakes petroleum projects nor engages in commercial exploration or development. Rather, it establishes the macroeconomic environment and provides a regulatory framework for exploration, development, safety, environmental assessment and revenue collection. See also Department of Resources, Industry and Tourism, *An Overview for applicants: Australia 2009 Release of Offshore Petroleum Exploration Areas* (2009) 10.

economic structure and petroleum policy of the two countries. The intention of this comparison is to demonstrate the capacity to compare the petroleum regulatory frameworks of these two developed States, based on their socio-political and economic similarities, as well as their similarities in regulating petroleum. Furthermore, I provide an analysis of Australia's petroleum policies, seeking to identify whether the current policy framework has weaknesses, thereby discouraging sustainable development of petroleum. As part of this analysis, I examine the petroleum framework of Norway, using the example of Norway's petroleum policy framework to suggest changes in Australia's petroleum policies that will encourage the sustainable development of petroleum resources in Australia.

Chapter three considers the current regulatory framework for the exploitation of Australian and Norwegian petroleum. In this chapter I examine the legislation pertaining to petroleum exploitation in Australia, to identify if there are shortcomings in the current petroleum legislation that prevent the sustainable development of petroleum. To determine whether shortcomings are present, I examine the prescriptive, rule based nature of Australia's legislation. I also consider how the use of principle based legislation, such as that used in Norway and South Australia, could encourage sustainable development of petroleum resources.

In Chapter four I focus on the allocation of petroleum licences. I analyse the award of licences in the Australian and Norwegian regulatory frameworks, focusing on the award of licences under the discretion system and the work program bid system. I compare whether the award of licence through the bid system or the discretionary system is more likely to encourage sustainable development of petroleum resources. I also analyse whether the discretionary award system would be beneficial in optimising Australian petroleum development, and achieving national petroleum objectives in Australia.

In Chapter five I consider the role of the State in the regulation of production from petroleum fields. I examine whether State regulation of the method and rate of petroleum production and ongoing field assessment enables the State to optimise petroleum exploitation and achieve policy objectives. In this chapter I also examine how a State's ongoing regulation and legislative requirement for maximising production can contribute to technologies that result in higher production levels, and are transferable to other industrial sectors. I assess the regulation of production of petroleum in Australia to determine whether the level of control optimises petroleum production, thus ensuring sustainable development of petroleum resources in Australia.

In Chapter six I provide a conclusion to the thesis.

2. Comparing Petroleum Producing Countries: Australia and Norway

2.1 Introduction

In chapter 1.3 above, I discussed the general problems of comparative legal research. When comparing the petroleum regulation in two countries differences in the political systems, economy and resources base, and legal system can influence the regulation of a State creating ongoing consequences from that regulation.

The purpose of this chapter is to compare these two jurisdictions. It will compare both general domestic systems, as well as petroleum specific issues. In this chapter I will examine economic, political and social differences between Australia and Norway, discussing their similarities and differences, thereby providing a background for the influence of these incongruities or similarities on legal comparisons. Firstly, I will examine the role and importance of petroleum in both countries, demonstrating many similar issues affecting the sustainable exploitation of petroleum resources. I will also demonstrate how both countries are sufficiently similar in their legal, social justice and welfare, economic and political systems to enable comparisons of the two petroleum regulatory systems. I will then outline the development of petroleum policy in Australia and Norway, including the parallels and divergences in petroleum policy in each country. Finally, I will analyse the petroleum policy of Australia, to determine if the petroleum policy of Norway can provide any lessons for Australia to encourage the sustainable development of petroleum resources.

2.2 Petroleum in Australia and Norway

Petroleum does not play the same role in Australian economy and society as a whole as in Norway. Australia is not a player in the global petroleum market. It has proved petroleum reserves of 4.2 billion barrels (bbl), only 0.3% of the total global proved reserves.³⁰³ However, petroleum is an important part in the Australian economy.³⁰⁴ The upstream petroleum sector contributes 2% to Australia's GDP,³⁰⁵ directly employing 15,000 people with a further 20,000 employed indirectly.³⁰⁶ The export of petroleum products (including LNG) was the second largest income earner in 2006, behind coal.³⁰⁷ Importantly, LNG exports are increasing rapidly, from \$5 billion in 2006 to an estimated \$8.5 billion by 2011.³⁰⁸ As a source of import expenditure, crude oil is Australia's largest import in dollar terms, approximately 6.2% in 2006.³⁰⁹

Australia has been in a petroleum trade deficit position since 2003/04, which could rise to exceed \$20 billion per annum within the next decade if new reserves of petroleum are not found and exploited.³¹⁰ Australia is currently

³⁰³ As at end of 2008, as defined in BP, *BP Statistical Review of World Energy June 2009* (2009), 6.

³⁰⁴ Given the size of Australia and the geographical distribution of people, fuel oil is extremely important in Australia. This accounts for the high level of consumption of oil per capita (2.25-3 tonnes per capita per annum) trailing only North America and Saudi Arabia. See *BP Statistical Review of World Energy June 2009* (2009), 13.

³⁰⁵ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Productivity Commission Draft Report, XXI.

³⁰⁶ APPEA, *Fast Facts* (2008) http://www.appea.com.au/index.php?option=com_content&task=blogcategory&id=175&Itemid=295 at 29 January 2009.

³⁰⁷ APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007), 4.

³⁰⁸ APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007), 4.

³⁰⁹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Productivity Commission Draft Research Report, 12.

³¹⁰ APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007), 4.

around 70% sufficient in the primary production of crude oil,³¹¹ experiencing a major petroleum deficit in 2007/8. In the same period, Australia exported 100.6 million bbl of crude oil and condensate and imported 163.5 million bbl for refinery feedstock. Similarly, imports of petroleum exceeded exports by 33%, with exports of petroleum and petroleum products valued at \$20 billion, while imports were valued at \$30.4 billion.³¹²

In contrast to Australia, Norway is a large player in the global oil market. It has 60 fields in production, producing 2.5 million bbl and 99.3 billion standard cubic metres (scm) of gas per day.³¹³ It is the third largest petroleum exporter, and sixth largest petroleum producer, accounting for approximately 5% of the world crude market.³¹⁴ Petroleum is an important part of the Norwegian economy, comprising 26% of GDP, 34% of State revenue, 23% of total investment and 50% of total exports.³¹⁵ The sector directly employs about 130,000 people.³¹⁶ The petroleum activities have significantly contributed to the financing of the Norwegian welfare State. Through forty years of petroleum activities, the industry has created values in excess of 7000 billion NOK (approx A\$ 1400 billion) in current terms.³¹⁷

Whilst Norway accounts for less than 0.1% of the global population, its economic importance is greater than its population indicates. Foreign trade

³¹¹ Department of Resources, Energy and Tourism, *An Overview for Applicants 2009* (2009) http://www.ret.gov.au/resources/Documents/acreeage_releases/2009/OverviewForApplicants.pdf at 25 August 2009, 4.

³¹² APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007), 4.

³¹³ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 14.

³¹⁴ Ministry of Petroleum and Energy, *Facts 2009: The Norwegian Petroleum Sector* (2009), 14.

³¹⁵ Ministry of Petroleum and Energy and Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 14.

³¹⁶ Ministry of Petroleum and Energy and Norwegian Petroleum Directorate, *Facts 2008: The Norwegian Petroleum Sector* (2008), 14.

³¹⁷ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 14.

amounts to approximately 37% of Norway's GDP, and Norway is among the world's top five exporters in the seafood, crude oil and shipping services sectors.³¹⁸ Norway also enjoys considerable market share of the light metals, ship equipment, and maritime classification, consulting and marine insurance services.³¹⁹

Crude oil, natural gas and pipeline services accounted for half of the value of Norwegian exports in 2009, earning approximately AU\$120 billion (fifteen times the value of fish exports), not including the export of petroleum related goods and services.³²⁰ In the petroleum industry, technology and information are increasingly important. Goods and services exports from this sector are also significant.³²¹ Norwegian service exports increased to around AU\$35 billion in 2004, and now accounts for almost half of service-oriented export revenues, with the other half comprising commercial and financial services and other petroleum-related services.³²²

2.2.1 Petroleum fields and production

Australia's petroleum resources are a mix of mature fields³²³ and frontier regions.³²⁴ Australia has some mature fields, particularly the Gippsland and

³¹⁸ *Norway in International Trade* (2009) <http://www.norway.org/aboutnorway/economy/trade/general/> at 22 December 2009.

³¹⁹ *Norway in International Trade* (2009) <http://www.norway.org/aboutnorway/economy/trade/general/> at 22 December 2009.

³²⁰ Norwegian Petroleum Directorate, *Facts: The Norwegian Petroleum Sector 2006* (2009), 15.

³²¹ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 14.

³²² *Norway in International Trade* (2005) <http://www.norway.org/policy/trade/trade/general.htm> at 22 December 2006.

³²³ A mature field is defined as a field that have been extensively explored and high levels of production occur in these areas. Characteristics of mature areas include familiar geology, fewer technological challenges and well-developed infrastructure. See Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 30, and Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 882.

Otway Basins in South-Eastern Australia.³²⁵ There are large tracts of frontier areas, particularly in North-Western Australia. This is a result of the successful submission for jurisdiction over an additional 2,500,000km² of continental shelf, confirmed by the United Nations Commission on the Limits of the Continental Shelf in April 2008.³²⁶ This area requires extensive exploration to realise possible petroleum reserves.³²⁷

The Norwegian Continental Shelf is also characterised by mature provinces with highly developed infrastructure and declining fields.³²⁸ Norway also has a number of frontier areas, particularly the Barents Sea area in northern Norway. Given the territorial, geological and political challenges in developing these areas, the Norwegian Parliament has released a management plan for petroleum activities in the area.³²⁹ As such, Norway faces a similar need for resource management of mature fields as well as frontier tracts. Both jurisdictions require a resource management and development strategy that encompasses

³²⁴ Frontier regions are characterised by little geological knowledge or data, significant technical challenges, and a lack of infrastructure, see Finn Arnesen, *et. al.*, 'Energy Law in Norway' (2007) in M Roggenkamp, *et. al. Energy Law in Europe* (2007) , 882. These areas have high levels of uncertainty, although there are still possibilities of making substantial discoveries. See Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 30.

³²⁵ Department of Resources, Energy and Tourism, *An Overview for Applicants 2009* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009, 8.

³²⁶ Geoscience Australia, *Australia's Maritime Jurisdiction Extended* (2008) <http://www.ga.gov.au/ausgeonews/ausgeonews200806/inbrief.jsp> at 31 January 2008.

³²⁷ Department of Resources, Energy and Tourism, *An Overview for Applicants 2009* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009, 8.

³²⁸ In particular the North Sea area, south of 62°N. Exploration activities in this area include the award of licences in special licencing rounds to ensure that there is access to critical infrastructure before the end of the life of that infrastructure. The areas awarded are tailored so that companies get the acreage when they have specific production plans, ensuring that maximum recover of petroleum occurs. See Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 31-33.

³²⁹ Norwegian Storting, *Comprehensive Management Plan for the Marine Environment and the Waters off Lofoten* (2006) Storting White Paper No. 8 (2005-6). This plan presents the framework for petroleum activities in the area, establishing guidelines for the location of petroleum activities. Petroleum licences in the 20th Licensing round were awarded on the basis of this management plan. See Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 35.

these differing areas with the aim of sustainable development of petroleum resources.³³⁰

As noted by the Australian Productivity Commission, Australia's petroleum resources are in decline, leading to a likely decrease in the economic contribution of petroleum to the Australian economy.³³¹ As production declines and imports increase, Australia will need to import a greater percentage of its petroleum for energy use. Like Australia, Norway is characterised by declining petroleum resources, with petroleum forecasts indicating a sharper production decline than first anticipated.³³² This is attributable to less production from known resources, fewer new discoveries ready for development, and reserves that remain to be proven.³³³

Both Australia and Norway face challenges in extracting petroleum resources in declining fields in order to meet its economic needs. Additionally, both nations seek energy security. For Australia, that is security of supply. Similar to the USA who is also a net petroleum importer, Australia is vulnerable to sources of supply for petroleum, particularly at a time where 61% of all global petroleum supplies are contained in the politically unstable Middle East region.³³⁴ Thus there is an imperative for both Norway and Australian States to maximise their extraction of petroleum.

A major objective for Australia is to increase petroleum production to ensure that it does not have to continue to import high levels of petroleum to meet

³³⁰ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 11.

³³¹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 83.

³³² Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 6.

³³³ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 1.

³³⁴ BP, *BP Statistical Review of World Energy June 2009* (2009), 6.

domestic energy needs. To meet this objective, Australia needs to maximise the recovery of petroleum, since the greater the recovery of resources, the greater the economic contribution of the petroleum sector to Australia. This concept, known as value creation, means that the extraction of petroleum resources is directed by the State to ensure that the greatest value and benefit of the petroleum resources are extracted for the benefit of society. The concept of value creation in the exploitation of petroleum resources is not new. It is a part of the petroleum regulatory framework in Norway, and the concept of value creation directs all Norwegian petroleum activity.³³⁵

2.2.2 Development of petroleum regulation

Offshore petroleum was discovered in Norway in 1969. Prior to the establishment of the first Norwegian production well, the Norwegian government consulted with industry, investment, business, government, international colleagues and experts to establish a suitable framework for Norwegian petroleum exploration and production.³³⁶ From the outset, there had been an emphasis on a high level of State participation, with the establishment of Statoil (State Oil Company) in 1972 and the development of a legal regime to support the development of national industries.³³⁷

Norwegian Petroleum policy has developed and maintained a focus on the development of petroleum resources for the benefit of present and future generations. That focus for petroleum resource development continues today, and is reiterated in Norwegian petroleum legislation, where petroleum is developed in a manner that ensures all of the society benefits, but that

³³⁵ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 11.

³³⁷ Kenneth W. Dam, *Oil Resources: Who Gets What How?* (1978), Chapter 4.

³³⁷ Kenneth W. Dam, *Oil Resources: Who Gets What How?* (1978), Chapter 4.

development does not occur to the detriment of other sectors of Norwegian society. Rather, other sectors of Norwegian society are enhanced.³³⁸

Norway has established and maintained a controlled development of the petroleum sector through the licencing concession system and strong government participation and regulatory control.³³⁹ Correspondingly, Norwegian industry and infrastructure has similarly developed in a controlled manner, as a consequence of a favourable procurement policy during the first twenty five years of petroleum development and government policies, which required partnerships between foreign and domestic companies, as well as making research programs mandatory.³⁴⁰

Natural resource development in Norway encompasses a combination of competent licencing, the development of related and supporting industries, and investment in infrastructure and human capital.³⁴¹ Since the early 1970s, national management and State participation have been key factors in Norwegian oil and gas policy.³⁴² This participatory role of the Norwegian State has been acknowledged as critical in the successful development of the petroleum industry.³⁴³

Since the early 1970s an advantageous economic position was created for Norwegian companies by the implementation of mandatory domestic

³³⁸ *Petroleum Activities Act 1996* (Norway), s1-2.

³³⁹ Kenneth Dam, *Oil Resources: Who Gets What How?* (1978), Chapter 4.

³⁴⁰ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁴¹ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

³⁴² Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

³⁴³ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

procurement of goods and services for petroleum production.³⁴⁴ Conditions attached to the award of petroleum licences since the second licencing round in 1972 have enabled the development of Norwegian industry. These conditions required the use of local goods and services, thereby largely protecting Norwegian companies from 1972 to 1994.³⁴⁵ During this period, the award of goods and services contracts, favoured the Norwegian applicant, since Norwegian tender was calculated as *value added* (in manpower and monetary terms). This meant that even if the Norwegian tender was greater than other tenders (up to 10%), the Norwegian bidder was awarded the contract.³⁴⁶ This linking of licencing and the economic development of Norwegian industries, services and skills has been seen as fundamental in the success of the Norwegian petroleum industry, both domestically and internationally.³⁴⁷

Experience within, and commentary on the development of the Norwegian petroleum industry demonstrates that concurrent industry and petroleum production development can generate immense wealth and ensure economic sustainability for the society that owns the natural resource.³⁴⁸ Additionally, the Norwegian petroleum regulatory system has demonstrated that engaging local industries, resources and skills is essential for successful, long-term resource development.³⁴⁹ Where this occurs, such as in Norway, there are greater direct,

³⁴⁴ This was mandated in the Royal Decree of 8 December 1972. It included a provision that required licencees to use Norwegian offshore supplies when 'competitive' with regard to price, quality and schedule of delivery. See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 71.

³⁴⁵ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁴⁶ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁴⁷ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁴⁸ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁴⁹ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

individual, financial and other benefits to a society than if petroleum resource exploitation is undertaken in isolation, without the development of associated industries and infrastructure at the same time.³⁵⁰ Consequently, it is generally recognised that the Norwegian petroleum licencing system is one of the most successful regulatory frameworks employed for the sustainable exploitation of natural resources.³⁵¹ The Norwegian petroleum licensing framework is considered in Chapter four.

Similar to Norway, offshore petroleum resources were discovered in Australia in 1965, with petroleum production commencing in 1969.³⁵² Australia also utilised the licencing and concession system in petroleum exploitation. In Australia, petroleum resource exploitation has occurred against a backdrop of changes in the focus of petroleum policy. This has largely been the result of changes in government, and a response to market forces.³⁵³

Since the commencement of petroleum production in 1969, there have been little economic diversification policies in Australia. Rather, policy has placed an emphasis on attracting international oil companies to undertake petroleum exploration and production.³⁵⁴ There has been some attention to upstream issues, particularly in relation to the Commonwealth's provision of funding for pre-competitive geoscience data in offshore Australia.³⁵⁵ In response to the

³⁵⁰ Øystein Noreng, *Norway: Economic Diversification and the Petroleum Industry* (2004) Middle Eastern Economic Survey <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 19 September 2009.

³⁵¹ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

³⁵² Esso/BHP, *Bass Strait Oil and Gas* (2002) http://www.exxonmobil.com/Australia-English/PA/Files/publication_2002_BassStrait.pdf at 2 August 2007, 3.

³⁵³ For changes in policy and government over the last forty years, and its impact on petroleum exploitation in Australia, refer to Section 2.6 below.

³⁵⁴ Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 4.

³⁵⁵ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008), 4.

implementation of National Competition Policy in Australia in the 1990s, there was a review of the offshore petroleum sector.³⁵⁶ More recently, recognition by the Australian government that there are considerable regulatory burdens in the upstream offshore petroleum sector has led to a Productivity Commission inquiry into the industry.³⁵⁷

2.3 The State as owner of petroleum resources

The prevailing rule in petroleum resource management is that ownership of petroleum resources insitu is vested in the State.³⁵⁸ The exception to this is found in onshore petroleum resources in the US, where the law of capture applies. Under this rule, the owner of a tract of land acquires title to the oil and gas.³⁵⁹

As owner of the petroleum, the State has a responsibility to ensure that the resources are developed for the benefit of the citizens.³⁶⁰ Therefore, it is the role of the State to assert control over the development of the resources to maximise the economic and social benefits for the State and its citizens, while ensuring the least possible environmental harm.³⁶¹ This control is asserted by

³⁵⁶ This was completed by ACIL Pty Ltd, and the Petroleum (Submerged Lands) Review Committee. The outcomes of this review have been published in the Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000).

³⁵⁷ See Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008) http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008.

³⁵⁸ Anis Al Qasem, *Principles of Petroleum Legislation* (1985), 17.

³⁵⁹ Howard R Williams, Richard C Maxwell and Charles J Meyers, *Cases and Materials in the Law of Oil and Gas* (1956), 19.

³⁶⁰ This responsibility is articulated at an international level in Article 1 of United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, *Permanent Sovereignty Over Natural Resources*. Adopted by General Assembly Resolution 1803 (XVII) of 14 December 1962.

³⁶¹ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo, and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 895-6.

establishing, maintaining and enforcing a regulatory framework for the exploitation of petroleum resources. This framework should assert adequate control over petroleum production, the producers (the participants), and the environment,³⁶² whilst at the same time seeking to implement national petroleum objectives.

All mineral and petroleum resources in Australia are owned by the State. This is reiterated in State onshore petroleum legislation (for example in section 9 of the *Petroleum Act 1923* (Qld)), although this is not expressly stated in the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA). Sovereign rights in respect of exploring and exploiting the natural resources of the Australian Continental Shelf are vested in and exercisable by the Crown in right of the Commonwealth under the *Sea and Submerged Lands Act 1973* (Cth) (SSLA).³⁶³ Furthermore, the Commonwealth government accepts responsibility to ensure that present and future generations of Australians derive optimal benefit from its petroleum resources.³⁶⁴

The right to petroleum resources in the United Kingdom is vested in the Crown, conferring upon the State the exclusive right to explore for and produce petroleum.³⁶⁵ This includes the right to petroleum that lies in the substrata of the Territorial Sea,³⁶⁶ as well as the Continental Shelf of the United Kingdom.³⁶⁷

³⁶² Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8-9. For a detailed discussion of the respective roles of the state in petroleum regulation, see section 1.5.4.

³⁶³ *Sea and Submerged Lands Act 1973* (Cth).

³⁶⁴ The Commonwealth claims this responsibility over the development of offshore petroleum resources of the seabed beneath the Commonwealth's marine jurisdiction. Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 7.

³⁶⁵ *Petroleum Act 1998* (UK), s2 (1).

³⁶⁶ *Petroleum Act 1998* (UK), s2 (2).

³⁶⁷ *Petroleum Act 1998* (UK), s 10 (7).

The right to subsea mineral resources in Norway is vested in the State under the Norwegian *Act of 21 June 1963 Relating to Exploration and Exploitation of Submarine Natural Resources*.³⁶⁸ Initially, this Act also applied to petroleum, but in 1985 this provision was taken out of the 1963 Act and moved to the *Petroleum Act 1985* (Norway), and later to the PAA, which now grants the Norwegian State the proprietary right to subsea petroleum deposits and the exclusive right to resource management.³⁶⁹

To efficiently and effectively exploit its petroleum, the State as owner of the resources assigns property rights to third parties (usually the private sector) for exploration, development and production activities through the award of petroleum licences.³⁷⁰ The petroleum exploration and production licence is the legal arrangement between the State and the third party. The regulation of the award of petroleum licence and how the process of awarding licences can contribute to the sustainable development of petroleum is considered in Chapter four.

2.4 Petroleum property rights

Exclusive ownership of petroleum resources is a feature common to both the Norwegian and Australian petroleum regulation systems, as ownership of petroleum resources is vested in the State in both jurisdictions. As such, both jurisdictions are able to offer assurance of ownership of the petroleum resources to any oil company wishing to invest in the State.

³⁶⁸ *Act of 21 June 1963 Relating to Exploration and Exploitation of Submarine Natural Resources* (Norway).

³⁶⁹ *Petroleum Activities Act 1996* (Norway) 1-1.

³⁷⁰ ABARE, *Australia's Petroleum Resource Rent Tax: An Economic Assessment of Fiscal Settings* (2003) ABARE eReport 03.1, 27.

The award of a petroleum licence creates property rights between the State and the participants. A contractual relationship is also created between the participants exploiting the petroleum through the establishment of a JV between the participants. Depending on the jurisdiction, a JV may be formed prior to the award of licence, such as in Australia,³⁷¹ or as a mandatory requirement upon the award of a licence, such as in Norway.³⁷²

As the owner of insitu petroleum resources,³⁷³ the State has the unfettered right to award proprietary rights in its petroleum resources in order to exploit those resources.³⁷⁴ When the State awards a petroleum licence, the State ‘feters’ its ownership rights, since the State is unable to transfer its ownership rights over the resource area for the period of the licence,³⁷⁵ since the regulatory framework, particularly the petroleum legislation and the type of licence that has been granted, fetter the States rights. However, once the licence has expired, the State is free to transfer proprietary rights in the acreage to others. The property rights of the State may also be fettered by that State’s entry into a Union,³⁷⁶ such as Norway’s entry into the EEA.

³⁷¹ Department of Resources, Energy and Tourism, *An Overview for Applicants: Australia 2009 Release of Offshore Petroleum Exploration Areas* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009.

³⁷² As outlined in s6-6 *Petroleum Activities Act 1996* (Norway), Norwegian Petroleum Directorate, *Guidelines To Plan For Development And Operation Of A Petroleum Deposit (PDO) And Plan For Installation And Operation Of Facilities For Transport And Utilisation Of Petroleum (PIO).2000* (2000) http://www.npd.no/regelverk/r2002/frame_e.htm at 22 March 2009.

³⁷³ The Crown retains insitu rights over natural resources for two primary reasons. Firstly, the resources provide the State with high economic value. Secondly, ownership of petroleum resources enables the government to have control over the development of those resources.

³⁷⁴ Art. 1 of United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, *Permanent Sovereignty Over Natural Resources*. Adopted by General Assembly Resolution 1803 (XVII) of 14 December 1962.

³⁷⁵ Jerome Davis, *Does One Size Fit All? Reflecting On Governance and North Sea Licencing Systems* (2004) Background Paper: BC Offshore: Potential and Problems A MASC Workshop for Lawyers, Dunsmuir Lodge, Sidney BC, March 18-21, 2004, 4.

³⁷⁶ Jerome Davis, *Does One Size Fit All? Reflecting On Governance and North Sea Licencing Systems* (2004) Background Paper : BC Offshore: Potential and Problems A MASC Workshop for Lawyers, Dunsmuir Lodge, Sidney BC, March 18-21, 2004, 4.

The award of a petroleum licence by a State confers property rights upon the licensee.³⁷⁷ Upon the award of a licence in both Norway and Australia,³⁷⁸ the licensee is granted exclusive rights over the licence area.³⁷⁹ These proprietary rights are transferable, and can be sold, as is the case with other proprietary rights in property.

It is possible to define the rights conferred by the award of a petroleum licence as conditional rights, dependent upon a condition to be satisfied for the right to be either possessed or exercised. The conditions of the grant of a petroleum licence are usually outlined either within the legislative framework, or in administrative guidance notes that accompany a release of acreage for licencing.³⁸⁰

In Australia, the transfer of title to a licence occurs as part of a Farm-In/Farm-Out agreement. It is authorised under ss472-474 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA), and executed under ss3-4 of the *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth) (OPAGGSR) using prescribed forms set out in Schedule 4 of the Regulations. Similarly, it is possible to transfer a licence or participating interest in Norway. This right is conferred under s10-12 of the *Petroleum Activities Act 1996* (Norway) (PAA) and s72 of the *Petroleum Regulations 1997* (Norway)

³⁷⁷ Property rights in this context are those rights pertaining to the permissible (socially sanctioned) use of resources, goods and services. See D W Pearce (ed), *The MIT Dictionary of Modern Economics* (1986), 364.

³⁷⁸ The exploration licence in Australia and the production licence in Norway.

³⁷⁹ The grant of an exploration licence in Australia confers the right to explore for petroleum in the Commonwealth's offshore zone under section 98 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). Whilst the Act does not expressly confer exclusive rights over the permit area, the exclusivity of those rights are implied rights since the exploration for petroleum in the offshore area is prohibited under s97(1) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*, unless exploration activity is authorised by the grant of an exploration licence under s97(2) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. The grant of an exploration permit entitles the licensee to apply for a production permit to recover petroleum in the event of a commercial discovery. In Norway, exclusive exploration and production rights are granted to the licensee upon the grant of a production licence under section 3-3 of the *Petroleum Activities Act 1996* (Norway).

³⁸⁰ The legislative framework and administrative guidelines associated with the award of a petroleum licence are discussed in detail in Chapter four.

(PR). In addition, the right is conferred in Article 23 of the *Joint Operating Agreement (Norway) (JOA)*. In both States, government approval is required for the transfer to occur.³⁸¹

The right to petroleum that has been extracted is not expressly outlined in the Australian legislative framework. Rather, there is an implied right to ownership of the petroleum under s161 (1) (a) of OPAGGSA, where an exploration licence authorises the licensee to recover petroleum from the licence area. Furthermore, the unauthorised recovery of petroleum from offshore areas is prohibited,³⁸² implying that ownership of any recovered petroleum is conferred only upon the licensee authorised to carry out petroleum production and recovery operations.

The award of a petroleum licence in Norway confers upon the licensee the right of ownership to the produced petroleum, as it passes into the production well.³⁸³ This right to petroleum is explicit in the PAA, conferring ownership of oil upon production to the licensee.³⁸⁴ Transfer of ownership of petroleum is also expressed in the Joint Operating Agreement (JOA), with each party having the right and obligation to take and dispose of a share of the produced oil, equivalent to each parties participating interest.³⁸⁵ Under the Norwegian JOA, the property right, liability and risk pertaining to the produced oil is transferred

³⁸¹ For approval requirements in Australia see s478 of the *offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). Approval for transfer of interest in Norway is required under s10-12 of the *Petroleum Activities Act 1996* (Norway), and extends to direct or indirect transfer of interest or participation in the licence, assignment of shareholdings and other ownership shares which may provide decisive control of a licensee possessing a participating interest in a licence.

³⁸² Prohibited under s160 (1) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

³⁸³ 'Lifting' of Petroleum is often seen as the point of delivery of oil, when the oil is capable is being transferred from the well to a storage or transportation vessel. Schlumbergers Glossary of Oilfield Terms does not define lifting, delivery or point of transfer. Instead, the point at which title passes is often defined in the relevant legislation.

³⁸⁴ *Petroleum Activities Act 1996* (Norway) s3-3, para 3.

³⁸⁵ *Joint Operating Agreement (Norway)*, Art. 20.1: Lifting of Oil.

to each party at a point of delivery that is determined by the Management Committee prior to the commencement of oil production.³⁸⁶

2.4.1 Alteration of legal rights

The oil industry, like many other industries, conducts its operations within a changing society. However, unlike most other commercial activities, petroleum activities are likely to continue over long periods, often for twenty years or more. The long-term nature of petroleum activities creates a need for stability and continuity in the operating conditions relating to the petroleum activity. This means that companies require certainty in the conditions related to a petroleum licence, in the jurisdiction where they are conducting the petroleum activities. Therefore, it is important that the activities should occur in a jurisdiction where the State does not support, as a general legal principle, the right to unilaterally alter the conditions of established contracts.

This does not mean that the State does not have the right to alter the legislation to make regulatory changes to the conduct of petroleum activities.³⁸⁷ Indeed, States can and often do make alterations to legislate for the protection of workers and the environment, and to alter rates of resource taxation. Indeed, both Norway and Australia have many examples of changes in the legislative requirements for the safety of workers or the protection of offshore petroleum workers.³⁸⁸ Changes in the regulatory environment that alters future projects is accepted by petroleum participants, since future changes can be planned for, and factored into the costing and assessment of projects. Rather, it means that

³⁸⁶ *Joint Operating Agreement* (Norway), Art. 20.1: Lifting of Oil.

³⁸⁷ Omon Anenih, *The UK Petroleum Production Licence – Is it a Contract or Regulation and Does it Matter?* CEPMLP Annual Review (2002) <http://www.dundee.ac.uk/cepmlp/car/assets/images/Omon.pdf> at 12 December 2008.

³⁸⁸ For example the alteration of the *Petroleum (Submerged Lands) Act 1967* (Cth) in 2004 to reflect the creation of the National Offshore Petroleum Safety Authority (NOPSA). Similarly, there were legislative changes in Norway in the 1990s and 2000s that altered the regulatory framework for offshore safety. Furthermore, a special rate of taxation for petroleum was introduced in Norway in 1975 under the *Petroleum Taxation Act 1975* (Norway).

the conditions for existing licenses cannot be changed unilaterally to the detriment of the licence holders.

The dilemma that jurisdictions face is striking the balance between certainty for the participating company, and flexibility for the State that owns the resources, in order to adapt the regulatory framework to new conditions and changes in policy. This raises regulatory and constitutional issues for all countries, and especially Australia and Norway. In order to be able to compare the legislative frameworks that regulate petroleum activities, it is important that neither Australia nor Norway accept retrospective alteration of conditions relating to petroleum activities.

Neither Australia nor Norway accepts the retrospective alteration of the conditions of a petroleum licence. In Norway, Article 97 of the Norwegian Constitution bans the retrospective effect of new legislation. This is demonstrated by s11 of the *Petroleum Regulations 1997* (Norway) (PR) pertaining to the conditions and requirements for granting a production licence. This section clearly states that the conditions and requirements set out in the current PR only apply to production licences granted after 1 September 1995. Licences granted prior to this date are not affected by legislation enacted after the commencement of the licence.³⁸⁹ The rejection of the retrospective application of law was illustrated by the outcome of the 1985 Norwegian Supreme Court case between Phillips and the Norwegian government.³⁹⁰ Under the *Royal Decree of 8 December 1972 Relating to Exploration of and Exploitation of Petroleum in the Seabed and Substrata of the Norwegian Continental Shelf*, the Norwegian government attempted to alter the period of payment of petroleum production taxation by all licencees from three months to

³⁸⁹ See *Petroleum Regulations 1997* (Norway), r11.

³⁹⁰ See *Norsk Retstidende (Rt)* 1985, 1355. The Royal Declaration from 8 December 1972 was interpreted to not have effect on older licences which were regulated by the Royal Decree of 1965.

thirty days.³⁹¹ The Norwegian Supreme Court held this alteration to the payment period did not have effect on established licences that were regulated by the Royal Decree of 9 April 1965 relating to *Exploration for and Exploitation of Submarine Petroleum Resources* (the 1965 Decree). The Court found that the changes could not be applied retrospectively, rather only for new licences awarded.

Similarly, section 165 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) defines the duration of a petroleum licence based upon the time of conferral of the licence, to ensure that there are no retroactive changes to the period of a petroleum licence.³⁹² This ensures that there is a stable investment environment for oil companies, but still enables the parliament to enact prospective changes to petroleum legislation (for example for environmental or worker safety), if required.³⁹³

The limits for what is considered the retroactive effect of legislation is complicated, and to some extent controversial in both Australian and Norwegian legal doctrine. Whilst the retroactive application of legislation is important, is not possible to give a deeper analysis of this problem within the limits of this thesis. However, the rejection of retrospective contractual change as a legal principle in both Australia and Norway ensures that the regulatory framework of both jurisdictions can be compared.

³⁹¹ These facts arise from an English interpretation of the following report from *Norsk Retstidende (Rt)* 1985, 1355: Sammendrag: Krav om erstatning for rentetap som følge av endring av betalingsfristreglene for produksjonsavgiften. De første tillatelser til utvinning av petroleum på norsk kontinentalsokkel ble gitt i 1965 med hjemmel i lov av 21. juni 1963 nr. 12 om utforskning og utnyttelse av undersjøiske petroleumforekomster og forskrifter gitt ved kgl. res. av 9. april 1965. Etter 1965-resolusjonen skulle produksjonsavgiften betales i halvårlege terminer innen tre måneder etter utløpet av den enkelte termin. Nye forskrifter ble gitt ved kgl. res. av 8. desember 1972. Etter denne resolusjon skulle betaling skje kvartalsvis innen 30 dager etter terminens utløp.

³⁹² See *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s165 (1).

³⁹³ Omon Anenih, *The UK Petroleum Production Licence – Is it a Contract or Regulation and Does it Matter?* CEPMLP Annual Review (2002) <http://www.dundee.ac.uk/cepmlp/car/assets/images/Omon.pdf> at 12 December 2008.

2.5 Commonality of internal systems

As this thesis will compare functions in the regulatory framework in the Norwegian and Australian upstream petroleum sector, it is necessary to compare the legal, political, economic and social systems of Australia and Norway. It is possible to identify parallels and differences between the two nations, to provide the necessary background against which the two petroleum regulatory regimes can be analysed, compared and conclusions drawn.

2.5.1 Law and legal structure

Australia

The Australian legal system derives from the common law system, which originated in medieval England. Common law is derived from both statute and precedent, developing on a case by case basis.³⁹⁴ In this system, *stare decisis* is central, where lower courts are bound by the superior courts.³⁹⁵ The exception to this is the High Court of Australia, which is neither bound by its own decisions, or the decisions of other courts.³⁹⁶

All Federal and High Court judges are appointed by the Governor-General, as specified in the Australian Constitution.³⁹⁷ Generally, the appointment is made upon the recommendation of the Cabinet, on the advice of the Attorney-General. Selection is based on merit, which includes legal excellence, demonstrated capacity for industry, and a suitable temperament for judicial function.³⁹⁸ A judge

³⁹⁴ R Hughes, G Leane, and A Clarke, *Australian Legal Institutions: Principles, Structures and Organisation* (2nd ed. 2003), 48-9, 196.

³⁹⁵ R Hughes, G Leane, and A Clarke, *Australian Legal Institutions: Principles, Structures and Organisation* (2nd ed. 2003), 197.

³⁹⁶ C Cook, R Creyke, R Geddes and D Hamer, *Laying down the Law* (6th ed. 2005), 75.

³⁹⁷ *Constitution of Australia*, s72 (i).

³⁹⁸ Phillip Ruddock, *Selection and Appointment of Judges* (2005) Speech Delivered at the University of Sydney Law School, 2 May, 2005.

cannot be removed except by the Governor-General, on address from both Houses of Parliament.³⁹⁹

As a consequence of the federalist system of government in Australia, there is a dual judicial structure in Australia. The Australian judicial system comprises nine jurisdictions (six states, two mainland territories, and the federal judicial system). There are two parallel court structures in Australia: the federal judicial system and the state judicial system.⁴⁰⁰ All six state courts have the three levels of primary courts (Magistrates, District or County Court, and Supreme Court), as well as a Supreme Court of Appeal. The state structure evolved in the independent colonies, and by the time of Federation in 1901, they were well established. A federal system of courts was created under the Australian Constitution upon Federation.⁴⁰¹

The High Court of Australia is the apex of both the state and federal judicial systems, acting as an appellate court for the state and federal judicial systems.⁴⁰² In addition, the High Court of Australia is the court of original jurisdiction for all constitutional issues, as stipulated in s75 of the Australian Constitution.

Norway

The Norwegian Legal system is best characterised as a civil law system, with its origins dating back to the 10th century.⁴⁰³ English law has also influenced Norwegian law, and it is arguable that the Scandinavian legal tradition represents a separate legal tradition in Europe.⁴⁰⁴ Norway has a Criminal Code,

³⁹⁹ *Constitution of Australia*, s72 (ii).

⁴⁰⁰ See R Hughes, G Leane, and A Clarke, *Australian Legal Institutions: Principles, Structures and Organisation* (2nd ed. 2003), Chapter 7 for a discussion of the Australian judicial system.

⁴⁰¹ *Constitution of Australia*, s71.

⁴⁰² *Constitution of Australia*, s73.

⁴⁰³ Norwegian Royal Ministry of Justice, *Administration of Justice in Norway: A Brief Summary* (1980), 9.

⁴⁰⁴ See Konrad Zweigert and Hein Kotz, *An Introduction to Comparative Law* (2nd ed. 1998), 277.

and the Constitution prescribes the enactment of a Civil Code, but the enactment of this code was never completed. Most of the civil law is now regulated in single Acts for specific areas. The central feature of the Norwegian legal system is therefore that Acts of parliament govern most areas, but courts also play an important role in development of the law, through interpretations and gap filling of the Acts. A decision by the Supreme Court is regarded as binding for lower courts and for the Supreme Court, but there are specific procedures to be followed if the Supreme Court intends to deviate from earlier opinions. Cases where the constitutional validity of an Act is tested is decided by a plenary decision of the Supreme Court.⁴⁰⁵

Norwegian entry into the EEA means that decisions of the European Free Trade Agreement (EFTA) Court⁴⁰⁶ and the European Court of Justice (ECJ) are also binding sources of law.⁴⁰⁷ Although not strictly binding, the ECJ will not depart from past decisions without good reason.⁴⁰⁸ As such, the case law of the ECJ provides a major source of EU Law, and is applicable to Norway in all aspects related to the EFTA and the EEA. In addition, a decision by the European Human Rights Court, which decides cases under the European Human Rights Convention, is binding on all national courts.

There is only one system of courts in Norway, reflecting the unitary structure of the Norwegian political and judicial system. For civil and criminal matters there are three ordinary courts: the District or City Court, the High Court and the

⁴⁰⁵ Lars Winsvold and Bard Thorsen, *Norwegian Courts and the Administration of Justice* (2001) Utensriksdepartementet http://odin.dep.no/odinarkiv/English/Stoltenberg_I/ud/032001-990374/dok-bu.html at 8 August 2006.

⁴⁰⁶ For example *EFTA Surveillance Authority v Kingdom of Norway* (Norsk Tipping Case) (2007) Case E-106 http://www.eftacourt.int/images/uploads/E-1-06_Judgment.pdf at 25 August 2009.

⁴⁰⁷ ECJ decisions are seen as a tertiary source of Law. See Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 63.

⁴⁰⁸ Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 64.

Supreme Court.⁴⁰⁹ Similar to Australian courts, the courts are independent, and Judges are appointed by the King-in-Council in accordance with the Norwegian Constitution.⁴¹⁰ The courts are managed by a special independent body, which also makes advice on appointment of justices. Judicial positions are open to jurists from all professional backgrounds, including advocates (lawyers) and academics.⁴¹¹ Once appointed, justices are unable to be removed from office against their will. Dismissal can only occur following a court hearing and a guilty verdict of misconduct.⁴¹² However, the decision to prosecute for offences relating to a judge's duties can only be made by the King-in-Council. Permanently appointed judges cannot be indicted for public order offences, and Supreme Court judges enjoy even stronger protection and can only be removed through an impeachment process.⁴¹³

Comparison of legal traditions

Whilst on the surface it would appear that these two legal systems have very little in common, a deeper examination of the two systems reveals some important similarities. It appears that the common law and civil law systems are drawing closer together,⁴¹⁴ leading some scholars to declare the distinction between the two systems to be obsolete.⁴¹⁵ The harmonisation process in the EU also leads to a development of English law, moving the UK away from its traditional common law roots towards a hybrid system of law similar to the Norwegian legal tradition.

⁴⁰⁹ Norwegian Royal Ministry of Justice, *Administration of Justice in Norway: A Brief Summary* (1980), 22.

⁴¹⁰ Art 22, *Constitution of Norway*.

⁴¹¹ Norwegian Royal Ministry of Justice, *Administration of Justice in Norway: A Brief Summary* (1980), 89.

⁴¹² Norwegian Royal Ministry of Justice, *Administration of Justice in Norway: A Brief Summary* (1980), 89.

⁴¹³ Art. 86, *Constitution of Norway*.

⁴¹⁴ Jim Corkery, *Starting Law*, (2002), 117.

⁴¹⁵ James Godley, 'Common Law und Civil Law: eine uberholte Unterscheidung' (1993) 1 *Zeitschrift fur Europaisches Privatrecht* 498, in Reinhard Zimmermann, 'Comparative Law and the Europeanization of Private Law' (2006), chapter in Mathias Riemann and Reinhard Zimmermann (eds) *The Oxford Handbook of Comparative Law* (2006), 558-9.

An examination of some features of the Australian and Norwegian legal systems demonstrates this hybridisation. Although Australia is a common law system, there is an increasing dependence on statute. This is illustrated in both the volume of statutes enacted yearly (over 159 new Commonwealth statutes enacted in 2008),⁴¹⁶ and the size of the statutes (the current *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) is over 850 pages).⁴¹⁷ In addition, a number of Australian jurisdictions have codified some areas of law.⁴¹⁸ Norwegian courts have always played a role in the development of Norwegian law. In addition, since Norway is part of the EEA, it is subject to decisions from the European Court of Justice and the EFTA Court. Furthermore, both the Australian and Norwegian judicial systems comprise a number of specialised tribunals.⁴¹⁹ These similarities indicate that the legal systems are sufficiently similar to enable comparison of the two jurisdictions.

2.5.2 Welfare and social justice

Welfare in Australia is governed by the *Social Security Act 1991* (Cth). The principles on which the Australian welfare system is based have altered substantially during the post-war era. In the period immediately after the Second World War, the welfare system was designed to provide a meagre system of welfare payments for the unemployed, sick or old, combined with a system of wage regulation to prevent poverty and reduced dispersion of incomes.⁴²⁰

⁴¹⁶ ComLaw, *Acts by Year – 2008* (2008)

<http://www.comlaw.gov.au/ComLaw/legislation/act1.nsf/browseview?OpenForm&VIEW=asmade&ORDER=bynumber&COUNT=100&START=101&CLASSIFICATION=&CATEGORY=act-2008> at 25 August 2009.

⁴¹⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

⁴¹⁸ An example of this is Queensland, which has codified its Criminal Law – See *Criminal Code Act 1899* (Qld) <http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/C/CriminCode.pdf> at 25 August 2009.

⁴¹⁹ In Australia there are Tribunals at both State and Federal level, and are generally specialised tribunals, eg the Dust Diseases Tribunal (NSW), and the Administrative Appeals Tribunal (Cth). In Norway such Tribunals include the Severance Tribunal, Social Security Tribunal, and the Industrial Tribunal.

⁴²⁰ Francis G Castles, 'A Farewell to Australia's Welfare State' (2001) 31 (3) *International Journal of Health Services* 537, 538.

However, the socio-political effects of the depression and war fostered a turn toward Keynesian macro-economic policy and increased social welfare.⁴²¹

Major reform in the welfare system occurred in the 1980's with the election of a new federal government in 1983.⁴²² The new government attempted to introduce a 'corporatist national management of quasi-Scandinavian kind' to the welfare system.⁴²³ This system was based on income and assets test of recipients.⁴²⁴ It saw the reintroduction of universal health care (Medicare), real attempts to address child poverty, the introduction of a mandated second tier system of superannuation, and subsidised child care for working mothers⁴²⁵ In this era, Australia was one of the leading OECD countries for social expenditure growth, with social spending increasing 4% per annum, compared with the OECD average of 2.5%.⁴²⁶ The means test requirement of the system sought to ensure that the benefits were directed to those in extreme need, however it appeared to be marked by growing social inequality.⁴²⁷

The welfare system created in the 1980s and 1990s was systematically dismantled by a change of government in 1996. The impetus for change was the

⁴²¹ Christopher Lloyd, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 416.

⁴²² Some major welfare reforms occurred under the Whitlam government in 1972-75, including universal health system (Medibank), welfare payments for single parent families. Much of the reform that had been planned was cut short by the dismissal of the government in 1975 by the Australian Governor-General. The reforms alluded to in this section are the result of the Hawke-Keating government which was in power 1983-1996.

⁴²³ This system attempted to implement a Scandinavian model of welfare into the Australian capitalist economy. See Christopher Lloyd, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 418.

⁴²⁴ Francis G Castles, 'A Farewell to Australia's Welfare State' (2001) 31 (3) *International Journal of Health Services* 537, 538.

⁴²⁵ Francis G Castles, 'A Farewell to Australia's Welfare State' (2001) 31 (3) *International Journal of Health Services* 537, 538.

⁴²⁶ Francis G Castles, 'A Farewell to Australia's Welfare State' (2001) 31 (3) *International Journal of Health Services* 537, 538.

⁴²⁷ Christopher Lloyd, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 418.

White Paper on Employment Policy in 1994,⁴²⁸ driven by the elected government's aim to create full employment through the generation of new and worthwhile jobs.⁴²⁹ The government was primarily concerned with a fundamental restructuring of the post-war welfare system to overcome the perceived issue of 'welfare dependency'.⁴³⁰ This was executed through low levels of benefit for the unemployed, means testing of benefits, and 'incentives' such as 'Work for the Dole' schemes, requiring welfare recipients to work two days per week for unemployment benefits.⁴³¹

The overarching principle that drove this attitude to welfare was a need to reduce systematic welfare abuse.⁴³² As such, citizens were encouraged to tip off the government about alleged welfare fraud.⁴³³ More importantly, there was a social stigma attached to welfare recipients in Australia, possibly due to a combination of the individualistic culture in Australia,⁴³⁴ and the perception that welfare recipients are somehow societal 'losers'.⁴³⁵

Another change in government in 2007 saw a return to social justice attitudes toward welfare in Australia. The National Platform of the elected government outlined an aspiration for the fair distribution of wealth and universal benefit

⁴²⁸ Commonwealth of Australia, *White Paper on Employment Policy* (1994).

⁴²⁹ Rob Watts, *After the White Paper: Renovating Social Policy in the 1990's* (1995) 1994 National Conference on Unemployment, Unemployment: Challenges and Solutions, Queensland University of Technology Carseldine Campus, 19-26.

⁴³⁰ Peter Saunders, 'Australia is not Sweden: National Cultures and the Welfare State' (2001) 17 (1) *Policy* 29, 29.

⁴³¹ Peter Saunders, 'Australia is not Sweden: National Cultures and the Welfare State' (2001) 17 (1) *Policy* 29, 31.

⁴³¹ CentreLink, *Report a Suspected Fraud* (2006) http://www.centrelink.gov.au/internet/internet.nsf/about_us/fraud_index.htm at 1 November 2006.

⁴³² Peter Saunders, 'Australia is not Sweden: National Cultures and the Welfare State' (2001) 17 (1) *Policy* 29, 31.

⁴³³ CentreLink, *Report a Suspected Fraud* (2006) http://www.centrelink.gov.au/internet/internet.nsf/about_us/fraud_index.htm at 1 November 2006.

⁴³⁴ Peter Saunders, 'Australia is not Sweden: National Cultures and the Welfare State' (2001) 17 (1) *Policy*, 29, 30.

⁴³⁵ Kay Cook, *Centrelink Rhetoric and Reality: An Analysis of Social Exclusion Amongst Low Income Women* (2004) Social Policy Congress 2004. Victorian Council of Social Services, Melbourne, Australia.

from economic growth, continuous improvement in living standards, and reallocation of resources to those most in need.⁴³⁶ This return to social justice has been demonstrated by the introduction of some paid maternity leave, tax relief for working families, education tax deductions, aged pension reform, and permanent carer supplements.⁴³⁷

Social justice and welfare in Norway is seen as reinforcing the existing norms of collective responsibility.⁴³⁸ It is designed to take citizens from ‘the cradle to the grave’,⁴³⁹ reflecting Norwegian Government policy of a welfare society and sustainable development.⁴⁴⁰ The fundamental principle that underpins the Norwegian Welfare systems is that of equality:

‘One main objective of the Government’s welfare policy is to provide security for society’s most disadvantaged groups. [...] the Government wishes to gear our social security and welfare systems more to those who are most economically disadvantaged.’⁴⁴¹

The Norwegian political system is committed to a welfare State that provides security for all, improved distribution of incomes and living standards, equal rights and obligations for all, and opportunities for work for the most economically disadvantaged.⁴⁴² The system of welfare in Norway is based on a number of basic institutional parameters of the Scandinavian welfare system:

⁴³⁶ Australian Labor Party, *National Platform, 2007* (2007), 11-12.

⁴³⁷ Australian Labor Party, *The Government: Mid-Term Progress Report* (2009) www.alp.com.au/media/0609/mspm150.php at 25 August 2009.

⁴³⁸ *The Norwegian Welfare System* (2002) <http://library.thinkquest.org/18802/norwelf.htm> at 30 October 2006.

⁴³⁹ *The Norwegian Welfare System* (2002) <http://library.thinkquest.org/18802/norwelf.htm> at 30 October 2006.

⁴⁴⁰ Norsk Finansdepartementet, *Report No. 29 to the Stortinget (2002 – 2001): Guidelines for Economic Policy* (2002).

⁴⁴¹ Norsk Sosial- og Helsedepartementet, *White Paper no. 50 (1998 – 1999): The Equitable Redistribution White Paper* (1999) <http://www.dep.no/aid/english/doc/reports/030005-994052/dok-bn.html> at 30 October 2006, 2-3.

⁴⁴² *Redistribution White Paper* (1999) <http://www.dep.no/aid/english/doc/reports/030005-994052/dok-bn.html> at 30 October 2006, 2.

universal coverage, high income replacement rate, liberal qualifying conditions, and welfare services as a citizenship right.⁴⁴³ Norway's developed social welfare system provides a social safety net that extends to all residents of Norway.⁴⁴⁴ The policy of the Norwegian government is that all residents have a right to economic assistance and other forms of community support during illness, old age or unemployment.⁴⁴⁵

The Norwegian health and social welfare system is predominantly publicly financed, using a combination of general and separate taxation. About 35% of the Norwegian Budget is spent on the Norwegian health and welfare system.⁴⁴⁶ The national insurance (or social security) is a collective insurance scheme where all wage earners contribute a fixed percentage of their earnings as a national insurance tax.⁴⁴⁷ Non-workers, including spouses, unemployed, and students, also qualify for social security benefits, with the same rights to assistance and health care as those with salaries.⁴⁴⁸

Similar to Australia, there has been a recent move to reform the Norwegian welfare system, demonstrated in the welfare *White Paper*.⁴⁴⁹ Comprehensive changes are being considered, focusing on family, targeted unemployment

⁴⁴³ John D Stephens, *The Scandinavian Welfare State: Achievements, Crisis and Prospects* (1995) United Nations Research Institute for Social Development Discussion Paper 67, 5.

⁴⁴⁴ Malfrid Bolstad, *Norway's Social Security and Health Service* (2005) UtenriksDepartmentet <http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

⁴⁴⁵ Malfrid Bolstad, *Norway's Social Security and Health Service* (2005) UtenriksDepartmentet <http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

⁴⁴⁶ Malfrid Bolstad, *Norway's Social Security and Health Service* (2005) UtenriksDepartmentet <http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

⁴⁴⁷ Malfrid Bolstad, *Norway's Social Security and Health Service* (2005) UtenriksDepartmentet <http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

⁴⁴⁸ Malfrid Bolstad, *Norway's Social Security and Health Service* (2005) UtenriksDepartmentet <http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

⁴⁴⁹ Sosial- og Helse Departmentet, *White Paper no. 50 (1998 – 1999): the Equitable Redistribution White Paper* (1999) <http://www.dep.no/aid/english/doc/reports/030005-994052/dok-bn.html> 2006 at 29 October 2006.

assistance, stronger focus on vocational assistance for the disabled, and a pension system that ensures high and increasing employment amongst the elderly.⁴⁵⁰

Norway continues to address the issue of equal redistribution and inclusion.⁴⁵¹ It is expected that reforms will aim to reduce income gaps, create a labour market for all, create a welfare state which meets the needs of a multicultural population, adjust social policy to meet the changes in family relations and increases in the numbers of single persons, and meet the needs of an ageing population.⁴⁵²

Current government policy toward social justice and welfare has some similarities in Australia and Norway. In both countries there is a recognised need to ensure jobs, health and basic social equality exists for all citizens. This provides a platform for comparison between the two jurisdictions.

2.5.3 Economy and economic development

Australia is categorised as a 'laissez-faire' developed economy.⁴⁵³ Prior to World War II, Australia was the epitome of a protectionist State, explicitly linking job protection, profit protection, wage protection and racial/cultural protection.⁴⁵⁴ The devastating effects of the Depression led to increased social welfare. The 1941-9 government had a socialist agenda, seeking to extend public ownership of the commanding heights.⁴⁵⁵ The governments from 1949-

⁴⁵⁰ Ingjerd Schou, *Challenges to our Welfare System* (2004)
http://www.dep.no/odinarkiv/english/bondevik_II/asd/044051-090081/dok-bn.html at 29 October 2006.

⁴⁵¹ Guri Ingebrigtsen, *Increasing Social Inequality, Towards a Fragmented Social Policy* (2002)
http://www.dep.no/odinarkiv/english/stoltenberg_I/shd/030001-090011/dok-bn.html at 29 October 2006.

⁴⁵² Ingjerd Schou, *Challenges to our Welfare System* (2004)
http://www.dep.no/odinarkiv/english/bondevik_II/asd/044051-090081/dok-bn.html at 28 October 2006

⁴⁵³ Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), 19.

⁴⁵⁴ Christopher Lloyd, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 414.

⁴⁵⁵ Christopher Lloyd, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 416.

1972 did nothing to disturb this State regulation of the economy.⁴⁵⁶

The shift away from State regulation in some areas of the Australian economy came with the election of the Hawke Government in 1983.⁴⁵⁷ This was one of the first examples of deregulation of a socially democratic government, with deregulation occurring in some areas of the finance and transport sectors.⁴⁵⁸ Deregulation occurred later in the telecommunications sector as a consequence of the *Davidson Report* regarding telecommunication regulation.⁴⁵⁹

Today, Australia has shed its protectionist policies, adopting a free-trade, free enterprise, capitalist approach, open to global competition which has resulted in economic inequality.⁴⁶⁰ The ‘commanding heights’ of the economy⁴⁶¹ are neither controlled nor directed by the government, and market forces are left to shape many sectors of the economy. For the petroleum sector, this *laissez-faire* approach to economic management means that foreign investment is welcomed, encouraged by a strong, stable government and economy characterised by the application of the rule of law.⁴⁶²

Australia is richly endowed with natural resources including gas, uranium, petroleum, coal, gold. Rising domestic economy output, particularly in the

⁴⁵⁶ Christopher Lloyd, ‘Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation’ in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 416.

⁴⁵⁷ Christopher Lloyd, ‘Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation’ in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 418.

⁴⁵⁸ Christopher Lloyd, ‘Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation’ in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 418.

⁴⁵⁹ Committee of Inquiry into Telecommunications Services in Australia, *Report of the Committee of Inquiry into Telecommunications Services in Australia* (1982) Chair J. A Davidson.

⁴⁶⁰ Christopher Lloyd, ‘Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation’ in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 419.

⁴⁶¹ As defined in Daniel Yergin and Joseph Stanislaw, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999), 12-13.

⁴⁶² Department of Resources, Energy and Tourism, *An Overview for Applicants s2009* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009, 10.

resources sector, robust business and consumer confidence, rising exports of raw materials/agricultural products and growing ties with China are driving the Australian economy. This has resulted in rapid growth, particularly in the last two decades. This robust economic growth is reflected in the United Nations Human Development Index,⁴⁶³ where Australia is ranked number four.⁴⁶⁴ However, Australia struggles with the economic consequences of its resource endowment. As early as the 1960s, Australia experienced a bout of Dutch disease as a consequence of the rise of the minerals and energy export sector,⁴⁶⁵ characterised by a loss of manufacturing industries and increased sectorial employment in resources-related industries. The threat of resource curse and Dutch disease has been considered by Australian scholars, with some concluding that the resource curse is ‘alive and well in Australia’s latest resource boom’.⁴⁶⁶

The Norwegian economy may be best described as a ‘dirigiste’ developed economy.⁴⁶⁷ This type of economy is characterised by heavy State involvement in the economy, controlling the ‘commanding heights’, such as key the areas of the petroleum, hydropower and resources sectors, through large State enterprises.⁴⁶⁸ Norway is richly endowed with natural resources, including petroleum, hydropower, fisheries, forests, and minerals. Oil and gas account for

⁴⁶³ The Human Development Index is an objective index compiled by the United Nations, and is used to rank Member Countries’ level of ‘human development, implying whether a country is developed, developing or underdeveloped. It provides normalized measures of life expectancy, literacy, educational attainment, and GDP per capita for countries worldwide.

⁴⁶⁴ Australia is ranked behind Iceland (1), Norway (2), and Canada (3). United Nations Development Program, *Human Development Indices: A Statistical Update 2008* (2009) http://hdr.undp.org/en/media/HDI_2008_EN_Complete.pdf at 25 August 2009, 25.

⁴⁶⁵ Christopher Lloyd, ‘Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation’ in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 417.

⁴⁶⁶ James Goodman and David Worth, ‘The Mineral Resources Boom and Australia’s Resources Curse’ (2008) 61 *Journal of Political Economy* 201, 216.

⁴⁶⁷ A dirigiste economy refers to a State directed economy, where the State involves itself heavily in the national economy. See Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), 19-20.

⁴⁶⁸ Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), 19.

one third of all Norwegian exports. The capacity of the Norwegian State to convert resource abundance into economic prosperity is attributable to a long history of State control over resource development, beginning in the 19th century, where the emerging Norwegian State was seen as the most important basis for economic and social development, with the free market subordinate to the State.⁴⁶⁹

As a result of Norway's history of nurturing strong democratic norms, it had concerns in legitimising large concentrations of power into the hands of private companies.⁴⁷⁰ Private companies were seen by the Norwegian government as a junior partner to government.⁴⁷¹ This was demonstrated by the regulation of foreign capital investment in the development of water resources for hydroelectric power in Norway in the early 20th century. This provided the Norwegian government with the capacity to nationalise trade and industry. The State established a central role in the development of water resources,⁴⁷² demanding that Norwegian natural resources be safeguarded for Norwegian interests by curbing the growth of capitalist corporations.⁴⁷³ This led to the implementation of legislation requiring international investments to gain the approval of the Norwegian parliament.⁴⁷⁴ Government control over companies exploiting water resources in the early 20th century established a precedent of strong government control over the development of natural resources, which

⁴⁶⁹ Francis Sejersled, 'Nationalism in the Epoch of Organised Capitalism: Norway and Sweden Choosing Different Paths' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 98.

⁴⁷⁰ Francis Sejersled, 'Nationalism in the Epoch of Organised Capitalism: Norway and Sweden Choosing Different Paths' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 99.

⁴⁷¹ Francis Sejersled, 'Nationalism in the Epoch of Organised Capitalism: Norway and Sweden Choosing Different Paths' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 99.

⁴⁷² Francis Sejersled, 'Nationalism in the Epoch of Organised Capitalism: Norway and Sweden Choosing Different Paths' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 105.

⁴⁷³ Francis Sejersled, 'Nationalism in the Epoch of Organised Capitalism: Norway and Sweden Choosing Different Paths' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003), 106.

⁴⁷⁴ *Concession Act 1917* (Norway). For a discussion of the regulation of international investment and foreign companies in the development of hydropower in the early 20th century, see section 1.4.1.

continues today in the development of Norway's petroleum resources.

Unlike many other countries rich in raw materials, natural resources have made significant long term contribution to the Norwegian economy, making Norway one of the most prosperous economies in the world, demonstrated by Norway's ranking on the Human Capital Development Index.⁴⁷⁵

The economic similarities and differences between Australia and Norway are illustrated in figure 2 below, comparing a number of key economic indicators such as Gross Domestic Product (GDP), employment, current account balance, debt and foreign reserves.

TABLE OF COMPARISON: ECONOMIC INDICATORS
(2008 unless otherwise indicated; standardised in \$US)

	Australia	Norway
Population	21,262,641 (July 2009 est)	4,660,539 (July 2009 est.)
GDP (Purchasing Power Parity)	\$802.9 billion	\$276.3 billion
GDP (Official Exchange Rate)	\$1.013 trillion	\$451.8 billion
GDP(Real Growth Rate) %	2.4	2.5
GDP (Per Capita – PPP)	\$38,200	\$59,500
GDP (Composition by Sector)	Ag: 3.4%; Industry: 21.1%; Services 75.6%	Ag: 2.4%; Industry: 42.2% Services 53%
Labour Force	10.95 million	2.591 million
Labour Force by occupation	Agriculture: 3.6%; Industry: 21.2%; Services: 75.2%	Agriculture: 4%; Industry: 22% Services: 74%
Unemployment Rate	4.2%	2.6%
Inflation Rate (CPI)	4.4%	3.8%
Budget	Revenue: \$321.9 billion; Expenditure: \$315.8billion	Revenue: \$266.2 billion Expenditure: \$178.1 billion
Current Account Balance (year)	-\$44.04 billion (deficit)	\$88.34 billion
Exports	\$189.9 billion	\$173.6 billion
Imports	\$194.2 billion	\$85.95 billion

⁴⁷⁵ The Human Capital Development index is a measure compiled by the United Nations that ranks countries according to the level of 'human development.' Norway has been amongst the top three countries for the past several years and rated number two in the world in 2008. See United Nations Development Program, *Human Development Indices: A Statistical Update 2008* (2009) http://hdr.undp.org/en/media/HDI_2008_EN_Complete.pdf at 25 August 2009, 25.

Reserves Foreign Exch/Gold	\$32.92 billion	\$50.95 billion
Debt External	\$799.8 billion	\$475.9 billion
Aid Donor	\$2.123 billion (2006)	\$2.954 billion (2006)

Figure 2: Comparison of Economic Indicators, Australia and Norway. (Source: Compiled by author from CIA World Fact Book www.cia.gov/cia/publications).

An assessment of the economic indicators in the above table illustrates the many economic similarities between Norway and Australia. Gross Domestic Production (GDP) is a measure of the strength of an economy, and is defined as the market value of all goods and services produced in a country within a given time.⁴⁷⁶ It is calculated thus:

$$\text{GDP} = \text{consumption} + \text{investment} + \text{government spending} + (\text{exports} - \text{imports})$$

GDP in Norway is approximately one third of Australia (as compared using purchasing power parity), which is logical, given that the Norwegian population is one fifth of Australia. Similarly, GDP per capita is one third higher in Norway than Australia. This may be seen as a measure of labour productivity, since as the productivity of a worker increases, then employers must compete for the workers by paying higher wages. In practical terms, it also indicates that wages are higher in Norway than in Australia.

An examination of GDP by sector reveals a strong Norwegian industrial sector. The Norwegian industrial sector accounts for 41.9% of the total GDP. In Australia, industry only accounts for 26.2% of total GDP. Yet the industrial sector in both countries accounts for approximately 22% of employment.

A comparison of employment indicates that Australia has an unemployment rate almost double that of Norway, around 4.5% during 2008. Unemployment rates

⁴⁷⁶ For definition of GDP see United Nations Development Program, *Human Development Indices: A Statistical Update 2008* (2009) http://hdr.undp.org/en/media/HDI_2008_EN_Complete.pdf at 25 August 2009, 55.

are very important, since they act as a barometer for the health of a nation's economy. However, it is important to realise the pitfalls of comparing international unemployment rates,⁴⁷⁷ as different indicators may be used to measure unemployment in each country. An unemployment rate of approximately 5% in any economy is 'healthy'. Any lower and the rate would be seen as inflationary due to the upward pressure on wages, and any higher could decrease consumer spending, with subsequent ripple effects within the economy.⁴⁷⁸

Inflation is defined as a rise in the general level of prices against baseline purchasing power.⁴⁷⁹ In Keynesian economics, its cause is the result of pressures in the economy expressing themselves in prices, influenced by the relative elasticity of wages, prices and interest rates.⁴⁸⁰

Inflation in Norway and Australia is below 5%, indicating the relative health of both economies.⁴⁸¹ This low rate creates many benefits for both nations, including macroeconomic stability, improved efficiency, and greater transparency of relative prices.⁴⁸²

Both Norway and Australia have a robust export sector, worth around \$180 billion per annum. Norway imports only \$85 billion worth of goods and services, about half of its exports, and half of Australia's imports. As a result,

⁴⁷⁷ Constance Sorrentino, 'International Unemployment Rates: How Comparable Are They?' (2000) *June Monthly Labor Review* 3, 4-5.

⁴⁷⁸ United States Department of Labor, *Current Employment Statistics* (2005) <http://www.bls.gov/ces/home.htm#overview> at 26 October 2006.

⁴⁷⁹ *Oxford Dictionary*, (2005).

⁴⁸⁰ William Baumol and Alan S. Blinder, *Macroeconomics: Principles and Policy* (10th ed, 2006).

⁴⁸¹ The CPI as at June 2009 was 1.45% in Australia (see <http://www.abs.gov.au/ausstats/abs@.nsf/mf/6401.0> at 12 September 2009), and as at August 2009 was 1.9% in Norway (see www.ssb.no/engilsh at 12 September 2009).

⁴⁸² Kate Barker, *Adjusting to Low Inflation – Issues for Policy* Speech to Manchester Statistical Society, Manchester, 18 February 2003. Bank Of England (2003) <http://www.bankofengland.co.uk/publications/speeches/2003/speech190.pdf> at 26 October 2006.

Norway enjoys a budget surplus of \$88 billion, whilst Australia has a budget deficit in excess of \$44 billion. Norway also enjoys considerable foreign exchange and gold reserves, in excess of \$50 billion, whilst Australia's gold reserves are around \$32 billion.

Both States have external debt, with Australia's debt almost double that of Norway. It is worthwhile to note that Norway is an external creditor, and member of the Paris Club.⁴⁸³ At present, Norway has *Participating Creditor Agreements* with over 20 countries, including Ecuador, Benin, Gambia, Sierra Leone, Sudan, Tanzania, Peru and Jamaica.⁴⁸⁴

A comparison of the two economies has highlighted many similarities between the two countries. Both enjoy high GDP's, with low unemployment and inflation. In addition, both nations' exports exceed \$100 billion per annum, with Norway's imports 50% less than its exports. Each State enjoys considerable assets, with both having comparable foreign reserves. Norway has the added benefit of the Government Pension Fund - Global, which exceeded NOK 2,385 billion on 30 June 2009.⁴⁸⁵

There are demonstrable economic similarities between the two countries, enabling comparison between these two countries.

⁴⁸³ The Paris Club comprises governments with large claims on other governments throughout the world. See Paris Club, *Agreements With Norway as a Participating Creditor Country* (2006) http://www.clubdeparis.org/en/countries/countries.php?INDICE_DET=37 at 26 October 2006.

⁴⁸⁴ Paris Club, *Agreements With Norway as a Participating Creditor Country* (2006) http://www.clubdeparis.org/en/countries/countries.php?INDICE_DET=37 at 26 October 2006.

⁴⁸⁵ Norges Bank, *Government Pension Fund, Global: Size and Return* (2009) http://www.norges-bank.no/templates/article_41397.aspx as at 26 August 2009. This equates to approximately AU\$480 billion.

2.5.4 Government, political systems, and policy development

Australia is a constitutional monarchy, based on the Constitution of Australia established in 1901 at Federation.⁴⁸⁶ The monarchy is represented by the Governor-General,⁴⁸⁷ who performs constitutional, ceremonial and non-ceremonial duties as the Queen's representative.⁴⁸⁸ It is a parliamentary democracy,⁴⁸⁹ where power and authority is vested in the people.⁴⁹⁰

Australia has a federal system of government as a result of Federation, which brought together the separate colonies upon the adoption of the Australian Constitution.⁴⁹¹ Prior to the creation of the Federation under the Constitution, each of these colonies had their own parliament and constitution.⁴⁹² The federalist system of government was chosen since it had been particularly successful in other jurisdictions in preserving state power bases and interests, whilst at the same time creating a national government with genuine, but restricted powers.⁴⁹³

When the Federation was established, the separate colonies reiterated the need to preserve their existing interests and their powers.⁴⁹⁴ Consequently, there is a division of responsibilities and functions between the state and federal

⁴⁸⁶ G. Singleton *et. al*, *Australian Political Systems* (7th ed. 2003), 25-9. Federation occurred when the six separate British self-governing colonies of New South Wales, South Australia, Queensland, Tasmania, Victoria and Western Australia formed a Federation under the Constitution of Australia.

⁴⁸⁷ *Constitution of Australia*, s2.

⁴⁸⁸ *Constitution of Australia*, s2.

⁴⁸⁹ *Constitution of Australia*, s1.

⁴⁹⁰ G. Singleton *et. al*, *Australian Political Systems* (7th ed. 2003), 5.

⁴⁹¹ The Constitution was enacted in the United Kingdom Parliament as a section of the *Commonwealth of Australia Constitution Act 1900* (Imp). Upon the Constitution coming into force on January 1, 1901, the separate colonies collectively became states of the Commonwealth of Australia

⁴⁹² Patrick Keyzer *et. al.*, *Australian Constitutional Law: Materials and Commentary* (7th ed. 2004), 201.

⁴⁹³ G. Singleton *et. al*, *Australian Political Systems* (7th ed. 2003), 28.

⁴⁹⁴ G. Singleton *et. al*, *Australian Political Systems* (7th ed. 2003), 27.

governments. The Commonwealth has concurrent legislative powers enunciated in the Constitution.⁴⁹⁵ There is also some express exclusive legislative powers granted to the Commonwealth under the Australian Constitution.⁴⁹⁶ All remaining power is vested in individual states and territories. This is reflected in each state's constitution, which grants a plenary power to make laws for the 'peace, welfare and good government' of that state.⁴⁹⁷ The states are able to legislate for any area that is not specifically enumerated Commonwealth powers. Where there is an inconsistency between state and Commonwealth power, the Commonwealth prevails to the extent of the inconsistency.⁴⁹⁸ Whilst both mainland territories are self-governing, Commonwealth law may invalidate territory legislation at any time.⁴⁹⁹

Australia's Constitution, like many constitutions, is imbued with the concept of separation of powers, where the legislature, executive and judiciary are separate,⁵⁰⁰ ensuring the independence and accountability of each arm of government.⁵⁰¹

The Commonwealth of Australia does not have an express power to regulate and manage natural resources. The Commonwealth's capacity to legislate with respect to mineral resources was addressed by the High Court of Australia in

⁴⁹⁵ These powers are known as enumerated powers and are primarily outlined in section 51 of the *Constitution of Australia*.

⁴⁹⁶ For example s52 and s90 of the Commonwealth Constitution. For a discussion of the powers of the Commonwealth and states see Patrick Keyzer *et. al.*, *Australian Constitutional Law: Materials and Commentary* (7th ed. 2004), Chapter 8.

⁴⁹⁷ The plenary nature of State legislative power was recognised by the Privy Council in *Powell v Apollo Candle Co* (1885) 10 App Cas 282. See Gerard Carney, *The Constitutional Systems of the Australian States and Territories* (2006), 106-7.

⁴⁹⁸ *Constitution of Australia*, s109.

⁴⁹⁹ *Constitution of Australia*, s122.

⁵⁰⁰ The functions and responsibilities of each of these arms of government are outlined in Chapter I (Legislature), Chapter II (Executive) and Chapter III (Judiciary) of the Australian Constitution.

⁵⁰¹ For a discussion of separation of powers and the rule of law, see Jennifer Clarke, Patrick Keyzer and James Stellios, *Hanks' Australian Constitutional Law: Materials and Commentary* (8th ed. 2009), Chapter 1.

Murphyores Inc Pty Ltd v Commonwealth.⁵⁰² The decision of the High Court in *Murphyores* conferred on the Commonwealth the capacity to legislate with respect to trade and commerce with other countries.⁵⁰³ This enabled the Commonwealth to exercise control over export activities under section 51(i) of the Australian Constitution.⁵⁰⁴ Under a number of enumerated powers⁵⁰⁵ in section 51 of the Constitution,⁵⁰⁶ the Commonwealth also has the capacity to legislate with respect to the environment.⁵⁰⁷

There is a three-tiered political and administrative system in Australia. The Commonwealth Government has enumerated powers in areas such as social services, taxes, trade and commerce, defence, immigration and external affairs. The six independent state governments and two self-governing territories, all with their own constitutions and legal systems,⁵⁰⁸ are responsible for education, hospitals, and the development of onshore natural resources. All of the states (except Queensland) also have a lower house (Legislative Assembly) and upper house (Legislative Council). The third tier of government is local government.⁵⁰⁹

⁵⁰² *Murphyores Inc Pty Ltd v Commonwealth* (1976) 136 CLR 1.

⁵⁰³ Under s51 (i) of the Australian Constitution, ... *the parliament shall, subject to the constitution, have power to make laws for the peace, order and good government with respect to trade and commerce with other countries, and among the states.*

⁵⁰⁴ For a discussion of *Murphyores* see Patrick Keyzer *et. al.*, *Australian Constitutional Law: Materials and Commentary* (7th ed. 2004), 834.

⁵⁰⁵ These powers are enumerated primarily in s51 of the *Constitution of Australia*.

⁵⁰⁶ Specifically s51 (i), the trade and commerce power; s51 (xx), the corporation's power; and s51 (xxix), the external affairs power.

⁵⁰⁷ *Commonwealth v Tasmania* (1983) 158 CLR 1. The Tasmanian Dam Case arose when the Tasmanian government challenged the Commonwealth's capacity to prevent the Tasmanian government from developing a hydro-electric scheme on the Franklin River. The Commonwealth sought to prevent the Tasmanian government from the development through the enactment of the *World Heritage Properties Conservation Act 1983* (Cth). The Act was the domestic implementation of Australia's international obligation as a signatory to the International Convention Concerning World Cultural and Natural Heritage. The Commonwealth relied on s51(xxix) (the external affairs power) and s51 (xx) (the corporations power) for the constitutional validity of the Act. In a split decision (4:3), the High Court upheld the validity of the Act, and the Commonwealths right to rely on the external affairs and corporation's powers to regulation matters with respect to the environment.

⁵⁰⁸ See *Constitution of Australia*, s106, s107.

⁵⁰⁹ Local governments are not formally recognised in the *Constitution of Australia*.

Local government areas derive their authority primarily through delegated State legislation.⁵¹⁰ Local government members are elected to represent their local communities, to provide appropriate services to meet community needs in an efficient and effective manner, and to facilitate and co-ordinate local efforts and resources in pursuit of community goals.⁵¹¹

Similar to Australia, Norway is a constitutional monarchy, based on the Constitution of 1814.⁵¹² The monarchy is a hereditary monarchy, with the order of succession to the throne outlined in Article 6 of the Norwegian Constitution.⁵¹³ The system of government is a parliamentary democracy, with the Norwegian constitution, like the Australian Constitution, imbued with the doctrine of the separation of powers.⁵¹⁴

The main organ of the Norwegian parliament is the Storting, which comprises members elected for four years.⁵¹⁵ When new legislation is considered, the Storting divides itself into an upper house (Lagting) and a lower house (Odelsting) through internal election.⁵¹⁶ Like most Nordic countries, Norway is a unitary system of government, with a relatively small central government, comprising small policy ministries and strong independent agencies.⁵¹⁷ There is

⁵¹⁰ Dennis Pearce, *Delegated Legislation in Australia* (2005), Chapter 1.

⁵¹¹ See Local Government Association of Australia, *Declaration on the Role of Australian Local Government* (1997) <http://www.alga.asn.au/about/declaration.php> at 12 August 2009.

⁵¹² *Constitution of Norway*, Art. 3.

⁵¹³ S6 of the Norwegian Constitution notes that *The order of succession is lineal, so that only a child born in lawful wedlock of the Queen or King, or of one who is herself or himself entitled to the succession may succeed, and so that the nearest line shall take precedence over the more remote and the elder in the line over the younger.*

⁵¹⁴ Section B of the Norwegian Constitution (Art. 3-48) concerns *Executive Power and the Royal Family*. Section C of the Constitution (Art. 49-85) Concerns *Legislative Power and the Rights of Citizens*. Section D of the Constitution (Art. 86-91) is concerned with *Judicial Power*.

⁵¹⁵ *Constitution of Norway*, Art. 54.

⁵¹⁶ *Constitution of Norway*, Art. 73.

⁵¹⁷ Organisation for Economic Cooperation and Development, *E-Government Studies: Norway Assessment* (2006) [http://www.oalis.oecd.org/COMNET/PUM/egovproweb.nsf/viewHtml/index/\\$FILE/Norway_exesum.pdf](http://www.oalis.oecd.org/COMNET/PUM/egovproweb.nsf/viewHtml/index/$FILE/Norway_exesum.pdf) at 21 March 2006.

also a three-tiered political and administrative system in Norway, comprising a central government,⁵¹⁸ counties (fylkekommune),⁵¹⁹ and municipalities (kommune).⁵²⁰ There is a tradition of regional self-government at the municipal level, which has been in existence for centuries.⁵²¹ In each municipality, the Governor (Fylkesmann) represents the central government, ensuring that the local authority activity is done in accordance with statutory provisions.⁵²²

Norway is also part of the EEA, requiring domestic implementation of EC Directives, Regulations and Ordinances.⁵²³ This adoption is executed by incorporating these sources of law into domestic legislation.⁵²⁴ This may be accomplished by either rewriting existing legislation, or implementing new legislation.

There are many similarities between Australian and Norwegian political systems. First, and foremost, is the existence and preservation of the doctrine of the separation of powers. Both systems constitutionally separate the legislature, executive and judiciary, guarding the independence of each.

Both Australia and Norway are constitutional monarchies, with the royal representative having a designated role in the government. The role of the

⁵¹⁸ Organisation for Economic Cooperation and Development, *Managing Across Levels of Government: Norway* (1997) <http://www.oecd.org/dataoecd/10/12/1902291.pdf> at 8 August 2006, 365-6.

⁵¹⁹ Organisation for Economic Cooperation and Development, *Managing Across Levels of Government: Norway* (1997) <http://www.oecd.org/dataoecd/10/12/1902291.pdf> at 8 August 2006, 365-6.

⁵²⁰ Kommunal og Regionaldepartementet, *The Main Features of the Norwegian Election System – Summary* (2005) http://www.dep.no/odinarkiv/english/bondevik_II/krd/016051-090142/dok-bn.html at 1 August 2006.

⁵²¹ Organisation for Economic Cooperation and Development, *Managing Across Levels of Government: Norway* (1997) <http://www.oecd.org/dataoecd/10/12/1902291.pdf> at 8 August 2006, 363.

⁵²² Organisation for Economic Cooperation and Development, *Managing Across Levels of Government: Norway* (1997) <http://www.oecd.org/dataoecd/10/12/1902291.pdf> at 8 August 2006, 363-4.

⁵²³ Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 61-3.

⁵²⁴ Tony Storey and Chris Turner, *Unlocking EU Law* (2005), 61-3; see also Thomas Michelat and Dag Erik Rasmussen, *Country Reports: Norway Legislation Guide* (2006) <http://www.iflr1000.com/default.asp?page=38&CH=3&sIndex=2&CountryID=53> at 20 October 2006.

Governor-General in Australia is constitutional and ceremonial, with constitutional duties largely confined to acting on the advice of Ministers and authorising executive decisions.⁵²⁵ However, the Governor-General has the capacity to dissolve the parliament in certain circumstances.⁵²⁶ In Norway, the role of the Monarch is similarly largely ceremonial, enunciated in the Norwegian Constitution.⁵²⁷

The Australian system of government is characterised by a strong, dominant Commonwealth government, and equally independent states and territories.⁵²⁸ The Commonwealth has increasingly sought to extend its powers over state governments, demonstrated by industrial relations legislation⁵²⁹ that moved industrial relations from state jurisdiction to federal jurisdiction.⁵³⁰ There remains a constant tension between the states and the Commonwealth, often alleviated through a High Court hearing and determination.⁵³¹ This differs to the unitary system of government in Norway.

Australia is a dualist State, and international Treaty or Convention obligations must be incorporated into domestic legislation in order for the Treaty or Convention to have domestic effect. Norway is also dualist, as it is required to

⁵²⁵ The Role of the Governor-General is outlined in s2 of the *Constitution of Australia*.

⁵²⁶ See s57, *Constitution of Australia*.

⁵²⁷ See Art. 2, *Constitution of Norway*.

⁵²⁸ The Constitutional supremacy is reinforced by s109 of the Constitution of Australia: where state and Commonwealth laws are inconsistent, the Commonwealth law will prevail to the extent of the inconsistency. See Jennifer Clarke, Patrick Keyzer and James Stellios, *Hanks' Australian Constitutional Law: Materials and Commentary* (8th ed. 2009), 56-71.

⁵²⁹ The *Workplace Relations Act 1996* (Cth) was amended by the *Workplace Relations Amendment Act 2005* (Cth) (Work Choices), was a comprehensive change to industrial relations law in Australia. It successfully enlarged the Corporations Power (s51(XX) of the Australian Constitution), removing from the states the power to legislate with respect to industrial relations. For a discussion of the Work Choices legislation see Jennifer Clarke, Patrick Keyzer and James Stellios, *Hanks' Australian Constitutional Law: Materials and Commentary* (8th ed. 2009), 383-387.

⁵³⁰ *NSW v Commonwealth; Western Australia v Commonwealth* (2006) 231 ALR 1.

⁵³¹ Under section 76 of the Commonwealth Constitution, the High Court of Australia is the only court with original jurisdiction to determine questions in relation to the Commonwealth Constitution.

incorporate supranational law into domestic legislation through the incorporation of EU Directives as required. This is a compulsory requirement of the EEA Agreement of which Norway is a signatory. Australia has no such compulsory supranational law obligations. The relationship of Norway to the European Union through the EEA is similar in some respects to the federalist structure of the Australian system of the Commonwealth and states.⁵³² Arguably, this similarity enables comparison of the two jurisdictions.

Comparative analysis between Australia and Norway illustrates political and structural similarities in the government and political systems of Australia and Norway. Both nations are constitutional monarchies that place democracy and the separation of powers at the apex of the political framework. In both systems, the monarch in some form is integral within the machinations of government. These similarities enable comparisons to be drawn between the two countries.

2.6 Petroleum policy and its influence on petroleum regulation

Policy has been defined by Justices Crennan and Gummow of the High Court of Australia as ‘a principle or course of action which is adopted or proposed particularly by the legislature and by the executive in its administration of legislation’.⁵³³ It is essentially a course of action that is intended to influence, determine and guide the decisions, actions and legislative process of a government.⁵³⁴ In the context of natural resource development, policy is the

⁵³² Charles Leben, ‘A Federation of Nation States or a Federal State’ (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer, 1.

⁵³³ *Thomas v Mowbray* (2007) 237 ALR 194 [80] per Crennan and Gummow JJ.

⁵³⁴ Paolo de Sa, ‘Mineral Policy: ‘A World Bank Perspective’ in E Bastida, T Walde and J Warden-Fernandez (eds), *International and Comparative Mineral Law and Policy* (2005), 494-5.

current position or focus of a government in developing a natural resource, and will usually encompass political and fiscal policies. Resources policy is determined by the complex interaction of many factors, including a country's mineral potential, location in the world, political stability and current infrastructure.⁵³⁵ Sustainable development of petroleum resources is directly linked to resource exploitation policy, since it is fiscal, regulatory, depletion and economic diversification policies that interact to create conditions conducive to generating and sustaining wealth.⁵³⁶

The building blocks of effective petroleum policy are predicated on the interdependence between the State as resource owners and oil companies as resource exploiters.⁵³⁷ Since governments lack the technical capacity or available capital needed to develop these natural resources, they need to harness the talents and energies of international oil companies to develop the resources. This is particularly evident in the initial phase of resource development, where governments lack the appropriate knowledge or decision-making capacity.⁵³⁸ Consequently, political, economic and social forces exerted by the petroleum industry often influence national governments.⁵³⁹

For the State, the formulation of an appropriate petroleum policy is crucial for the successful exploitation of petroleum resources.⁵⁴⁰ Successful, adaptive policies seek to recognise the non-renewable nature of petroleum resource,

⁵³⁵ Paolo de Sa, Mineral Policy: 'A World Bank Perspective' in E Bastida, T Walde and J Warden-Fernandez (eds), *International and Comparative Mineral Law and Policy* (2005), 494-5.

⁵³⁶ Richard M Auty, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993), 46.

⁵³⁷ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 234.

⁵³⁸ Kenneth Dam, *Oil Resources: Who Gets What, How?* (1976), 4.

⁵³⁹ Arild Holt-Jensen, 'The Sharing of Petroleum Resources: Resource Poverty and Richness Around the Northern European Seas With Special Reference to the Norwegian Position' (1996) 39 (2) *Geojournal* 211, 211.

⁵⁴⁰ Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980), 151-158.

ensuring sustainable exploitation of the resources by utilising the strengths of private oil companies to exploit the resources the State owns.⁵⁴¹

Oil companies want to maximise the return on their capital investment and create conditions of long-term stability for themselves through maximising their share of the financial gains and control of petroleum activity.⁵⁴² For oil companies, a comprehensive State petroleum policy ensures the oil companies can utilise their strengths, research and ingenuity to sustain and enhance their competitiveness in petroleum exploitation while meeting community expectations in all operational aspects.⁵⁴³ In addition, a policy statement assists the participants to realise sustained and confident competitiveness by being able to make decisions within a clear and cohesive framework of objectives and principles.⁵⁴⁴

State ownership of petroleum resources and the strong State interests in petroleum activity, makes a strong link between the petroleum policy and the legal regulations. The state has to develop regulations and legal institutions that will create a development in line with the policy of the state. Since each state has to deal with the international petroleum industry and the highly commercial market of petroleum, it is a complicated task to achieve the policy objectives of each state.

Good petroleum policy attempts to balance the needs of the State as owner and regulator of the petroleum resources, with the needs of the oil companies. Therefore, the aim of a national petroleum policy should be to maintain a balance between the interests, rights, obligations and benefits of all of the participants in the exploitation of petroleum resources. Practically, this means that a sound

⁵⁴¹ Øystein Noreng, *The Oil Industry and Government: Strategy in the North Sea* (1980), 151-158.

⁵⁴² Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 21.

⁵⁴³ Bernard Taverne *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 87.

⁵⁴⁴ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 87.

domestic energy policy should have as its principal objective the secure possession of and access to petroleum resources.⁵⁴⁵

2.6.1 Development of petroleum policy in Australia and Norway

Early petroleum policies

Australia

Offshore Petroleum production and exploration in Australia has occurred since the 1960s with the discovery of petroleum in Bass Strait in 1965.⁵⁴⁶ There have been a number of changes in the policy framework governing the petroleum industry since the 1960s. These changes have been influenced by the complex interaction of changes in government, oil strikes over the last forty years, and a shifting Australian approach to government control over the ‘commanding heights’ of the economy with successive changes in federal governments since the mid 1970s.

At the time petroleum was discovered in the 1960s, the government focused on two main areas of policy: exploration for further deposits and the establishment of petroleum price parity as a policy for the development of Australia’s petroleum resources.⁵⁴⁷ The Gorton government established the ‘controlled price’ concept for all domestic oil in 1968. This remained in place without adjustment until 1975.⁵⁴⁸

⁵⁴⁵ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 87.

⁵⁴⁶ Esso/BHP, *Bass Strait Oil and Gas* (2002) http://www.exxonmobil.com/Australia-English/PA/Files/publication_2002_BassStrait.pdf at 2 August 2007, 3.

⁵⁴⁷ Paul Keating, ‘The Labor Approach to Petroleum Exploration Development and Pricing’ (1980) 20 *APPEA Journal* 16, 16.

⁵⁴⁸ Paul Keating, ‘The Labor Approach to Petroleum Exploration Development and Pricing’ (1980) 20 *APPEA Journal* 16, 16.

Prime Minister Whitlam announced a major policy change relating to exploration in 1975, however this was not implemented since the government was dismissed by the Governor-General in 1975 by a double dissolution of the parliament.⁵⁴⁹ Upon a change of government in December 1975, the Fraser government returned to oil pricing parity, raising the price of local oil to full import parity.⁵⁵⁰ This policy focus remained until a change of government in 1983.

Norway

When the UK and Norwegian governments began formulating petroleum exploration and development policies in the 1960s, they decided early on that they could not accept the prevailing international relationship between governments and oil companies in the exploitation of sovereign petroleum resources.⁵⁵¹ Whilst they knew that they did not want to accept the North American model of petroleum regulation, the governments did not have an alternative regulatory framework. The UK government relied on precedent in commerce and industry, initially adopting a non-participatory approach in the early regulation of oil and gas.⁵⁵²

Given the inexperience of the Norwegian State in the regulation of petroleum resources, they emulated the UK's approach, initially adopting a similar non-participatory approach to regulation in the 1960s.⁵⁵³ However, the Norwegian State was dissatisfied with this minimalist role of the State. Historically,

⁵⁴⁹ The double dissolution of the parliament is authorised under s57 of the Australian Constitution, where there is an irrevocable disagreement between the two Houses of Parliament.

⁵⁵⁰ Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16, 16.

⁵⁵¹ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 14.

⁵⁵² Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 186.

⁵⁵³ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 186.

Norway favoured strong State regulation and intervention in the management of natural resources, illustrated by the State's strong regulation of hydropower since the early 20th century.⁵⁵⁴

The principles of Norwegian petroleum policy were laid out in 1971 in the 'ten oil commandments',⁵⁵⁵ a set of goals and strategies to guide national involvement in the development of petroleum resources throughout the value chain, whilst focusing on the protection of the environment.⁵⁵⁶ These commandments underpinned Norwegian oil policy, dictating two essential policy elements that remain central to Norwegian petroleum policy today: sound macroeconomic policy, and the creation of a State-owned oil company to participate in the exploitation of oil resources and develop domestic industry.⁵⁵⁷ Although Statoil has been partly privatised, it remains an important vehicle for national petroleum policy.

⁵⁵⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 187-8.

⁵⁵⁵ The Norwegian ten oil commandments were approved by the Norwegian Storting (Parliament) on 14 June 1971, and comprised the following:

1. That national supervision and control must be ensured for all operations in the Norwegian continental shelf;
 2. That petroleum discoveries are exploited in a way that makes Norway as independent as possible of others for its supplies of crude oil;
 3. That new industry is developed on the basis of petroleum;
 4. That the development of an oil industry must take necessary account of existing industrial activities and the protection of nature and the environment;
 5. That flaring of exploitable gas on the Norwegian Continental Shelf must not be accepted, except during brief periods of testing;
 6. That petroleum from the Norwegian Continental Shelf must as a main rule be landed in Norway, except in those cases where socio-political considerations dictate a different solution;
 7. That the State becomes involved at all appropriate levels, and contributes to a coordination of Norwegian interests in Norway's petroleum industry as well as the creation of an integrated Norwegian oil community which sets its sights both nationally and internationally;
 8. That a State oil company be established which can look after the government's commercial interests and pursue appropriate collaboration with domestic and foreign oil interests;
 9. That a pattern of activities is selected north of the 62nd parallel which reflects the special socio-political conditions prevailing in that part of the country; and
 10. That large Norwegian petroleum discoveries could present new tasks for Norway's foreign policy.
- See Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 46.

⁵⁵⁶ Willy H Olsen, *Petroleum Revenue Management- An Industry Perspective* (2002) 2 Paper presented at the Oil, Gas, Mining and Chemicals Department of the WBG and ESMAPO, Workshop on Petroleum Revenue Management, Washington DC, 23-24 October, 2004, 2.

⁵⁵⁷ Richard Gordon and Thomas Stenvoll, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University http://www.rice.edu/energy/publications/docs/NOCs/Papers/NOC_Statoil_Gordon-Stenvoll.pdf at 12 December 2009, 2-5.

These commandments outlined four areas of importance for the Norwegian government in the exploitation of their petroleum resources. Firstly, the role of the Norwegian State, to supervise and control all aspects of the Norwegian petroleum industry at appropriate levels. This included the coordination of Norwegian interests, and the creation of an integrated Norwegian oil community.⁵⁵⁸ Secondly, the petroleum licensing and concession system was to ensure energy security for Norway, reducing the reliance on other States as much as possible for its energy requirements.⁵⁵⁹ Thirdly, the commandments were to ensure there was fair consideration of social, economic, political and environmental factors in the development of the petroleum resources.⁵⁶⁰ Finally, the Norwegian licensing and concession system was to develop petroleum-based industries, based on the foundation of existing industries.⁵⁶¹

Norwegian petroleum policies have been through a number of distinct phases, although they have always been underpinned by the ten oil commandments. Initially, from the mid 1960s until the early 1980s, petroleum policy in the infant Norwegian petroleum industry was characterised by nationalist and protectionist policies. The objective of this nationalist strategy was to nurture and encourage Norwegian petroleum companies through information exchange, technology transfer and skilling, to build the capacity for Norwegian companies to develop Norway's petroleum resources.⁵⁶² While multinational oil companies were intended to play an important long-term role, the goal of building up a Norwegian oil community was defined in the early stages of petroleum

⁵⁵⁸ See in particular commandments 1, 7 and 8.

⁵⁵⁹ See in particular commandment 2.

⁵⁶⁰ See in particular commandments 3, 4, 5, 6, 7 and 9.

⁵⁶¹ See in particular commandments 3 and 4.

⁵⁶² Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4.

policy.⁵⁶³ Protectionist policies in the form of a favourable procurement regime existed to assist in the development of domestic industries.⁵⁶⁴

The petroleum licencing system is based on the policy of State direction and control. This had its genesis in the early 1970s as Norway debated what form State control and participation would take. Labour justified the need for heavy State control and participation by examining the UK licencing policy of rapid development, noting

‘... they are committed to the free play of market forces, and are primarily concerned to organise operations so that a large number of companies and groups should be tempted to take part. This is claimed to be provide the best guarantee that the resources will be exploited quickly and efficiently. I say: good luck to them. We have chosen a different approach, and should continue it. The industry Minister has stated on several occasions that we should take our time and make haste slowly. I agree. Nobody – and least of all the Norwegian community – would be served by pursuing a policy in this area which creates a kind of oil fever, and lays the basis for an industry which nobody has control over or comprehends. Norway is a *novice* oil nation in every respect. That makes it all the more necessary that we take the time necessary to achieve *acceptable* and *controllable* progress in what is a new field for us.’⁵⁶⁵

⁵⁶³ Norwegian Petroleum Directorate, *Facts 2003: The Norwegian Petroleum Sector* (2004), 63.

⁵⁶⁴ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 19.

⁵⁶⁵ Thorbjørn Berntsen in Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 47 (emphasis added by Author).

Petroleum Policy: 1980s – mid 1990s

Australia

A major shift in Australia's petroleum policy occurred at a time of increasing internationalisation and a shift toward a free market.⁵⁶⁶ During the 1980s, the federal opposition⁵⁶⁷ had indicated that its policies for the development of offshore petroleum resource would have as its primary aim a long-term sustainable indigenous energy economy.⁵⁶⁸ This included the establishment of a national oil corporation that would operate side by side with private oil companies but with strategic as well as commercial objectives.⁵⁶⁹ This corporation would also provide information to the government to assist in the development of national oil and gas policy.⁵⁷⁰

In 1983, the newly elected Hawke government⁵⁷¹ undertook an assessment of Australia's offshore petroleum resource policies, recognising the importance of maintaining a program of exploration and development of the petroleum industry.⁵⁷² In 1985, the Hawke government recognised and articulated the enormity of implementing a new petroleum policy, and the need for the government to make incremental changes to the petroleum regulatory system.

⁵⁶⁶ Gareth Evans, 'the Petroleum Industry: Building Our Achievements' (1985) 25 *APPEA Journal* 22, 23.

⁵⁶⁷ The Federal Opposition is the political party that has not been elected to govern Australia (the federal government), rather it sits 'in opposition' to the elected government.

⁵⁶⁸ Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16, 19.

⁵⁶⁹ Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16, 19

⁵⁷⁰ Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16, 19.

⁵⁷¹ So called because it was led by The Hon. Robert Hawke.

⁵⁷² Gareth Evans, 'The Petroleum Industry: Building Our Achievements' (1985) 25 *APPEA Journal* 22, 23.

The petroleum industry had indicated it did not want the system to be altered, or it may prevent investment in oil and gas exploration.⁵⁷³

The Hawke government announced a new offshore petroleum policy framework in 1990, with the objective of maximising the benefit to all Australians through an efficient and competitive exploration industry that could assess Australia's petroleum resources, and develop the petroleum resources for the benefit of the Australian nation.⁵⁷⁴ These policy goals were addressed by an offshore petroleum strategy that implemented a comprehensive program for the release of offshore acreage areas for exploration, the provision of geological data from Australian government agencies, and the provision of attractive offshore petroleum title and taxation arrangements.⁵⁷⁵ The major policy elements of this new policy included the release of offshore areas for exploration by companies, the collection of exploration data, and the dissemination of data to companies exploring for petroleum. This was accompanied by an improvement in oil company awareness about Australia's title acquisition and taxation arrangements.⁵⁷⁶

This policy reflected the ideology of the Hawke government, which advocated for societal goals such as security, fairness and equality, beliefs in communities and families, social justice and compassion, environmental sustainability, freedom, liberty and enterprise; and opportunity for all.⁵⁷⁷ It heralded a maturing

⁵⁷³ Gareth Evans, 'The Petroleum Industry: Building Our Achievements' (1985) 25 *APPEA Journal* 22, 23.

⁵⁷⁴ Department of Primary Industries, *Offshore Strategy: Promoting Petroleum Exploration Offshore Australia* (1990), 1.

⁵⁷⁵ Department of Primary Industries, *Offshore Strategy: Promoting Petroleum Exploration Offshore Australia* (1990), 1.

⁵⁷⁶ Department of Primary Industries, *Offshore Strategy: Promoting Petroleum Exploration Offshore Australia* (1990), 1.

⁵⁷⁷ Australian Labor Party, *Enduring Labor Values* (2007) http://www.alp.org.au/platform/chapter_01.php at 18 March 2008.

of Australian petroleum policy, by seeking to maximise the contribution of petroleum to all Australians.⁵⁷⁸

Norway

Norwegian petroleum policies throughout the 1980s and early 1990s followed the key Norwegian oil and gas policies that were developed in the early 1970s. There was a continued focus on national management and control of petroleum resources. Until the early 1980s, petroleum policy in the infant Norwegian petroleum industry was characterised by nationalist and protectionist policies. The objective of this nationalist strategy was to nurture and encourage Norwegian petroleum companies through information exchange, technology transfer and skilling to build the capacity for Norwegian companies to develop the petroleum resources.⁵⁷⁹ While these multinational firms were also intended to play an important long-term role, the focus of petroleum policy during the 1980s was the goal of building up a Norwegian oil community.⁵⁸⁰ Protectionist policies in the form of a favourable procurement regime existed to assist in the development of domestic industries.⁵⁸¹ This initial period of reliance on protectionist policies was reduced as knowledge and technology strengthened during the late 1980s and the early 1990s.

Petroleum policy from the mid 1990s

Australia

A change of government occurred in 1996, with the election of the Howard government. An early focus of the new government was a review of the

⁵⁷⁸ These policy phases were noted by Devaraj in M Devaraj, 'Government Policies Concerning the Discovery and Development of New Offshore Oil Provinces, with Focus on India and the North Sea' (1983) 8 *Ocean Management* 251, 251.

⁵⁷⁹ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4.

⁵⁸⁰ Ministry of Petroleum and Energy, *Facts 2003: The Norwegian Petroleum Sector* (2003), 63.

⁵⁸¹ Noreng, Øystein, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

offshore petroleum regulatory framework. Working closely with the petroleum sector, the government set about building on some elements of the 1990 petroleum policy, as well as incorporating the policy position of the petroleum industry. This review (the Parer review) developed a policy that sought to create certainty for investors and other stakeholders.⁵⁸² It was premised on the creation of a highly competitive (in an economic sense) operating environment, allowing industry to respond confidently to international challenges and to seize international trade and investment opportunities.⁵⁸³ It sought to offer high levels of certainty to investors about their rights and responsibilities and in the processes of public decision-making which it was hoped would encourage investment.⁵⁸⁴ The policy also sought to support industry's efforts to achieve sustained wealth generation through growth, innovation and enhancement of value.⁵⁸⁵

The policy relating to petroleum resources was outlined in the *Minerals and Petroleum Resources Policy Statement* released in 1998. This policy statement delineated a framework for the development of Australian mining and petroleum industries, cementing Australia's commitment to provide investors with a positive, strong, stable framework of government policies to ensure certainty for investors, minimise investment impediments and promote investment in the Australian petroleum industry.⁵⁸⁶ The aim of this policy was

⁵⁸² Warwick Parer, 'Delivering National Prosperity' (1998) Address to the 1998 APPEA Conference 9 March 1998, Canberra. 38 *APPEA Journal Part 2*, 11.

⁵⁸³ Warwick Parer, 'Delivering National Prosperity' (1998) Address to the 1998 APPEA Conference 9 March 1998, Canberra. 38 *APPEA Journal Part 2*, 11.

⁵⁸⁴ Warwick Parer, *Launch of the Commonwealth Government's Minerals and Petroleum Resources Policy Statement Parliament House, Canberra 2 February, 1998* (1998) http://www.daff.gov.au/_data/assets/pdf_file/0003/23763/ministers_parer_speeches.pdf at 2 December 2008.

⁵⁸⁵ Warwick Parer, *Launch of the Commonwealth Government's Minerals and Petroleum Resources Policy Statement Parliament House, Canberra 2 February, 1998* (1998) http://www.daff.gov.au/_data/assets/pdf_file/0003/23763/ministers_parer_speeches.pdf at 2 December 2008.

⁵⁸⁶ Department of Industry, Sciences and Resources, *Australian Offshore Petroleum Strategy – A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 2-3.

to ensure that Australia remained a reliable, long-term supplier to the world's resources and energy markets.⁵⁸⁷ The commercial nature of the revised policy focused on commercial interests and industry control in the development of Australian petroleum resources. It reflected the Howard government focus on a 'small' government that minimises interference whilst maximising individual and private sector initiative.⁵⁸⁸

Australia's petroleum policy has seen two major reviews in the last twenty years.⁵⁸⁹ The policy formulated by the Hawke government in 1990 aimed at promoting an efficient and competitive petroleum exploration and production industry, based on the perceived need to benefit all Australians. This policy was changed by the Howard government in 1998, focussing on providing high levels of certainty to investors and to encourage international investment in the offshore industry. The revised 1998 policy was geared to attracting oil companies into Australian offshore waters, with government objectives driven by sector-wide policy mechanisms for commercial development.⁵⁹⁰

An energy sector-wide policy review in 2004 incorporated a consideration of Australia's petroleum policy.⁵⁹¹ The review was prompted by the leading role that the domestic energy sector has played in the sustained economic growth of Australia's economy.⁵⁹² The review sought to maximise the economic value of Australia's energy resources, provide Australians with a reliable supply of competitively priced energy whilst at the same time ensure an appropriate return

⁵⁸⁷ Department of Industry, Sciences and Resources, *Australian Offshore Petroleum Strategy – A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 2-3.

⁵⁸⁸ Australian Liberal Party, *What Does the Liberal Party Stand For?* (2008) <http://www.liberal.org.au/about/ourbeliefs.php> at 18 March 2008.

⁵⁸⁹ For the development of Australia's petroleum policy refer to section 2.6.5 above.

⁵⁹⁰ Energy Task Force, *Securing Australia's Energy Future* (2004), 51-3.

⁵⁹¹ Energy Task Force, *Securing Australia's Energy Future* (2004), 51-3. The development of petroleum policy is outlined in section 2.5.5 above.

⁵⁹² Energy Task Force, *Securing Australia's Energy Future* (2004).

to the community for the depletion of these non-renewable resources, as well as meeting social and environmental objectives.⁵⁹³ This review reiterated the 1998 policy position for Australia's offshore petroleum sector, and development of the nation's petroleum resources remains guided by the principles laid down in the 1998 policy paper.⁵⁹⁴

The petroleum policies implemented by the Howard government in 1998 indicated a move toward a petroleum policy consistent with the initial phase of Australian petroleum policy phases. In particular, it sought to ensure autonomy for oil companies in petroleum activities, with petroleum exploration and production driven by the petroleum sector. The framework created by the Howard Government was driven by the need to encourage commercial investment and maintain international competitiveness.⁵⁹⁵ However, the election of the Rudd government in 2007 has meant a change in the emphasis of Australia's petroleum policy.

Two significant events since 2007 indicate a shifting petroleum policy emphasis in Australia. The first was the commissioning of an issues paper by the Australian Productivity Commission regarding regulatory burden in the upstream oil and gas sector.⁵⁹⁶ A review of regulatory policy formed a peripheral part of that review.⁵⁹⁷

⁵⁹³ Energy Task Force, *Securing Australia's Energy Future* (2004), 51-3.

⁵⁹⁴ Energy Task Force, *Securing Australia's Energy Future* (2004), 51-3.

⁵⁹⁵ Department of Industry, Sciences and Resources, *Australian Offshore Petroleum Strategy – A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 2-3.

⁵⁹⁶ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008)
http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008.

⁵⁹⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008)
http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 4.

Secondly, the Department of Resources, Energy and Tourism publicly declared in 2008 that:

... 'the Australian government is committed to creating a policy framework to expand Australia's resource base, increase the international competitiveness of [the] resources sector and improve the regulatory regime, consistent with the principles of environmental responsibility and sustainable development.'⁵⁹⁸

The Rudd government seeks to build on the previous government's petroleum framework implemented in 1998, which seeks to enhance Australia's international competitiveness and attract foreign investment in the petroleum sector. The Rudd government has indicated its intention to encourage international competitiveness as a foundation for an improved regulatory regime, but based upon expanding Australian resources in a manner consistent with the principles of sustainable development.⁵⁹⁹ Whilst the current policy framework, as laid down in the 1998 petroleum policy, addresses exploration and commercial aspects of Australian offshore petroleum exploration and production, it does not enunciate a commitment to encouraging sustainable petroleum development for all Australians. Hence, although the Australian government has a current national petroleum policy objective to ensure stewardship of petroleum resources to increase the resource base in a manner consistent with sustainable development, the existing 1998 policy does not reflect this national petroleum objective, rather focussing on commercial interests.

⁵⁹⁸ Department of Resources, Energy and Tourism, *Resources* (2008) <http://www.ret.gov.au/RESOURCES/Pages/Resources.aspx> at 12 December 2008.

⁵⁹⁹ Department of Resources, Energy and Tourism, *Resources* (2008) <http://www.ret.gov.au/RESOURCES/Pages/Resources.aspx> at 12 December 2008.

Norway

Upon entry into the EEA in 1994, Norway was required to implement *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994). This meant that no longer could Norway favour Norwegian companies in the allocation of petroleum licences to encourage economic diversification. By this time, Norway has developed domestic industries that captured production cost spending, as well as diversifying many industries. This meant that whilst Norwegian companies could no longer be favoured, they were able to compete effectively with international companies.

Norway continues to observe the ten oil commandments, although the emphasis of Norwegian petroleum policy has shifted. Today there is a policy of internationalisation,⁶⁰⁰ spearheaded by Statoil as operator and participant in international oil fields. The reasoning for this was primarily to capitalise on Norwegian competence and technology.⁶⁰¹ Other reasons included exploiting the potential of emerging markets, to even out fluctuations in the level of petroleum activity on the Norwegian Continental Shelf, and to acquire new technology and know-how.⁶⁰² This policy is pursued to ensure long-term value creation, continued industrial development and economic development for Norway and Norwegians.

⁶⁰⁰ Internationalisation in this context refers to the Norwegian Oil industry, (including Statoil Hydro, suppliers and associated industries) seeking to participate in petroleum activities in areas aside from the Norwegian Continental Shelf.

⁶⁰¹ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

⁶⁰² Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

2.6.2 Current policy failures in Australia

A major review of Australia's petroleum policy has not been completed since 1998. The present government has determined that Australian petroleum policy should exploit petroleum resources consistent with the principles of sustainable development, optimising the benefit for present and future Australians.⁶⁰³ Yet the existing petroleum policy was developed in 1998, a remnant of the Howard government. It aims to encourage an efficient and competitive petroleum exploration and production industry,⁶⁰⁴ focusing on commercial aspects of Australian offshore petroleum exploration and production.

Australian petroleum policy has essentially left the development of Australia's petroleum resources to the Australian petroleum industry. The Howard government clearly stated its commitment to creating a thriving competitive upstream petroleum industry by working in close cooperation with the private sector.⁶⁰⁵ The vision of the Howard government was of

‘an aggressively competitive, innovative and growing minerals and petroleum sector which contribute[d] strongly to rising national prosperity, employment and regional development.’⁶⁰⁶

At the 1998 conference of Australia's peak petroleum body, the Australian Production and Exploration Association (APPEA), Senator Parer, the then Minister for Minerals and Resources, noted that the challenge for the government was to put in place a legislative and policy framework that allows

⁶⁰³Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 7.

⁶⁰⁴ Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 1.

⁶⁰⁵ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra. 38 *APPEA Journal Part 2*, 7.

⁶⁰⁶ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra 38 *APPEA Journal Part 2*, 8.

industry to efficiently develop the resources to create sustained increases in wealth.⁶⁰⁷

This challenge appears to have not been met. As a consequence of Australia's commercial-oriented policies, Australian resource development is geared toward making itself attractive to foreign investors. The policy minimises State participation, allowing oil companies to manage and control the type and rate of resource development. As a result, investors have a free hand in the exploitation of the petroleum resources in which they have heavily invested.⁶⁰⁸

In 2007 APPEA indicated its strategic objectives include developing an efficient industry, ensuring the benefits of Australia's oil and gas resources enjoyed by the Australian people is maximised, petroleum energy security delivered and the long term sustainability of the Australian oil and gas industry is assured.⁶⁰⁹ Furthermore, it has called for an increased role for the Australian Government in the exploration for petroleum provinces:

... 'Whilst there is no substitute for a frontier discovery to stimulate exploration there is an important role for the Australian governments in facilitating exploration of these frontier areas by undertaking pre-competitive geoscience work required to demonstrate their petroleum potential.'⁶¹⁰

⁶⁰⁷ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra 28 *APPEA Journal Part 2*, 11.

⁶⁰⁸ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra 38 *APPEA Journal Part 2*, 8.

⁶⁰⁸ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra 28 *APPEA Journal Part 2*, 11.

⁶⁰⁹ APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007), iii.

⁶¹⁰ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 8.

... 'it must be further developed by [governments of] all jurisdictions if the opportunity to discover new oil provinces, and thereby sustain Australia's oil industry, is to be maximised.'⁶¹¹

Arguably, current petroleum policy does not maximise the value of oil and gas resources for the Australian people. This is partly attributable to changes in the global petroleum market, and Australia's petroleum reserves. Australia's last petroleum policy was reviewed in the late 1990's, at a time Australia's attractiveness as an exploration destination was second only to the United Kingdom.⁶¹² Today, Australia is still a minor petroleum province, and it is no longer attractive in prospective terms. In the ten-year period to 2002, 154 companies commenced or recommenced exploration operations in Australia, whilst 168 companies left Australia's petroleum provinces in the same period.⁶¹³ It would appear that current petroleum policies that mandate commercial investment and strong industry control are not successful. Australia needs to rethink its petroleum policies. In addition, regulatory challenges and burdens have eroded the attractiveness of Australian petroleum provinces as a place for commercial investment.⁶¹⁴

This current minimalist 'referee only' policy taken by the previous Australian government appears to have failed the Australian petroleum industry, as well as failing to sustainably develop the petroleum resources. The commercially focussed policy of industry attraction and investment has not achieved its

⁶¹¹ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 39.

⁶¹² Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra *APPEA Journal Part 2*, 11.

⁶¹³ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 36.

⁶¹⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008) http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 4.

objectives of developing a strong, aggressive offshore petroleum sector. The targets that were set 10 years ago, in relation to achievements for the Australian industry have gone largely unfulfilled.⁶¹⁵ Production is decreasing, exploration is down and Australia is less attractive as a petroleum exploration province.⁶¹⁶ Furthermore, by its own admission, the petroleum industry is requesting more government intervention, especially in the area of pre-competitive data to encourage exploration, especially in frontier areas.⁶¹⁷

2.6.3 Choices for policy change – lessons from Norway

The petroleum policy implemented by Norway could serve as an example of a policy framework that embraces sustainable development of petroleum resources in a competitive international market. The petroleum policy objective in Norway is to secure a pattern of licencing which effectively promotes the best possible resource management of Norwegian petroleum resources, thereby laying the basis for creating the highest possible value and government revenues.⁶¹⁸

When oil was discovered by Norway in the North Sea and Australia in Bass Strait in the 1960s, the predominant model for the interaction between companies and governments in the exploitation of petroleum was the traditional concession system of the North American model.⁶¹⁹ This model was predicated on the notion that governments imposed a certain number of regulations but did

⁶¹⁵ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 37.

⁶¹⁶ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 37-9.

⁶¹⁷ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of the Government* (2008), 39.

⁶¹⁸ Norwegian Petroleum Directorate, *Facts 2003: The Norwegian Petroleum Sector* (2003), 63.

⁶¹⁹ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 14.

not intervene directly in the petroleum industry.⁶²⁰ The development of this model in North America was borne out of the historical precedent of regulation of industry and enterprise in North America, where there had been a long history of minimalist regulation and a laissez-faire approach to business.

The North American system of regulation was the only model available for consideration by the governments of Norway, the UK and Australia when formulating policy and regulatory framework for the newly discovered oil resources in their respective territories. Since these governments had no experience in the exploitation of petroleum resources, there was little precedent that they could draw on to emulate when formulating policy and regulation relating to petroleum exploitation in the North Sea.

Australia's historical origins and precedent regarding industry and enterprise was similar to that of the United Kingdom, given the colonial origins of Australia. The UK and Australian approach to business and private sector investment has been a 'liberal-pluralist' approach, characterised by the government uninvolved in capital accumulation and allocation, arms length relations with business, the development of policies subject to societal pressures, and the reliance on market solutions to economic problems.⁶²¹

Given this background, it is not surprising that Australia adopted the North American non-interventionist form of regulation when developing its offshore petroleum policy. The result was the formulation of a non-interventionist policy

⁶²⁰ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 17.

⁶²¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 184. For a commentary on the history and origins of British economic policy and the interaction of government and the private sector in the UK see John Zysman, *Governments, Markets and Growth: Financial Systems and Politics of Industrial Change* (1983); David Vogel, *National Styles of Regulation: Environmental Policy in Great Britain and the United States* (1986); and Peter A Hall, *Governing the Economy: The Politics of State Intervention in Britain and France* (1986).

by the Australian government, and the implementation of a regulatory framework that was characterised by minimal intervention and regulation.⁶²²

In the early 1970s there was a significant shift in Norwegian petroleum policy. The State implemented changes reflecting Norway's traditional social democratic approach to economics and regulation of the private sector.⁶²³ This shift was given impetus as new petroleum discoveries on the Norwegian Continental Shelf (NCS) shifted the Norwegian States bargaining position with the oil companies in the favour of the State. It was realised that companies were willing to pay a higher price for the right to explore on the NCS. Consequently, the Norwegian State sought to expand its control and participation in petroleum activities on the NCS.

This increased control and participation in petroleum activities on the NCS was formulated and developed against the influence of, and interaction with, global events that had significant impact on the capacity of the Norwegian State to increase its control over petroleum activities in the North Sea. Norwegian policy was influenced by oil companies, government officials and associated Norwegian industries that exerted their views and desires about regulation of industry in Norway.⁶²⁴ However, the Norwegian tradition of strong government control meant that both the Left and Right contributed to the formulation of the participatory intervention approach to the regulation of NCS petroleum activities.⁶²⁵

⁶²² Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16, 16.

⁶²³ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 187-8.

⁶²⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 187-8.

⁶²⁵ It is important to note that three separate governments from both conservative and 'liberal' sides of politics were involved in the formulation and implementation of petroleum policy in Norway in the 1970's. The Borten government (Conservative) initiated the policy review, the Bratelli government (Labour Party) largely formulated the new policies, and the Korvald government (Conservative) implemented most of the new regulatory system

Prevailing geopolitics and global economics were also a major contributing factor to the formulation of petroleum policy in Norway. Oil companies in the 1970s were increasingly affected by the political and economic events of the decade, particularly the OPEC embargo and crisis in 1973, and events in the Middle East, particularly the Iranian Revolution in 1979.⁶²⁶

These threats from foreign entities and a shift in global geopolitics stirred nationalistic fervour in many States, and in Norway these ‘sentiments inspired a long-range strategy aimed at bringing the greatest possible benefit to Norwegian society.’⁶²⁷ Ongoing Norwegian petroleum policy has been predicated on the concept of developing its resources in a responsible controlled manner for the benefit of Norwegian society as a whole. This benefit has not only included the development of policies for the extraction of petroleum, but also policies for the management of revenue. In addition, the Norwegian State has always focused on the concomitant development of the supply industry within the domestic and international petroleum business arena. The combination of these policies has seen Norway flourish under a management system that implements these overriding principles.

The implementation of Norwegian nationalist sentiments has resulted in the formulation of a policy aimed at the economic diversification of the Norwegian industry, ensuring that there was a development of the domestic industrial capability and reduced reliance upon the oil industry as the major economic force.⁶²⁸ Norway was keen not to fall victim to Dutch disease. Therefore, it

when it came to power. For a discussion on this see Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 34.

⁶²⁶ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 39-40.

⁶²⁷ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 69-70.

⁶²⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 69-79

formulated and implemented procurement policies that stimulated research and development in the petroleum industry and encouraged diversification within the industrial sector.⁶²⁹

These global geopolitical and economic threats also influenced the activities of oil companies, who began to seek proven oil fields in 'safe' provinces. Norway, with its guaranteed fields of Ekofisk, Statfjord and Frigg was highly sought after. This further strengthened its bargaining position, enabling it to develop a highly regulatory framework that became known as the North Sea model, characterised by government control over all aspects of exploration, field development and production.

The Norwegian government sought to exert control over the development resources. One government minister articulated the government fears regarding private oil companies by noting that 'this isn't a battle field where wealthy private interests will be allowed to fight over who should take the profits.'⁶³⁰ The Storting also voiced its apprehension over the conduct of international oil companies, who were seen to be 'enjoying excess profits at the expense of consumers and oil exporting countries.'⁶³¹ Therefore, the Norwegian government adopted a mercantilist role,⁶³² tying oil interests to other interests by developing a procurement policy that encouraged the development of an indigenous petroleum industry.

The rationale of this policy approach was that the petroleum industry operated on public land, and was extracting resources-in-the-ground that were in public

⁶²⁹ Brent F Nelsen, 'Explaining Petroleum Policy in Britain and Norway, 1962 – 90' (1992) 15 (4) *Scandinavian Political Studies* 307, 318.

⁶³⁰ Thorbjørn Berntsen in Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 47.

⁶³¹ Norwegian Storting, *Petroleum Industry in Norwegian Society*, (1974) Storting Report No. 25 1973-4, 30.

⁶³² Øystein Noreng with Farshad Tehrani, *The Norwegian Experience of Economic Diversification in Relation to Petroleum Industry and the Relevance to Iran* (2005) The 10th Institute for International Energy Studies (IIES) Conference Tehran 4-5 December 2005, 6.

ownership. Consequently, lifting oil and gas means depleting a public capital base, for which compensation should be found in the building up of other assets to secure a continuity of income. To implement this policy, the Norwegian government embarked on an aggressive strategy of development of associated industries in the first twenty years of petroleum exploration and production. This economic diversification was encouraged through the active participation of a mix of national and international companies, and especially the building up of Norwegian competence. Since 1970, Norwegian governments have regarded it as essential to promote competition in the oil industry while at the same time actively promoting the business opportunities for Norwegian industry, thereby achieving success in obtaining high local content in activities.⁶³³ This policy was formally declared in 1972 by the *Royal Decree of 8 December 1972 Relating to Exploration of and Exploitation of Petroleum in the Seabed and Substrata of the Norwegian Continental Shelf*, and implemented through conditions attached to the granting of licences from the third petroleum licencing round.⁶³⁴

The Royal Decree required, amongst other things, all licencees to use Norwegian suppliers for offshore petroleum goods and services where Norwegian companies were competitive regarding quality, service, schedule of delivery, and price.⁶³⁵ Local content provisions were incorporated to encourage and promote the development of infant petroleum industries.⁶³⁶ The licencing conditions stipulated strict control over actual supplies of goods and services to the

⁶³³ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

⁶³⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 71-5. This round occurred in 1974, therefore it was the first official implementation of the procurement policy from the 1972 Decree. However, there had been some development of local industry prior to this official decree.

⁶³⁵ 'competitive' in this context meant that if tenders from Norwegian companies were up to 10% above international companies, they were to be favoured. For a discussion on the economic diversification policies in Norway during the 1970s, see Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 71.

⁶³⁶ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 71.

development and production activities, securing Norwegian companies an active part in the competition for deliveries.⁶³⁷ During the awarding of supply contracts, the operator was required to inform the Ministry of its recommended supplier and Norwegian content, and the Ministry ensured that the Norwegian bidder was awarded the contract.⁶³⁸ This was essential for all oil companies, resulting in Norwegian contracting and supply ranging from 50-70% of all goods and services during this period.⁶³⁹

There are two enduring elements of Norwegian petroleum policy that have remained, from the initial phase in the 1960s to the mature phase that Norway entered in the mid 1990s. First, Norwegian oil and gas resources are identified as part of the national wealth. Thus, the whole population (both current and future generations) should benefit from the depletion of these resources, implying that petroleum revenues must be managed to optimise the social and economic benefit for present and future generations. In order to meet this first goal of Norwegian petroleum policy, the second element of Norwegian policy is to attract the best of international expertise and competence, and to promote co-operation between domestic and international players. The Norwegian government sees international expertise as essential for sustainable resource development, since the combination of domestic and international knowledge and effort ensures the maximum value for Norway's petroleum resources.⁶⁴⁰

⁶³⁷ Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000*. http://www.odin.no/odinarkiv/english/stoltenberg_I/0ed/026031-090011/dok-bn.html at 23 December 2006.

⁶³⁸ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

⁶³⁹ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

⁶⁴⁰ Norwegian Petroleum Directorate, *Norwegian Organisation of the Petroleum Sector* (2006) <http://www.regjeringen.no/en/dep/0ed/The-Ministry/Other-political-Staff/avskjedigete/State-Secretary--Anita-Utseth-/Speeches-and-articles/2006/The-Norwegian-organisation-of-the-petroleum-sector.html?id=420787> at 2 December 2008.

Petroleum policy has matured as a consequence of this ‘whole of society’ view of petroleum resources in Norway. Today there are six main areas of petroleum policy in Norway, refined to meet the collective needs of the petroleum industry, the Norwegian State, the EEA and other international requirements. These areas include the right to subsea deposits, maintaining national control of and benefits from the petroleum industry, nurturing and developing a skilled and competitive oil company and supply industry, establishing a future fund for today’s and future generations, and to focus on the environment to ensure environmental sustainability for present and future generations.⁶⁴¹

The Norwegian policy framework is frequently considered by other oil and gas producing countries that seek to emulate the Norwegian experience of maximising the value of its petroleum resources,⁶⁴² since Norway is one of the few nations that have avoided resource curse.⁶⁴³ The Norwegian policy framework provides an example for any country that seeks to sustainably exploit their petroleum resources, with its long-term policy outlook on resource management.⁶⁴⁴

2.6.4 A new petroleum policy for Australia?

The analysis of Norwegian and Australian offshore petroleum resource policy highlights similarities and differences between Australian and Norwegian

⁶⁴¹ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

⁶⁴² Willy H Olsen, *Petroleum Revenue Management- An Industry Perspective* (2002) 2 Paper presented at the Oil, Gas, Mining and Chemicals Department of the WBG and ESMAPO, Workshop on Petroleum Revenue Management, Washington DC, 23-24 October, 2004, 3.

⁶⁴³ For a discussion of how Norway has avoided resource curse refer to Erling Røed Larsen, ‘Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors’ (2006) 65 (3) *American Journal of Economics and Sociology* 605.

⁶⁴⁴ Willy H Olsen, *Petroleum Revenue Management- An Industry Perspective* (2002) 2 Paper presented at the Oil, Gas, Mining and Chemicals Department of the WBG and ESMAPO, Workshop on Petroleum Revenue Management, Washington DC, 23-24 October, 2004, 3.

petroleum policies. Importantly, this analysis has highlighted the difference in policy planning between the two nations. Norway's fundamental policies were developed in the early 1970s, and were formulated to establish suitable fiscal, regulatory and political policies to develop the resources. These policies were regularly revised, and often adapted to incorporate legal, social and political changes. Conversely, Australia developed its first comprehensive petroleum policy in 1990, some 25 years after the discovery of petroleum in Bass Strait. A comparison of the petroleum policies of Australia and Norway is illustrated in figure 3 below. Importantly, it demonstrates the fundamental policy differences between Australian and Norwegian petroleum policy frameworks – particularly the level of government control over the development of petroleum.

Factors	Australia	Norway
Political Policy <ul style="list-style-type: none"> • Controlled development of resource • Stated policy objective to maximise wealth for the benefit of present and future generations • Participation of the State in petroleum exploitation • Politically stable • People as owners of the resource and beneficiaries • Role of the state as manager and participant • Role of the state - minimalist 	<ul style="list-style-type: none"> x x/✓ x ✓ ✓ x ✓ 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓ x
Regulatory Policy <ul style="list-style-type: none"> • Strong Legal Institutions • Licencing and Concession System (LCS) • Discretionary system to assist state in times of change • Regulatory framework for capture of economic rent • Ability to control rate of depletion • JOA/ contractual framework • Transparency and accountability 	<ul style="list-style-type: none"> ✓ ✓ x ✓ ✓/x x x 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓ ✓
Other policy areas <ul style="list-style-type: none"> • Active development of technology and R&D • Role of oil company controlled for balanced return of income to both company and State 	<ul style="list-style-type: none"> x x 	<ul style="list-style-type: none"> ✓ ✓

Figure 3: Comparison of Norwegian and Australian petroleum policies (Compiled by author)

The above figure confirms that there are many policy similarities between Australia and Norway, enabling a comparison between national petroleum objectives. It highlights focus of petroleum policies in Norway upon the development of petroleum resources for the benefit of the Norwegian people and for the maximisation of wealth compared to Australian policies which are commercial in focus, seeking to attract foreign investment. This may well be a remnant of Australian self-critical view of itself as a province of low attractiveness and prospectivity. It also demonstrates the role of the Norwegian State as manager and controller of the exploitation of petroleum resources compared to Australian policy position in the development of petroleum resources as one of minimal government participation. Conversely, the Norwegian State developed and implemented, from an early stage, a public policy that created a State Oil Company that competed with oil companies and demanded the exchange of information, skills and technology.

Success of the Norwegian petroleum industry can be attributable to the multiple policy choices by the Norwegian government, underpinned by a framework of oil commandments.⁶⁴⁵ Norwegian petroleum policy as a whole, and the creation and role of Statoil in particular, has demonstrated how ‘one can structure the petroleum policy in a manner that serves the economy as a whole rather than the interests of a limited number of individuals in the economy.’⁶⁴⁶ With suitable adaptation, these policy choices can be applied to a cross section of energy-producing countries.

The comparison of Australian and Norwegian policy demonstrates that although both States today have a national petroleum policy focussed toward sustainable

⁶⁴⁵ Richard Gordon, *Statoil: Lessons From a Study of Political Entrepreneurship slide 5* (2007) http://www.rice.edu/energy/publications/docs/NOCs/Presentations/Dubai-Gordon_Stenvoll-Statoil.pdf at 12 January 2008.

⁶⁴⁶ Richard Gordon and Thomas Stenvoll, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University http://www.rice.edu/energy/publications/docs/NOCs/Papers/NOC_Statoil_Gordon-Stenvoll.pdf at 12 December 2009, 2.

development of petroleum resources, Australia has failed to develop a coherent policy framework to develop the petroleum resources for the benefit of the Australian people, both for this and future generations. In order for the Australian people and community to benefit from the endowment of petroleum resources, there needs to be a shift in the Australian petroleum policy framework. As such, Australia's petroleum political, fiscal and regulatory policies are in need of re-evaluation. A suitable policy framework to use as a point of reference is the Norwegian policy framework, since Australia has many similarities to Norway in terms of the need to create wealth, as well as a similar political, economic and social framework. In addition, both States also utilise the licencing and concession system for the regulation of petroleum resources.

A number of changes in Australian petroleum policy framework could encourage sustainable development of petroleum resources. Australian petroleum policy should consider a greater State role in the management of petroleum resources. Rather than embracing a policy predicated on commercial investment, there needs to be a focus on the exploitation of the resources by oil companies for the benefit of the State and community. Any policies embraced by Australia need to be based on the concept that Australia's petroleum resources belong to the Australian people, and should be exploited in a manner that is beneficial to present and future generations. This is a fundamental policy shift for Australia, with a focus on the people and the State rather than partnership with oil companies for the exploitation of resources.

2.7 Conclusion

In some respects, the Australian petroleum industry is still in its infancy, similar to Norway in the 1970s and 1980s. It is characterised by vast frontier areas,⁶⁴⁷ a

⁶⁴⁷ Department of Industry, Tourism and Resources, *Offshore Acreage Release 2006: An Overview for Investors* (2006).

need to accumulate geotechnical data,⁶⁴⁸ and a shifting policy landscape. The Norwegian system of petroleum regulation has been developed in response to similar technical and regulatory challenges. As such, there are lessons that can be taken from the Norwegian experiences and address the issues facing Australian petroleum development today.

Certainly, there are differences between the two countries, particularly in the way that petroleum resources have been developed. However, this chapter has demonstrated that many similarities can be identified between Australia and Norway. Each State develops its resources within common international law norms. Both are constitutional monarchies, with comparable legal systems. The economies of the two countries are comparable, with an emphasis on the export on primary resources. Furthermore, each country has implemented a system of welfare to assist its population.

When considering the development of petroleum in the two countries, both countries discovered petroleum around the same time, and use the licencing and concession system to develop these resources. Furthermore, each country has an economic imperative to develop those resources. Whilst that economic imperative is not the same, it has provided an impetus to develop petroleum resources. These similarities are sufficient to enable Australia to consider the experiences of Norway in the regulation of petroleum to encourage sustainable development.

⁶⁴⁸ Geoscience Australia, *Big New Oil Program* (2004) http://www.ga.gov.au/oceans/og_BigNewOil.jsp at 21 October 2006.

Control over the production of petroleum has been considered by Norway to be essential for the generation of wealth. Using a controlled, analytical approach to petroleum exploitation similar to the Norwegian approach, the Commonwealth may be able to facilitate the sustainable development of Australia's offshore petroleum resources. Therefore, Australian petroleum policy needs to focus on the development of petroleum resources for the benefit of current and future generations. To that end, petroleum policy should emphasise maximising wealth and creating enduring value, rather than attracting commercial investment.

At present, the Australian government, by its own admission, merely plays referee to the petroleum industry,⁶⁴⁹ within the licencing and concession system that regulates petroleum activities. However Australia has also indicated a national petroleum objective to develop a petroleum policy framework that not only expands its international competitiveness, but also expands the resource base consistent with the principles of sustainable development.⁶⁵⁰ The current difficulty for Australia is that the current policy framework, laid down in 1998, remains focussed on commercial development and enhancing commercial interests. To implement the policy objectives enunciated by the Rudd government in 2007, Australia requires a fundamental alternation to the current policy framework. The Norwegian petroleum policy framework may provide some guidance for Australia when formulating a new petroleum policy. The Australian policy should incorporate a strong regulatory framework and licencing system that is transparent and accountable but also incorporates discretion to ensure petroleum regulation can be adjusted to suit economic conditions whilst still providing clear direction and guidelines. A detailed analysis of the central elements of a regulatory framework for such development is found in Chapter three.

⁶⁴⁹ Senator Warwick Parer, *Delivering National Prosperity* (1998) Opening Address, APPEA National Conference, 1998, Canberra 38 *APPEA Journal Part 2*, 7.

⁶⁵⁰ As laid down by the Rudd Government at Department of Resources, Energy and Tourism, *Resources* (2008) <http://www.ret.gov.au/RESOURCES/Pages/Resources.aspx> at 12 December 2008.

3. Structure of regulatory legislative frameworks for sustainable development of petroleum resources

3.1 Introduction

Petroleum exploration and production are subject to high risk and a changing economic and technological environment. It is necessary for both the State as regulator, and the companies who perform the petroleum activities, to be able to adapt to new conditions over the period of a petroleum licence, which may span twenty years or more. Therefore, it is important to establish a regulatory legislative framework that balances the need for flexibility and stability with the State's petroleum policy objectives.

At first glance, it appears that the interests of the State and oil companies in the exploitation of petroleum are the same: to produce as much petroleum, as cheaply as possible. However there are also divergent interests, since the State is also concerned with its national petroleum objectives. A State's interests are necessarily focussed on the development of the national petroleum resource as a whole, including the development of petroleum-producing provinces, and the concomitant infrastructure required to develop those resources. This differs to the focus of individual petroleum companies, which concentrate on their portfolio of petroleum fields in many jurisdictions and in various stages of development. A company views its commitment and field development strategy in the broader perspective of global petroleum activities and the necessary deployment of physical and human resources to accomplish commercial goals, whilst the State focuses on the petroleum resources they own in their jurisdiction.

The legislative regulatory framework should reflect a State's petroleum policy objective, establishing, maintaining and enforcing a system of competence⁶⁵¹ to

⁶⁵¹ In this context the meaning of competence is proficiency, capacity or authority. See Torben Spraaak, 'Explicating the Concept of Legal Competence' in Jaap C Hage and Dietmar Pfordten (eds) *Concepts in Law* (2009), 67.

regulate petroleum activities in a manner consistent with a States national petroleum objectives. These include the effective development of, and maximum ultimate recovery from petroleum fields, and maximisation of benefit to the national economy from such development.⁶⁵² This competence includes legislative and administrative competence. Legislative competence establishes and maintains a legal regulatory framework for the conferring of rights and interests relating to petroleum exploitation, and the competence to make legal decisions regarding these rights and interest. Administrative competence confers upon a regulatory body the necessary knowledge, jurisdiction and decision-making capacity to regulate petroleum activities consistent with national petroleum objectives.

In previous chapter, I analysed the development of petroleum policy in Australia and Norway. In this chapter I will discuss the legal measures that can be used to achieve these policy goals. I will engage in a functional analysis of the petroleum legislative frameworks in Australia and Norway, comparing Australia's rule based legislation with Norway's more principle based legislation, in order to assess which system is more effective in sustainably exploiting its petroleum resources. I will focus on an examination of the structure and function of the legislation and regulatory framework, rather than the detailed content of the legislation. In this analysis I will compare and contrast the structure and function of the central elements in the regulation and the legislative and administrative tools utilised to achieve the policy goals, by drawing upon examples of the legislation pertaining to the award of a petroleum licence in Australia and Norway. A more thorough examination of the legislative content of Norwegian and Australian petroleum legislation regarding the award of petroleum licences, and the regulation of field development for the sustainable development of petroleum resources is made in chapters four and five respectively. In this chapter I also examine the organisation of the

⁶⁵² Kamal Hossein, *Law and Policy in Petroleum Development Changing Relations Between Transnationals and Governments* (1979), 32.

administrative body that implements the petroleum legislation, to determine what impact the structure and function of the administrative body has on the capacity of a State to sustainably develop its petroleum resources.

In addition to legislative and administrative regulation, the petroleum regime also encompasses contracts used to regulate the relations between the participants in petroleum activity. The construction and function of these contracts form part of the regulatory legislative regime. Therefore, in this chapter I examine the structure and function of Australian and Norwegian joint venture agreements. Although I make a broad analysis on the importance of the contractual agreement, I focus on how the Management Committee is capable of enabling the State, regardless of whether the State participates in petroleum activities, to regulate petroleum activities to enable a State to satisfy its petroleum objectives.

3.2 Legal problems arising from the roles of the State in petroleum activities

The regulatory legislative framework for petroleum activities must be constructed as a function of what the State seeks to accomplish in developing its resources.⁶⁵³

The State has to develop legal institutions and suitable regulatory regimes for the exploitation of petroleum. Without such institutions, there is a possibility the State will lose control over the resource exploitation, resulting in less effective resource extraction and becoming beholden to the petroleum companies that exploit the petroleum.⁶⁵⁴

⁶⁵³ Australian petroleum policy has previously been focussed on encouraging commercial investment and petroleum exploitation driven by oil companies. The change of government in 2007 has seen the federal government focus Australia petroleum policy on the sustainable development of petroleum resources to maximise the benefit from the development of these resources. Norwegian policy remains focused on the development of petroleum resources to ensure benefit for all of Norwegian society.

⁶⁵⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 185-6.

The State, as owner of petroleum resources, may have two roles when developing petroleum resources. Firstly, the State has the role of regulator of petroleum activities. This requires the State to regulate petroleum activities in a manner which creates and maintains benefits for that State.⁶⁵⁵ Secondly, the State can assume the role of participant in petroleum exploitation.⁶⁵⁶ When doing so, the State enters the realm of commercial activities in an attempt to create benefits for its society.

This creates challenges for States in developing and maintaining an effective regulatory regime, but it also creates possibilities for effective sustainable resource management.

3.2.1 The State as a regulator

The State as a legal regulator

Since the State assigns proprietary rights⁶⁵⁷ to third parties to exploit petroleum resources, the State needs to ensure that it has the necessary legal and administrative competence to regulate the exploitation of its petroleum resources in a manner that meets the national petroleum objectives. Therefore, the State is required to create an effective regulatory framework that establishes the legal competence of that State to regulate petroleum activities. This legal competence is found in the relevant Acts and Regulations that govern petroleum activities in each State, and is considered in section 3.3 below. The administrative competence is conferred through the regulatory body or bodies that administer petroleum activities. The State, as resource owner, acts as the administrative body to implement the legal regulatory regime that has been

⁶⁵⁵ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 185-6.

⁶⁵⁶ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 185-6.

⁶⁵⁷ Proprietary right refers to the right that is possessed with the ownership of the property. See www.Legal-explanations.com at 14 March 2009.

established, including the grant of petroleum licences, as well as reviewing petroleum policies.⁶⁵⁸ The capacity and jurisdiction of the administrative body will affect the capacity of the State to implement national petroleum objectives. The administration of petroleum activities is considered in section 3.4 below.

The State as economic regulator

Some States, particularly the UK and Norway, utilise its role as regulator to establish conditions that favour national services and industries, thus building competence within these sectors utilising the legislative framework regulating the grant of petroleum licences. The Norwegian government implemented an economic diversification policy, encouraging the development of a national petroleum industry concomitant with an increase in petroleum activities from the late 1960s.⁶⁵⁹ There was a policy of encouragement of Norwegian skills and industries capable of capturing petroleum cost spending, mandatory petroleum R&D in Norway, increased workforce skilling and education and technological development.⁶⁶⁰

The regulation of petroleum activities through the award of petroleum licences to encourage the development of national industries and sectors is considered in Chapter four.

3.2.2 The State as a participant in petroleum activities

In some petroleum producing States, the government not only regulates petroleum activities, but also participates in petroleum activities. Many States participate in petroleum activities through a national oil company. Since early

⁶⁵⁸ Gunnar Gjerde, *The Norwegian Model and the Working Relationship Between the Authorities and the Industry: As Seen from the Authorities' Point of View* (2006). http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 March 2008, 2-5.

⁶⁵⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 1.

⁶⁶⁰ See Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006, for a discussion on the implementation of the Norwegian procurement policy.

licencing rounds, the Norwegian government has participated in petroleum activities through the national oil company Statoil.

Aside from participation by a State oil company as a commercial entity, there is the capacity for the State to participate directly in petroleum activities. Non-commercial State participation has been achieved in Norway by the Norwegian government establishing a direct financial interest in petroleum fields.⁶⁶¹

Whether these forms of State participation are effective in encouraging sustainable development of resources is considered in section 3.5 below.

3.2.3 Economic and commercial challenges for participants

Commercial participants in petroleum exploitation are required to respond to the petroleum market and the economic/commercial imperatives of the oil company and its shareholders, since there is a commercial requirement for the company to realise profit by developing fields and utilizing resources on a global level. This differs to the focus of the State. Where the State participates, its focus is to implement the national petroleum objective, having concern for only domestic petroleum activities. Therefore if a State participates in petroleum activities it is (or should be) interested in the development of the resources to meet the State's policy objectives, rather than generating commercial profit. These differing outcomes create difficulties in the regulation of the participants of petroleum activities. However, the use of a common contract between all participants may alleviate some of these difficulties. Therefore, in section 3.5 of this chapter I address the use of a common contract between all participants to enable the State to attain its petroleum objectives of sustainable development whilst still enabling oil companies to meet their commercial need to generate profit.

⁶⁶¹ The legislative competence for the State to create a State financial interest arises under s 3-6 and 11-1 of the *Petroleum Activities Act 1996* (Norway).

3.3 Structuring legislative regulation

3.3.1 Principles of legislative regulation: rule based or principle based?

Legal regulation can be defined as ‘a principle, rule or law designed to control or govern conduct’.⁶⁶² The legislative framework regulating petroleum exploitation encompasses legal instruments such as primary legislation, subordinate legislation as well as administrative decisions made by public officials utilising policy guidelines.⁶⁶³ The legislative framework designed by the State is a fundamental tool in the administration of petroleum activities in that State. The legislative framework established by a State can include either rule based or principle based legislation.⁶⁶⁴

Rule based regulatory frameworks rely on legislatively entrenched rules to regulate petroleum activities. These systems tend to require new rules every time a new regulatory situation arises.⁶⁶⁵ In addition, rule based regulation can lead to regulatory inconsistencies, and rigidity, and are prone to creative compliance in order to adjust to new situations.⁶⁶⁶

Principle based regulation moves away from detailed, prescriptive rules, instead relying on broadly stated principles or objectives to set the standards by which companies conduct their operations,⁶⁶⁷ and the basis for decision making by

⁶⁶² Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008).

http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 3.

⁶⁶³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008).

http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008 6.

⁶⁶⁴ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 3.

⁶⁶⁵ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 7.

⁶⁶⁶ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 7.

⁶⁶⁷ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 3.

public authorities. Under this type of legislation, there is a reference to general rules that express fundamental obligations that the participants should observe.⁶⁶⁸ It is often known as objective based regulation since it seeks to implement the policy objectives using broad principles rather than specific rules.

Principle based regulatory systems tend to provide flexibility and are more likely to allow a petroleum regulatory regime to respond to new issues as they arise, since they contain an element of State discretion in the implementation of the relevant law. Generally, principle based regulation is drafted at a high level of generality, intending to be overarching requirements rather than rigid rules.⁶⁶⁹ This ensures that the legislation has a broad application to a wide range of circumstances.⁶⁷⁰ This ensures an outcome consistent with the general principles imbued in the regulatory framework, as well as enabling the legislation to be flexible and respond to the needs of petroleum producers within the ever-changing petroleum market. Between these two archetypes of regulation there can of course be many solutions with different level of combinations of rules and principles.

Whichever system of petroleum regulation a State chooses, it must be able to not only regulate petroleum activities, but also respond to the unique issues that arise in the regulation of petroleum exploitation. This includes the long-term relationship between the State and the participants exploiting the petroleum within a volatile, fast-changing market, and the need for certainty of conditions for the oil companies that choose to engage in petroleum activities within that State. This response should be in a manner that is transparent, predictable and consistent with the overarching petroleum objectives of that State. Therefore,

⁶⁶⁸ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 6-7.

⁶⁶⁹ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 7.

⁶⁷⁰ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 4.

the legal and administrative framework must be constructed as a function of what a State seeks to accomplish in the management of its petroleum resources. What a State seeks to accomplish in the exploitation of its petroleum resources is outlined in its petroleum policy. As part of its national petroleum policy objectives, Australia seeks to increase its resource base within a framework of sustainable development. Therefore, the legal framework that is constructed should be capable of attaining that outcome.

3.3.2 Challenges of a Federalist system in regulatory legislative frameworks for sustainable petroleum development

Since the Australian government is based on federalism, there are particular legislative and administrative challenges that govern the exploitation of offshore petroleum in Australia. This has also influenced Australia's regulation of its offshore petroleum resources.

Initial arrangements between the Commonwealth and states for the exploration and production of offshore petroleum were created under the *1967 Petroleum Agreement*.⁶⁷¹ This agreement was forged between the Commonwealth, states and affected territories and is officially known as the *Agreement Relating to the Exploration for and the Exploitation of, the Petroleum Resources, and Certain Other Resources, of the Continental Shelf of Australia and of Certain Territories of the Commonwealth and of Certain Other Submerged Land signed October 16, 1967* (Petroleum Agreement). The Agreement did not intend to create legal relationships enforceable in a court of law.⁶⁷² Rather, it noted that petroleum activities would be encouraged by uniform legislative measures on the continental shelf beyond territorial limits, and that the state and national governments would cooperate to ensure effectiveness of authorities over

⁶⁷¹ Constance D Hunt, *The Offshore Petroleum Regimes of Canada and Australia* (1989), 63.

⁶⁷² Constance D Hunt, *The Offshore Petroleum Regimes of Canada and Australia* (1989), 64.

petroleum resources.⁶⁷³ The legal status of the Petroleum Agreement was made clear in clause 26 of the Agreement –

‘the Governments acknowledge that this Agreement is not intended to create legal relationships justiciable in a Court of Law but declare that the Agreement shall be construed and given effect to by the parties in all respects according to the true meaning and spirit thereof’.⁶⁷⁴

To achieve constitutional legitimacy, each state and territory government legislated with respect to offshore petroleum operations in identical terms to the Commonwealth petroleum legislation (known as ‘mirror’ legislation).⁶⁷⁵ In addition, all governments agreed not to make, amend or repeal regulations under the legislation except under a prior agreement to do so.⁶⁷⁶

The *Petroleum (Submerged Lands) Act 1967* (CTH) (PSLA) was conceived as an ingenious legal mechanism to give effect to the Petroleum Agreement,⁶⁷⁷ securing offshore petroleum development without having to resolve the jurisdictional issues between the Commonwealth and the states.⁶⁷⁸ This legislation arose because of the constitutional arrangements that existed between the Commonwealth and states at the time the PSLA was enacted. This PSLA addressed the constitutional demarcation of jurisdictions by enacting a comprehensive legislative ‘code,’ creating joint Commonwealth-state administration of petroleum of titles.⁶⁷⁹ Much of the details ordinarily contained

⁶⁷³ Constance D Hunt, *The Offshore Petroleum Regimes of Canada and Australia* (1989), 63.

⁶⁷⁴ See Michael Crommelin, ‘The Legal Character of Petroleum Production Licences in Australia’ in Terrence Daintith, *The Legal Character of Petroleum Licences: A Comparative Study* (1981), 61.

⁶⁷⁵ Michael Crommelin, ‘The Legal Character of Petroleum Production Licences in Australia’ in Terrence Daintith, *The Legal Character of Petroleum Licences: A Comparative Study* (1981), 62, and *Bonser v La Macchia* (1969) 122 CLR 177.

⁶⁷⁶ Michael Crommelin, ‘The Legal Character of Petroleum Production Licences in Australia’ in Terrence Daintith, *The Legal Character of Petroleum Licences: A Comparative Study* (1981), 62.

⁶⁷⁷ Constance D Hunt, *The Offshore Petroleum Regimes of Canada and Australia* (1989), 64.

⁶⁷⁸ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas* (2005), 13.

⁶⁷⁹ Terrence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 93. This joint management required the establishment of two Authorities that regulate petroleum activities: The Joint Authority, which comprises the relevant Commonwealth Minister and the responsible State Minister, and the Designated Authority, comprising the responsible state or territory Minister.

in regulations are contained in the PSLA, since if administrative delegation occurred there was a risk of variation or conflict between the Commonwealth and states.⁶⁸⁰ To reduce the capacity for the states to go their own way, the provisions of the petroleum legislation were necessarily detailed,⁶⁸¹ granting each state or territory the legislative capacity to grant dual titles to oil companies under State Authority and Delegated Authority from the Commonwealth.⁶⁸² Consequently, there are eight petroleum jurisdictions in Australia.⁶⁸³

The relationship between the states and the Commonwealth was altered in 1973 when the Commonwealth claimed the offshore maritime zones in the *Sea and Submerged Lands Act 1973* (Cth). The NSW government immediately challenged the constitutional validity of this legislation in the High Court.⁶⁸⁴ NSW contended that they held rights in the territorial waters from the baseline seaward three nautical miles, the same as those rights for fishing held in *Bonser v La Macchia*.⁶⁸⁵ The High Court in *NSW v Commonwealth*⁶⁸⁶ held that sovereign rights in relation to the Continental Shelf outside the territorial waters were vested in the Commonwealth. Furthermore, with the exception of Gibbs and Stephen JJ in dissent, the Justices also concurred that the sovereignty in the territorial waters was vested in the Commonwealth.⁶⁸⁷ As a consequence of this decision, the states were denied property rights in the seabed and subsea terrain of the territorial waters, since their territory ended at low-water mark.⁶⁸⁸ This

⁶⁸⁰ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas* (2005), 13.

⁶⁸¹ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas* (2005), 13.

⁶⁸² Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas* (2005), 13.

⁶⁸³ Commonwealth Offshore, New South Wales (NSW), Western Australia (WA), Tasmania, Victoria, Northern Territory (NT), South Australia (SA) and Queensland (Qld).

⁶⁸⁴ *NSW v Commonwealth* (1975) 8 ALR 1.

⁶⁸⁵ *Bonser v La Macchia* (1969) 122 CLR 177.

⁶⁸⁶ *NSW v Commonwealth* (1975) 8 ALR 1.

⁶⁸⁷ *NSW v Commonwealth* (1975) 8 ALR 1.

⁶⁸⁸ Pat Brazil, *Offshore Constitutional Settlement 1980: A Case Study in Federalism* (2001) Centre for International and Public Law, Faculty of Law, Australian National University, 2.

decision had a major impact on the states' jurisdiction over, and income from offshore petroleum, and prompted negotiations between petroleum-producing states and territories and the Commonwealth.

A permanent solution to these constitutional issues was reached in the *Offshore Constitutional Settlement* in 1980, and enacted at state and Commonwealth level through mirror legislation (Commonwealth and state *Petroleum (Submerged Lands) Acts*).⁶⁸⁹ In addition, a plethora of other necessary legislation was enacted to enable the implementation of the *Offshore Constitutional Settlement*.⁶⁹⁰ The offshore jurisdiction of the states/territories is defined in section 5 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) as agreed to by the states and the Commonwealth in the *Offshore Constitutional Agreement*, which remain in force today:

- a. Commonwealth offshore petroleum legislation is limited to the area outside the coastal waters of the States and the Northern Territory;⁶⁹¹ and
- b. For this purpose, the outer limits of the State and Northern Territory coastal waters should start 3nm from the baseline of the territorial sea;⁶⁹² and
- c. The States and the Northern Territory should share, in the manner provided by the OPA, in the administration of the Commonwealth offshore petroleum legislation;⁶⁹³ and
- d. State and Northern Territory offshore petroleum legislation should apply to State and Northern Territory coastal waters;⁶⁹⁴ and

⁶⁸⁹ *Petroleum (Submerged Lands) Act 1967* (Cth), *Petroleum (Submerged Lands) Registration Fees Act 1990* (WA), *Petroleum (Submerged Lands) Act 1982* (Vic), *Petroleum (Submerged Lands) Act 1982* (Qld), *Petroleum (Submerged Lands) Act 1982* (SA), *Petroleum (Submerged Lands) Act 1982* (Tas), *Petroleum (Submerged Lands) Act 1982* (NSW), and *Petroleum (Submerged Lands) Taxation Act 1967* (NSW), as outlined in Michael Crommelin, 'The Legal Character of Petroleum Production Licences in Australia' in Terrence Daintith, *The Legal Character of Petroleum Licences: A Comparative Study* (1981), 62.

⁶⁹⁰ Required Acts include *Coastal Waters (State Powers) Act 1980*; *Coastal Waters (Northern Territory Powers) Act 1980*; *Coastal Waters (State Title) Act 1980*; *Coastal Waters (Northern Territory Title) Act*; and *Offshore Minerals Act 1984* (Cth).

⁶⁹¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s5(2)a.

⁶⁹² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s5(2)b.

⁶⁹³ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s5(2)c.

- e. The Commonwealth, states and the Northern Territory should try to maintain, as far as practicable, common principles, rules and practices in regulating and controlling the exploration for, and exploitation of offshore petroleum beyond the baseline of Australia's territorial seas.⁶⁹⁵

The prescriptive, rule based legislative structure that was created by the Commonwealth in 1967 to establish a framework for petroleum activities was necessary at that time. However, as a result of the agreement reached in the *Offshore Constitutional Agreement*, as well as the states' acquiescence to Commonwealth control of offshore petroleum safety regulation, there is an indication that prescriptive legislation may no longer be essential.⁶⁹⁶

3.3.3 Method of regulation: rule based or principle based regulation?

Australia's legislative framework for the petroleum licencing system must be characterised as a rule based legislative system. Australia's initial petroleum legislation (the PLSA) was 'a combination of painstaking detail and grand-scale delegation'⁶⁹⁷ that remains today as a coherent, but highly unusual system of offshore petroleum regulation, articulated by administrative rules and powers within the Principal Act.⁶⁹⁸ It operates by prohibiting the activities it covers (for example extracting petroleum), and then granting companies an administrative authorisation to conduct the activity (this is known as a 'command and control' scheme of authorisation).⁶⁹⁹ This is demonstrated by section 97 (1) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA),

⁶⁹⁴ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s5(2)d.

⁶⁹⁵ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s5(2)e.

⁶⁹⁶ Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 91. This is analysed in section 4.3.3 below.

⁶⁹⁷ Terence Daintith, *Discretion in the Administration of Offshore Oil and Gas* (2005), 13.

⁶⁹⁸ Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 91.

⁶⁹⁹ Terence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), 175. An example of the command and control is section 77 of the OPA, which prohibits the unauthorised exploration of petroleum offshore, and then confers the rights to explore offshore in section 78 of the OPA.

where ‘a person commits an offence if that person explores for petroleum; and the exploration occurs in an offshore area,⁷⁰⁰ then excuses the taking of petroleum under section 97 (1) where the taking of petroleum is ‘authorised by a petroleum exploration permit, or otherwise required by or under this Act’.⁷⁰¹ This differs to principle based legislation such as Norway, where the State merely stipulates the requirement for a licence in order to recover petroleum from an area, such as the right to recover petroleum,⁷⁰² rather than making it illegal to recover petroleum then creating conditions to make it legal, such as under section 97 of the OPAGGSA.

As a result of the changes to petroleum licencing and activities, the detailed, PSLA has required over 1000 amendments from 1965-2005, resulting in over thirty separate compilations of the Act.⁷⁰³ A rewrite of the PSLA, the *Offshore Petroleum Act 2006* (Cth) (OPA), was enacted in 2006, and touted as a plain English rewrite of the PSLA.⁷⁰⁴ Industry and government alike had identified the PSLA as cumbersome, unwieldy and complex as the result of numerous amendments and updates.⁷⁰⁵ The OPA contained only changes to the structure and style of the legislation, implementing only a few minor policy changes from the framework set out in the PSLA.⁷⁰⁶

Where the previous petroleum legislation (the PSLA) had been 391 pages, the rewrite was over 630 pages. However, it would appear that the new legislation (the OPA) was no better than its predecessor the PSLA, which was described by Professor Daintith as ‘old, fat and ugly, and not likely to score highly in a

⁷⁰⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s97 (1).

⁷⁰¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s97 (2).

⁷⁰² The right for the state to regulate petroleum activities is granted under s 1-2 of the *Petroleum Activities Act 1996* (Norway), and the right to recover petroleum is conferred under s 3-2 of the *Petroleum Activities Act 1996* (Norway)

⁷⁰³ The full legislative history of the *Petroleum (Submerged Lands) Act 1967* (Cth) can be found at www.comlaw.gov.au.

⁷⁰⁴ *Explanatory Memorandum*, Offshore Petroleum Bill, 2005 (Cth) (2005), 2.

⁷⁰⁵ *Explanatory Memorandum*, Offshore Petroleum Bill 2006 (Cth) (2005), 2.

⁷⁰⁶ *Explanatory Memorandum*, Offshore Petroleum Bill 2006 (Cth) (2005), 2.

legislative beauty contest.’⁷⁰⁷ Furthermore, Daintith expressed concern over its replacement (the OPA), noting in 2004 that ‘replacing an Act...[] by one which is even fatter would be a profoundly disappointing result.’⁷⁰⁸ Unfortunately, this concern has been realised, with the rewrite of the PSLA being fatter and uglier, a 650 page prescriptive tome⁷⁰⁹ that required over one hundred amendments prior to its commencement in July 2008. The OPA has since become even fatter and uglier in its new incarnation as the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) as a result of the addition of offshore greenhouse gas storage provisions.⁷¹⁰

The current offshore petroleum legislation, the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA), is rule based, demonstrated by the length and level of detail of the legislation.⁷¹¹ At over 830 pages, the legislation addresses in minutiae the award and management of licences and titles, safety arrangements for offshore petroleum activities and the jurisdiction of the Joint and Designated Authorities.⁷¹² Such minutia can be illustrated by the requirements for a simplified outline to explain the general ideas contained in the legislation. For example, legislation relating to the award of petroleum exploration licences spans twenty one sections and forty pages.⁷¹³ A simplified outline of what these sections and pages contain is included in section 96 of OPAGGSA:

⁷⁰⁷ Terence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 92.

⁷⁰⁸ Terence Daintith, ‘Administering the Petroleum (Submerged Lands) Act: Too Much Discretion or Too Little?’ (2004) *AMPLA Yearbook 2004* 1, 43.

⁷⁰⁹ In its first incarnation as the *Offshore Petroleum Act 2006* (Cth).

⁷¹⁰ The OPA was amended to incorporate Greenhouse Gas Storage legislative provisions and renamed the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) on 1 November 2008.

⁷¹¹ The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) found its first incarnation as the *Offshore Petroleum Act 2006* (Cth) (OPA) in 2006. Although enacted in 2006, the OPA did not enter into Force until 1 July 2008 after all relevant jurisdictions had enacted ‘mirror’ legislation. In November 2008 the OPA was renamed the OPAGGSA, and the greenhouse gas storage provisions were incorporated by the *Offshore Petroleum Amendment (Greenhouse Gas Storage) Act 2008*.

⁷¹² *Offshore Petroleum and Greenhouse Gas Storage Act* (Cth).

⁷¹³ The award of a petroleum licence is covered in sections 97 to 117 of the *Offshore Petroleum and Greenhouse Gas Storage Act* (Cth), pages 111 to 151.

It is an offence to explore for petroleum in an offshore area except:

- (a) under a petroleum exploration permit; or
- (b) as otherwise authorised or required by or under this Act.

- This Part provides for the grant of petroleum exploration permits over blocks in an offshore area.
- A petroleum exploration permit authorises the permittee⁷¹⁴ to explore for petroleum in the permit area.
- There are 3 types of petroleum exploration permits:
 - (a) a petroleum exploration permit granted on the basis of work program bidding (a ***work-bid petroleum exploration permit***);
 - (b) a petroleum exploration permit granted on the basis of cash bidding (a ***cash-bid petroleum exploration permit***);
 - (c) a petroleum exploration permit granted over a surrendered block or certain other blocks (a ***special petroleum exploration permit***).

If a petroleum pool is identified in a petroleum exploration permit area, the Joint Authority may declare a location over the blocks to which the petroleum pool extends.

This detailed legislative framework is accompanied by brief regulations, the *Offshore Petroleum and Greenhouse Gas Storage Regulations (OPAGGSR)*,⁷¹⁵ just 15 pages long. These petroleum regulations are confined to particulars relating to a petroleum discovery, survey of wells, and current rates for fees.

This is an unusual regime, since most petroleum regulatory frameworks place the regulatory details in the regulations rather than in the primary legislation.⁷¹⁶ Furthermore, since both the Act and the Regulations are parliamentary instruments, they can only be altered by parliamentary process. This has been suggested by the World Bank as an ineffective way of managing the change that

⁷¹⁴ Note that permittee and licensee are equivalent, and mean the legal entity which has the proprietary rights to explore for and produce petroleum. In Australia, an exploration licence is also called an exploration permit, even though it confers proprietary rights.

⁷¹⁵ *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth). These regulations began life as the *Petroleum (Submerged Land) Regulations 1985* (Cth), with a name change on 1 July 2008.

⁷¹⁶ Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 93.

is required in petroleum regulation.⁷¹⁷ Indeed, the World Bank sees the role of regulations as subsidiary instruments to the petroleum legislation, not intended for legislative enactment, since this maintains maximum flexibility to respond to current petroleum developments which require changes in the regulation of petroleum operations.⁷¹⁸

The use of principle based legislation, rather than detailed rule based regulation has been a feature of Norwegian petroleum regulation since its first petroleum Act.⁷¹⁹ The legal basis and regulatory framework for petroleum activities in Norway today is conferred by the *Petroleum Activities Act 1996* (Norway) (PAA) and the associated *Petroleum Regulations 1997* (Norway) (PR), which are a subsidiary instrument, amended by Royal Decree, pursuant to the PAA.⁷²⁰ The PAA is a brief, principle based Act (only 30 pages) that confers rights and duties on participants for the exploitation of petroleum in Norway. The details for the regulation of petroleum activities are outlined in the PAA, including provisions for the management of exploration and production of activities, cessation of petroleum activities, safety, liability, and environmental provisions, as well as general provisions relating to the State and other industries. This is illustrated by the brevity of petroleum law relating to the grant of petroleum licences in Norway. The grant of a licence is covered in fifteen sections over four pages. These fifteen sections cover not only the award of a licence, but also

⁷¹⁷ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 4.

⁷¹⁸ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 27-28.

⁷¹⁹ *Act 12 of 21 June 1963 Relating to exploration for and exploration of submarine natural resources*. This Act contained three basic principles:

1. The right to submarine natural resources was vested in the State.
2. The King may grant Norwegian or foreign persons, including legal persons the right to explore for or exploit natural resources.
3. The King may issue regulations concerning such activities.

See Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo; and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 896.

⁷²⁰ See section 1-1 of the *Petroleum Activities Act 1996*, (Norway).

cover third party exploration and facilities,⁷²¹ area relinquishment,⁷²² and surrender of a petroleum licence.⁷²³

The differences in the structure of the Australian and Norwegian regulatory legislative frameworks can be assessed by an examination of the respective legislative sections pertaining to the award of a petroleum licence which enables the conduct of petroleum exploration and production.⁷²⁴ By comparing the Australian legislation and Norwegian legislation pertaining to the award of a licence to conduct petroleum activities, it is possible to highlight the legislative structure and its effects on the capacity of the regulatory legislative framework to encourage sustainable development.

The rigid, rule based nature of Australia's petroleum legislation is demonstrated in sections 104-107 of OPAGGSA, which legislates for the award of an exploration licence, using the work program method of allocation (which is the standard method of allocation):

**104 Application for work-bid petroleum exploration permit—
advertising of blocks**

Invitation to apply for a petroleum exploration permit

- (1) The Joint Authority may, by notice published in the *Gazette*:
 - (a) invite applications for the grant by the Joint Authority of a petroleum exploration permit over the block, or any or all of the blocks, specified in the notice; and
 - (b) specify a period within which applications may be made.
- (2) If the Joint Authority has published a notice under subsection 110(1) inviting applications for the grant of a petroleum exploration permit over a block, the block must not be specified in a notice under subsection (1) of this section at any time during the period specified in the subsection 110(1) notice.

Note: Subsection 110(1) deals with cash-bid petroleum exploration permits.

Application for petroleum exploration permit

- (3) An application under this section must be accompanied by details of:

⁷²¹ See section 3-11 and 3-12 of the *Petroleum Activities Act 1996*, (Norway).

⁷²² See section 3-14 of the *Petroleum Activities Act 1996*, (Norway).

⁷²³ See section 3-16 of the *Petroleum Activities Act 1996*, (Norway).

⁷²⁴ It is important to note that in Australia it is the award of a exploration licence (or permit) which confers the right to explore for and eventually produce petroleum upon application to the Joint Authority. The equivalent licence in Norway is the production licence. Therefore, the Australian exploration licence and the Norwegian production licence are compared.

- (a) the applicant's proposals for work and expenditure in relation to the block or blocks specified in the application; and
- (b) the technical qualifications of the applicant and of the applicant's employees; and
- (c) the technical advice available to the applicant; and
- (d) the financial resources available to the applicant.

Note 1: Part 2.10 contains additional provisions about application procedures.

Note 2: Section 256 requires the application to be accompanied by an application fee.

Note 3: Section 258 enables the Designated Authority to require the applicant to give further information.

Maximum number of blocks

- (4) The number of blocks specified in an application under this section must not be more than 400.

Minimum number of blocks

- (5) If 16 or more blocks are available, the number of blocks specified in an application under this section must not be less than 16.
- (6) If less than 16 blocks are available, the number of blocks specified in an application under this section must be the number available.
- (7) Subsections (5) and (6) do not apply to applications if the Joint Authority, for reasons that the Joint Authority thinks sufficient, includes in the subsection (1) notice a direction that subsections (5) and (6) do not apply to those applications.

Attributes of blocks

- (8) The blocks specified in an application under this section must be blocks that are constituted by graticular sections that:
 - (a) constitute a single area; and
 - (b) are such that each graticular section in that area has a side in common with at least one other graticular section in that area.
- (9) Subsection (8) does not apply to applications if the Joint Authority, for reasons that the Joint Authority thinks sufficient, includes in the subsection (1) notice a direction that subsection (8) does not apply to those applications.

105 Grant of work-bid petroleum exploration permit—offer document

Scope

- (1) This section applies if an application for the grant of a petroleum exploration permit has been made under section 104.

Offer document

- (2) The Joint Authority may:
 - (a) give the applicant a written notice (called an *offer document*) telling the applicant that the Joint Authority is prepared to grant the applicant a petroleum exploration permit over the block or blocks specified in the offer document; or
 - (b) by written notice given to the applicant, refuse to grant a petroleum exploration permit to the applicant.

Note 1: Section 259 sets out additional requirements for offer documents (for example, a requirement that an offer document must contain a summary of conditions).

Note 2: If the applicant breaches a requirement under section 258 to provide further information, the Joint Authority may refuse to give the applicant an offer document—see subsection 258(3).

106 Ranking of multiple applicants for work-bid petroleum exploration permit

Scope

- (1) This section applies if:
- (a) the Joint Authority publishes a notice under subsection 104(1) inviting applications for the grant of a petroleum exploration permit; and
 - (b) at the end of the period specified in the notice, 2 or more applications have been made under section 104 for the grant of a petroleum exploration permit over the same block or blocks.

Most deserving applicant may be given offer document

- (2) The Joint Authority may give an offer document under section 105 to whichever applicant, in the Joint Authority's opinion, is most deserving of the grant of the petroleum exploration permit.
- (3) In determining which of the applicants is most deserving of the grant of the petroleum exploration permit, the Joint Authority must have regard to criteria made publicly available by the Joint Authority.

Ranking of applicants

- (4) For the purposes of this section, the Joint Authority may rank the applicants in the order in which, in the Joint Authority's opinion, they are deserving of the grant of the petroleum exploration permit, with the most deserving applicant being ranked highest.
- (5) The Joint Authority may exclude from the ranking any applicant who, in the Joint Authority's opinion, is not deserving of the grant of the petroleum exploration permit.

Applicants who are equally deserving of the grant of the petroleum exploration permit

- (6) If the Joint Authority:
- (a) has considered the information accompanying the 189 applications; and
 - (b) is of the opinion that 2 or more of the applicants are equally deserving of the grant of the petroleum exploration permit;
- the Joint Authority may, by written notice given to each of those applicants, invite them to give the Joint Authority details (the ***work/expenditure details***) of their proposals for additional work and expenditure in relation to the block or blocks concerned.
- (7) A notice under subsection (6) must:
- (a) specify the kinds of work/expenditure details that the Joint Authority considers to be relevant in determining which of the applicants is most deserving of the grant of the petroleum exploration permit; and
 - (b) specify the period within which the work/expenditure details must be given to the Joint Authority.
- (8) If an applicant gives work/expenditure details to the Joint Authority, and those details are:

- (a) of a kind specified in the notice; and
- (b) given within the period specified in the notice;

the Joint Authority must have regard to the details in determining which of the applicants is most deserving of the grant of the petroleum exploration permit.

Criteria

- (9) An instrument setting out criteria under subsection (3) is not a legislative instrument for the purposes of the *Legislative Instruments Act 2003*.

Note: See also section 109, which deals with the effect of the withdrawal or lapse of an application.

107 Grant of work-bid petroleum exploration permit

If:

- (a) an applicant has been given an offer document under section 105; and
- (b) the applicant has made a request under section 260 in relation to the offer document within the period applicable under that section;

the Joint Authority must grant the applicant a petroleum exploration permit over the block or blocks specified in the offer document.

Note: If the applicant does not make a request under section 260 within the period applicable under that section, the application lapses at the end of that period—see subsection 260(4).

A close examination of these sections demonstrates the prescriptive based nature of Australia's legislation. Section 105 considers the offer of a licence to an applicant. It prescribes in detail what happens when the administrative authority does offer a document (s105 (2) a), or when an offer is refused (s105 (2) b). Further, the section also then contains a number of notes instructing that there are additional requirements for offer documents or further information under sections 259 and 258.

The comparable sections of the Norwegian legislation relating to the grant of a production licence are found at section 3-5 of the PAA:

Section 3-5 Announcement and granting of a licence

Prior to the granting of a production licence, the Ministry shall, as a rule, announce the area for which applications for production licences may be submitted. The announcement shall be published through notification in The Norwegian Gazette (Norsk Lysingsblad) and the Official Journal of the European Communities. The notification shall stipulate a time limit for the filing of applications of not less than 90 days, and it shall contain such information as decided by the Ministry.

The granting of a production licence shall be done on the basis of factual and objective criteria, and the requirements and conditions stated in the notification. The King is not obliged to grant any production licence on the basis of the applications received. The King may grant production licences without announcement. Prior to such granting of a production licence, the licensees of production licences in all adjacent areas shall be given the opportunity to apply for a production licence for the area in question. Notification shall be published in The Norwegian Gazette (Norsk Lysingsblad) and the Official Journal of the European Communities indicating the blocks which are affected. Further regulations about the content of an application for production licence, and about the payment of application fees, are issued by the King.

Furthermore, the details regarding the criteria for an award of a licence are outlined in the Norwegian PR:

Section 10 Criteria for granting production licences

In the interest of furthering the best possible resource management, production licences are granted on the basis of the following criteria:

- a) the technical competence and financial capacity of the applicant,
- b) the applicant's plan for exploration and production in the area for which a production licence is sought.

If the applicant is or has been a licensee according to an exploration licence, the Ministry may also take into consideration any form of inadequate efficiency or inadequate responsibility that may have been demonstrated by the applicant as a licensee.

The criteria for granting a licence shall in accordance with section 3-5 third paragraph first sentence of the Act be formulated and applied in a non-discriminatory manner among the applicants. The first sentence applies correspondingly in relation to criteria relating to the composition of the group of licensees and the appointment of an operator.

If two or more applications are regarded to be equal on the basis of the criteria above, other relevant objective and non-discriminatory criteria that will make possible a final choice between the applications, may be used as basis for granting the licence.

Section 11 Conditions and requirements

Conditions and requirements for granting a production licence and for conducting petroleum activities pursuant to a production licence, shall be based solely on the need to ensure that the petroleum activities within the area comprised by the production licence, are carried out in a proper manner.

Conditions for conducting activities pursuant to a production licence shall be based on consideration for national security, public order, public health, transport safety, environment protection, protection of biological resources and national treasures of artistic, historic or archaeological value, the safety of the facilities and the employees, systematic resource management (eg production rate or the optimisation of the production activities) or the need to ensure fiscal revenues.

This section shall be applicable only to production licences granted after 1 September 1995.

Interestingly, the Australian legislation does not outline the criteria for the selection of a licensee in either OPAGGSA or OPAGGSR. Although the regulatory legislative framework regarding the grant of a petroleum licence under a work program bid in Australia stipulates the need to refer to selection criteria,⁷²⁵ the criteria are not part of either OPAGGSA or the OPGGSR. Rather the criteria are administrative directions and guidelines that have been issued by the Department of Resources, Energy and Tourism.⁷²⁶ To date⁷²⁷ over twenty of these administrative directions have been published, many of which are outdated and incorrect.⁷²⁸ Whilst these guidelines are not binding and have no legal effect, they tend to operate to define how decision-making by government occurs and provide some transparency in the decision-making process.⁷²⁹ The concern is that the legislation refers decision-makers to the guidelines to select the winning work program bid in the award of an exploration licence,⁷³⁰ yet the guidelines are out of date and refer to legislation and bodies that no longer exist.⁷³¹

⁷²⁵ Under s 106 (3) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

⁷²⁶ For a collection of these guidelines see http://www.ret.gov.au/resources/upstream_petroleum/offshore_petroleum_regulation_and_legislation/offshore_petroleum_legislation_regulation_and_guidelines/Pages/OffshorePetroleumLegislationRegulationandGuidelines.aspx at 1 September 2009.

⁷²⁷ Current to September 2009.

⁷²⁸ An example of this at the time of writing is the guidelines Department of Industry, Tourism and Resources, *Bid Assessment Criteria: A Guideline in Relation to the Petroleum (Submerged Lands) Act 1967* (2002) http://www.ret.gov.au/resources/Documents/Upstream%20Petroleum/Bid_assessment_criteria.pdf at 3 September 2009. These guidelines were issued in 2002, and still make reference to the superseded *Petroleum (Submerged Land) Act 1967* (Cth).

⁷²⁹ S Barrymore, 'Petroleum (Submerged Lands) Act 1967 – Rewrite and Beyond' (2006) 46 *APPEA Journal* 2006 533, 536.

⁷³⁰ Under s106 (3) of OPAGGSA the Joint Authority must have regard to criteria made publicly available to select the most deserving work program bid. These criteria are found in Department of Industry, Tourism and Resources, *Bid Assessment Criteria: A Guideline in Relation to the Petroleum (Submerged Lands) Act 1967* (2002) http://www.ret.gov.au/resources/Documents/Upstream%20Petroleum/Bid_assessment_criteria.pdf at 3 September 2009.

⁷³¹ The *Bid Assessment Criteria: A Guideline in Relation to the Petroleum (Submerged Lands) Act 1967* not only contains the assessment criteria, but makes reference to legislation that no longer exists (The PSLA) and a government department that has been superseded. See Department of Industry, Tourism and Resources, *Bid Assessment Criteria: A Guideline in Relation to the Petroleum (Submerged Lands) Act 1967* (2002)

It is also possible to make a direct comparison of the Australian and Norwegian legislation regulating the advertising of a licencing round to highlight the differences in the legislation. The Australian legislation regulating the advertising of the advertising of a licencing round is prescriptive and complicated:

Invitation to apply for a petroleum exploration permit

- (1) The Joint Authority may, by notice published in the *Gazette*:
 - (a) invite applications for the grant by the Joint Authority of a petroleum exploration permit over the block, or any or all of the blocks, specified in the notice; and
 - (b) specify a period within which applications may be made.
- (2) If the Joint Authority has published a notice under subsection 110(1) inviting applications for the grant of a petroleum exploration permit over a block, the block must not be specified in a notice under subsection (1) of this section at any time during the period specified in the subsection 110(1) notice.

Note: Subsection 110(1) deals with cash-bid petroleum exploration permits.⁷³²

This differs to the direct, objective based legislation of Norway regarding the advertising of a licencing round:

Prior to the granting of a production licence, the Ministry shall, *as a rule*, announce the area for which applications for production licences may be submitted. The announcement shall be published through notification in The Norwegian Gazette (Norsk Lysingsblad) and the Official Journal of the European Communities.⁷³³

The advertising requirement in section 3-5 of the PAA illustrates the general, more principle based nature of the legislation. Rather than specifying the rules regarding the advertising of the licencing rounds, the Act merely notes that advertising is required.

The Australian legislation is vastly different to the Norwegian legislation. Whereas the Australian legislation sets out rules and procedures, the Norwegian

http://www.ret.gov.au/resources/Documents/Upstream%20Petroleum/Bid_assessment_criteria.pdf at 3 September 2009.

⁷³² Section 104 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

⁷³³ Section 3-5 of the *Petroleum Activities Act 1996*, (Norway). Italics added by author.

legislation provides a broad framework for the conduct of petroleum activities, and regulations that direct the activities within the resource management guidelines set down in section 11 of the PR. Together the PAA and the PR establish a framework that confers discretion on the Norwegian State to regulate petroleum activities to meet its resource management goals,⁷³⁴ and ensures that the criteria for the award of petroleum activities have legal competence, since they are regulatory legislative framework. An analysis of the award of petroleum licences is made in Chapter five.

3.3.4 Construction of a regulatory legislative framework for sustainable resource management.

A concern with the development and implementation of a rule based legislative framework such as that in Australia is that its rigidity may create unnecessary burdens for participants in the exploitation of petroleum. Unnecessary burdens may be defined as ‘those incremental costs that could be eliminated by better regulatory design, administration and enforcement, without detracting from desired policy outcomes or objectives.’⁷³⁵ Regulatory burdens have been identified as a source of increased cost and delay in projects, contributing to the decreased attractiveness of a province as a location for investment in petroleum activities.⁷³⁶ In petroleum regulation, regulatory burdens can include unnecessary delays and uncertainties in obtaining required approvals, overlapping or

⁷³⁴ The resource management principles are laid down in the *Petroleum Activities Act 1996* (Norway). The first is under s1-2, which establishes a requirement that resource management is carried out in a long-term perspective for the benefit of Norwegian society as a whole. This is further strengthened in section 4-1, *Petroleum Activities Act 1996* (Norway), stipulating that as much petroleum as possible must be extracted (‘prudent production’), in accordance with sound technical and economic principles, to avoid waste of petroleum resources.

⁷³⁵ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008). http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 6-7.

⁷³⁶ See the submission by APPEA to the Australian Productivity Commission relating to regulatory burdens in the Australian upstream petroleum sector: see APPEA, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 16 http://www.pc.gov.au/data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 6.

inconsistent regulatory requirements, especially if there are multiple jurisdictions.⁷³⁷

Another concern is that the Australian regulatory legislative framework may lead to inconsistencies in application, rigidity, and may promote creative compliance in order to adjust to new situations.⁷³⁸ In addition, the legislation is based on prohibition and authorisation of activities. Whilst the structure of the legislation might deter some behaviour,⁷³⁹ it could also fail to provide positive incentives for at least some companies.⁷⁴⁰ Indeed, Daintith notes that some companies are likely to embrace the adage ‘if we can’t do it our way we won’t do it at all, or we’ll go somewhere else to do it’.⁷⁴¹ This means that companies are likely to either hand back licences or seek opportunities in other jurisdictions. Both are actions that are not likely to encourage optimal development of Australia’s offshore petroleum resources.

Australia has continued to embrace complex, detailed legislation that requires constant amendments. Since the newly created OPA was passed by the parliament in 2006, there were five separate Amending Acts,⁷⁴² with the majority of changes occurring prior to the Principal Act entering into force in 2008.⁷⁴³ Furthermore, OPAGGSA, which entered into force in November 2008,

⁷³⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008) http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 6-7.

⁷³⁸ Terence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 108.

⁷³⁹ Terence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 108.

⁷⁴⁰ Terence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 108.

⁷⁴¹ Terence Daintith, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook 2000* 91, 108.

⁷⁴² Amending Acts include *Offshore Petroleum Amendment (Datum) Act 2008*; *Offshore Petroleum Amendment (Miscellaneous Measures) Act 2008*; *Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008*; *Offshore Petroleum Amendment (Greater Sunrise) Act 2007*; and *Australian Energy Market (Gas Legislation) Act, 2007*.

⁷⁴³ The *Offshore Petroleum Act 2006* (Cth) commenced on 1 July 2008. (See s2 of the Act for commencement details).

has already undergone substantial amendment, requiring four new compilations of the legislation in its first eighteen months.⁷⁴⁴

Certainly, the prescriptive, regulatory legislative framework for Australian offshore petroleum was initially necessary to administer Australia's offshore petroleum activities.⁷⁴⁵ However, research suggests that an objective based approach to legislation is preferable for the regulation of petroleum activities,⁷⁴⁶ since prescriptive legislation tends to create unnecessary regulatory burden and duplication.⁷⁴⁷

A review of the PSLA in 2000, required for the adoption of Australian National Competition Policy (NCP) reforms,⁷⁴⁸ identified that although there had been some shift from prescriptive to objective based regulation, the regulation of petroleum activities offshore still remained prescriptive and rule based.⁷⁴⁹ Furthermore, the review identified many instances of regulatory burden and duplication in the petroleum legislation.⁷⁵⁰

A review of regulatory burden in the offshore petroleum sector in 2008-2009 also demonstrated that the current legislative provisions continue to impose significant burdens on the upstream offshore petroleum sector.⁷⁵¹ These burdens hamper sustainable socio-economic development, as they create delays, reduce flexibility, impede the financing of projects and defer production and

⁷⁴⁴ As current to 1 January 2010. For a list of these legislative compilations see www.comlaw.gov.au.

⁷⁴⁵ This was due to the complex constitutional requirements as a result of the Federation. The Offshore Constitutional Settlement has resolved this.

⁷⁴⁶ ACIL Consulting Pty Ltd, *Report to the Petroleum (Submerged Lands) Review Committee* (2000).

⁷⁴⁷ The regulatory burden was the subject of an Australian Productivity Commission Study in 2008-9, with the final report and recommendations released in April 2009. See Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXIII.

⁷⁴⁸ By the Petroleum (Submerged Lands) Review Committee.

⁷⁴⁹ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 23.

⁷⁵⁰ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 23. In addition, the report identified a need to convert directions in oilfield practice to objective based regulation.

⁷⁵¹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXIII.

revenues.⁷⁵² This has a major impact on the economic viability and sustainability of a project. It is estimated that expediting the regulatory approval process for a major project by one year can increase the net present value of returns 10-20% since it brings forward the income streams.⁷⁵³

The legal and administrative burdens characterising the current legislative framework impose significant economic effects on the participants, affecting the economic return of a project.⁷⁵⁴ Regulatory burden increases compliance costs in major projects, as well as increasing project expenditure and delay approvals.⁷⁵⁵ In addition, regulatory constraints that delay or defer production start-up can diminish project returns, reducing net present value of economic benefits likely to be generated.⁷⁵⁶ Together, these can have a negative impact on investment attractiveness, which has been identified as an Australian petroleum policy objective.

High compliance costs, and delay costs arising from Australia's complex regulatory regime not only reduces the profitability for all participants, but also reduces the sectors ability to attract project capital from international investors.⁷⁵⁷ This means that the current legislative regime is working at cross-

⁷⁵² Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXIII.

⁷⁵³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXV.

⁷⁵⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009; and Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 184.

⁷⁵⁵ This is particularly evident in Western Australia. See Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009; and Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 183-4.

⁷⁵⁶ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009; and Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 186-7.

⁷⁵⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009; and Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 190.

purposes with the national policy objectives. Rather than attracting international investment to develop petroleum resources, the current legislative framework serves as an impediment to attracting international investment in the sector.⁷⁵⁸

The current legislative framework also has a major impact on the management of petroleum resources. Resource regulation in Australia is intended to maximise the return to Australia for the exploitation of its petroleum resources.⁷⁵⁹ At present the regulation of petroleum resources is multi-authority and multi-jurisdictional.⁷⁶⁰ However, not all jurisdictions agree on the role of the government in the management of resources.⁷⁶¹ Some jurisdictions, such as Western Australia, see the role of the government as paramount in the management of resources.⁷⁶² Other jurisdictions, such as South Australia, see no specific role for the government.⁷⁶³ Where there are differences between government perceptions of national interest, there is likely to be conflict between government and commercial imperatives in some jurisdictions.⁷⁶⁴

This discord between states on the role of government in the management of resources for the benefit of the community is assisted by the lack of an objectives clause in the petroleum legislation. The OPAGGSA, (and the PSLA prior to that), did not have a defined objective.⁷⁶⁵ The PSLA Review

⁷⁵⁸ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 190.

⁷⁵⁹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 31.

⁷⁶⁰ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXIII.

⁷⁶¹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XXV.

⁷⁶² Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 83.

⁷⁶³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 84.

⁷⁶⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 31; Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), 84.

⁷⁶⁵ Until mid 2009.

Committee, and ACIL,⁷⁶⁶ who assessed the PSLA in 2000,⁷⁶⁷ concurred that a clear statement of the objective of the legislation is fundamental to good program design and the delivery of effective outcomes.⁷⁶⁸ Both agreed that without a clear objective statement, it is difficult to deliver sustainable development of petroleum resources.⁷⁶⁹ Both also agreed that the objective of the legislation should be to optimise/maximise the current net value of the petroleum resources, although they differed on how that is most likely to be achieved.⁷⁷⁰

The PSLA Review Committee recommended the adoption of an objectives clause that makes explicit reference to getting the best value from the resource for the nation, with appropriate strategies for achieving that objective.⁷⁷¹ Further, the Committee articulated government responsibility as steward of petroleum resources, holding them in trust for the whole community.⁷⁷² In addition, the Committee was mindful that it is private oil companies, with commercial imperatives, that enable the value of petroleum resources to be realised. As such, the Committee recommended that the legislation be objective based with a clear statement of objectives regarding the development of petroleum resources to benefit the Australian community.⁷⁷³ The Productivity

⁷⁶⁶ ACIL refers to ACIL Consulting Pty Ltd, who was commissioned by the PSLA Review Committee, utilising their expertise and independence to provide input into the review and assist with the preparation of the report and recommendations. See Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000).

⁷⁶⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009 OR Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Interim Report* (2009), 190.

⁷⁶⁸ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7.

⁷⁶⁹ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7.

⁷⁷⁰ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7.

⁷⁷¹ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7-8.

⁷⁷² Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7-8.

⁷⁷³ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 7-8, 23-4.

Commission review on regulatory burden supported the need for a defined objectives clause.⁷⁷⁴ In its 2009 report, the Productivity Commission recommended that the Australian government should ensure that legislative intent is clearly defined through clear explanatory memorandums and objectives clauses, to ensure that there is a transition to objective-based legislation.⁷⁷⁵

An objectives clause has been inserted in the new OPAGGSA.⁷⁷⁶ This clause notes that the objective of OPAGGSA is to provide an effective regulatory framework for petroleum exploration and recovery, and the injection and storage of greenhouse gases in offshore areas.⁷⁷⁷ However, the clause fails to articulate the national petroleum objectives. If the Commonwealth were to review and rewrite the OPAGGSA, the new legislation should expand on the existing objective clause to clearly articulate the goals and responsibilities of the Commonwealth in the exploitation of petroleum resources. This objective clause should reflect the petroleum policy of expanding Australia's resources base, increasing international competition and improve the regulatory regime consistent with principles of environmental responsibility and sustainable development.

It is important to recognise that not all petroleum jurisdictions in Australia have continued to preserve the prescriptive approach to petroleum regulation that is the behemoth Australian Commonwealth petroleum legislation. A major review of onshore petroleum legislation in South Australia in 1996 recognised that significant benefits lay in adopting objective based regulation.⁷⁷⁸ The review required an extensive process of industry and public stakeholder consultation,

⁷⁷⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, LIV.

⁷⁷⁵ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, LIV.

⁷⁷⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s3.

⁷⁷⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s3.

⁷⁷⁸ E Alexander and J Morton, 'Selecting the Winning Bid' (2002) *APPEA Journal* 523, 523.

and took four years to complete.⁷⁷⁹ It was intended that the new legislation would be aligned to South Australian state government objectives for the management of their petroleum resources, which is to maximise the public benefit derived from Australia's discovered and undiscovered petroleum resources.⁷⁸⁰

The resultant South Australian *Petroleum Act 2000* (SA) (PASA) represents a significant departure from the Australian legislative tradition of prescriptive, rule based legislation. Certainly it has been easier for South Australia to legislate using objective based legislation, since they have not had to negotiate the myriad of constitutional and regulatory issues that exist due to the offshore jurisdictions that arose from the *Offshore Constitutional Settlement*.⁷⁸¹ The legislative reform was driven by changing community perceptions, particularly in relation to the environment and sustainability. The new PASA sought to provide certainty, openness, transparency, flexibility, practicality and efficiency.⁷⁸² In applying these principles, the PASA achieves a more effective means for allocation and managing the exploration and development rights to the resources. It also provides a more effective means for ensuring security of production and supply is maintained at a prudent level.⁷⁸³

Unlike OPAGGSA, the PASA outlines its objectives in detail.⁷⁸⁴ Its objectives are to create an efficient, effective and flexible regulatory system for the exploration and production industries,⁷⁸⁵ to encourage and maintain

⁷⁷⁹ Primary Industries and Resources South Australia, *Petroleum Act 2000 Summary*, (2008) http://www.petroleum.pir.sa.gov.au/legislation/relevant_acts_and_regulations at 15 August 2009.

⁷⁸⁰ E Alexander and J Morton, 'Selecting the Winning Bid' (2002) *APPEA Journal* 523, 523.

⁷⁸¹ It is important to note that this legislation applies to onshore petroleum resources only.

⁷⁸² Primary Industries and Resources South Australia, *Petroleum Act 2000 Summary* (2009) http://www.petroleum.pir.sa.gov.au/legislation/relevant_acts_and_regulations at 12 August 2009.

⁷⁸³ Primary Industries and Resources South Australia, *Petroleum Act 2000 Summary* (2009) http://www.petroleum.pir.sa.gov.au/legislation/relevant_acts_and_regulations at 12 August 2009.

⁷⁸⁴ These are outlined in s3 of the *Petroleum Act 2000* (SA).

⁷⁸⁵ *Petroleum Act 2000* (SA), s3 (a).

competition,⁷⁸⁶ to minimise environmental damage,⁷⁸⁷ ensure security of supply for users,⁷⁸⁸ establish appropriate consultative processes for those affected by the activities including the general public,⁷⁸⁹ and to protect the public from risks.⁷⁹⁰

Interestingly, the Australian petroleum industry has indicated that the relatively straightforward PASA could be considered a benchmark for other jurisdictions.⁷⁹¹ The Australian peak petroleum industry, APPEA, noted that

‘...the *South Australia Petroleum Act 2000* is simple to follow and regulate. This principle legislation is 61 pages long and the subordinate regulations 41 pages in length. While the length of the legislation may not be a critical factor in assessing the appropriateness of legislative frameworks, the ease of comprehension of the legislation and its purpose are discernible factors when reading legislation’.⁷⁹²

It appears that a legislative framework similar to South Australia’s objective based PASA for onshore petroleum activities has the support of the Australian petroleum industry, due to its brevity and simplicity, therefore providing the Commonwealth with a legislative structure for future Acts. Furthermore, the PASA demonstrates a shift in legislative drafting from a prescriptive approach to a more objective, outcome oriented legislation.

The World Bank recognises that principle based regulation for petroleum resource development is superior to the rule based form, in order to provide

⁷⁸⁶ *Petroleum Act 2000* (SA), s3 (b).

⁷⁸⁷ *Petroleum Act 2000* (SA), s3 (d).

⁷⁸⁸ *Petroleum Act 2000* (SA), s3 (f).

⁷⁸⁹ *Petroleum Act 2000* (SA), s3 (e).

⁷⁹⁰ *Petroleum Act 2000* (SA), s3(g).

⁷⁹¹ APPEA, Submission to Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector –Issues Paper* (2008) Submission 16
<http://www.pc.gov.au/projects/study/upstreampetroleum/submissions> on 14 September 2009, 14.

⁷⁹² APPEA, Submission to Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector –Issues Paper* (2008) Submission 16
<http://www.pc.gov.au/projects/study/upstreampetroleum/submissions> on 14 September 2009, 14.

optimal resource management.⁷⁹³ Since short, thorough, broad, generic petroleum legislation is ‘the cornerstone of effective petroleum legislative framework.’⁷⁹⁴ The World Bank stipulates that this broad legislation should be not overly detailed, and should be accompanied by enabling regulations to give both parties a clear legal framework to develop petroleum resources.⁷⁹⁵ It also recognises that principle based regulation provides flexibility for the State in the regulation of petroleum activities, and is more likely to produce behaviour which fulfils the states regulatory objectives.⁷⁹⁶

The South Australian petroleum legislation meets the criteria defined by the World Bank as an effective petroleum regulatory framework. It is a short, objective-based Act with enabling regulations. Along with the compact PASA, the *Petroleum Regulations 2000* (SA) (PRSA) are enabling regulations, setting out licence application requirements, environmental protection requirements, notices regarding drilling etc, and general reporting requirements.

The Norwegian regulatory legislative framework for petroleum activities correlates with the view of the World Bank as an effective, efficient regulatory package for petroleum activities,⁷⁹⁷ as it comprises a short, objective based Act with enabling regulations that clearly outline the requirements for petroleum activities whilst conferring discretion upon the State in petroleum exploitation. This flexibility enables the Norwegian State to provide participants with an efficient and effective legal framework to establish and continue petroleum activities that benefit both the State and oil companies, rather than strict

⁷⁹³ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 4.

⁷⁹⁴ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 3.

⁷⁹⁵ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 3-4.

⁷⁹⁶ Julia Black, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007, 7.

⁷⁹⁷ As recommended by William Onorato, ‘World Petroleum Legislation: Frameworks that Foster Oil and Gas Development’ (2001) 39 (1) *Alberta Oil Review* 70, 77.

conditions that are difficult or impossible to alter in response to market fluctuations.⁷⁹⁸

The Norwegian legislative framework creates predictable and transparent legislative conditions, clearly defining the rights and responsibilities of the participants.⁷⁹⁹ One of the major strengths of the Norwegian legislation is that, like the South Australian legislation, it focuses upon the outcomes that the State seeks to accomplish, rather than the rules on how to extract petroleum. A flexible, objective based regulatory legislative framework like Norway or South Australia could assist Australia in attaining its national petroleum objectives of sustainable petroleum development.

Identified regulatory burden,⁸⁰⁰ and demonstrated industry support for change to Australia's regulatory legislative framework similar to the South Australian onshore petroleum legislation, indicates that the Australian petroleum industry is ready to embrace legislative change. The capacity of Norwegian petroleum legislation to maximise the value of petroleum resources may demonstrate that principle based legislation is suitable to accomplish sustainable resource development. The acceptance of the South Australian legislation by the petroleum industry, and the demonstrated success of the Norwegian legislative framework in encouraging sustainable development of petroleum resources indicate that Australia could encourage sustainable development of petroleum resources using principle based legislation rather than continue to utilise a rule based legislative framework. It is feasible for Australia to undertake a detailed review and rewrite of the OPAGGSA and create an objective based legislation. South Australia's petroleum legislation, and the process of community and industry consultation that created the legislation, could serve as a useful

⁷⁹⁸ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 4.

⁷⁹⁹ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009).

⁸⁰⁰ Identified by the Australian Productivity Commission in its report Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009.

example of legislative reform that is acceptable to both government and industry.

3.4 Administration of petroleum regulation

3.4.1 Principle of a competent administrative authority

The role of a petroleum administrative authority is to implement the regulatory legislative framework to assist the State in achieving national petroleum objectives. It operates to coordinate the development of a State's petroleum resources.⁸⁰¹ A single administrative authority with the competence to implement government petroleum policy and negotiate with oil companies is a necessary legal institution for competent exploitation of resources.⁸⁰² A State should develop a single authority, intergovernmental and inter-ministerial if required, to licence, contract and supervise petroleum operations.⁸⁰³ This body should have the necessary legal capacity as well as decision-making capacity to regulate petroleum objective consistent with national petroleum objectives.

3.4.2 Administration of petroleum activities in Australia and Norway

In Norway a single administrative authority, the Norwegian Petroleum Directorate (NPD), was established by the Ministry of Petroleum and Energy (MPE) in the early 1970s, with a mandate to manage Norwegian oil and gas resources on the Norwegian Continental Shelf.⁸⁰⁴ The NPD provides an effective administrative authority for the management of petroleum resources,

⁸⁰¹ William Onorato, 'World Petroleum Legislation: Frameworks that Foster Oil and Gas Development' (2001) 39 (1) *Alberta Oil Review* 70, 74.

⁸⁰² William Onorato, 'World Petroleum Legislation: Frameworks that Foster Oil and Gas Development' (2001) 39 (1) *Alberta Oil Review* 70, 74.

⁸⁰³ William Onorato, 'World Petroleum Legislation: Frameworks that Foster Oil and Gas Development' (2001) 39 (1) *Alberta Oil Review* 70, 75-6.

⁸⁰⁴ Norwegian Petroleum Directorate, *History* (2005) <http://www.npd.no/en/About-us/Organisation/History/> at 12 October 2008.

since it is a single body with extensive expertise in petroleum exploitation, responsible for administering and regulating petroleum activities within a coordinated legal regime.⁸⁰⁵

The Norwegian State sees clarity, transparency, and predictable processes and decisions essential in the working relationship between the government and the industry. Clarity is perceived as particularly important since it is only through clearly articulated regulatory roles that efficient and effective resource management can occur.⁸⁰⁶ Thus the NPD was established as a single regulatory authority, ensuring clarity, certainty and transparency in the regulation of all aspects of petroleum exploitation.⁸⁰⁷

The NPD, as a specialist administrative body for petroleum activities, has as its prime objective ‘contributing to creating the greatest possible values for society from the oil and gas activities by means of prudent resource management’.⁸⁰⁸ To attain its objective, the NPD performs a number of roles, including regulatory, planning and advisory, and information storage and management.

The NPD performs a regulatory role by setting frameworks, stipulating regulations and making administrative decisions in areas where it has delegated authority.⁸⁰⁹ It also performs an advisory role, directing the Ministry for Petroleum and Energy (MPE) on matters regarding petroleum development. In particular, the NPD emphasises cooperation, long-term solutions, and joint operations to ensure sustainable development of petroleum resources, particularly

⁸⁰⁵ See Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

⁸⁰⁶ The framework of Norwegian Petroleum resource policy principles and objectives comes from Gunnar Gjerde, *The Norwegian Model and the Working Relationship Between the Authorities and the Industry: As Seen from the Authorities' Point of View* (2007) http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 March 2008, 2-5.

⁸⁰⁷ See Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

⁸⁰⁸ See Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

⁸⁰⁹ See Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

time critical resources in mature areas, to ensure it meets its national petroleum objectives. The NPD also has a responsibility for all petroleum data from the Norwegian Continental Shelf (NCS), maintaining a comprehensive petroleum database that contains seismic and well data, as well as a core repository.⁸¹⁰ It is important to note that from 1st January 2004, the regulatory responsibility for safety, emergency preparedness and the working environment in the petroleum sector was taken over by a special body, the Norwegian Petroleum Safety Authority (PSA), a Subordinate to the Ministry of Labour. The responsibility was taken over from the Norwegian Petroleum Directorate, who now has only the regulatory responsibility for petroleum activities.⁸¹¹

This differs substantially to the administration of Australian offshore petroleum resources. Current offshore petroleum legislation (OPAGGSA) establishes two authorities for the management of petroleum resources.⁸¹² The regulation of offshore petroleum resources is the responsibility of the Commonwealth and the state/territory governments, resulting from the *Offshore Constitutional Settlement*.

Onshore and coastal waters (effectively the first three nautical miles from the coastline) are the regulatory and administrative jurisdiction of the relevant states and territories, with each allocating petroleum rights, administering petroleum operations, including occupational health and safety, and collecting royalties on petroleum produced.⁸¹³

Beyond the coastal waters (seaward of the first three nautical miles of the Territorial Sea) to the outer limits of Australia's continental shelf, the management of offshore petroleum is divided between the Commonwealth and

⁸¹⁰ See Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

⁸¹¹ See Norwegian Petroleum Safety Authority at www.psa.no.

⁸¹² *Offshore Petroleum and Greenhouse Gas Storage Act* (Cth), Part 1.3, Division 1.

⁸¹³ Department of Tourism Industry and Resources, *Offshore Acreage Release 2006: Roles and Responsibilities of Government* (2006) www.industry.gov.au/acreage_releases/2006/HTML/Overview/contents_8.HTML at 7 April 2007.

state/territory governments, through the Joint Authority (JA) and the Designated Authority (DA).⁸¹⁴ The state and territory governments act as the DA, and are responsible for the day-to-day decision making in respect of the area of the Continental Shelf off the coast of the relevant state. The relevant Commonwealth minister and his state counterpart form a JA for each State, and are responsible for the major decisions in the offshore Commonwealth jurisdictions, including the grant, renewal and cancellation of titles.⁸¹⁵ In the event of a disagreement in the JA, the Commonwealth view prevails.⁸¹⁶ This structure of administration means there are at least two regulatory bodies that an oil company is required to liaise with in order to develop petroleum resources within a licence area.

3.4.3 A critical analysis of Australian administration of petroleum activities

The Council of Australian Governments (CoAG) recognised in 2006 that although some attempts have been made to streamline upstream petroleum administration and harmonise local, state and Commonwealth legislation, there is scope for further improvement in the regulation and administration of offshore petroleum in Australia.⁸¹⁷ Consequently, the Australian Productivity Commission commissioned an inquiry into regulatory burdens and impediments that hamper petroleum exploration and production in Australia.⁸¹⁸ The dual level of offshore petroleum resource management at state and Commonwealth

⁸¹⁴ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s56.

⁸¹⁵ Terrence Daintith, 'State-Company Relations in Offshore Oil Exploitation: Regulatory and Contractual Analysis' in Barry Barton, *et. al*, (eds), *Regulating Energy and Natural Resources* (2006) 267, 277.

⁸¹⁶ Pat Brazil *Offshore Constitutional Settlement 1980: A Case Study in Federalism* (2001) Centre for International and Public Law, Faculty of Law, Australian National University, 2.

⁸¹⁷ Council of Australian Governments, *CoAG: Meeting Outcomes: Reducing the Regulatory Burden* (2006) http://www.coag.gov.au/coag_meeting_outcomes/2006-07-14/index.cfm#reduce at 17 October 2007.

⁸¹⁸ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008) http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008.

level, as well as the added jurisdictional layer of local government planning and approvals, was identified by the Productivity Commission as a regulatory impediment affecting resource development and investment in the onshore petroleum sector.⁸¹⁹

The current Australian administrative regime has been identified as a regulatory environment that is burdensome for oil companies, due to multiple jurisdictions and hundreds of regulatory approvals and decision points.⁸²⁰ Each of these means hundreds of opportunities for regulatory failure,⁸²¹ which translates to lost opportunity for sustainable socio-economic development of petroleum resources.

The Productivity Commission inquiry into regulatory burden in the Australian Offshore Petroleum Sector⁸²² recommended the establishment of a new national offshore petroleum administrative body to improve productivity and decrease regulatory burden in the Australian petroleum industry.⁸²³ The recommendations include the establishment of a new independent statutory authority that would serve as a single national offshore administrator in Commonwealth waters, with regulatory responsibility for resource management, pipelines and environmental approval and compliance.⁸²⁴ The Commission recommended that the body would

⁸¹⁹ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008) http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008, 5.

⁸²⁰ Australian Petroleum Production and Exploration Association, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) http://www.pc.gov.au/data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 7.

⁸²¹ Australian Petroleum Production and Exploration Association, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) http://www.pc.gov.au/data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 7.

⁸²² Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009.

⁸²³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, XX.

⁸²⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 292.

serve to either regulate activities in Commonwealth waters only,⁸²⁵ or all offshore petroleum activities seaward of low water mark.⁸²⁶

The recommendation by the Australian Productivity Commission for a single regulatory administrator is supported by the Australian oil and gas industry. Its peak body the Australian Petroleum Production and Exploration Association (APPEA) has identified the dual levels of administration as a problem, since they increase the amount of compliance costs.⁸²⁷ A single administrative model, such as the petroleum administration framework in South Australia under the PASA, was highlighted by APPEA as an effective way of regulating petroleum exploitation in a clear, effective and transparent manner.⁸²⁸ Further, APPEA sees a single authority model as a system capable of providing all necessary approvals, licences and permits for petroleum exploration and production, whilst at the same time encouraging investment in petroleum activities.⁸²⁹

Similar duplication occurred in the regulation and administration of safety in Australian offshore petroleum activities prior to 2005. This duplication and inconsistency arose as a result of the number and inconsistency of Acts, directions and regulations regulating safety in offshore petroleum activities.⁸³⁰ A review into the regulation of Australian offshore petroleum safety, concluded

⁸²⁵ Known as the NOPR-CW model, see Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 288.

⁸²⁶ Known as the NOPR regulation model. This would require the states to confer state power over coastal waters on the Commonwealth. See Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 88-92.

⁸²⁷ APPEA, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 16 http://www.pc.gov.au/_data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 7.

⁸²⁸ APPEA, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 16 http://www.pc.gov.au/_data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 49.

⁸²⁹ APPEA, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 16 http://www.pc.gov.au/_data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008, 49.

⁸³⁰ Department of Industry, Science and Resources, Offshore Safety and Security, Petroleum and Electricity Division, *Australian Offshore Petroleum Safety Case Review: Future Arrangements for the Regulation of Offshore Petroleum Safety* (2005), 6.

in 2003, found that the Australian legal and administrative framework for health, safety and the environment in the offshore petroleum industry was complicated and insufficient to ensure appropriate, effective and efficient regulation and operation of the offshore petroleum industry.⁸³¹ This administrative duplication in offshore petroleum safety was alleviated in 2005 by the creation of the *Australian National Offshore Petroleum Safety Authority* (NOPSA).⁸³² NOPSA administers all offshore petroleum safety legislation, including Commonwealth, state and territory coastal waters.⁸³³ NOPSA's objectives are regulating and improving health and safety in the offshore petroleum industry, as well as reducing regulatory burden in the offshore petroleum industry.⁸³⁴ Although NOPSA only regulates offshore petroleum safety,⁸³⁵ it demonstrates the capacity and constitutional capability to create a multi-jurisdictional, cross-jurisdictional body to regulate offshore petroleum activities in Australia.

A single administrative body is practical, since it removes a number of regulatory processes for participants in petroleum production, and would increase Australia's attractiveness as a province for petroleum production and exploration. It would ensure seamless regulation and remove regulatory burden since companies would only deal with a single organisation rather than the multiple regulatory authorities that currently exist in Australia. Furthermore, it would reduce regulatory burden substantially, and therefore enable the sustainable socio-economic development of Australia's offshore petroleum resources.

⁸³¹ Department of Industry, Science and Resources, Offshore Safety and Security, Petroleum and Electricity Division, *Australian Offshore Petroleum Safety Case Review: Future Arrangements for the Regulation of Offshore Petroleum Safety* (2005), 5.

⁸³² National Offshore Petroleum Safety Authority, *Welcome to NOPSA* (2010) www.nopsa.gov.au at 10 February 2010.

⁸³³ National Offshore Petroleum Safety Authority, *Welcome to NOPSA* (2010) www.nopsa.gov.au at 10 February 2010.

⁸³⁴ NOPSA, *History of NOPSA* (2008) <http://www.nopsa.gov.au/history.asp> at 10 August 2008.

⁸³⁵ NOPSA, *History of NOPSA* (2008) <http://www.nopsa.gov.au/history.asp> at 10 August 2008.

The creation of a single administrative body for the regulation of offshore petroleum activities is constitutionally possible in Australia. Should there be a lack of state and territory support, the Commonwealth could establish and maintain a single administrative body by invoking the corporations power,⁸³⁶ or the trade and commerce power.⁸³⁷ However, there are a number of State governments in Australia that have expressed reservation over the creation of a single regulatory authority, citing a concern that such a body could undermine the cooperative federalism represented by the Offshore Constitutional Settlement.⁸³⁸ Yet if a single regulatory body were created as a result of the referral of state and territory powers for petroleum regulation to the Commonwealth, then cooperative federalism would be reinforced rather than undermined, since a state or territory would be freely agreeing to cooperate with the Commonwealth to encourage sound resource management.⁸³⁹

The failure of Australia to create a single regulatory authority not only contributes to regulatory burden, but it also fails to encourage sustainable development of Australia's petroleum resources. This is because the regulation of petroleum is undertaken by seven different governments, under two administrative bodies, with no clear objective focused on implementing national petroleum objectives. The administration of petroleum regulation in Norway by the NPD demonstrates that the creation of such a legal institution is capable of securing the legal and administrative competence to implement the Norwegian petroleum objective of sustainable petroleum development for the benefit of Norwegian society.

⁸³⁶ s51 (xx) of the Constitution of Australia.

⁸³⁷ s51 (i) of the Constitution of Australia.

⁸³⁸ The primary objectors were the NT and Western Australian Governments. See Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 291.

⁸³⁹ It is possible for the States to refer their powers in a specific area of responsibility to the Commonwealth, such as the referral of arbitration and conciliation powers by Victoria to the Commonwealth under the *Commonwealth Powers (Industrial Relations Act) 1996* (Vic).

3.5 State regulation of petroleum activities and participants through the petroleum contract

The exploitation of petroleum is a commercial venture, undertaken as a joint activity between oil companies with the express purpose to produce petroleum as profitably as possible.⁸⁴⁰ Whilst the relationship between the State as owner of the petroleum resources and third parties as licencees to exploit the petroleum resources is governed through the regulatory legislative framework,⁸⁴¹ the commercial relationship between the companies is managed by an agreement between the parties commonly known as a Joint Venture Agreement (JVA) or a Joint Operating Agreement (JOA)

The JVA is a mixture of legal and practical elements, since it is a commercial agreement, but its backbone is legal.⁸⁴² It serves as a binding legal agreement between all of the participating parties, including the State where the State is a participant, but it can also be a part of the general regulatory framework utilised by the state to govern petroleum activities.

It also provides a framework for the conduct of commercial petroleum activities, and decision-making within the scope of those commercial activities through the management committee of the joint venture agreement. Whilst it focuses on the essential legal provisions of the agreement for petroleum activities, it also establishes the basis for sharing the rights and liabilities between the licencees for a particular petroleum licence. Each licencee has a participating interest, and the JVA ensures that the rights and liabilities that arise in connection with a petroleum licence are shared between the licencees in proportion to their participating interest.⁸⁴³ The JVA also governs the conduct

⁸⁴⁰ Knut Kaasen, 'Scope of Joint Operating Agreements in Norway' (2001) 281 *Marius Yearbook 2001*, 175, 190.

⁸⁴¹ ABARE, *Australia's Petroleum Resource Rent Tax: An Economic Assessment of Fiscal Settings* (2003) ABARE eReport 03.1, 27.

⁸⁴² Knut Kaasen, 'Scope of Joint Operating Agreements in Norway' (2000) 261 *Marius* 127, 147.

⁸⁴³ Michael P Taylor and Thomas P Winsor, *Joint Operating Agreements* (1989), 5.

of an operation of a licence through the appointment of an operator who is responsible for the day-to-day responsibility for the conduct of petroleum activities. As a part of this, the JVA secures the control over the petroleum operations on a field through the management committee.⁸⁴⁴

3.5.1 Types of petroleum contracts in Australia and Norway

The Joint Venture Agreement (JVA) in Australia serves no regulatory role for the State in the regulation of petroleum development, since the State does not participate in petroleum activities.

The JVA in Australia is a wholly private agreement between the joint venture (JV) parties. As such the joint venturers are able to put as many or as few provisions into the JVA as the parties require. There is no government regulation of the formation of a JVA. However, the JVA requires statutory approval for the project being conducted by the JVA, and is subject to the statutory obligations outside of the JVA, including the *Trade Practices Act 1974* (Cth), OPAGGSA, and common law fiduciary duties. Once a JV is formed and approved by the relevant authority,⁸⁴⁵ the JVA regulates the relationship between the participants in a JV and the development of petroleum resources.

Generally, all Australian commercial JVAs in the petroleum industry are unincorporated joint ventures (UJV). In this commercial arrangement, the members of the JV associate themselves for the particular acreage exploration or production venture and share the production from the venture, rather than the profits from the company, and then apply for a petroleum exploration licence. In this legal relationship, the participants enter into a contractual relationship for a particular licence area, without forming a separate legal entity. These

⁸⁴⁴ Michael P Taylor and Thomas P Winsor, *Joint Operating Agreements* (1989), 5.

⁸⁴⁵ The relevant authority will depend on which jurisdiction the petroleum development falls into. If it is an offshore development that falls under the auspices of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), then the JV will be approved by the JA in that state/territory.

individual JV agreements fall under commercial-in-confidence, and are unavailable to anyone but participants, or those parties with access to the petroleum register.⁸⁴⁶

The structure of the UJV and the relationship between the participants means that there are a number of critical issues that must be addressed when forming a JVA for the exploitation of petroleum resources. These issues include the scope purpose and duration of the JV, the obligations and rights of the participants, and the structure of the JV for the operation, management and control of the JV. Other vital issues include an identification of assets committed to the joint venture, including the taking of security over a JV participant's interests. Participating interests of the participants are detailed in the JVA, setting out the proportionate shares or interests of the JV held by each participant. It also creates legal rights between the parties as tenants-in-common to take a specified proportion of JV production, separately and for its own account.⁸⁴⁷

It is important to note that there is no uniform commercial JVA in Australia. The Association of International Petroleum Negotiators (AIPN) has developed a Model Form Joint Operating Agreement (MFJOA) to encourage greater harmonisation of JVAs in the oil and gas industry.⁸⁴⁸ This MFJOA seeks to be flexible, accommodating the preferences of all parties and legal regimes.⁸⁴⁹ The existence of such an international model JVA supports the World Bank view of the essential nature of a model contract between the parties.⁸⁵⁰ There appears to

⁸⁴⁶ For example see Western Australia Department of Mines and Petroleum, *Title Search Request* (2009) <http://www.dmp.wa.gov.au/5776.aspx> at 27 November 2009.

⁸⁴⁷ Mallesons Stephen Jaques, *Joint Ventures* (2005) <http://www.mallesons.com/publications/2005/Dec/8222123W.htm> at 12 July 2009.

⁸⁴⁸ Catia Malaquias Miles, 'AIPN 2002 Model Joint Operating Agreement in Oil and Gas Joint Ventures' (2003) 22 *Australian Resources and Energy Law Journal* 153, 154.

⁸⁴⁹ Catia Malaquias Miles, 'AIPN 2002 Model Joint Operating Agreement in Oil and Gas Joint Ventures' (2003) 22 *Australian Resources and Energy Law Journal* 153, 153.

⁸⁵⁰ William T Onorato, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper WPS 1420, 45.

be some use of this model agreement in Australia, although there still remains a preference for individually negotiated JV agreements.⁸⁵¹

There are provisions for government ratification of JVAs for offshore petroleum activities in Western Australian through non-compulsory State Agreements.⁸⁵² State Agreements are contracts between the Government of Western Australia and proponents of major resource projects (both mining and petroleum, onshore and offshore). They are ratified by an Act of the State Parliament.⁸⁵³ They specify the rights, obligations, terms and conditions for development of the project and establish a framework for ongoing relations and cooperation between the State and the companies developing the petroleum.⁸⁵⁴ Rather than a regulatory tool for resource development, State Agreements are a facilitating mechanism, ensuring development of specific long-term projects through a negotiated agreement to ensure long-term certainty, land tenure and complex approvals. They are utilised to provide greater certainty to the project, security of tenure, and reduce sovereign risk for investors.⁸⁵⁵

When entering into a State Agreement, the Western Australian government seeks to satisfy several objectives. Primarily, the objective is to facilitate the efficient and effective development of Western Australia's petroleum resources.⁸⁵⁶ This includes managing the development by ensuring it is consistent with state policies on issues such as land use, conservation,

⁸⁵¹ Catia Malaquias Miles, 'AIPN 2002 Model Joint Operating Agreement in Oil and Gas Joint Ventures' (2003) 22 *Australian Resources and Energy Law Journal* 153, 154.

⁸⁵² Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008, 1.

⁸⁵³ Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008, 1.

⁸⁵⁴ Western Australia Department of Industry and Resources, *State Agreements* (2009) <http://www.dsd.wa.gov.au/6641.aspx#6666> at 3 September 2009, 1.

⁸⁵⁵ Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008, 1.

⁸⁵⁶ Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008, 1.

competition, and infrastructure.⁸⁵⁷ However, the government also seeks to ensure that the resource development provides economic and social benefits for the Western Australian community.⁸⁵⁸

The Western Australian State Agreements generally operate throughout the life of the project. To this end, there are provisions in the State Agreements that deal with matters such as assignment, variation of contractual provisions, and *force majeure*. Provisions are also included for the submission of additional proposals if the joint venturers wish to modify, expand or vary the project. It is important to note that only the JV parties can alter the terms of the project, since the State Agreement does not give the Western Australian government the right to alter the project proposal once it has been approved by the parliament.

Although not compulsory, there is some indication that the Australian resources industry approves of State Agreements, particularly for large projects. This is indicated by the take-up rate of Western Australian State Agreements, which have been used for the last 40 years. Currently, state agreements are utilised in over 70% of all major development projects in Western Australia, accounting for over \$4 billion in processed minerals and energy production in Western Australia.⁸⁵⁹

The State Agreements reduce a large amount of regulatory burden for oil companies, since project approvals at state and federal level are fast tracked, as well as brought together under a single umbrella.⁸⁶⁰ Once a State Agreement has been ratified by the Western Australian parliament, it is the only regulatory compliance document required for project development. This considerably reduces compliance burden and costs for oil companies, thus contributing to

⁸⁵⁷ Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008, 1.

⁸⁵⁸ Western Australia Department of Industry and Resources, *State Agreements* (2009) <http://www.dsd.wa.gov.au/6641.aspx#6666> at 3 September 2009, 1.

⁸⁵⁹ Chamber of Minerals and Energy, *State Agreements* (2004), 1.

⁸⁶⁰ Western Australia Department of Industry and Resources, *State Agreements* (2009) <http://www.dsd.wa.gov.au/6641.aspx#6666> at 3 September 2009, 1.

sustainable economic development of offshore petroleum resources. To date, State Agreements have been used in all major resources projects in Western Australia, including the North West Shelf Gas Project and the Barrow Island Gas Project, and include several international oil companies.⁸⁶¹

The absence of a contractual regulatory relationship between the licensee and the State in Australia encourages oil companies to invest in Australia, thereby fulfilling a primary objective of Australia's petroleum policy.⁸⁶² Australia's stated policy objective is to attract international oil companies, and remain competitive and attractive to investors. A lack of contractual agreement between the State and companies encourages international investors, since oil companies are attracted to Australia's regulatory environment that is free from government interference in production and cessation of activities.

In Norway the joint petroleum activities between participants is regulated by a joint venture agreement known as the *Joint Operating Agreement* (Norway) (JOA). Under section 3-3 of the *Petroleum Activities Act 1996* (Norway) the State may stipulate as a condition for the granting of a production licence that the licensees are required to enter into agreements with specified contents with one another.⁸⁶³ Without a JOA, petroleum exploitation cannot commence.⁸⁶⁴ Therefore, together with the PAA and the PR, the mandatory JOA forms part of a regulatory trinity that enables the State to regulate all aspects of petroleum development and production.⁸⁶⁵

⁸⁶¹This includes agreements concluded under the *Anglo-Persian Oil Company Limited's (Private) Act 1919*, *British Imperial Oil Company, Limited (Private) Act 1925*, *Commonwealth Oil Refineries Limited (Private) Act 1940* and *Texas Company (Australasia) Limited (Private) Act 1928*.

⁸⁶² The advantages of a contractual relationship are discussed in, Terence Daintith, 'State-Company Relations in Offshore Oil' in Barry Barton, *et. al, Regulating Energy and Natural Resources* (2006), 277.

⁸⁶³ For example, see Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence* (2008), s 4.

⁸⁶⁴ *Petroleum Activities Act 1996*, (Norway), s 3-3.

⁸⁶⁵ Finn Arnesen, 'The Relationship Between the Authorities and the Licensees' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 25, 28.

An important regulatory aspect of the Norwegian JOA is that the participants of a petroleum licence are selected by the NPD, and the joint venture is formed by the Norwegian State.⁸⁶⁶ Furthermore, the State appoints the operator for the joint venture. By establishing the requirement of a universal JOA, and then selecting the companies that will be party to that JOA, the State is able to exert control over the development of a field. This enables the government to direct petroleum operations, since the JOA stipulates all conditions concerning petroleum activities, including management of the JV, petroleum activities, liability, sole risk field development, and financial arrangements.⁸⁶⁷ The Norwegian JOA also enables the NPD to consider environmental and socio-economic factors in the exploitation of petroleum resources.⁸⁶⁸ Thus the JOA, as part of this regulatory trinity, enables the Norwegian State to regulate petroleum activities in a manner that encourages the sustainable exploitation of petroleum resources in accordance of Norway's petroleum policy.⁸⁶⁹

3.5.2 Petroleum contracts as regulatory tools

External regulation as the State regulator

The Norwegian State uses the contractual arrangements contained in the JOA as a tool to regulate petroleum operations activities as well as regulating the relationship between those participating in petroleum activities on the NCS,⁸⁷⁰ including the regulation of the activities of the management committee.⁸⁷¹ It also forces the participants to comply with the resource management policy of

⁸⁶⁶ The legislative capacity of the state to select the participants of a licence are found in section 3-4 and 3-5 of the *Petroleum Activities Act 1996* (Norway).

⁸⁶⁷ *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway).

⁸⁶⁸ Finn Arnesen, 'The Relationship Between the Authorities and the Licensees' in *Nordisk Institutt for Sjørett, Petroleum Law Compendium, Volume 1* (2007) 25, 29.

⁸⁶⁹ This is stipulated in Art 15-17 of the *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway)..

⁸⁷⁰ This is particularly possible through the field development requirements of Art. 15-17 of the *Joint Operating Agreement* (Norway). See also *Norwegian Petroleum Directorate, Petroleum Facts 2001* (2001), 60.

⁸⁷¹ Art. 1-5, *Joint Operating Agreement* (Norway).

the Norwegian government through the regulation of field development under Articles 15-17 of the JOA.

By controlling the activities of the participants through the JOA, the Norwegian State is able to assert greater direct control of the petroleum operations than is possible through licencing alone. This contrasts to Australia, where the company generally drives petroleum development and controls operations. While the aim of Australia's petroleum policy is the sustainable development of petroleum resources, the lack of a uniform, transparent Joint Venture agreement may hamper the sustainable development of petroleum in Australia, since the State has no regulatory capacity to exert influence of the decisions and behaviour of the joint venturers. The commercial nature of Australian JV contracts reflects the interests of the joint venturers. Once a JVA is concluded and a licence is awarded to the joint venturers, the consortium has the right to develop the field according to its goals, objectives and resources.

Once a field development plan is approved,⁸⁷² the licensee is free to exploit the petroleum resources in accordance with environmental and safety statutory requirements.⁸⁷³ The licensee is able to develop the field according to its resources and requirements, and there are no mandatory requirements for minimum rates of production or oil recovery. There is evidence that the development of a petroleum deposit by a licensee without direction or regulation from the State is unlikely to extract the optimal amount of petroleum from a deposit.⁸⁷⁴ Rather, it is likely that the licensee will extract the petroleum at as low

⁸⁷²The preparation of a field development plan is governed by the Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002). This guideline was last reviewed in 2002.

⁸⁷³ This will include the National Offshore Petroleum Safety Authority (NOSPA) safety requirements under Chapter 4, Parts 6.4 and 6.8 of the *Offshore Petroleum and Greenhouse Storage Act 2006* (Cth), and associated Regulations, the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), *Environmental Protection (Sea Dumping) Act 1981* (Cth), *Protection of the Sea (Prevention of Pollution From Ships) Act 1983* (Cth), and relevant state environmental legislation.

⁸⁷⁴ Finn Arnesen, 'The Relationship Between the Authorities and the Licensees' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 25, 28.

a cost as possible,⁸⁷⁵ abandoning the field when profitability is marginal.⁸⁷⁶ This issue of whether state regulation of field development optimises the extraction of petroleum from a field is analysed in Chapter five.

A method of external control exerted by the Norwegian State over petroleum activities is through the management committee that is required as part of the Norwegian JOA. The management committee is the supreme body of the joint venture,⁸⁷⁷ and has a key role in the JV's strategy by focussing the JV on the goals of the particular petroleum activities.⁸⁷⁸ Under the JOA, each participant in the JV is required to actively contribute to the management and control of the joint venture activities.⁸⁷⁹ The mandatory nature of the management committee provides the basis for forcing a participant or a group of participants into an activity within the joint venture by means of decisions adopted by their fellow participants in the licence, and enforced through the management committee.⁸⁸⁰ This implies that a participant can be forced into activities defined by the quorum of the management committee, or may have to refrain from an activity that do not secure the support of the majority of the management committee.⁸⁸¹ This requirement enables the State to ensure that not only are the participants active within the JOA, but also that the activities undertaken by the JV as part of the JOA are agreed to by the management committee which is focused on the goals of the JV. In addition, the provisions on sole risk operations is an example that the State, in its own interest, makes sure that the agreement makes a basis for those companies who wants to make further effort than the others to do so.

⁸⁷⁵ Finn Arnesen, 'The Relationship Between the Authorities and the Licencees' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 25, 28.

⁸⁷⁶ Finn Arnesen, 'The Relationship Between the Authorities and the Licencees' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 25, 28.

⁸⁷⁷ *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway), Art. 1.3.

⁸⁷⁸ *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway), Art. 1.3.

⁸⁷⁹ *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway), Art. 1.3.

⁸⁸⁰ Knut Kaasen, 'Scope of the Joint Operating Agreement in Norway' (2001) 281 *Marius* 173, 177.

⁸⁸¹ Knut Kaasen, 'Scope of the Joint Operating Agreement in Norway' (2001) 281 *Marius* 173, 179.

Internal regulation as a participant

The Norwegian approach to petroleum regulation has been not only regulation of petroleum activities through legislative competence and administrative bodies, but also by participating in petroleum activities on the Norwegian Continental Shelf (NCS) from the early licencing rounds.⁸⁸² Although foreign oil companies initially dominated exploration and developed the first Norwegian oil fields, it was always the intention for the Norwegian State to directly participate in petroleum activities.⁸⁸³ In the early years there was close cooperation with established international oil companies, in partnership with the international supplier industry, and frequent forced marriages between small Norwegian companies and huge international companies.⁸⁸⁴

Whilst oil majors have always had, and continue to play a role in Norway's oil development, the Norwegian State defined the goal of developing a fully competitive domestic oil industry based on State participation of petroleum exploitation at an early stage.⁸⁸⁵ This was primarily accomplished through the establishment of Statoil in 1972 to engage in petroleum activities on the NCS as a fully integrated oil company.⁸⁸⁶ By 1973 it became the Norwegian State's chosen instrument for participation in the petroleum sector.⁸⁸⁷

There were a number of reasons for the establishment of Statoil. Initially, Statoil played an important role in assisting the Norwegian State to gain expertise in the oil and gas industry,⁸⁸⁸ and increase government knowledge of

⁸⁸² For a discussion of Norway's participation see Brent F Nelsen, *The State Offshore: Petroleum, Politics, and State Intervention on the British and Norwegian Continental Shelves* (1991), 8-9, and section 1.6.1 above.

⁸⁸³ Ministry of Petroleum and Energy, *Norwegian Oil History in Brief*, (2006) <http://www.odin.dep.no/filarkiv/204702/FactsOG0104.pdf> at 23 December 2006.

⁸⁸⁴ Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000*. http://www.odin.no/odinarkiv/english/stoltenberg_I/oad/026031-090011/dok-bn.html at 23 December 2006.

⁸⁸⁵ Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000*. http://www.odin.no/odinarkiv/english/stoltenberg_I/oad/026031-090011/dok-bn.html at 23 December 2006.

⁸⁸⁶ See Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), for a discussion on the establishment of Statoil, and its expansion into international markets in the late 1990s.

⁸⁸⁷ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 63.

⁸⁸⁸ Norwegian Storting, 'Storting Proposal No. 114 (1971-1972)' (1972), 8 in Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, © Tina Hunter

petroleum exploration and production.⁸⁸⁹ With increased knowledge and competence in both Statoil and the MPE, the State used Statoil's participation in petroleum activities on the NCS to exert State control in the petroleum sector. This included control over the rate of production and the price of petroleum.⁸⁹⁰ This control was possible since Statoil, as a 100% State-owned oil company, was positioned as a participant within the petroleum industry, thus enabling the State to regulate petroleum activities from within the petroleum sector.

The Norwegian government used the participation of Statoil in petroleum activities to gain knowledge, skills and experience from international oil companies. This was accomplished by through the mandatory inclusion of Statoil in the award of all petroleum licences.⁸⁹¹ Statoil was granted a 50% participating interest in all licences from the third licencing round,⁸⁹² as well as favourable voting rules in the requisite *Joint Operating Agreement* (Norway) as part of the award of the licence. Together, this established Statoil in a dominant position in the decision-making process.⁸⁹³ Other benefits bestowed on Statoil during this period included a carried interest option in the exploration phases, and the option to increase its participating interest during exploration if petroleum was found.⁸⁹⁴ This favourable position, including carried interest, was maintained until the mid 1980's. In 1984, Statoil's regulatory dominance

Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 895.

⁸⁸⁹ Norwegian Storting, 'Storting Proposal No. 114 (1971-1972)' (1972), 8 in Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 895-6.

⁸⁹⁰ Kenneth Dam, *Oil Resources: Who Gets What How* (1976).

⁸⁹¹ Kenneth Dam, *Oil Resources: Who Gets What How* (1976), 64-6.

⁸⁹² Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 892.

⁸⁹³ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 892.

⁸⁹⁴ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 892.

was reduced when it lost its automatic right to veto its partners' proposals on licences where it held a stake of 50 % or more. To exercise this veto it needed to obtain the consent of the MPE.⁸⁹⁵

Statoil was reorganised in 1985, as a result of the proposal of the Norwegian government and decision by the Parliament,⁸⁹⁶ which was concerned with the dominance of Statoil on the NCS, and the effect this could have on attracting participants in petroleum activities.⁸⁹⁷ State participation, which until this time had been vested in Statoil, was split between Statoil as a commercial oil company and the newly created *State Direct Financial Interest* (SDFI).⁸⁹⁸

The admittance of Norway to the EEA further reduced the dominance of Statoil as a State regulatory instrument.⁸⁹⁹ From the fifteenth licencing round, Statoil was not automatically granted an interest in all licences.⁹⁰⁰ This was a direct consequence of the application of Article 4 in the EEA agreement and Directive 94/22 EC that required the objective, non-discriminatory grant of licences.⁹⁰¹

Today, Statoil is a public company, after partial privatisation in 2001 when it was listed on the Oslo and New York Stock Exchanges,⁹⁰² with the Norwegian

⁸⁹⁵ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 892.

⁸⁹⁶ Based on Norwegian Storting, *Storting Melding No. 73* (1983-84) and Norges Offentlige Utredninger, *Organiseringen av statens deltagelse i petroleumsvirksomheten* (1983) NOU 1983: 16.

⁸⁹⁷ Based on Norwegian Storting, *Storting Melding No. 73* (1983-84) and Norges Offentlige Utredninger, *Organiseringen av statens deltagelse i petroleumsvirksomheten* (1983) NOU 1983: 16.

⁸⁹⁸ Ministry of Petroleum and Energy, *The States Direct Financial Interest (SDFI)* (2008) <http://www.regjeringen.no/en/dep/oed/Subject/State-participation-in-the-petroleum-sec/the-states-> at 9 February 2010. Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 892-3.

⁸⁹⁹ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 893.

⁹⁰⁰ The fifteenth licencing round took place in 1996. For a list of licencing rounds see Norwegian Petroleum Directorate, *Annual Report, 1998* (1998).

⁹⁰¹ Finn Arnesen, Finn, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo; and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 893.

⁹⁰² Ministry of Petroleum and Energy, *Statoil ASA* (2006) <http://www.odin.no/oed/english/doc/026031-120018/dok-bn.html> at 23 December 2006.

Government holding 76.3% of the company after a share sell-down in July 2004.⁹⁰³ As a result of a merger between Statoil and the oil and gas division of NorskHydro in 2007, the Norwegian now government holds 67% of Statoil. Statoil participates in licences on equal terms and conditions as all other participants.⁹⁰⁴

Since 1985 the Norwegian Government has participated in the Norwegian petroleum sector as a direct investor, rather than as a commercial oil company, through the SDFI. The operation of the SDFI is regulated under chapter 11 of the PAA.⁹⁰⁵ The Norwegian State's share of a field under SDFI is decided when production licences are awarded, and the size of the State's share varies from field to field.⁹⁰⁶ Typically, this direct financial interest is 5%, but often as high as 30%, such as in *Statfjord Ost* and *Statfjord Nord*.⁹⁰⁷

The State has established Petoro, a management company that acts as a licensee in production licences and infrastructure on behalf of the Norwegian State,⁹⁰⁸ managing the commercial aspects related to the SDFI interest.⁹⁰⁹ However, Petoro does not own the SDFI assets. These are retained by the State.⁹¹⁰ As a licensee, Petoro is a party to the JOA, and therefore has the same rights and obligations as other participants of the licence. Since they are party to the same

⁹⁰³ Statoil, *Government is Biggest Share Holder* (2006) <http://www.statoil.com/STATOILCOM/HMS/SVG03503.NSF/UNID/A5294A11452CEECCC1256E61002EAC5E?OpenDocument> at 23 December 2006.

⁹⁰⁴ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

⁹⁰⁵ *Petroleum Activities Act 1996* (Norway), Chapter 11.

⁹⁰⁶ Norwegian Petroleum Directorate, *Facts 2008: The Norwegian Petroleum Sector* (2008), 25. The award of petroleum licences is considered in Chapter four below.

⁹⁰⁷ Norwegian Petroleum Directorate, *Facts 2008: The Norwegian Petroleum Sector* (2008), 142,145.

⁹⁰⁸ Ministry of Petroleum and Energy, *Petoro AS* (2006) http://www.dep.no/oed/norsk/dok/andre_dok/brosjyrer/026031-120016/dok-bn.html at 23 December 2006.

⁹⁰⁹ Ministry of Petroleum and Energy, *The States Direct Financial Interest (SDFI)* (2008) <http://www.regjeringen.no/en/dep/oed/Subject/State-participation-in-the-petroleum-sec/the-states-> at 9 February 2010. It is important to note that the SDFI is managed by the 100% State owned management company Petoro.

⁹¹⁰ Ministry of Petroleum and Energy, *Petoro AS* (2006) http://www.dep.no/oed/norsk/dok/andre_dok/brosjyrer/026031-120016/dok-bn.html at 23 December 2006.

terms as the other participants in the JOA, the Norwegian State receives its share of revenue equal to its share in the field, and is a member of the management committee.⁹¹¹ As a 100% State-owned entity, Petoro continues to enable the Norwegian government to regulate petroleum activities, since it is a member of the management committee in all fields where Petoro is a licensee. At present this includes over 120 production licences on the NCS,⁹¹² and comprises control over 33% of Norway's petroleum resources and 25% of total Norwegian oil and gas production.⁹¹³

Unlike Norway, from the commencement of petroleum activities in Australia the Commonwealth and state governments of Australia decided not to participate in petroleum activities or engage in commercial petroleum exploration and development.⁹¹⁴ Rather, petroleum exploitation is undertaken wholly by the private sector, which initiates exploration and development, in a manner similar to the United States. The Australian government regulates petroleum activities and the petroleum sector through the regulatory legislative framework and its administrative bodies.⁹¹⁵ The participation of Australian government in petroleum activities in Australia has not been seriously considered since the early 1980s, when the federal opposition indicated its intention to create a national oil company and participate in offshore petroleum

⁹¹¹ *Joint Operating Agreement* (Norway), Article 1.

⁹¹² Ministry of Petroleum and Energy, *The States Direct Financial Interest (SDFI)* (2008) <http://www.regjeringen.no/en/dep/oed/Subject/State-participation-in-the-petroleum-sec/the-states-> at 9 February 2010.

⁹¹³ Ministry of Petroleum and Energy, *The States Direct Financial Interest (SDFI)* (2008) <http://www.regjeringen.no/en/dep/oed/Subject/State-participation-in-the-petroleum-sec/the-states-> at 9 February 2010.

⁹¹⁴ Department of Resources, Energy and Tourism, *An Overview for Applicants 2009* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009, 10.

⁹¹⁵ See 1999 policy. These included establishing the macroeconomic environment (broad economic policy); provide a regulatory framework for exploration, development, project approval processes, safety, environmental assessment and revenue collection, reduce commercial risk in minerals and petroleum exploration by collecting and disseminating geoscientific information; and look for ways to remove impediments to the industry's competitiveness.

activities.⁹¹⁶ This was publicly rejected by the petroleum industry in 1985. In their petroleum policy statement, the Australian Petroleum Exploration Association (APEA, which would later become APPEA) concluded that it could not support the establishment of an Australian hydrocarbon corporation.⁹¹⁷ The view of APEA was that no federal government should create a body to compete with private enterprise for skills, equipment and capital in an already tight market that exists for all three.⁹¹⁸ However, Norway's experience with Statoil demonstrates that the establishment of a State oil company does not compete for skills, equipment and capital, as outlined by APEA. Rather, it encourages sustainable development of petroleum resources by enabling the State to regulate the activities of the participants through the management committee of the JOA.

3.5.3 Does State participation in petroleum activities and the JOA encourage sustainable development?

Under the Norwegian JOA, the State exerts control over petroleum extraction. The combination of the regulatory legislative framework and contractual regulation under the terms of the JOA gives the State extraordinary capacity to control all aspects of petroleum exploitation. The State utilises its legal institutions, including the regulatory and administrative functions as a method of State orchestration of petroleum resource development, where all phases and aspects of petroleum operations are coordinated and controlled by the State as resource owner,⁹¹⁹ represented by the Ministry of Petroleum and Energy

⁹¹⁶ Paul Keating, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16.

⁹¹⁷ Australian Petroleum Exploration Association, *Petroleum Policy in Australia: The Exploration Industry's Perspective* (1985), 5.

⁹¹⁸ Australian Petroleum Exploration Association, *Petroleum Policy in Australia: The Exploration Industry's Perspective* (1985), 5.

⁹¹⁹ Ulf Hammer, 'Introduction' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007), 23.

(MPE), and conducted through the Norwegian Petroleum Directorate (NPD).⁹²⁰ The licencees know that the State has the capacity and the will to implement its socio-economic objectives through legislative and administrative control. Therefore, the licencees are enticed to act similarly, considering not only their commercial interests, but also the socio-economic will of the State, without being legally compelled to do so.⁹²¹

By participating in petroleum operations and being subject to the JOA along with other participants, the JOA forms a basis for dialogue between the companies and the Norwegian State, enabling a number of benefits to accrue to the State. Firstly, the State increases its level of competence, since as a participant it is privy to vast amounts of information about the petroleum fields, as the information is required to be passed to them as a participant in the JOA.⁹²² Also, since the State and the oil companies participate together in the commercial aspects of petroleum activities, the State has a forum to express and implement its socioeconomic objectives. This enables the State to blend the interests of all participants to create a regulatory arrangement agreeable to both public and private parties.⁹²³ This interrelationship between parties through the JOA is an important aspect of Norwegian system, since it facilitates a balance of commercial and socio-economic considerations, and enables both parties to cooperate to accomplish their objectives.⁹²⁴

The capacity of the Norwegian State to regulate all aspects of petroleum activities has encouraged the sustainable extraction of petroleum resources in

⁹²⁰ The *Ministry of Petroleum and Energy* (MPE) is the Norwegian government department responsible for the development of offshore petroleum resources in Norway. The Norwegian Petroleum Directorate is the regulatory authority that was created by the MPE in the early 1970s to regulate petroleum activities on behalf of the MPE.

⁹²¹ Finn Arnesen, 'The Relationship Between the Authorities and the Licencees' in *Nordisk Institutt for Sjørett, Petroleum Law Compendium, Volume 1* (2007) 25, 33.

⁹²² For example through the work program, field development plan, and reporting requirements under s12-17 of the *Joint Operating Agreement* (Norway).

⁹²³ Finn Arnesen, 'The Relationship Between the Authorities and the Licencees' in *Nordisk Institutt for Sjørett, Petroleum Law Compendium, Volume 1* (2007) 25, 33.

⁹²⁴ Finn Arnesen, 'The Relationship Between the Authorities and the Licencees' in *Nordisk Institutt for Sjørett, Petroleum Law Compendium, Volume 1* (2007) 25, 33.

Norway. Today the Norwegian State is aware of the need to attract and retain oil companies, especially as its provinces mature. It uses the JOA to establish a relationship with participants, sustainably exploit petroleum by controlling the activities of those participants through the management committee. This does not appear to be the case in Australia. Rather, the relationship that is established between the Australian State and oil companies is geared toward satisfying the commercial interests of oil companies, in order to continue to attract and retain international investment. Whilst attracting commercial investment was the premise of Australia's petroleum objective, the recent goal of sustainable development of Australia's petroleum resources does not seem attainable under the current contractual structure in Australia.

As owner of Australia's petroleum resources, the Australian government has the capacity to require companies to enter into a uniform contractual arrangement for the development of the petroleum. The reticence of the Australian government to demand this may arise from the perceived need to continue to make Australia an attractive province for international investment. However, the Australian government is in the driver's seat, with the capacity to require companies to enter into a JVA with the State as a condition of the award of licence. This is because oil companies need access to petroleum resources, and without the State-awarded petroleum licence, oil companies have no access to petroleum resources. Therefore, the companies are dependant upon the State to access the petroleum deposits they require for their commercial enterprises.

Licences for petroleum provinces that are not under the control of a national oil companies are in demand, particularly since State oil companies control over 80% of the world's oil resources.⁹²⁵ Australia is an attractive petroleum province, especially the provinces in Northwest Australia that contain vast LNG deposits, partly because these resources are not controlled by a State oil company. Furthermore, the Australian petroleum industry has expressed a

⁹²⁵ Valerie Marcel, *States of Play: National Oil Companies Control 80% of the Worlds Oil Resources But They Are Not All The Same* (2009) http://www.foreignpolicy.com/articles/2009/08/17/states_of_play at 27 November 2009.

desire to be one of the top five locations for oil and gas exploration and development investment.⁹²⁶ This provides the Australian government with an opportunity to establish a petroleum regulatory legislative framework that not only remains attractive to oil companies, but to also set conditions that will enable the exploitation of the petroleum resources to benefit both the companies and Australian society.

The Norwegian JOA has demonstrable capacity to encourage the sustainable development of petroleum resources. The Norwegian State has used the JOA both as a regulatory tool and as a participant within the JOA to compel oil companies to operate within a framework that allows the State to fulfil its goal of creating the best possible value for Norwegian society,⁹²⁷ as well as enabling the companies to maximise their return from the Norwegian Continental Shelf.⁹²⁸ As a mandatory resource management tool, the JOA has been effective in encouraging sustainable development of petroleum resources in Norway for almost forty years.

Should Australia substantially review and rewrite its petroleum regulatory legislative and administrative framework to a more objective based legislative framework,⁹²⁹ there will be a need for a uniform contract for participants. The Norwegian JOA provides an example of an effective model that enables the State to encourage the sustainable development of petroleum resources.

It is important to realise that the State participation in petroleum activities not only enables the State to regulate petroleum activities from within, but also realises a substantial amount of revenue for the State. The revenue generated by the Norwegian State on the NCS was over 409 billion NOK in 2008.⁹³⁰ Of that,

⁹²⁶ APPEA, *Australia's Upstream Oil and Gas Industry: Platform for Prosperity* (2006), 7.

⁹²⁷ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 19.

⁹²⁸ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 19.

⁹²⁹ As recommended by the World Bank, Australian Petroleum Production and Exploration Association (APPEA), and the PSLA Review Committee.

⁹³⁰ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 24. This equates to approximately A\$80 billion.

239 billion NOK was realised from petroleum taxation.⁹³¹ The direct financial participation of the State in petroleum activities generated 153 billion NOK in revenue for the Norwegian State, thus maximising the value of Norway's petroleum resources. Indeed, forty percent of petroleum revenue in 2008 was realised from the SDFI interest, while dividends from Statoil only generated 17 billion NOK for the Norwegian government.⁹³² Although a large sum of money, the dividends from Statoil Hydro was less than 1/8 the amount of revenue generated from the State's SDFI interest.

The Norwegian experience provides a valuable lesson for Australia. It demonstrates that direct State financial participation in petroleum activities, rather than through a State-owned oil company, enables the State to regulate petroleum activities from within the JV to ensure that sustainable development of petroleum resources is realised through the maximising of the value of those resources. Given the ongoing strong industry resistance to the establishment of a national oil company in Australia, and Norway's demonstrated capacity to generate economic benefit from direct State participation rather than dividend returns from a national oil company, it may be beneficial for Australia to consider State financial participation in petroleum activities to encourage the sustainable development of its petroleum resources.

3.6 Conclusion

The legislative framework that presently exists in Australia does not encourage sustainable development, to the extent that is possible. The prescriptive, rule based legislation creates unnecessary regulatory burden with economic and social costs. Furthermore, it fails to meet the criteria defined by the World Bank as an

⁹³¹ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 24. This equates to approximately A\$48 billion.

⁹³² Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 24. This equates to approximately A\$530 billion and A\$3.5 billion respectively..

effective regulatory legislative framework. Legislative frameworks from other jurisdictions, including South Australia and Norway indicate that a principle based or objective based legislative framework, with broad enabling legislation and complementary regulation, reduces regulatory burden. In addition, the Norwegian regulatory legislative framework encourages the State and oil companies to develop the petroleum resources to meet the interests of the State whilst still realising a profit.

The experiences of jurisdictions with objective based petroleum regulatory legislative frameworks, particularly South Australia, have found favour with the Australian petroleum industry. It is possible that if legislative reform was to occur in Australia, the principle based legislation that has been implemented in South Australia, and demonstrated in Norway to be effective in sustainably developing petroleum resources could be embraced by the Australian petroleum industry.

Model contracts, such as model JOAs that are mandatory in Norway, have been demonstrated to be effective in stipulating regulatory and commercial conditions for petroleum activities. They also ensure that oil companies operate within a framework that allows the State to fulfil its goal of creating value, while at the same time enabling participating companies to maximise their return. They enable the State, through the management committee and the conditions associated with the management committee, to control petroleum activities as a regulator. In addition, where the State is a participant in petroleum activities, either as an oil company or through direct financial interest, the JOA enables the State to have maximum control over petroleum activities through voting rights and the management committee

Australia does not a mandatory contractual framework, nor does it establish a contractual relationship between the State and oil companies since it does not participate in petroleum activities. However, there are there are the provisions for State Agreements in Western Australia. These agreements are in effect a statutory agreement that contribute to the sustainable development of petroleum

resources, since they enable the effective development of resources by reducing regulatory burden, defining the rights and obligations of the parties, and ensuring that resource exploitation provides economic and social benefits for the Western Australian community. Should State Agreements be implemented as a mandatory agreement for all petroleum activities, they may be able to contribute to the sustainable development of petroleum resources in Australia. This may be achieved through mandatory economic and social benefit requirements for the community, as well as reduced regulatory compliance requirements.

As part of an effective legislative framework for the exploitation of petroleum, the World Bank has identified the need for a single administrative authority. Petroleum exploitation in Australia occurs under the regulation of both the JA and the DA. The Australian Productivity Commission has demonstrated that the existence of these dual regulatory bodies create regulatory overlap, and can inhibit effective petroleum development. Furthermore, the Productivity Commission recommends that a single regulatory body should be established to ensure that effective resource management and development occurs.

Through its regulatory framework and participation in petroleum activities, the Norwegian State has established and maintained a regulatory legislative framework that encourages the development of Norwegian petroleum resources for the benefit of both the Norwegian State and oil companies alike, whilst enabling the Norwegian State to establish and maintain control over petroleum activities.⁹³³ The State as resource owner acts as the regulative and administrative body, establishing policies, framework conditions and decisions

⁹³³ Gunnar Gjerde, *The Norwegian Model and the Working Relationship Between the Authorities and the Industry: As Seen from the Authorities' Point of View* (2007) http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 March 2008, 2-5.

relating to petroleum activities.⁹³⁴ In addition, the State also participates directly in petroleum activities through Petoro, particularly in major fields.⁹³⁵

The Norwegian experience demonstrates that State participation in the petroleum sector, and a principle based regulatory legislative framework contributes to sustainable development of petroleum, enabling the government to have a wide discretionary role to implement its national petroleum policies of maximising the value of petroleum resource development for the benefit of Norwegian society. It also enables the Norwegian State as a participant to direct petroleum activities to encourage sustainable development. By closely regulating and administering petroleum activities, the Norwegian government supervises the conditions of production and resource development, to ensure that the activities of petroleum companies are aligned to State interests. Thus, the regulatory legislative framework and administration of petroleum activities that has been implemented by the Norwegian government provide a potent example for Australia, demonstrating the capacity to utilise the petroleum regulatory legislative framework to encourage sustainable development of petroleum resources.

⁹³⁴ Gunnar Gjerde, *The Norwegian Model and the Working Relationship Between the Authorities and the Industry: As Seen from the Authorities' Point of View* (2007) http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 March 2008, 2-5.

⁹³⁵ The framework of Norwegian Petroleum resource policy principles and objectives comes from Gunnar Gjerde, *The Norwegian Model and the Working Relationship Between the Authorities and the Industry: As Seen from the Authorities' Point of View* (2007) http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 March 2008, 2-5.

4. Award of petroleum licences

4.1 Introduction

The process of allocating petroleum licences under the licencing and concession system (LCS) has several important roles in the States management of its petroleum resources. Firstly, the allocation of a petroleum licence seeks to identify the best partner for the State to conduct petroleum activities in a particular licence area. This is to ensure that the licence is given to companies with the technical and financial capacity to carry out the exploration in an effective and safe manner, so that the States interests are considered, and that the extraction of petroleum in the field is maximised.

Secondly, the allocation of petroleum licences establishes a relationship between the State and the oil companies that will extract the resource. The State will normally attach a number of conditions to the licence. Balancing this relationship is one of the greatest challenges in the sustainable development of petroleum resources since each of these participants have different objectives when extracting petroleum.⁹³⁶ Throughout this relationship the State, to a greater or lesser degree, exerts control over the way the partner oil companies carry out their petroleum activity in the basis of the licence. In some jurisdictions, that control might be minimal. Once a petroleum licence is allocated and the plan for development of a field is approved, the participants may be left to develop the field, subject to meeting requisite regulatory conditions. In other instances, the State exerts control over all facets of licence allocation and petroleum activities, and will participate in the extraction of petroleum.

⁹³⁶ For a discussion of the economic and commercial challenges that confront companies and the State when seeking to sustainably develop the petroleum resources, see section 1.2 above.

The process for the allocation of a petroleum licence is similar in all petroleum jurisdictions that utilise the licensing and concession system (LCS). It initially involves the State identifying areas for petroleum exploration, and the subdivision of these areas into discrete contract areas of a predetermined size.⁹³⁷ These areas (also known as acreage) are offered to national and international oil companies by a suitable tendering process (the licencing round), and the licence awarded. This process will usually include negotiations relating to the technical, financial and contractual terms and conditions for the award of the licence, consistent with their petroleum prospectivity and with the national interest.⁹³⁸

The allocation of a petroleum licence encapsulates not only the process of the award of a petroleum licence, but also marries the method of allocation with the national petroleum interests. State petroleum interests are generally articulated in a State's petroleum policy, and regulated by the legislative framework. Where sustainable development of petroleum resources is a national policy objective, such as in Australia and Norway, the method of allocation is crucial in ensuring that sustainable development of petroleum resources occurs.

In this chapter I focus on the method of allocation of petroleum licences in the award of licences in Australia, examining the process and importance of the allocation of petroleum licences. In doing so, I focus on the bid system of allocation of petroleum licences, and whether it is capable of securing or encouraging sustainable development of petroleum resources. I include an analysis of the Australian licencing system, focussing on whether the method of allocation is consistent with Australia's national petroleum objectives. Part of this analysis includes a consideration of the relationship that is established between the Australian State and the oil companies when petroleum licences are awarded. The capacity of a State to award a petroleum licence through discretionary

⁹³⁷ Michal Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), xxii.

⁹³⁸ Michal Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), xxii.

allocation is also considered, analysing whether the discretionary allocation of petroleum licences is more likely to encourage the sustainable development of petroleum resources. I compare the Australian method of allocation of a petroleum licence to the Norwegian and UK method of allocation, to assess which method is most likely to encourage the sustainable development of petroleum in Australia.

4.2 Award of licences and sustainable development

The LCS is often, although not always, utilised in countries with relatively low reserves and high costs associated with offshore oil production, and dominated by a special taxation rate for petroleum production.⁹³⁹ A survey of countries that utilise the modern licencing and concession system indicates this is accurate, with developed countries such as the United States, the United Kingdom, Norway, Australia and the Netherlands all implementing LCS for the regulation of oil and gas.⁹⁴⁰

The LCS allows for as little or as much State participation as the State desires or requires at any given time, and also allows changes in the level of participation over time.⁹⁴¹ Norway, for example, has changed its system for and level of direct State participation several times.⁹⁴² Under the LCS, a licence is granted for a specific type of petroleum operation, usually for exploration or

⁹³⁹ Abdulaziz Al-Attar and Osamah Alomair, 'Evaluation of Upstream Petroleum Agreements and Production Costs' (2005) *OPEC Review* 242, 245-6

⁹⁴⁰ Abdulaziz Al-Attar and Osamah Alomair, 'Evaluation of Upstream Petroleum Agreements and Production Costs' (2005) *OPEC Review* 242, 245-6. Although each of these countries has low reserves compared to Saudi Arabia and other OPEC countries, Norway has substantial resources.

⁹⁴¹ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 6

⁹⁴² For an outline of the history of the Norwegian licencing system see Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991).

production.⁹⁴³ It is granted for a specific area (the licence area), for a specific period.⁹⁴⁴ Depending on the regulatory framework governing the LCS, the licence may confer exclusive rights, in the sense that for as long as the licence is valid, and subject to certain conditions, the licensee is authorised to exercise the rights conferred in the licence against third parties.⁹⁴⁵ Often, non-exclusive licences are conferred for geological and geophysical prospecting, while an exclusive licence is usually conferred for exploration work that involves drilling, as well as for production operations.⁹⁴⁶

The licencing of petroleum acreage occurs between the petroleum rights holder (the State, usually represented by the relevant Ministry) and international oil companies. The process of allocating a licence for the development of petroleum reserves can broaden the number of applicants for an area, ensuring that the largest number of oil companies is able to apply for access to the acreage on offer.⁹⁴⁷ Furthermore, the process is regarded as politically legitimate by the community, since it is viewed as open and transparent.⁹⁴⁸ This

⁹⁴³ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 146-7.

⁹⁴⁴ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 147.

⁹⁴⁵ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 146. The conferral of exclusive rights differs in each jurisdiction. In Norway, the conferral of an exploration licence confers non-exclusive rights under s2-1 of the *Petroleum Activities Act 1996* (Norway).

⁹⁴⁶ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 146.

⁹⁴⁷ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm at 12 December 2006.

⁹⁴⁸ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 7.

ensures that petroleum extraction can occur with little negative electoral reaction.⁹⁴⁹

The award of a petroleum licence is essential for the commencement of petroleum extraction.⁹⁵⁰ Upon the allocation of an exploration or production licence, exclusivity over the licence area is awarded to the licensee, who gains a proprietary right to explore and produce petroleum.⁹⁵¹

Property rights regarding petroleum resources for both the State and the licensee are recognised and enforced under the LCS.⁹⁵² Whilst the petroleum remains in situ, even if part of a grant of production licence, the petroleum resources are owned by the State.⁹⁵³

A production licence confers ownership of petroleum when it is produced in accordance with the terms of the licence. ‘Produced’ is defined to be when the petroleum enters the well that has been legitimately drilled by the licensee.⁹⁵⁴

This system of ownership is related to the ancient ‘rule of capture’ and title of

⁹⁴⁹ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 7

⁹⁵⁰ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 7.

⁹⁵¹ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 3. It is essential to note that unlike the Australian licencing system, a grant of an exploration licence in Norway does not automatically confer the right for a production licence for the exploration area on the Norwegian Continental Shelf. Furthermore, the rights that are conferred by the Norwegian exploration licence significantly differ to the rights conferred by the Australian exploration licence. Whereas the Australian exploration licence confers an exclusive right to engage in seismic and drilling exploratory operations, the exploration licence in Norway only provides for non-exclusive surface seismic and geosciences activities. The rights conferred under the Norwegian exploration licence are similar to those conferred under the Special Prospecting Authority in the Australian jurisdiction. The rights akin to those granted under the Australian exploration licence are granted under the Norwegian Production Licence, which confers exclusive exploration rights to the licensee.

⁹⁵² Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 7.

⁹⁵³ United States Department of the Interior, Coastal Marine Institute, *Fiscal System Analysis: Concessionary and Contractual Systems Used in Offshore Petroleum Arrangements* (2004), 5.

⁹⁵⁴ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 147.

the petroleum is transferred to the oil company upon the petroleum reaching the wellhead, as the petroleum is ‘caught’ by the licensee in the wellhead.⁹⁵⁵ The licence gives a right to explore for and produce petroleum, and thereby acquire ownership to the produced petroleum.⁹⁵⁶ This exclusivity protects the licensee against exploration from other parties in the licence area for the period that the licence is valid.

A primary objective for any State in exploiting its petroleum is to capture as much economic rent as possible by maximising the total rent generated without affecting the incentives for the operators to be efficient.⁹⁵⁷ Economic rent refers to the return that the ‘land owner’ derives simply by being an owner of that land, and varies according to the different qualities of the land.⁹⁵⁸ It is the total revenue derived from some activity on that land in excess of the sum of the supply prices of all capital, labour and other inputs,⁹⁵⁹ and is the difference between existing market price for a commodity and its opportunity cost.⁹⁶⁰

Economic rent in natural resource production is known as resource rent, and is the difference between the value of the resource produced and the cost to extract it. Costs include exploration, development and production costs, as well as an appropriate share of revenue for the natural resource company.⁹⁶¹ The resource rent is the surplus (or excess profit) that results from the exploitation of the

⁹⁵⁵ Colin Roberts, ‘Resource Regulatory Systems’ (2006) *Australia’s Paydirt* 93, 93.

⁹⁵⁶ For example the grant of exclusive rights for a Norwegian production licence, and ownership of the oil produced is guaranteed under s3-3 of the *Petroleum Activities Act 1996* (Norway).

⁹⁵⁷ Knut Sinding, *Auctions and Discretion in Oil and Natural Gas Licensing* (1999) CEPMLP Publication 1/99, 3-4.

⁹⁵⁸ John Cordes, ‘An Introduction to the Taxation of Mineral Rents’, in James Otto (ed) *the Taxation of Mineral Enterprise* (1995), 27.

⁹⁵⁹ John Cordes, ‘An Introduction to the Taxation of Mineral Rents’, in James Otto (ed) *the Taxation of Mineral Enterprise* (1995), 27.

⁹⁶⁰ John Cordes, ‘An Introduction to the Taxation of Mineral Rents’, in James Otto (ed) *the Taxation of Mineral Enterprise* (1995) 26.

⁹⁶¹ Daniel Johnson, *International Petroleum Fiscal Systems and Production Sharing Contracts* (1994), 5-6.

resources. Governments attempt to capture as much of this rent as possible through various means, including levies, royalties taxes and bonuses.⁹⁶² A method of realising the greatest amount of economic rent is by allocating petroleum licences by bidding (either cash or work program), therefore ensuring that the company that is most efficient will be awarded the licence. The majority of the economic rent is paid up front,⁹⁶³ with a royalty or taxation delivering the balance of the economic rent after petroleum has been produced.⁹⁶⁴

The objective of a State in the exploitation of the petroleum resources, and the benefits it wishes to reap varies depending on the petroleum policy formulated by the State. The allocation of petroleum licences should reflect the petroleum objectives of the State, to ensure that the exploitation of petroleum resources is capable of meeting these policy objectives.⁹⁶⁵ For some States, such as the United States, the objective is to realise the highest possible resource rent for the petroleum resources, through the allocation of petroleum licences by cash bidding to the requisite oil companies.⁹⁶⁶ For others, such as Norway and the United Kingdom, the objective of the State may be to not only capture the resource rent, but to also achieve other policy objectives including rapid exploration and development, economic growth, technological and industrial development, geopolitical strength or influence, sustainable development, or independence. These are important aspects in choosing a system of allocation of a petroleum licence,

⁹⁶² John Cordes, 'An Introduction to the Taxation of Mineral Rents', in James Otto (ed) *the Taxation of Mineral Enterprise* (1995) 26.

⁹⁶³ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 1-2.

⁹⁶⁴ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 1-2. it is this method of allocation that is used in offshore leases in the United States.

⁹⁶⁵ Department of Resources, Energy and Tourism, *Resources* (2009) www.ret.gov.au/resources/Pages/Resources.aspx at 2 February 2009.

⁹⁶⁶ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 4-6.

For Australia that petroleum policy objective is two-fold. Firstly, it seeks to offer high levels of certainty to investors and to encourage investment in the offshore Australian petroleum industry in a highly competitive environment.⁹⁶⁷ This includes allowing companies to manage their risk in a regulatory framework that is predictable, transparent, equitable and timely.⁹⁶⁸ Australian petroleum policy also seeks to expand Australia's resource base and improve the regulatory regime consistent with the principles of sustainable development.⁹⁶⁹ These national petroleum objectives require Australia to utilise a system of allocating licences that address the commercial and socio-economic challenges associated with the sustainable development of its petroleum resources.

For Norway, the objectives for the development of petroleum resources are maximum value creation from petroleum resources, within a framework of responsible environmental and resource management policies.⁹⁷⁰ This means that when exploiting the petroleum resources, the Norwegian State ensures that the exploitation of the resources contributes to improving the welfare, employment and environment of the State, whilst at the same time taking into consideration regional policies and activities, particularly fishing.⁹⁷¹

⁹⁶⁷ Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), 4.

⁹⁶⁸ Energy Task Force, *Securing Australia's Energy Future* (2004), 51-3.

⁹⁶⁹ See Department of Resources, Energy and Tourism, *Resources* (2009) www.ret.gov.au/resources/Pages/Resources.aspx at 2 February 2009.

⁹⁷⁰ For a discussion on the Norwegian petroleum policy framework see Chapter three above.

⁹⁷¹ *Petroleum Activities Act 1996* (Norway), s1-2.

4.2.1 Process of award of licence

In most instances the award of petroleum licences occur within formal licencing rounds.⁹⁷² Formal licencing rounds are discrete acts of licencing that take place on a regular basis, often annually or biannually, at which pre-defined acreage is publicly offered for licencing by the State.⁹⁷³ Formal licencing rounds can assist the State to identify the most suitable party to develop a petroleum field since the formal process encourages companies to apply for a licence, and be assessed according to the stipulated criteria.⁹⁷⁴ They create competition between companies wishing to be active in the exploitation of petroleum within that province.⁹⁷⁵ Licencing rounds are used in Norway to ensure that the parties that are selected for a licence area are the most capable for the particular geology and conditions of that field.⁹⁷⁶ They can also assist the State to lessen its risk by ensuring that companies assume the exploration and production risk.⁹⁷⁷

This formal process is often supplemented with ‘out of round’ or informal licencing rounds, in order to fulfil policy goals. Often international oil companies approach a State informally for access to acreage (which may or may not be

⁹⁷² Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), xxii. In Australia there are annual licencing rounds, whereas in Norway the licencing occurs on a less frequent basis, generally every two years.

⁹⁷³ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 137. An example of this is the announcement requirement found in section 3-5 of the *Petroleum Activities Act 1996* (Norway).

⁹⁷⁴ Michael Bunter, ‘A New Approach to Petroleum Licencing’ (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009, 2-3.

⁹⁷⁵ Michael Bunter, ‘A New Approach to Petroleum Licencing’ (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009, 2-3.

⁹⁷⁶ *Petroleum Regulations 1997* (Norway), s110.

⁹⁷⁷ Michael Bunter, ‘A New Approach to Petroleum Licencing’ (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009, 2-3. See also Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4-5, and Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), Chapter five on conditions regarding the award of petroleum licences.

specified), and a bargain is struck, without competition from other companies.⁹⁷⁸ Another method is the Norwegian ‘out of round’ licences under the *Award in Predefined Area* (APA) rounds.⁹⁷⁹ Such rounds award acreage mostly in mature provinces to encourage exploration, since there is an expectation of smaller oil discoveries.⁹⁸⁰ They are made as part of the implementation of the policy of prudent production, with the aim of discovering and developing these petroleum resources in mature areas using new technologies, before existing infrastructure in the fields are decommissioned.⁹⁸¹ In addition, these rounds encourage sustainable development by ensuring petroleum resources are discovered and developed before existing infrastructure is closed down.⁹⁸²

There are two principle methods of awarding licences within the LCS.⁹⁸³ The first is the bid or auction system, where licences are ‘sold’ to the highest bidder. This bid or auction may include either cash bidding, where the licence is sold to the highest bidder, or work program bidding (WPB), where the licence is awarded to the applicant that bids to spend the highest amount of work in dollar terms, on exploration for petroleum in the licence area. The second is the discretionary system of allocation. The system of allocation is outlined in figure 4

⁹⁷⁸ Bernard Taverner, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 137.

⁹⁷⁹ Ministry of Petroleum and Energy, *APA 2009: Continued Broad Interest for Mature Areas on the Norwegian Continental Shelf* (2009) Press Release 16 September 2009, <http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2009/apa-2009-continued-broad-interest-for-ma.html?id=577167> at 19 October 2009.

⁹⁸⁰ Ministry of Petroleum and Energy, *APA 2009: Continued Broad Interest for Mature Areas on the Norwegian Continental Shelf* (2009) Press Release 16 September 2009, <http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2009/apa-2009-continued-broad-interest-for-ma.html?id=577167> at 19 October 2009.

⁹⁸¹ See Ministry of Petroleum and Energy, Norway, *APA 2008 – Broad Interest for Mature Norwegian Shelf* (2008) <http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2008/apa-2008--broad-interest-for-mature-area.html?id=528899>, at 12 October 2008.

⁹⁸² Ministry of Petroleum and Energy, *APA 2009: Continued Broad Interest for Mature Areas on the Norwegian Continental Shelf* (2009) Press Release 16 September 2009, <http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2009/apa-2009-continued-broad-interest-for-ma.html?id=577167> at 19 October 2009.

⁹⁸³ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4-5.

below.

Figure 4: Method of allocation of petroleum licence: bid/auction method or discretionary method (compiled by author).

Under the bid system, whether the auction is made by cash auction or a work program bid system, the bidder with the highest value (either cash or work program) is awarded the licence. This system occurs in few countries with LCS. An example of the use of the cash bid system is the United States.⁹⁸⁴ Cash bonus bidding was used for the grant of exploration licences in several Australian highly prospective petroleum areas between 1985 and 1992.⁹⁸⁵ It is current government policy not to use cash bids for the allocation of petroleum licences.⁹⁸⁶ The use of work program bidding in Australia is analysed in section 4.3.2 below.

The bid system of allocation enables an oil company to assert control over the licencing process by stating what they are prepared to pay for the property rights over the acreage being offered for licence by the government.⁹⁸⁷ The value of those property rights is expressed in terms of how much a company will pay as a cash bonus or special royalty rate.

Under the second method of allocation of petroleum licences, the discretionary system, the State allocates licences according to administratively or politically

⁹⁸⁴ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4-5. See also Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 3-4.

⁹⁸⁵ Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12. See also Department of Resources, Energy and Tourism, *An Overview for Applicants: Release of Offshore Petroleum Exploration Areas, Australia 2008* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/OverviewForApplicants2008.pdf at 12 September 2008, 14.

⁹⁸⁶ Department of Industry, Tourism and Resources, *Cash Bidding System: A Guide in Relation to the Australian Government's Petroleum (Submerged Lands) Act 1967* (2004), 1. However, it is important to note that s110-114 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) provides for the allocation of a petroleum licence using cash bidding.

⁹⁸⁷ Knut Sinding, *Auctions and Discretion in Oil and Natural Gas Licensing* (1999) CEPMLP Publication 1/99, 2.

created criteria defined by the State,⁹⁸⁸ enabling the government to define and assert a set of legal conditions to which the participating oil company is expected to conform.⁹⁸⁹ Often, it is the criteria used and the transparency of the process that is a source of concern,⁹⁹⁰ although this has been somewhat mitigated by the requirement for objective, transparent criteria in the award of licences, particularly in the EU and EEA countries.⁹⁹¹ The discretionary system is a feature of the North Sea system of licencing, developed by Norway since it began awarding licences in 1963.⁹⁹²

Some academics perceive the use of administrative procedures for the allocation of petroleum licences as questionable, since it is non-transparent, relies on discretion and decision-making authorities have limited information on relative cost efficiency.⁹⁹³ However, the voluntary participation by a company in the discretionary allocation of petroleum licences indicates their acceptance of the conditions of the award of licence, and confidence in the method of allocation. Further, a company's participation in petroleum activities under discretionary allocation indicates their acquiescence to the level of control imposed by the State over petroleum exploration, development and production. The utility of the discretionary award of licences for the sustainable development of a State's petroleum resources is considered in section 4.4 below.

⁹⁸⁸ Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999).

⁹⁸⁹ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 5.

⁹⁹⁰ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4-5.

⁹⁹¹ Refer for instance to the EC Hydrocarbon Directive: *Directive 94/22/EC of the European Parliament and of The Council of 30 May 1994 On The Conditions For Granting And Using Authorizations For The Prospection, Exploration And Production Of Hydrocarbons* (1994).

⁹⁹² Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 23.

⁹⁹³ Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 3.

As figure 5 below demonstrates, the process for the award of petroleum licences under the work-program bid system in Australia and the discretionary system in Norway is similar. In each system, acreage is released, a joint venture of oil companies is formed, the licence is awarded by the State, and petroleum activities commence, regulated by the relevant legislative framework. The similarities and differences between these systems, and the implications for the sustainable development of petroleum resources, is analysed in section 4.3 and 4.4 below.

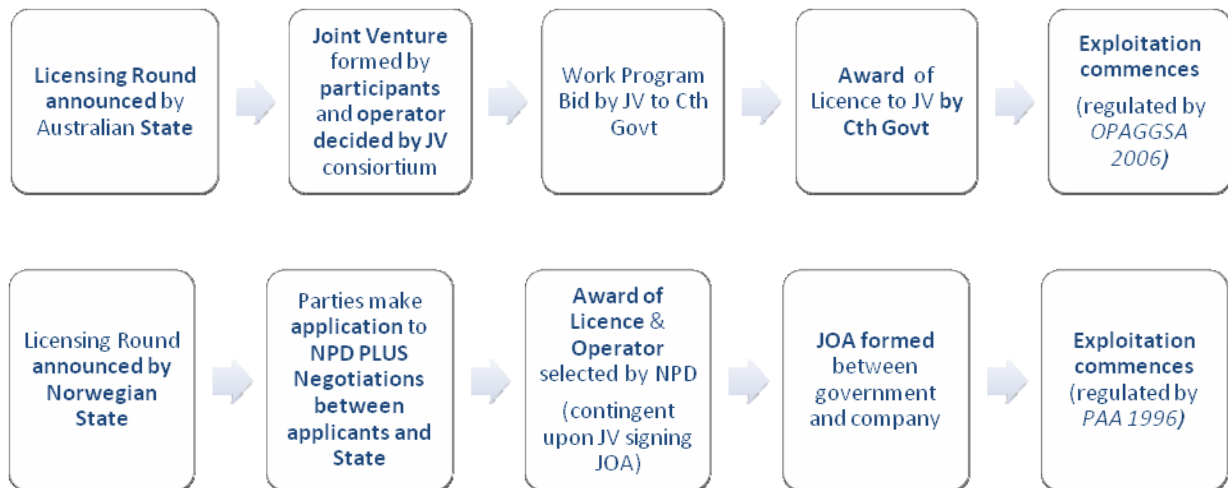


Figure 5: Award of petroleum licences in Australia (top) and Norway (bottom). Note that the process is very similar in each jurisdiction. In Australia the JV is formed by individual companies who then apply for the licence. In Norway, the JOA is established between the State and the participating oil companies after the licence is awarded, and the participants are selected by the State (figure compiled by author).

4.3 Award of licence by bidding

4.3.1 Cash bid system

Under the cash bid system,⁹⁹⁴ a licence is awarded to the applicant that is the highest bidder for a defined acreage area.⁹⁹⁵ The award is made following strict economic criteria, where the true market value of the acreage is the price it fetches in a competitive marketplace.⁹⁹⁶ It is based on the economic theory that the company willing to pay the most for the acreage is the one most suited for the job.⁹⁹⁷

Cash bidding is theoretically the most efficient approach to the allocation of a petroleum licence since the State allocating the rights receives resource rent payment and benefits from an efficient allocation system (as the most efficient company can afford to bid the highest).⁹⁹⁸ Allocation by cash bid is seen as an incorruptible method of maximising the price paid for the grant of a petroleum licence.⁹⁹⁹ In addition, it is seen as a system that avoids the shortcomings that may affect the discretionary allocation of licences, particularly corruption.¹⁰⁰⁰

However, the inherent uncertainty regarding the petroleum quality and quantity of a particular field means that bidders will discount their cash bonus bids

⁹⁹⁴ This is also referred to as the auction system, and the two terms will be used interchangeable in this thesis.

⁹⁹⁵ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 5.

⁹⁹⁶ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007.

⁹⁹⁷ Espen Myhra, *Introduction to Different Licencing Systems*, (2006) 5th Workshop of Philippines Petroleum Policy and Management Case Study, 14-18 March, 2006, Cebu City, http://www.ccop.or.th/ppm/document/PHWS5/PHWS5DOC07_myhra.pdf on 11 November 2008, 3-5.

⁹⁹⁸ Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12.

⁹⁹⁹ Tim Warman and Lauren Goldblatt, 'The Work Program Bidding System For Exploration Permits Under the *Petroleum (Submerged Land) Act 1967* (Cth) (2008) 27 *Australian Resources and Energy Law Journal* 178, 179.

¹⁰⁰⁰ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 10-11.

accordingly.¹⁰⁰¹ A company bidding for a licence in an area where they do not know for sure whether there is petroleum, or if there is petroleum, how much petroleum the field contains, will have to calculate a considerable risk in the bid. This means that sometimes, particularly in a province of unproven geology, the cash bid may not be an accurate reflection of the real economic worth of the province since there is no comprehensive data pertaining to the province.¹⁰⁰²

The objective of the cash bid system is two-fold. It serves as a method for the allocation of licences, as well as a resource rent taxation tool.¹⁰⁰³ The cash bid system in its pure form ‘approximates an optimal system’¹⁰⁰⁴ where the State seeks to maximise and collect the net present value of the economic rent. This is optimal since the amount bid reveals the bidders valuation of the acreage offered.¹⁰⁰⁵ Therefore, not only does the cash bid system collect maximum amount of resource rent, but it also reveals to the government how valuable the bidding company believes the acreage to be, and which company values that acreage the most.¹⁰⁰⁶ That information is crucial to a government since it furnishes the State with the capacity to assess the value of the acreage to the State itself and the companies that wish to exploit it.

¹⁰⁰¹ Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12.

¹⁰⁰² Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12.

¹⁰⁰³ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 5.

¹⁰⁰⁴ Walter Mead, ‘Towards an Optimal Oil and Gas Leasing System’ (1994) 15 (4) *Energy Journal* 1, 5.

¹⁰⁰⁵ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 5.

¹⁰⁰⁶ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 5.

The cash-bid/auction system attempts to capture the economic rent by pitting bidders for the resource against each other.¹⁰⁰⁷ In this competitive situation, bidders give up some of the prospective economic rent to the licencing authority in return for a petroleum licence that confers exclusive right to petroleum exploration and production.¹⁰⁰⁸ Since theoretically each bidder gains an advantage, the expectation is that the auction system will result in bidders attempting to outbid each other, until the State has captured all of the economic rent.¹⁰⁰⁹ A concern of the auction system is the low number of bidders. Where this occurs, it has been demonstrated that sealed bids are preferred over oral bids, since they ensure that uncertainty is captured.¹⁰¹⁰

Cash bidding in the North American system of licencing

Aside from an occasional use by other countries, the cash bid system has been used almost exclusively by the United States, which has a long history of the use of cash or 'bonus' bidding for oil and gas licences.¹⁰¹¹ The system has been used for the allocation of both onshore tracts of publicly owned land in the states,¹⁰¹² as well as for the allocation of offshore licences in the Gulf of

¹⁰⁰⁷ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 5.

¹⁰⁰⁸ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 5.

¹⁰⁰⁹ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 5.

¹⁰¹⁰ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 7-8.

¹⁰¹¹ Michael Bunter, 'A New Approach To Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007.

¹⁰¹² Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 4. Petroleum licencing in the USA is a combination of lease contracts on public lands, designed according to the patterns developed by the private sector, plus general taxation. See Bernard Mommer, *Private Landlord-Tenant Relationship in British Coal and American Oil: A Theory of Mineral Leases* (1997), 44. Under the US legal system, mineral resources are the property of the public or private owner of the land on or beneath which the mineral resource is located. See Bernard Taverne, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999), 174. Ownership of petroleum in the USA is governed by the 'rule of capture', where the landholder can extract as much oil and gas he desires from his land, so long as he conducts his operations without trespassing or interfering with the rights of neighbours to drill into the same geological formation under their own lands. For a discussion of ownership of mineral resources in the USA see John S Lowe, *Oil and Gas Law* (1988) 9-10.

Mexico.¹⁰¹³ This system has been almost exclusively used in the United States (US) since the mid 1970's.¹⁰¹⁴

State participation in the development of petroleum resources in the US is minimal, primarily confined to the development of regulatory legislation.¹⁰¹⁵ US laws related to petroleum (onshore public land, and offshore) provide for regulatory control through leasing. Regulations stipulate the requirement for the proper management of operations (or suspension thereof), relinquishment of area, prompt and efficient exploitation and development of the lease area, and the cancellation of the lease if the owner fails to comply with regulations issued under the Act.¹⁰¹⁶ In addition, it is a legal requirement that leases cannot be awarded to citizens of another country whose laws, customs or regulations prevent legal or natural persons from obtaining leases over public lands.¹⁰¹⁷

Individual states in the US have enacted laws to allocate petroleum licences on private tracts of land and state owned public land.¹⁰¹⁸ Most public land leases with known petroleum producing geological structures is allotted through an auction system, whilst 'unknown' land is allotted on a first come, first serve basis.¹⁰¹⁹ Generally, offshore competitive leases in the US are allotted for a fixed term by the federal government.¹⁰²⁰ They are initially awarded for five years, although are extendable by two years if a number of criteria related to

¹⁰¹³ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 1.

¹⁰¹⁴ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 6.

¹⁰¹⁵ Bernard Taverne, *An Introduction to the Regulation of the Petroleum Industry: Law, Contracts and Conventions* (1992), 14.

¹⁰¹⁶ Bernard Taverne, *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008), 170-173.

¹⁰¹⁷ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 83.

¹⁰¹⁸ Bernard Taverne, *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008), 170-173.

¹⁰¹⁹ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 83-4.

¹⁰²⁰ Using the *Outer Continental Shelf Lands Act* 1953 (US).

exploration are satisfied, including the commencement of drilling operations.¹⁰²¹

When implementing the *Outer Continental Shelf Lands Act 1953* (OCSLA),¹⁰²² the US federal government incorporated a simple means of cash bid allocation of leases.¹⁰²³ Today, the OCSLA requires the allocation of licences on the outer continental shelf to ensure the protection of the environment, and returns revenues to the federal government in the form of bonus bids, rents, and royalties.¹⁰²⁴ It also incorporates a number of other alternative bidding systems,¹⁰²⁵ mixing the capacity for broad discretion with a number of highly prescriptive planning and program arrangements. Only the auction system has been used for the allocation of licences to date.¹⁰²⁶

4.3.2 Work Program Bidding

Similar to the cash bidding process, WPB utilises a system of bids in order to allocate petroleum licences to companies. It is a competitive bidding system based on the concept that the winning company is the company able to perform the most exploration.¹⁰²⁷ Under WPB, petroleum licences for exploration are awarded to companies that ‘bid’ to perform specific activities that are desired

¹⁰²¹ Sale governed by the *Outer Continental Shelf Lands Act 1953* (US), s18 with the lease awarded for a period of 5 years.

¹⁰²² *The Outer Continental Shelf Lands Act 1953* (US).

¹⁰²³ Terence Daintith, ‘Administering the Petroleum (Submerged Land) Act: Too Much Discretion or Too Little?’ (2004) *AMPLA Yearbook 2004* 1, 34.

¹⁰²⁴ Marc Humphries, *Outer Continental Shelf: Debate Over Oil and Gas Leasing and Revenue Sharing* (2008) CRC Report for Congress, <http://ncseonline.org/NLE/CRSreports/07Dec/RL33493.pdf> at 11 November 2008, 4.

¹⁰²⁵ Terence Daintith, ‘Administering the Petroleum (Submerged Land) Act: Too Much Discretion or Too Little?’ (2004) *AMPLA Yearbook 2004* 1, 34.

¹⁰²⁶ Daintith, Terence, ‘Administering the Petroleum (Submerged Land) Act: Too Much Discretion or Too Little?’ (2004) *AMPLA Yearbook 2004* 1, 34.

¹⁰²⁷ Walter Mead, ‘Towards an Optimal Oil and Gas Leasing System’ (1994) 15 (4) *Energy Journal* 1, 10-11.

by the State licencing the petroleum resources.¹⁰²⁸ The rationale behind the WPB system is to encourage and provide an incentive for companies to effectively explore for petroleum.¹⁰²⁹

The number and type of areas that are bid for by potential licencees, as well as the quality of those bids determine the success of the WBP.¹⁰³⁰ The quality of the bids refers to the amount and timing of the proposed work programs, as well as the technical and financial resources.¹⁰³¹ Generally, the optimal work program for an area (which is analogous to the investment outlay) is likely to be positively related to the expected profitability of exploring (and the subsequent development) of the area, and influenced by factors such as future oil prices and prospectivity of the acreage.¹⁰³²

The decision by a company to participate in the bidding process is influenced by an assessment of the business environment, and whether the oil company is prepared to engage in activities with the perceived return-risk profile.¹⁰³³ If embarking on a bid, the company assesses the acreage and formulates an optimal (profit maximising) work program for the area. Similar to the cash bid, this assessment is based on such factors as prospectivity of the area, technology available, expected price for the oil that will be sold, and whether there are

¹⁰²⁸ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 2.

¹⁰²⁹ Tim Warman and Lauren Goldblatt, 'The Work Program Bidding System For Exploration Permits Under the *Petroleum (Submerged Land) Act 1967* (Cth) (2008) 27 *Australian Resources and Energy Law Journal* 178, 180.

¹⁰³⁰ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 2.

¹⁰³¹ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 2.

¹⁰³² Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 3-4.

¹⁰³³ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 3.

potential buyers if petroleum is discovered.¹⁰³⁴ Other factors that may also be taken into account include the type of crude the acreage is likely to contain, water depth, and costs associated with the development of the field.¹⁰³⁵

The optimal work program forms the basis of the competitiveness of the bid, although the submitted bid will also be a function of the competitiveness of the tender, where competitiveness is related to the number of companies submitting competitive bids for the area.¹⁰³⁶ It is also related to the number of companies actively participating in the industry and the likely bids from competing companies. Similar to cash bidding, the more companies that bid for acreage, the greater the competition between the companies, and therefore the greater the likelihood that the WPB will be optimal.¹⁰³⁷

Ideally, the selection of the winning bid should be based on terms and criteria that are final and binding (enforcing the concept that it is a contract between the State and the oil company).¹⁰³⁸ The successful work bid should bind the licensee to their commitments in a manner that bonus or royalty systems do not, therefore limiting operator discretion.¹⁰³⁹ This is accomplished through the specified work program, which generally requires the licensee to drill a certain

¹⁰³⁴ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 3.

¹⁰³⁵ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 3.

¹⁰³⁶ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 4.

¹⁰³⁷ The bid can be greater than optimal where there is a presumption that the field will contain more oil and gas than it actually does. For example in the Cornea Field in North-Western Western Australia. For a discussion on the Cornea Field see section 5.3 below. Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 2-4.

¹⁰³⁸ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 2-4.

¹⁰³⁹ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 5-6.

number of wells at particular locations, and run a certain amount of seismic survey.¹⁰⁴⁰ Unfortunately, often the bidder is required to speculate as to what criteria the State considers important when awarding petroleum licences thus introducing an element of discretion into the allocation of petroleum licences.¹⁰⁴¹

A difficulty with the bidding system (both cash and WPB) is a lack of information. Since the companies do not know whether a field contains petroleum, there is limited knowledge upon which a company can base its bid upon. This means that companies decide the potential of a field, and the value of a field is left to market forces prevailing upon the parties that bid, with the bid most optimistic about the value of the field winning. The winning company might be the company most able to maximise the potential of the field, but it may also be an over optimistic company that believes they can find oil in the field. However if the field is dry, no company, optimistic, wealthy or competent, can find oil when it does not exist, although at least a competent company has the greatest chance of finding and developing petroleum resources.¹⁰⁴²

The value of the WPB system is that it is able to establish geological information regarding prospectivity of the field, since the selection of a bidder based on the exploration work program means that the award of a licence under a WPB will at least realise information regarding the field.

¹⁰⁴⁰ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 6.

¹⁰⁴¹ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 2.

¹⁰⁴² An example of this is the Norwegian giant field *Ekofisk*, and is discussed in Chapters five and six.

Work program bidding in Australia

In Australia, the Commonwealth government is responsible for offshore oil and gas resources outside the three-mile territorial sea limit, allocating exploration and production property rights through the WPB system.¹⁰⁴³ Australia is one of the only petroleum producing countries to allocate petroleum licences solely on the WPB.¹⁰⁴⁴ This form of the bid system has been used since it operates within a free market philosophy that welcomes international companies,¹⁰⁴⁵ which have the necessary resources, knowledge and competence to develop the petroleum resources without State participation. This is important for Australia, since one of its primary national petroleum objectives is to encourage international investment in the offshore petroleum sector.¹⁰⁴⁶ To support the free market ethos, Australia has no mandatory local equity requirements and has no government owned oil companies.¹⁰⁴⁷ This also supports another goal of the Australian government which is to not participate in petroleum activities.¹⁰⁴⁸ By encouraging experienced international companies to bid for acreage in Australia, there are fewer requirements for State intervention or participation.

Early awards of petroleum licences in Australia were made using cash bonus bidding particularly for highly prospective petroleum areas, with the values of

¹⁰⁴³ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s104-9.

¹⁰⁴⁴ Terrence Daintith, *Research Report: Discretion and Prescription in the Administration of Petroleum Policy* (2005), 26.

¹⁰⁴⁵ Department of Resources Energy and Tourism, *Offshore Acreage Release 2008: An Overview for Applicants* (2008), <http://www.ret.gov.au/resources/Documents/Acreage%20Releases/2008/site/page2.htm> at 12 October 2008, 3.

¹⁰⁴⁶ Ref to petroleum policy as outlined in Chapter three.

¹⁰⁴⁷ Department of Resources Energy and Tourism, *Offshore Acreage Release 2008: An Overview for Applicants* (2008), <http://www.ret.gov.au/resources/Documents/Acreage%20Releases/2008/site/page2.htm> at 12 October 2008, 3.

¹⁰⁴⁸ Department of Resources Energy and Tourism, *Offshore Acreage Release 2008: An Overview for Applicants* (2008), <http://www.ret.gov.au/resources/Documents/Acreage%20Releases/2008/site/page2.htm> at 12 October 2008, 3-4.

winning cash bids ranged from A\$1 million to A\$20 million,¹⁰⁴⁹ although the inherent uncertainty regarding the quality of a particular field means that bidders discounted their cash bonus bids accordingly.¹⁰⁵⁰ This form of allocation of petroleum licences has not been used in Australia since 1993,¹⁰⁵¹ and Australian acreage is allocated using the work program bidding system.¹⁰⁵² However, there still remain legislative provisions for the award of licence through cash bidding in Australia under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPPAGSA).¹⁰⁵³

The process for the allocation of a petroleum licence is outlined in figure 5 above. It commences when applications for exploration licences for offshore acreage areas are invited in the annual release under the work program bidding system in accordance with OPAGGSA.¹⁰⁵⁴ These releases of acreage will usually comprise a mix of mature and frontier fields.¹⁰⁵⁵ Companies interested in a particular acreage form a commercial Joint Venture, appointing an operator for the acreage in which the application is being made. The JV then submits a work program bid for the acreage to the Joint Authority (JA). If accepted, an exploration licence is

¹⁰⁴⁹ Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12.

¹⁰⁵⁰ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 6.

¹⁰⁵¹ Department of Industry, Tourism and Resources, *Cash Bidding System: A Guide in Relation to the Australian Government's Petroleum (Submerged Lands) Act 1967* (2004), 1.

¹⁰⁵² Trudi Rodgers and Stewart Webster, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Sydney, 12.

¹⁰⁵³ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s110 – 114.

¹⁰⁵⁴ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s126. See also s104 (1).

¹⁰⁵⁵ Department of Resources, Energy and Tourism, *Release of Offshore Petroleum Exploration Areas Australia 2008: An Overview for Applicants* (2008).

awarded to the JV by the JA,¹⁰⁵⁶ and exploration activities to fulfil the work program commence.¹⁰⁵⁷

Today, most Australian acreage is allocated using the work program bidding system, with exploration licences awarded for an initial term of six years.¹⁰⁵⁸ The bid comprises two parts: the mandatory *Primary Work Program* (Years 1-3), and the *Secondary Work Program* (Years 4-6).¹⁰⁵⁹ When bidding for a petroleum licence under the WPB system in Australia, the applicant is required to propose a minimum guaranteed work program (including expenditure), for each year of the first three years. At a minimum, this should include exploration wells to be drilled, seismic and survey activities, and data evaluation.¹⁰⁶⁰

The granting of an exploration licence authorises the licensee to explore for petroleum in the licence area,¹⁰⁶¹ as well as conferring an exclusive right to explore, including seismic survey and the drilling of wells.¹⁰⁶² The amount of seismic activity and the number of exploration wells to be drilled is stipulated by the JV group when applying for the licence in the work program bid. Therefore, the level of activity will differ in each licence area, depending upon the amount of work that was bid by the applicant.

¹⁰⁵⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s99.

¹⁰⁵⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s99 (5).

¹⁰⁵⁸ Department of Industry, Tourism and Resources, *Offshore Acreage Release 2006: Guide Notes for Applicants* (2006) www.industry.gov.au/acreagereleases/2006/HTML/Guidance/guidance_contents.html at 7 April 2007.

¹⁰⁵⁹ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: An Overview for Applicants* (2008), <http://www.ret.gov.au/resources/Documents/Acreage%20Releases/2008/site/page2.htm> at 12 October 2008, 2.

¹⁰⁶⁰ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: An Overview for Applicants* (2008), <http://www.ret.gov.au/resources/Documents/Acreage%20Releases/2008/site/page2.htm> at 12 October 2008, 2.

¹⁰⁶¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s98.

¹⁰⁶² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s98.

Whilst the exploration licences (or permits) are awarded for an initial term of six years,¹⁰⁶³ there is the capacity to extend the permits twice.¹⁰⁶⁴ At each renewal of the licence, 50% of the permit area must be relinquished, with a maximum of two renewals permitted.¹⁰⁶⁵ Effectively, this provides the licensee with 25% of the original area awarded at the end of the renewal periods.¹⁰⁶⁶ If the exploration has yielded commercially exploitable reserves of petroleum, a production licence may be applied for under OPAGGSA.¹⁰⁶⁷ Should the discovery be non-commercial at the time of discovery, but likely to be in the next fifteen years, the licensee is able to apply for a retention licence under OPAGGSA,¹⁰⁶⁸ which permits the licensee to retain title to the acreage for five years¹⁰⁶⁹ and the capacity to renew the retention lease.¹⁰⁷⁰

Upon making a potential commercial discovery of petroleum, the licensee is required to notify the Designated Authority (DA) in writing, nominating block(s) for declaration of a location over the area of a potentially commercial discovery.¹⁰⁷¹ Following the declaration of the location, the licensee has two

¹⁰⁶³ Department of Industry, Tourism and Resources, *Offshore Acreage Release 2006: Guide Notes for Applicants* (2006) www.industry.gov.au/acreagereleases/2006/HTML/Guidance/guidance_contents.html at 7 April 2007. See also *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s102.

¹⁰⁶⁴ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s102, s119.

¹⁰⁶⁵ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 3.

¹⁰⁶⁶ This is similar to the relinquishment of acreage in Norway under the production licence. See *Petroleum Activities Act 1996* (Norway), s3-9.

¹⁰⁶⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s 170, with conditions on the licence stipulated in s161.

¹⁰⁶⁸ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), chapter 2, part 2.3, Division 1 and 2, ss 134-146, with conditions or the retention lease stipulated in s141 (2) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

¹⁰⁶⁹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s139 (1).

¹⁰⁷⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s 153.

¹⁰⁷¹ Department of Industry, Tourism and Resources, Resources Division, *Offshore Petroleum Guideline for Grant of a Production Licence and Grant of an Infrastructure Licence* (2002) 4.

years (unless an extension is granted) to apply to the DA for a production licence or a retention licence.¹⁰⁷²

Production licences are required in order for petroleum to be removed from the acreage for commercial sale.¹⁰⁷³ Chapter 2, part 2.4 of OPAGGSA provides for the grant of production licences over blocks in an offshore area,¹⁰⁷⁴ and conditions of petroleum licences.¹⁰⁷⁵ If an applicant wishes to proceed with the commercial development of a field, the grant of a production licence occurs after the submission of a written assessment of the discovery.¹⁰⁷⁶ A two-stage consultation process with the JA and the DA then follows. Initially, the licensee produces a preliminary field development plan as part of the consultative process, to secure the JAs approval of the production licence and associated infrastructure requirements.¹⁰⁷⁷ After approval of the preliminary field development plan, and in consultation with the government, the licensee submits a finalised field development plan (FDP) to the JA to facilitate formal field approval requirements. The granting of the production licence confers production rights on the licensee.¹⁰⁷⁸ If a licensee wishes to change a FDP, it is required to seek the approval of the relevant bodies in accordance with OPAGGSA.¹⁰⁷⁹

¹⁰⁷² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), 141 (3).

¹⁰⁷³ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s161.

¹⁰⁷⁴ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s159 - 167.

¹⁰⁷⁵ Especially under *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s162.

¹⁰⁷⁶ Department of Industry, Tourism and Resources, Resources Division, *Offshore Petroleum Guideline for Grant of a Production Licence and Grant of an Infrastructure Licence* (2002) 8, *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s163.

¹⁰⁷⁷ Resources Division, Department of Industry, tourism and Resources, *Offshore Petroleum Guideline for Grant of a Production Licence and Grant of an Infrastructure Licence*. (2002), 8.

¹⁰⁷⁸ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s170.

¹⁰⁷⁹ See *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s168 (4) and 168 (5).

Whilst OPAGGSA establishes the procedure for the award of an exploration licence,¹⁰⁸⁰ and the rights conferred by an exploration permit,¹⁰⁸¹ the Act does not outline the criteria or process for the assessment of applications for acreage under WPB. Rather, the criteria for the assessment of applications are published in the annual *Guidance Notes for Applicants*.¹⁰⁸² This is because the Australian regime is unique, being purely administrative in nature,¹⁰⁸³ with no contractual arrangements between the parties when the licences are allocated.¹⁰⁸⁴ It is administered by prohibiting petroleum exploration activities,¹⁰⁸⁵ and then granting companies the administrative authorisation to explore and recover petroleum.¹⁰⁸⁶

In deciding the winning bid, the JA is required to have regard to the predetermined, publicly outlined criteria that has been established by the State.¹⁰⁸⁷ Current criteria for the award of WPB in Australia includes the number and timing of exploration wells to be drilled, the amount, type and timing of seismic surveying to be carried out, the amount, type and timing of any purchasing or licencing of existing data, significant appraisal work over any

¹⁰⁸⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s104.

¹⁰⁸¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s98.

¹⁰⁸² The *Guidance Notes for Applicants* are published annually by the relevant Department concerned with the administration of petroleum titles, in conjunction with the release of petroleum acreage available for bidding. In 2008 the responsible body was the Department of Resources, Energy and Tourism, and can be found at www.ret.gov.au/resources/petroleum at 12 December 2008.

¹⁰⁸³ Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 94-95; Terence Daintith, 'Administering the Petroleum (Submerged Land) Act: Too Much Discretion or Too Little?' (2004) *AMPLA Yearbook 2004* 1, 7.

¹⁰⁸⁴ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 127; Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 94.

¹⁰⁸⁵ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s97.

¹⁰⁸⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s98. Terence Daintith, 'A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime' (2000) *AMPLA Yearbook 2000* 91, 107 for a further discussion on the conundrum of 'command-and-control' regulation.

¹⁰⁸⁷ As stipulated by the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s106 (3).

previous petroleum discoveries within the area.¹⁰⁸⁸ If a winning applicant cannot be chosen on the basis of the minimum guaranteed work program, the amount and timing of work proposed under the secondary work program will be assessed against the above criteria to determine the winning applicant.¹⁰⁸⁹

Work program bidding and Australia's petroleum policy objectives

Australia's petroleum policy objectives are a mixture of a commercial focus to attract investment as well as the sustainable development of its petroleum resources.¹⁰⁹⁰ Australia utilises the WPB method of allocation of exploration licences since it sees this method as most likely to select the company most likely to achieve the fullest assessment of the petroleum potential within the permit area in the minimum guaranteed period.¹⁰⁹¹ Whilst the aim of the award of a licence should be to implement the objectives of Australia's petroleum policy, it is argued that the current legislative provisions and good standing provisions undermine the implementation of national petroleum objectives.

When awarding a petroleum licence in Australia, the JA is required to take into consideration the past performance of the applicant, even where the applicant's proposed work program is the highest submitted.¹⁰⁹² Of particular importance is whether the applicants have been participants in previous licences that have

¹⁰⁸⁸ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 4-5.

¹⁰⁸⁹ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 4-5.

¹⁰⁹⁰ This policy is analysed in detail in Chapter two.

¹⁰⁹¹ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 4.

¹⁰⁹² Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 5.

been cancelled as a result of a default in work program commitment and there was no agreement to maintain good standing.¹⁰⁹³ In the first instance, an applicant must satisfy the JA of its capacity to undertake its proposed work program. In particular, the applicant company is required to prove the adequacy of financial resources and technical expertise available to the applicant.¹⁰⁹⁴ In addition, the applicant must demonstrate the likelihood that it will continue to have access to sufficient resources to meet the requirements of the proposed work program and other commitments previously entered into in other permit areas. The future viability of any consortium that is lodging the application must be demonstrated, and include evidence that a satisfactory commercial Joint Venture Agreement (JVA) has been or can be reached, and the capacity of each party to work with the rest of the consortium.

A major factor in the award of a petroleum licence is the applicant's past performance in other petroleum exploration areas in Australia (good standing).¹⁰⁹⁵ A company that has previously defaulted on its work program conditions in a petroleum exploration licence, but wishes to maintain future good standing, is able to do so if it can satisfy the government requirements to maintain good standing. These requirements include, at a minimum, a significant attempt to assess the petroleum potential of the licence area by at

¹⁰⁹³ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 5.

¹⁰⁹⁴ The *Guidance Notes for Applicants* are published annually by the relevant Department concerned with the administration of petroleum titles, in conjunction with the release of petroleum acreage available for bidding. In 2009 the responsible body was the Department of Resources, Energy and Tourism, and these guidelines and the guidelines for previous acreage releases can be found at http://www.ret.gov.au/resources/upstream_petroleum/offshore_petroleum_exploration_in_australia/Pages/OffshorePetroleumExplorationinAustralia.aspx at 12 December 2009.

¹⁰⁹⁵ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 4. Italics added by author.

least completing seismic survey.¹⁰⁹⁶ Once seismic survey is completed, a licensee may be able to maintain good standing, even if in default, by undertaking to spend an amount of money equal to the monetary value of the outstanding work commitments on qualifying work in permits over re-released areas.¹⁰⁹⁷ The monetary value will be the amount negotiated by the company and the JA, divided by the company's equity in the licence. The defaulting company is required to agree in writing to maintain its good standing, and to disclose the agreed work program in a public statement.¹⁰⁹⁸

The capacity to maintain good standing was introduced in 2000, in response to the default on the Cornea field by a Shell-Chevron JV (the Shell consortium). Shell (the operator) was awarded an exploration permit over blocks WA-265-P and WA-266-P in Western Australia. This acreage was contiguous to the Cornea structure in block WA-241-P, which was also held by the Shell consortium. In bidding for the blocks, the Shell consortium bid a minimum guaranteed minimum work program three times greater than any previously successful application under the PSLA.¹⁰⁹⁹ The Shell consortium bid highly for the two licences because the Cornea structure within block WA-241-P was mapped to extend into the contiguous blocks being offered.¹¹⁰⁰ Included in the

¹⁰⁹⁶ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 10.

¹⁰⁹⁷ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 10.

¹⁰⁹⁸ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008, 10.

¹⁰⁹⁹ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 130. Note that the legislation that regulated offshore petroleum activities at the time of the Cornea field default was the *Petroleum (Submerged Lands) Act 1967* (Cth) (PSLA).

¹¹⁰⁰ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 130.

mandatory work program for the two blocks were 1,550 km² of 3-D seismic and 47 wells. At the end of the first year, the requisite seismic survey had been completed, and six of the 47 obligatory wells had been completed.¹¹⁰¹

Shell's analysis of the results from the six test wells in WA-265-P and WA-266-P, combined with geological results from WA-241-P, led the consortium to conclude that there had been an error in the assessment of the Cornea structure.¹¹⁰² Instead of a commercial discovery, the reservoir was adverse, comprising a high viscosity thin oil rim, unconsolidated sand, low permeability and very high water connate saturations, resulting in less than ten percent recoverable oil.¹¹⁰³ Given these poor results, the consortium applied under s103 (1) of the PSLA to the JA for the second permit year to be suspended, and the term of each permit extended by a similar period.¹¹⁰⁴ The legal basis for the application was that drilling results had invalidated the geological modelling upon which the work program bid was based, and therefore the Shell consortium needed time to remodel the field. The JA rejected the application on the grounds that disappointing drill results, poor quality seismic data or the failure to prove a prospect are not normally considered to be *force majeure*.¹¹⁰⁵

A further five test wells were drilled by the consortium, with Shell concluding that it was unlikely in the extreme that any possible discovery in WA-265-P and

¹¹⁰¹ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 130.

¹¹⁰² David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 131.

¹¹⁰³ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 131.

¹¹⁰⁴ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 131.

¹¹⁰⁵ Commonwealth of Australia, *Permit Conditions and Administration – Work Program Bidding System, 01/3/R6, November 2001* (2001).

WA-266-P could be developed commercially, even in conjunction with Cornea in WA-241-P.¹¹⁰⁶

Under s104 of the PSLA, the Shell consortium was required to complete the primary work program for the first three years, or would be deemed to have breached the mandatory work requirements. Further, it was only possible to surrender of the exploration licence and retain good standing at the commencement of the fourth year, once the three-year minimum program had been completed. However, the Shell consortium sought to surrender the licences within the first three years, which was disallowed under the provisions of the PSLA at that time.¹¹⁰⁷ The consortium therefore had three options available.¹¹⁰⁸ They could drill the remaining mandatory wells at a cost of approximately \$122 million, apply under s104 (1) PSLA for consent to surrender the permits, or refuse to complete the guaranteed mandatory work program and suffer cancellation of the permits under s105 PSLA.

The option of drilling the remaining wells was not favoured by the Shell consortium, which felt that they should not have to drill as it was inconsistent with the government's often repeated assurance that 'the government will never force permittees to drill post-holes.'¹¹⁰⁹ The consortium felt that the only option available was to seek the surrender and cancellation of the permits.¹¹¹⁰

¹¹⁰⁶ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Commonwealth of Australia, Permit Conditions and Administration – Work Program Bidding System, 01/3/R6, November 2001* (2001) 127, 131.

¹¹⁰⁷ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 132.

¹¹⁰⁸ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 134.

¹¹⁰⁹ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 134.

¹¹¹⁰ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 133-4.

Australia's petroleum peak body APPEA provided the government with a series of recommendations for the situation, which affirmed a number of important principles - any changes to the minimum guaranteed work program should be transparent, maintain the integrity of the system, be capable of uniform application, result in a loss of acreage by the licensee, and be simple.¹¹¹¹

The Minister refused to cancel the permits, the basis of his decision being

‘I do not believe your proposal to allow the surrender of the permits would be consistent with the work program bidding system. Maintaining the integrity of the work program bidding system, with fairness to all companies exploring offshore, is the overriding concern of the Government... I do not believe that the Designated Authority would consider it appropriate to give consent to the cancellation of the permits in accordance with s104 (3) of the PSLA.’¹¹¹²

Meanwhile, Shell and Chevron were individually awarded further exploration licences in WA98-12, 14 and 15, even though each was in default of work commitments in licence areas WA-265-P and WA-266-P. Furthermore, the DA rejected the Shell consortium application for surrender of WA-265-P and WA-266-P, and the JA cancelled the exploration licences for WA-265-P and WA-266-P for failure to complete the mandatory primary work program.¹¹¹³

However, in October 1999 Shell and Chevron, in separate negotiations, concluded agreements with the Federal Minister for Industry, Science and Resources to maintain its good standing with the Commonwealth and West

¹¹¹¹ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 134-5.

¹¹¹² Senator the Honourable Nick Minchin, Federal Minister for Industry, Science and Resources, in David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 136.

¹¹¹³ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 136.

Australian governments, subject to the completion of exploration work in areas not taken up in recent releases.¹¹¹⁴ This was despite the cancellation of the licences in WA-265-P and WA-266-P. The outcome of the individual negotiations by Shell and Chevron became embodied in the PSLA as part of an amendment to the PSLA in 2000.¹¹¹⁵ These legislative amendments enabled the JA to rank multiple applicants based on its opinion, and could at their discretion exclude an applicant that they determined was not deserving of the grant of an exploration permit.¹¹¹⁶

In introducing the ‘good standing’ provisions as a result of the default by the Shell consortium, the Australian government introduced an element of discretion into the award of licences in Australia. No longer is a company precluded from other exploration licences if they are in default of work programs, or have had previous licences cancelled.¹¹¹⁷ Instead, a company is now able to default on its work program conditions but still maintain its good standing.¹¹¹⁸ The company needs only to demonstrate to the government that it has made a significant attempt to assess the petroleum potential of the permit area (at least conduct seismic surveying commitments)¹¹¹⁹ and ‘spend an

¹¹¹⁴ Senator Nick Minchin, *Governments Agree to Shell Maintaining Good Standing* (1999) Media Release; David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 136-7.

¹¹¹⁵ Amendments were in the *Petroleum (Submerged Lands) Legislation Amendment Act (No. 1) 2000* (Cth).

¹¹¹⁶ Now embodied in *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s106 (2).

¹¹¹⁷ Department of Resources, Energy and Tourism, *Guidance Notes for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, 5.

¹¹¹⁸ Department of Resources, Energy and Tourism, *Guidance Notes for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, 8.

¹¹¹⁹ Department of Resources, Energy and Tourism, *Guidance Notes for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, 8.

amount equal to the *agreed monetary value of the outstanding work commitments* on qualifying work in permits over re-released area.¹¹²⁰

Bunter sees the requirement for good standing in Australia as much more rigorous than the demand for a cash guarantee under cash bidding, since there is requirement for a level of work to be performed rather than a mere cash bid and assurance.¹¹²¹ However, there are serious flaws in this reasoning. Presently, the provisions to maintain good standing in the event of a company defaulting on a mandatory work program require the company to spend an agreed sum of money on exploration in a re-released area. Yet the agreed monetary value is not necessarily the monetary value the winning work bid program originally agreed to spend on exploration. This is illustrated by the amount of money the Shell consortium was required to spend on ‘other exploration work’ to maintain good standing in relation to WA-265-P and WA-266-P.

In the original winning work program bid, the consortium estimated that the wells would cost AUD\$3.5 million each to drill.¹¹²² During the negotiations to maintain good standing after the licences were cancelled, Shell (acting alone) persuaded the government to accept that the wells could in fact be drilled for AUD\$1.7 million each.¹¹²³ This reduced the cost to the Shell consortium for drilling the remaining 35 wells required in the primary work program from AUD\$122.5 million to AUD\$59.5 million, effectively half the original value. In doing so, the value of Shell’s share of the cost (equal to its 50% participating

¹¹²⁰ Department of Resources, Energy and Tourism, *Guidance Notes for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, 8 emphasis added by author.

¹¹²¹ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 89.

¹¹²² David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127.

¹¹²³ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 137-8.

interest) was reduced from A\$61.25 million to A\$30 million, saving the company A\$30 million.¹¹²⁴

The agreed monetary value provisions as part of the ability for a company to retain good standing operates to the detriment of other bidders and the government. The negotiations between Shell and the Australian government effectively resulted in the 50% reduction in the value of exploration work to be conducted by Shell. It also raises serious questions about the bidding process and award of licences based on work program bidding. If the value of drilling the wells was estimated to be A\$3.5 million each at the time of bidding, how is it that the value of drilling the wells has been reduced 50% four years later, effectively reducing the value of exploration for the Australian government? Furthermore, other bidders are placed at a disadvantage, since the value of the winning bid may be reduced when valued as agreed monetary value under the good standing provisions.

The current good standing provisions provide a winning work program company with a 'get out of jail free' provision. Where the winning bidder performs some of its exploration work, and finds that the field is a poor prospect for petroleum, the precedent set by Shell in Cornea and the current good standing provisions means that a consortium is able to cancel its permit prior to completing the mandatory primary work program, at a reduced price if agreed to. This undermines the objectivity of work program bidding, where the government auctions off exploration risk to the oil companies, who were included in the exploitation of petroleum because of their desire to assume the risk of exploration, where Bunter says the risk should fall.¹¹²⁵ Instead, the government assumes part of the risk of exploration, because it allows the

¹¹²⁴ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 137-8.

¹¹²⁵ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 96.

company to cancel a licence, thereby reducing its risk in acreage where petroleum prospects turn out to be poor.

The good standing provision may also encourage companies to over inflate the cost of their work program during the bid process in order to win certain acreage. This would be more likely for acreages that are particularly attractive and are likely to contain petroleum deposits. Should the licence area fail to show a commercial discovery, the winning consortium could invoke the good standing provisions, and have their financial commitment to exploration seriously reduced. This could be prevented by stipulating that the winning bid of a company may be converted under the good standing provisions based on the original monetary value stipulated in the winning bid, rather than an agreed monetary value. Thus, the company would still be spending the designated amount on exploration activities on the Australian Continental Shelf, but in an area of differing prospectivity. This could discourage companies from overbidding to win exploration licences in attractive acreage, and then negotiating lower values of exploration if the acreage fails to yield expected commercial quantities of petroleum.

The advice offered by APPEA to the Australian government regarding the Cornea licences was that any resolution of the matter should embrace integrity, simplicity, and uniformity.¹¹²⁶ By disregarding the advice of APPEA, and enabling a company to maintain good standing through a discretionary decision, the Australian government has undermined the integrity of the work program bid system. No longer is there an assurance that the mandatory exploration under a winning work program bid will be completed. If the terms of the licence can be altered after the award of the acreage, then the system of award does not unambiguously and objectively award the licence to the highest bidder.¹¹²⁷

¹¹²⁶David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 134.

¹¹²⁷Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 1-2.

Rather, the licence is awarded to the company that bids the highest at the time of the award of licence, yet there is no assurance that this amount will be spent. This undermines the economic justification for use of WPB, which seeks to award a licence based on the most amount of money to be spent on exploration, and therefore be the most economically efficient.¹¹²⁸ In addition, the application of the good standing provisions is not uniform, as it relies on the discretion of the JA. There is also no uniformity in either the application of the provision or how the monetary value of the remaining work is agreed upon. This ultimately means the system of award of petroleum licences is complex, not at all simple or uniform as recommended by APPEA.

An Australian national petroleum policy objective is to offer certainty to investors for petroleum exploitation, allowing companies to manage their risk in a regulatory framework that is predictable, transparent, equitable and timely.¹¹²⁹ Yet the current method of allocation of licence under the WPB has a demonstrable element of discretion. Consequently, companies have neither transparency nor predictability in the licence allocation process. Instead, there is provision for the application of a discretionary administrative power by the JA. Rather than encourage exploration and investment in Australia's petroleum industry, the current method of allocation is discouraging investment in Australia's offshore petroleum industry. This may be demonstrated by a sharp downturn in the investment in Australian petroleum exploitation. Ten years ago, Australia's attractiveness as an offshore petroleum exploration destination was second only to the United Kingdom.¹¹³⁰ Today, Australia is no longer attractive in prospective terms. In the ten-year period to 2002, 154 companies commenced

¹¹²⁸ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 1-2.

¹¹²⁹ Energy Task Force, *Securing Australia's Energy Future* (2004) 51-3.

¹¹³⁰ Warwick Parer, 'Delivering National Prosperity' (1998) Address to the 1998 APPEA Conference 9 March 1998, Canberra. 38 *APPEA Journal Part 2*, 11.

or recommenced exploration operations in Australia, whilst 168 companies left Australia's petroleum provinces in the same period.¹¹³¹

This downturn in exploration investment demonstrates that the WPB method of licence allocation in Australia is not fulfilling its national petroleum objective to attract international investment in a competitive environment to exploit the petroleum resources.¹¹³² Furthermore, the method of allocation is not encouraging socio-economic sustainable development, since the current good-standing provisions encourage companies such as Shell and Chevron to discount their designated investment in the offshore sector by up to 50%.¹¹³³

Given the serious flaws of the work program bidding system in Australia, the use of this system for the allocation of petroleum licences in Australia should be reconsidered. In particular, the good standing provisions require some fundamental changes.

One change is that rather than an agreed monetary value being used to determine the exploration expenditure to be spent in another area when a licence is cancelled, the companies should be required to spend the original value bid on exploration. This may act as a deterrent to companies seeking the cancellation of licences in the event of a poor prospect, since they will be required to spend the same amount of money, whether in the allocated acreage or another area. In addition, the defaulting company should be required to perform the exploratory work in a frontier area of the Australian continental shelf, and contribute the data generated to the Geoscience Australia Petroleum Database. This will ensure that the Australian government benefits through the

¹¹³¹ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008), 36.

¹¹³² A policy objective stipulated in the 1999 petroleum policy. See Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999).

¹¹³³ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 137-8.

accumulation of pre-competitive data,¹¹³⁴ which has previously been identified as an area of serious weakness.¹¹³⁵ These provisions will at least ensure that the award of good standing is uniform and transparent for all participants.

4.4 Discretionary allocation of petroleum licences

4.4.1 Outline and objective of the discretionary system

The discretionary system for the allocation of petroleum licences has been used in many jurisdictions, including Norway, the United Kingdom, and Denmark.¹¹³⁶ It is a flexible system of awarding exploration and production acreage on the basis of a committed work program set either by the oil company upon application for acreage, or by the State developing the resources.¹¹³⁷ It awards acreage to applicants on the basis of predetermined criteria. These criteria may include technical and financial competence and management capacity of the applicant.¹¹³⁸ However, typically the primary criterion for the allocation of the acreage is the level and type of work the applicant is prepared to undertake in an exploration.¹¹³⁹ It is important to note that there is much variation in the criteria stipulated by different States, and the criteria for award

¹¹³⁴ Pre-competitive data refers to data that is available, usually free of charge, to ALL applicants for acreage on an equal and open basis.

¹¹³⁵ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008), 36.

¹¹³⁶ Michael B Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearicles/roundup_15.htm#anchor06 at 10 March 2007.

¹¹³⁷ Michael B Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearicles/roundup_15.htm#anchor06 at 10 March 2007.

¹¹³⁸ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002) 87.

¹¹³⁹ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000), 166.

of licence will differ according to the goals of the State in exploiting the petroleum resources.

The objectives of the discretionary system are to provide States with the capacity to select the most appropriate companies to grant exploration and production rights to, enable the State to define the criteria for the award of licences according to the national petroleum objectives and field maturity, and to development of frontier areas where required.¹¹⁴⁰ Discretionary allocation enables a State to determine which factors will be used to select the licensee, rather than being confined to purely economic criteria. Under discretionary allocation, other factors can be used in selecting the winning applicant, and the selection criteria can be aligned with national petroleum objectives. Where sustainable petroleum development is a goal for the State, the discretionary method may be a valuable tool.

Discretionary allocation can provide a State with a plethora of options in developing its petroleum resources. It allows a government to rapidly explore their fields if so desired,¹¹⁴¹ and promote timely and effective development of a field in the event of a commercial discovery.¹¹⁴² Furthermore, it can be used as an effective tool to slow down exploration as a method of controlling production by limiting the number of licences that are granted to petroleum explorers.¹¹⁴³ It also enables the State to control or limit the number of foreign

¹¹⁴⁰ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002) 87; Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000), 166; Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991) and Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004.

¹¹⁴¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19.

¹¹⁴² Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 15-16.

¹¹⁴³ Kenneth Dam, *Oil Resources: Who Gets What, How?* (1976), 4.

oil companies that exploit oil within that State,¹¹⁴⁴ and can be used to obtain geological and geophysical information about a country's oil reserves and potential.¹¹⁴⁵ It is able to respond to environmental and political change with greater sensitivity than auction systems.¹¹⁴⁶ This means that there may be differing terms for differing licencing rounds in any jurisdiction.¹¹⁴⁷

Discretionary allocation also gives a State some control over the investment in its petroleum industry, since the government is able to determine which of the proposed programs for exploration are carried out.¹¹⁴⁸ With this control comes a need for the State to have sufficient human, financial and knowledge resources to be able to evaluate the proposals for exploration made by oil companies.¹¹⁴⁹ Thus, this system vests the discretionary power to award a licence in the petroleum management body and tender evaluators, who consider the formal applications against the State-defined criteria which encompasses financial, technical and managerial aspects of the applicant.¹¹⁵⁰ This flexible system for the allocation of licences for exploration and production awards licences according to administratively or politically derived criteria, in order for the

¹¹⁴⁴ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 15-16.

¹¹⁴⁵ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 15-16.

¹¹⁴⁶ Jerome Davis, *Does One Size Fit All: Reflecting on Governance and North Sea Licensing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004, 5.

¹¹⁴⁷ An excellent discussion of the differing conditions attached to early petroleum licencing rounds is found in Brent F Nelsen *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991). See also a description of the licencing rounds in Norwegian Petroleum Directorate, *Annual Report, 1998* (1998).

¹¹⁴⁸ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 166.

¹¹⁴⁹ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 166.

¹¹⁵⁰ Bunter, Michael, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

State to maximise the benefits to that State from the exploitation of the petroleum resources that the State owns.¹¹⁵¹

The use of discretion in the award of a petroleum licence is not an ‘all or nothing’ system. Rather, discretion is a continuum, ranging from total government control at one extreme, through various degrees of government discretion, to market-based award through auction at the other end.¹¹⁵² This spectrum can range from the ‘discretionary’ discretionary allocation of petroleum licences, such as those allocated by the Norwegian government prior to 1994,¹¹⁵³ and the ‘objective’ discretionary allocation of licences, where licences are awarded under the discretionary method of allocation utilising objective and transparent criteria. The difficulty faced by governments therefore is not whether or not they should allocate acreage using the discretion system of allocation, but rather how far along the discretion continuum they should move in allocating licences, and how much control should remain with the State.¹¹⁵⁴

The exercise of discretion along this spectrum enables the State to award licences to the applicant whose proposed exploration program is most likely to fit with national petroleum objectives.¹¹⁵⁵ These objectives may include growth of industry sectors, management of other natural resources, political or environmental objectives.¹¹⁵⁶ By allocating licences using discretion it is

¹¹⁵¹ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 4.

¹¹⁵² Geoff Frewer, ‘Auctions vs. Discretion in the Licencing of Oil and Gas Acreage’ in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 165. This spectrum can range from the award of a licence using advertised, objective criteria, to a government decision to award the licence based on apparent non-sensical criteria that are neither open, nor transparent.

¹¹⁵³ For example the allocation of licences in Norway that specified that any licencees awarded licences on the Norwegian Continental Shelf were required to use Norwegian Labour and companies wherever possible. For a discussion on this see section 5.5.2 below.

¹¹⁵⁴ Geoff Frewer, ‘Auctions vs. Discretion in the Licencing of Oil and Gas Acreage’ in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 165.

¹¹⁵⁵ Geoff Frewer, ‘Auctions vs. Discretion in the Licencing of Oil and Gas Acreage’ in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 168.

¹¹⁵⁶ Geoff Frewer, ‘Auctions vs. Discretion in the Licencing of Oil and Gas Acreage’ in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 168.

possible to determine, define and publicise the criteria for the award of licences based on those national objectives. Such criteria may encompass experience, technical knowledge, financial capacity or nationality. In addition, where the selection criteria is determined and advertised by the State during the licencing round, it enables a State to attract companies that satisfy the criteria upon which the award of licence will be based, rather than only attracting companies with the financial capacity to pay the highest bid up front.

Often discretion enables the State to exert control over the activities of the licensee in petroleum activities. Frewster notes that the greater the level of control exhibited by the State in the award of licences, the greater the level of influence a State is able to exert over the activities of the oil company in the exploration and production of petroleum.¹¹⁵⁷ This is demonstrated in Norway where the level of control exerted by the State in the use of discretion in the award of petroleum licences corresponds to the control exerted over petroleum activities, as well as inducing the economic diversification of Norway. However, it is important to note that this level of control may also be attributable to the amount of control that a State exerts in the development of a field, rather than the conditions of award alone. The level of control exerted by a State in field development, and its contribution to sustainable development is considered in Chapter five below.

4.4.2 Use of the discretionary system in the North Sea

Use of discretion on the United Kingdom Continental Shelf (UKCS)

The UK government initially debated the merits of using a discretionary versus an auction system in the 1960s, ultimately rejecting the auction system since it ‘did not permit the same range of detailed control that discretionary licencing

¹¹⁵⁷ Geoff Frewer, ‘Auctions vs. Discretion in the Licencing of Oil and Gas Acreage’ in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000), 168.

systems do.’¹¹⁵⁸ This choice of discretionary allocation enabled the UK Ministry of Power to allocate licences to companies that were willing to carry out the wishes of the UK government for the rapid development of the resources on the UKCS.

In the early licencing rounds the UK government encouraged, through its discretionary award of licences, the rapid and thorough exploitation of UKCS, in order to exploit the petroleum resources for their economic worth.¹¹⁵⁹ The UK argued that the allocation of licences using discretion with weighting on the work program was required because such emphasis promoted rapid and thorough exploration and exploitation of its North Sea oil resources.¹¹⁶⁰ Oil companies proposed a work program, and entered into negotiations with the UK government regarding the required work program. When agreement was reached on the terms of the licence, the companies committed to a minimum program of work on the UKCS in a specified period of time. Hence, there was not only an element of work program bidding, but also negotiation with the UK government to determine the most suitable applicant for that licence area.

Today, licences on the UKCS continue to be awarded through discretionary allocation, with applicants required to propose a work program prior to allocation of licence. All applicants are assessed using a general policy objective of encouraging expeditious, thorough and efficient exploration of the UK continental shelf to identify all oil and gas resources, as well as the proposed work program.¹¹⁶¹ Applications are evaluated on the basis of a

¹¹⁵⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19.

¹¹⁵⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19.

¹¹⁶⁰ Select Committee in Energy, Third Report Session 1981-2, *North Sea Oil Depletion Policy* (1982) [55], in Ursula M H Kretzer, ‘Overcapitalisation in Licencing Systems Based on Size of Work Programme’ (1993) 19 (4) *Resources Policy*, 299, 299.

¹¹⁶¹ United Kingdom Department of Trade and Energy, *The Energy Report* (‘*The Brown Book*’) (1998).

number of criteria, including proposed work program, exploration and development record of the applicant on the UKCS, and the financial and technical ability of the company to implement the proposed work program,¹¹⁶² with weighting on the technical capacity of the applicant, proposed exploration program, and environmental considerations.¹¹⁶³ The company must also submit a minimum number of wells that it will complete if awarded the acreage.¹¹⁶⁴

An important objective of the UK licencing system has been protectionism, seeking to guard against the possibility that companies might invest at a level considered too small once the licence has been awarded.¹¹⁶⁵ However, it is argued that there are costs associated with the use of a discretionary licencing system, since many oil companies must compete to fulfil the government's criteria of work program when applying for acreage, resulting in overcapitalisation in order to be awarded a particular lease. This occurs when companies propose work programs that are above their optimal levels of capital investment.¹¹⁶⁶ This overcapitalisation is exacerbated where there is an increase in the number of companies competing for licences, and cost-price ratios decrease.¹¹⁶⁷

¹¹⁶² Ursula M H Kretzer, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299, 299.

¹¹⁶³ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000), 169.

¹¹⁶⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 18-22.

¹¹⁶⁵ Ursula M H Kretzer, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299, 310.

¹¹⁶⁶ Ursula M H Kretzer, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299, 310.

¹¹⁶⁷ Ursula M H Kretzer, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299.

The UK explored the use of the cash bid system for the allocation of some licences in the fourth licencing round in 1971.¹¹⁶⁸ Fifteen blocks were auctioned, with a further 267 blocks allocated by the usual discretionary basis of licence allocation.¹¹⁶⁹ Altogether, 31 bids were received for the 15 blocks, with winning bids providing £37 million on government revenue. In comparison, the other 267 blocks only realised revenue of £2.7 million.¹¹⁷⁰

A number of academics have examined this licencing allocation experiment by the UK, with Kenneth Dam concluding that the ‘discretionary system turned out to be the most expensive subsidy.’¹¹⁷¹ Dam arrived at this conclusion based on an analysis of the income received.¹¹⁷² However, this analysis compares only the initial payments made by the oil companies that bid for the licences under the discretion and auction system. Whilst the auction system did provide an initial income of £37 million, compared to only £2.7 million for the discretionary licences, the licences awarded through discretion also contributed over £200 million in minimum work programs.¹¹⁷³ The income analysis by Dam fails to incorporate income realised from the calculation of resource rent tax and other special taxation on the income realised from the licences awarded using discretion. As such, it is not possible to conclude that the income received was higher from the award of licences by cash bid rather than through discretionary methods, since not all income from licences awarded by discretion was included in the calculations, only initial income. Rather, it is only possible

¹¹⁶⁸ Walter Mead, ‘Towards an Optimal Oil and Gas Leasing System’ (1994) 15 (4) *Energy Journal* 1, 5.

¹¹⁶⁹ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 5.

¹¹⁷⁰ Walter Mead, in Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 5.

¹¹⁷¹ Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 39.

¹¹⁷² See Kenneth Dam, *Oil Resources: Who Gets What How?* (1976), 38, for income received from the allocation of licences using the bid and discretion methods in the licencing rounds.

¹¹⁷³ House of Commons, first Report of the Committee of Public Accounts, North Sea Oil and Gas, Session 1972-3, at 45 (1973) in Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 38.

to conclude that bidding provided greater ‘up front’ revenue, an expected outcome from the auctioning of petroleum licences.

The UK government reintroduced cash auctioning as one of the methods of allocating licences in the seventh licencing round in 1980/1, whilst still retaining the right to allocate licences using discretion, and to reject the highest cash bid.¹¹⁷⁴ The rationale for the reintroduction was that it would realise large sums of money without slowing offshore exploration, rather than an ideological argument relating to free markets.¹¹⁷⁵ During this period the UK economy was facing numerous structural problems, including high inflation, wage inflation, trade union strikes and high levels of government debt.¹¹⁷⁶ The UK government sought to reduce the government deficit by raising taxes, decreasing government spending and reducing interest rates. The effect of these actions was to cause economic recession in the UK.¹¹⁷⁷ Coupled with this were the effects of the appreciation of the pound sterling, particularly affecting the economy through income received from the export of oil. As part of the overall monetary strategy, the government sought a cash injection into the economy through the cash auctioning of these blocks. Forty two blocks from the UKCS mature province were auctioned, realising £210 million.¹¹⁷⁸ The eighth and ninth rounds each auctioned off fifteen blocks (8% of total number of blocks offered), with the return disappointing.¹¹⁷⁹ The eighth round raised only £33

¹¹⁷⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

¹¹⁷⁵ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

¹¹⁷⁶ *UK Economy Under Mrs Thatcher 1979 – 1984* <http://www.economicshelp.org/2007/03/uk-economy-under-mrs-thatcher-1979-1984.html> at 19 January 2009.

¹¹⁷⁷ *UK Economy Under Mrs Thatcher 1979 – 1984* <http://www.economicshelp.org/2007/03/uk-economy-under-mrs-thatcher-1979-1984.html> at 19 January 2009.

¹¹⁷⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

¹¹⁷⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

million through auction, although the ninth round was more successful, raising £121 million.¹¹⁸⁰

The tenth licencing round in 1987 saw a return to the discretionary allocation of both mature and frontier blocks. This coincided with a change in the fiscal policy of the Thatcher government, since Treasury no longer required the injection of cash that would have been realised in the auctioning of the acreage.¹¹⁸¹ In all, the auctioning of British acreage was not motivated by the economic desire to extract the greatest resource rent from the acreage, but to raise revenue. Using auction as a revenue raising exercise seriously undermines the value of the auction system, which is predicated on the notion of extracting the highest resource rent. The use of auction by the British as a revenue raising tool rather than as a tool to capture the greatest amount of economic rent undervalued the resources, and enabled bidders the opportunity to bid not for what the acreage was worth, but for what the British government was likely to accept for the acreage.

This argument is supported by data on the frequency of drilling of second wells on auctioned and discretionary blocks from the eighth and ninth licencing rounds. In the eighth round, 86% of discretionary and 60% of auctioned block had second wells drilled.¹¹⁸² In the ninth round 63% of discretionary and 33% of auction acreage had second wells drilled.¹¹⁸³ This demonstrates that obligations undertaken on acreage awarded by discretion have led the participants to seek out additional prospects on the allocated block when the

¹¹⁸⁰ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

¹¹⁸¹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 92.

¹¹⁸² Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 171.

¹¹⁸³ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 171.

first well failed, whereas in auction blocks, an initial failure has tended to focus the participant to more favourable areas or other obligations.¹¹⁸⁴ Furthermore, there was little difference in exploration drilling between discretionary and auction blocks, although there was more appraisal wells drilled on auction blocks.¹¹⁸⁵

The evidence from the UK demonstrates that the use of auction for the allocation of petroleum licences was an effective way to allocate acreage and realise up front resource rent, but there were serious concerns regarding the competitive nature of the process.¹¹⁸⁶ These concerns arose since there were very few bidders, a consequence of the formation of joint ventures in petroleum activities which spread risk and results in a smaller pool of possible bidders. This suggests that an auction may not be the most economically efficient way to allocate licences.¹¹⁸⁷

The UK initially chose the discretionary system since it allowed the government to speed up exploration in unknown areas of the UKCS, as well as favouring UK companies.¹¹⁸⁸ Today, it continues to use the discretionary system even though auctioning licences to the highest bidder may generate greater up front revenue. The discretionary system continues to meet the primary petroleum

¹¹⁸⁴ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 171.

¹¹⁸⁵ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 171.

¹¹⁸⁶ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 172.

¹¹⁸⁷ Geoff Frewer, 'Auctions vs. Discretion in the Licencing of Oil and Gas Acreage' in G MacKerron and P Pearson (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000) 168.

¹¹⁸⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19.

objectives of the UK, particularly the national objective of speedy development of domestic petroleum resources.¹¹⁸⁹

Award of licences on the Norwegian Continental Shelf (NCS)

Exploration licences in Norway are conferred under chapter 2 of the *Petroleum Activities Act 1996* (Norway) (PAA) to either a legal person or a natural person domiciled within an EEA/EU State.¹¹⁹⁰ The exploration licence confers non-exclusive exploration rights,¹¹⁹¹ with the award of a production licence conferring exclusive rights for exploration and production activities.¹¹⁹² The production licence confers a discretionary right upon the State to issue regulations relating to the contents of a licence application, including the scope of the licences, further conditions of the licence, and requirements for the development of the field.¹¹⁹³ Similar to the award of exploration licences in Australia, as illustrated in figure 5 above, the acreage must have been released in a licencing round, and appropriately advertised.¹¹⁹⁴ This usually occurs after the environmental, economic and social impact of such operations on other industries and adjacent regions has been assessed.¹¹⁹⁵ An application for a production licence may be lodged with the Norwegian government upon the release of acreage in a licencing round,¹¹⁹⁶ which must be advertised in the

¹¹⁸⁹ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19.

¹¹⁹⁰ *Petroleum Activities Act 1996* (Norway), s2-1.

¹¹⁹¹ *Petroleum Activities Regulations 1997* (Norway), s4.

¹¹⁹² *Petroleum Activities Regulations 1997* (Norway), 3-3 and 3-4. It is important to note that the Norwegian petroleum licence confers the same rights as the Australian exploration licence, and therefore will be seen as equivalent in each jurisdiction. Therefore, this thesis will assess the award of the production licence in Norway with the award of a Exploration licence in Australia.

¹¹⁹³ See Chapter 4 of the *Petroleum Activities Act 1996* (Norway).

¹¹⁹⁴ *Petroleum Activities Act 1996* (Norway) s3-1 advertising requirements under *Petroleum Activities Act 1996* (Norway), and *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994).

¹¹⁹⁵ *Petroleum Activities Act 1996* (Norway), s3-1.

Norwegian Gazette and the Official Journal of the European Communities, in order to comply with Norwegian laws¹¹⁹⁷ and the EC Directive requirements.¹¹⁹⁸

Production licences are normally awarded only through licencing rounds (except for Awards in Predefined Area), where the Norwegian State invites applications for a certain number of blocks (acreage).¹¹⁹⁹ When acreage is announced and released in licencing rounds, companies can apply individually or in groups. The announcement specifies the terms and criteria that will determine the award of a licence. Petroleum licences are usually awarded for a period of ten years,¹²⁰⁰ with the ability to extend up to thirty years.¹²⁰¹

After the close of the licencing round, the State assesses the applications received and the Ministry of Petroleum and Energy (MPE) shortlists a group of companies based on the criteria for selection.¹²⁰² The licences are then awarded, based on the non-discriminatory, objective, published criteria, and announced publicly.¹²⁰³ These criteria are outlined in section 10 of the PR, and include the technical competence and financial capacity of the applicant and the applicant's plan for exploration and production in the area for which a production licence is sought.¹²⁰⁴ If the applicant is or has been a licensee according to an exploration licence, the Ministry may also take into consideration any form of inadequate

¹¹⁹⁶ *Petroleum Activities Act 1996* (Norway), s3-5.

¹¹⁹⁷ *Petroleum Activities Act 1996* (Norway), s3-5.

¹¹⁹⁸ *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994).

¹¹⁹⁹ *Petroleum Activities Act 1996* (Norway) s3-5.

¹²⁰⁰ *Petroleum Activities Act 1996* (Norway), s 3-9.

¹²⁰¹ *Petroleum Activities Act 1996* (Norway), s3-9.

¹²⁰² Norwegian Petroleum Directorate, *Facts 2001: The Norwegian Petroleum Sector* (2001), 59.

¹²⁰³ *Petroleum Activities Act 1996* (Norway), s3-5.

¹²⁰⁴ *Petroleum Regulations 1996* (Norway), s10.

efficiency or inadequate responsibility that may have been demonstrated by the applicant as a licensee. Where there are cooperation agreements entered into for application for a production licence, these agreements are submitted to the MPE for veto and approval. The Minister reserves the right to alter the agreement if required.¹²⁰⁵ The MPE selects the operator,¹²⁰⁶ thus conferring upon the operator the responsibility for the daily conduct of petroleum operations in accordance with the terms of the licence.¹²⁰⁷

State control is exerted through the granting of production licences in licencing rounds. This award of a production licence confers upon the licensee the right to explore for and produce petroleum for periods of up to 30 years.¹²⁰⁸ This encourages companies to have a long-term perspective in managing their interests on the Norwegian Continental Shelf (NCS). In addition, the State has the discretion to determine if, and at what level, the Norwegian State will participate in petroleum activities.¹²⁰⁹ Furthermore, as part of the award of production licences, the State may impose a specific work obligation on the licensee for the area specified within the licence.¹²¹⁰ A production licence can be surrendered, either in its entirety within the first three months of the grant of the production licence, or at the end of the calendar year, with three months notice.¹²¹¹

The grant of a licence in Norway is based on the licensee fulfilling the conditions of the award of licence. When a licencing round is announced, the duties of the licensee are outlined to prospective applicants, usually as a guide

¹²⁰⁵ *Petroleum Activities Act 1996* (Norway), s3-4.

¹²⁰⁶ In accordance with *Petroleum Activities Act 1996* (Norway) s3-7.

¹²⁰⁷ *Joint Operating Agreement* (Norway), Art. 3.1.

¹²⁰⁸ *Petroleum Activities Act 1996* (Norway), s1-2.

¹²⁰⁹ *Petroleum Activities Act 1996* (Norway), s 3-6.

¹²¹⁰ *Petroleum Activities Act 1996* (Norway), s 3-8.

¹²¹¹ Within three months of the grant of the production licence – see *Petroleum Activities Act 1996* (Norway), s 3-15

to the applicant.¹²¹² Duties are stipulated in the Norwegian *Invitation to Apply for Petroleum Production Licence*, and include the requirement for an applicant to be registered in Norway or the EEA, and that conditions of the award will be stipulated at the time of the licence.¹²¹³ Conditions pertaining to the grant of a licence are also outlined in section 11 of the *Petroleum Regulations 1997* (Norway) (PR). The grant of a petroleum licence is granted based on the need to ensure that petroleum activities are carried out in a proper manner.¹²¹⁴ Standard conditions include the preservation of public health and safety, environmental protection, protection of biology and national treasures, and safety of employees and facilities. The grant of a licence also requires the systematic management of resources, including production rate, optimisation of production activities, and the need to ensure fiscal revenues.¹²¹⁵ In addition, the licensee is required to have an organisation ‘which is capable of managing independently the petroleum activities from Norway’.¹²¹⁶ In practice this means that the Norwegian government has the right to specify requirements of the organisation and capital of the company, and the licensee may be ordered by the Norwegian government to base the company in Norway or use a company that is based in Norway.¹²¹⁷

¹²¹² For example the *Invitation to Apply for Petroleum Production Licence* published by the Norwegian Petroleum Directorate and part of the package of information provided to applicants. See <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009.

¹²¹³ Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009, v.

¹²¹⁴ *Petroleum Regulations 1997* (Norway), s11, para 1.

¹²¹⁵ *Petroleum Regulations 1997* (Norway), s11 para 2.

¹²¹⁶ *Petroleum Activities Act 1996* (Norway), s10-2.

¹²¹⁷ *Petroleum Activities Act 1996* (Norway), s10-2 para 2.

As part of the award of the discretionary award of licence in Norway, companies are not required to apply for acreage in a pre-arranged consortium. Rather, each company applies individually for the blocks on offer, indicating their preference for blocks.¹²¹⁸ The MPE, in consultation with the NPD and individual companies, selects a number of companies and assembles a JV for each licence area, as well as designating the operator for that acreage.¹²¹⁹ The MPE then stipulates as a condition of the grant of a licence that the licencees are to enter into agreements with specified contents with one another.¹²²⁰ This JV then enters into a contractual arrangement with each other through the JOA.¹²²¹

The grant of a production licence confers the right to exclusive exploration activities, including the drilling of test wells. It does not automatically confer the right for production. Rather, similar to the requirements for Australia, production rests upon the approval of a *Plan for Development and Operations* (PDO).¹²²² When a new deposit is to be developed, the oil company must submit a PDO for approval. An important part of the PDO is an environmental impact assessment which interested parties are given the opportunity to comment upon in a hearing round. The environmental impact assessment describes the development's expected impact on the environment, any trans-boundary environmental effects, and effect on natural resources, fisheries and society in general.¹²²³ The governmental consideration of this assessment and

¹²¹⁸ See Chapter 3 of *Petroleum Activities Act 1996* (Norway).

¹²¹⁹ Brent F Nelsen., *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 94.

¹²²⁰ *Petroleum Activities Act 1996* (Norway), s 3-3.

¹²²¹ The JOA is a mandatory part of the licencing framework, as defined under s 3-3. *Petroleum Activities Act 1996* (Norway). A company is not able to participate in the exploitation of petroleum resources on Norwegian Continental Shelf unless it enters into the JOA.

¹²²² *Petroleum Activities Regulation 1997* (Norway) sections 20-24.

¹²²³ Norwegian Petroleum Directorate, *Facts 2007: The Norwegian Petroleum Sector* (2007), Chapter four.

development plan ensures a prudent project in terms of resources, as well as acceptable consequences for other matters of public interest.

Petroleum activities in Norway must be conducted in accordance with prudent production, technologies and sound economic principles, to ensure that petroleum resources are not wasted,¹²²⁴ and the production is for the benefit of the Norwegian people. To that end, the PDO must contain an account of the economic, resource, technical, commercial and environmental aspects of the production, as well as decommissioning and disposal of the installation once production has ceased.¹²²⁵ Where production is planned in two or more stages, the plan must, as far as possible, comprise a total development plan rather than a stage development plan.¹²²⁶ Production cannot commence until the Minister has approved the plan,¹²²⁷ and where there has been significant deviation from the original production plan, the Ministry may require a new or amended plan to be submitted and approved.¹²²⁸

The Ministry also has to approve the expected production schedule, which can only be altered if warranted by resource management or other significant social considerations.¹²²⁹ The Ministry will stipulate for periods of time, the quantity of petroleum that may be produced, injected or cold vented at any time, and stipulates that burning of petroleum is not allowed without Ministry approval.¹²³⁰ On all other production matters, the Ministry has discretion

¹²²⁴ *Petroleum Activities Act 1996* (Norway), s 4-1.

¹²²⁵ *Petroleum Activities Act 1996* (Norway), s 4-2.

¹²²⁶ *Petroleum Activities Act 1996* (Norway), s 4-2.

¹²²⁷ *Petroleum Activities Act 1996* (Norway), s 4-2.

¹²²⁸ *Petroleum Activities Act 1996* (Norway), s 4-2.

¹²²⁹ *Petroleum Activities Act 1996* (Norway), s 4-4.

¹²³⁰ *Petroleum Activities Act 1996* (Norway), s 4-4.

regarding preparation, commencement, and continuation of production,¹²³¹ and the use of production facilities by others, where deemed necessary for efficient operation or for the benefit of society.¹²³²

4.4.3 Discretionary allocation of petroleum licences and national petroleum objectives

Discretion is at the core of the Norwegian petroleum licencing allocation system, as noted by the Norwegian Petroleum Directorate:

‘[The Norwegian licencing] system differs from the approach taken in many other countries in that licences go to the companies which are best qualified for the job, rather than those making the highest bid in an auction.’¹²³³

Unlike the UK government, the Norwegian government has exclusively used the discretionary system for the allocation of petroleum licences since the commencement of petroleum exploration and production.¹²³⁴ The Norwegian State uses discretion in the allocation of licences as a method to stabilise offshore exploration rather than control production.¹²³⁵ It was attracted to the use of discretion since it afforded the State a greater degree of control over offshore activities,¹²³⁶ allowing the Norwegian government to implement its petroleum policy objectives. These policy objectives include slower rates of

¹²³¹ *Petroleum Activities Act 1996* (Norway), s 4-6.

¹²³² *Petroleum Activities Act 1996* (Norway), s 4-8.

¹²³³ Johannes Kjøde, in Norwegian Petroleum Directorate, ‘A Long Road to Travel: How Norway Hands out Petroleum Acreage’ (2007) 2007 (1) *Norwegian Continental Shelf* 24, 24.

¹²³⁴ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 23.

¹²³⁵ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 95.

¹²³⁶ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 23.

exploration, development of Norwegian oil companies and encouraging Norwegian industries to develop sufficient capacity to play a major role in the development of Norwegian Petroleum resources.¹²³⁷

An important reason for the use of discretion in the award of licence in Norway is the high regard for other natural resource sectors, particularly fishing. Petroleum production is seen as one of the many natural resources that are available for exploitation by the Norwegian State,¹²³⁸ although there have been rather strong political conflicts, resulting in legal and political discussions on this question, especially in the 1980s, that lead to the current regulation. The question of whether the rich fisheries in Lofoten should be opened for petroleum activity is currently causing strong political struggle within the coalition government. Before any decision occurs, an analysis of economic and environmental impact of petroleum activity in the area is carried out. When the Ministry selects acreage for production licences, resource and exploration considerations are of particular importance, and special emphasis is placed on environmental concerns and issues related to fisheries.¹²³⁹ As such, if there is a clash in the exploitation of petroleum and other natural resources, the State has the right to delay or suspend petroleum activities.¹²⁴⁰ This is easier to accomplish in a system with discretionary selection of licencees than in a system where the companies has paid for the licence. The importance of other natural resources are also reflected in the liability requirements for petroleum

¹²³⁷ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 62.

¹²³⁸ *Petroleum Activities Act 1996* (Norway), s 3-13.

¹²³⁹ Norwegian Petroleum Directorate, *Newsletter No. 15, October 1998* (1998) <http://www.npd.no/engelsk/npetres/newsletter/no1598/default.htm#Ekofisk%20IOR> at 22 June 2008.

¹²⁴⁰ *Petroleum Activities Act 1996* (Norway), s 3-13.

operations, where a licensee is liable regardless of fault, for financial losses incurred as a result of pollution and waste from petroleum activities.¹²⁴¹

The use of discretion in the allocation of petroleum licences is defined in the PAA.¹²⁴² The State has the right to grant a production licence, which confers exclusive rights to exploration and production in the areas covered by the licence.¹²⁴³ The announcement of a licencing round and the criteria for the award of a licence are required by both EU¹²⁴⁴ and Norwegian Law¹²⁴⁵ to be advertised to ensure all potential applicants are notified.¹²⁴⁶ The criteria used to assess the applications for acreage are outlined in s10 of the *Petroleum Regulations 1997* (Norway) and the guide for applicants of each licencing round.¹²⁴⁷ The criteria is set on the basis of providing the best possible petroleum resources management, and an award of licence is based on the technical competence and financial capacity of the applicant, and the applicant's plan for exploration and production in the area for which a production licence is sought.¹²⁴⁸

¹²⁴¹ *Petroleum Activities Act 1996* (Norway), s 8-3.

¹²⁴² See *The Petroleum Activities Act 1996* (Norway), s 3-3. A production licence is granted on condition by the Ministry of Petroleum and Energy, who has the discretion to stipulate conditions for the granting of production licences.

¹²⁴³ *Petroleum Activities Act 1996* (Norway), s 3-3.

¹²⁴⁴ See *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

¹²⁴⁵ *Petroleum Activities Act 1996* (Norway), s 3-5.

¹²⁴⁶ The *Petroleum Activities Act 1996* (Norway), s 3-5 stipulates that the announcement shall be made in the Norwegian Gazette (Norsk Lysingsblad), and the Official Journal of the European Communities at least three months prior to the closure date for applications.

¹²⁴⁷ For example the outline in the invitation to apply for the 20th licencing round. See Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009.

¹²⁴⁸ *Petroleum Regulations 1997* (Norway) s10.

Discretion is used to select the companies most suitable for petroleum activities in the acreage offered, with weight given to the technical capacity of the applicant and the willingness and ability of the applicant to pursue operations in a prudent manner.¹²⁴⁹ If the applicant is or has been a licensee on the Norwegian Continental Shelf, the Ministry may also take into consideration any form of inadequate efficiency or inadequate responsibility that an applicant may have demonstrated as a licensee.¹²⁵⁰

The granting of a production licence is done on the basis of factual and objective criteria,¹²⁵¹ and the State retains the right to not grant a licence based on the criteria stipulated.¹²⁵² As part of the award of licence, the State has the right to determine if, and at what level, the Norwegian State will participate in petroleum activities.¹²⁵³ There is also the right for the State to regulate matters relating to a production licence. This regulation can include, but is not confined to, the imposition of a specific work program,¹²⁵⁴ prudent production of petroleum resources,¹²⁵⁵ and the approval and ongoing assessment of field development plans and operations.¹²⁵⁶ The right to regulate matters relating to

¹²⁴⁹ See Norwegian Petroleum Directorate, *A Long Road To Travel: How Norway Hands out Petroleum Acreage* (2008) http://www.npd.no/English/Emner/Ressursforvaltning/Undersokelse_og_leting/19.9.2007+Ein+grundig+prosess.htm?print=true at 22 June 2008. Prudent production is a requirement of the *Petroleum Activities Act 1996* (Norway), s4-1.

¹²⁵⁰ *Petroleum Regulations 1997* (Norway) s10.

¹²⁵¹ *Petroleum Activities Act 1996* (Norway), s 3-5. It is important to note that the discretionary allocation of petroleum licences using objective criteria (objective discretionary allocation of licences) has not always occurred in Norway. Until the entry of Norway into the EEA, and therefore requirements for Norway to be bound by EC Directives, Norway would allocate licences based on the ability for a company to contribute to the development of the Norwegian petroleum industry, including the transfer of skills and knowledge to Norwegian companies and mandatory R&D requirements. This was particularly crucial in the 'entrepreneurial' phase (1970-1976) and consolidation.

¹²⁵² *Petroleum Activities Act 1996* (Norway), s 3-5.

¹²⁵³ *Petroleum Activities Act 1996* (Norway), s 3-6.

¹²⁵⁴ *Petroleum Activities Act 1996* (Norway), s 3-8.

¹²⁵⁵ *Petroleum Activities Act 1996* (Norway), s 4-1 and 10-1.

¹²⁵⁶ *Petroleum Activities Act 1996* (Norway), s 4-2.

the production of petroleum is reserved by the State to assist it in achieving its national petroleum objectives.

The reasoning for the allocation of consortia partners and selection of the operator by the Norwegian State is twofold. Firstly, it allows the Norwegian government to assemble a consortia tailored to the unique qualities and nuances of that acreage, allowing the State to select the company with the best experience technology and skills for that particular acreage. Secondly, it enables the State, as owner of the petroleum resources, to retain control over who participates in the exploitation of acreage. Together this allows the Norwegian State to address the economic and commercial challenges it faces as it seeks to sustainably develop its petroleum resources.

4.5 Method of allocation and sustainable development

4.5.1 Introduction

The allocation of a petroleum licence is crucial in encouraging sustainable petroleum development. As John Strongman of the World Bank noted, in order to translate natural capital¹²⁵⁷ into societal capital,¹²⁵⁸ you need the right policies and good implementation capacity from the allocation of exploration

¹²⁵⁷ Natural capital is defined as assets in their role of providing natural resource inputs and environmental services for economic production. It is generally considered to comprise three principal categories: natural resource stocks, land and ecosystems. All are considered essential to the long-term sustainability of development for their provision of “functions” to the economy, as well as to mankind outside the economy and other living beings. See Organisation for Economic Cooperation and Development, *Glossary of Statistical Terms* (2007) <http://stats.oecd.org/glossary/detail.asp?ID=1730> at 13 December 2009.

¹²⁵⁸ Societal capital may be seen as a form of social capital, which is defined as the norms and social relations embedded in the social structures of societies that enable people to co-ordinate action to achieve desired goals. The term social capital has found its way into economic analysis only recently, and there is no consensus on which aspects of interaction and organisation merit the label of social capital, nor on how to measure it and how to determine empirically its contribution to economic growth and development. See Organisation for Economic Cooperation and Development, *Glossary of Statistical Terms* (2007) <http://stats.oecd.org/glossary/detail.asp?ID=3560> at 13 December 2009.

rights to how governments spend their revenue.¹²⁵⁹ Hence, the sustainable development of petroleum resources starts with the allocation of the petroleum licence. The difficulty lies in determining which method of allocation is most likely to encourage sustainable development.

4.5.2 Risk and award of petroleum licences

When a company bids for a petroleum licence in a desired acreage, its aim is to position the bid to win against a range of competing bids.¹²⁶⁰ In doing so, there are a number of risks. The first is the risk of not being the winning bidder.¹²⁶¹ In this instance, the time cost and effort put into preparing the winning bid is wasted. Another is that the winning bidder finds out after the award of the licence that the value of the acreage is lower than the price paid.¹²⁶² This may possibly be mitigated by pre-bid exploration, which may alter the optimal bid in auction allocation of licences.¹²⁶³ However pre-bid exploration is not costless, and may carry the risk that if the bid is not won, the costs associated with exploration are wasted.¹²⁶⁴

Exploration risk in the bid system is transferred from the State to the oil company, a place where a number of academics believe the risk should lie.¹²⁶⁵

¹²⁵⁹ John Strongman, *Sustaining the Social License: Enduring Challenges, Evolving Solutions* (2009) Paper presented at the Sustainable Development 2009 Conference (SD09), Mineral Council of Australia, Adelaide, South Australia, 26-28 October, 2009, slide 28.

¹²⁶⁰ Ursula M H Kretzer, 'Exploration Prior to Oil Lease Allocation: A Comparison of Auction Licencing and Allocations Based on Size of Work Programme' (1994) 20 (4) *Resources Policy*, 235, 238.

¹²⁶¹ Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 15.

¹²⁶² Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 15.

¹²⁶³ Ursula M H Kretzer, 'Exploration Prior to Oil Lease Allocation: A Comparison of Auction Licencing and Allocations Based on Size of Work Programme' (1994) 20 (4) *Resources Policy*, 235, 236.

¹²⁶⁴ Ursula M H Kretzer, 'Exploration Prior to Oil Lease Allocation: A Comparison of Auction Licencing and Allocations Based on Size of Work Programme' (1994) 20 (4) *Resources Policy*, 235, 236.

¹²⁶⁵ Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), 96-7.

This is because a core component of an oil companies business is assuming, assessing and mitigating the risk associated with the exploration, development and production of petroleum.¹²⁶⁶ The expertise of the company and their willingness to assume risk is one of the reasons that governments engage oil companies to exploit their petroleum resources.¹²⁶⁷ This transfer of risk ensures that typically risk adverse host governments and their citizens are not exposed to high levels of risk.

Under the discretionary system of licence award, the State shares the exploration risk, since the State will only gain a reward when and if a discovery is made.¹²⁶⁸ This has been described as the ‘beauty parade system’, since the government only gains reward through revenue from taxation on profit when commercial discoveries are made and the field is producing.¹²⁶⁹ This has been criticised as a weakness of the discretionary system, since it effectively invites the government to assume the exploration risk without gaining a reward by gaining a share in the equity of the resource.¹²⁷⁰ Moreover, it encourages the government to assume the attendant project commercial viability risk.¹²⁷¹

This weakness of the discretionary system was historically mitigated in Norway by the use of the ‘carried interest’ system. On this basis, the State awarded itself a predetermined interest in each licence, but required the consortium participants to ‘carry’ the State’s share during exploration.¹²⁷² Where a

¹²⁶⁶ Ursula M H Kretzer, ‘Exploration Prior to Oil Lease Allocation: A Comparison of Auction Licencing and Allocations Based on Size of Work Programme’ (1994) 20 (4) *Resources Policy*, 23, 236, 236-7.

¹²⁶⁷ Michael Bunter, *The Promotion and Licencing of Offshore Acreage* (2002), 96-7.

¹²⁶⁸ Michael B Bunter, ‘A New Approach To Petroleum Licencing’ (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007

¹²⁶⁹ Michael B Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 96.

¹²⁷⁰ Michael B Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 96.

¹²⁷¹ Michael B Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 96.

¹²⁷² Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 38.

discovery was declared commercial, the State opted to activate its carried interest or withdraw from the consortium. Upon activation, the State was required to contribute its share of the development costs, although it was accorded the rights of a contributing partner throughout the exploration process.¹²⁷³ This use of carried interest enabled the State during the entrepreneurial phase of exploration and production on the NCS to shift the exploration risk back to the oil companies.¹²⁷⁴ In doing so, the Norwegian State only assumed the investment and production risk after commercial reserves had been proven, rather than during the high risk exploration phase. Although the carried interest system is no longer used, it provided Norway with the means to develop its research and development capacity as well as develop the requisite skills and knowledge required to ensure that petroleum resources were sustainably developed.¹²⁷⁵

4.5.3 The award of petroleum licence and economic diversification

Economic diversification¹²⁷⁶ is essential in the sustainable development of petroleum resources, since it enables a State to develop and utilise industrial activities required for the extraction of non-renewable petroleum resources for other industrial activities.¹²⁷⁷ This enables skills, knowledge and competence

¹²⁷³ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 38.

¹²⁷⁴ See Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991) 38; and Ole Andreas Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No. 20070605.

¹²⁷⁵ Refer to *Petroleum Activities Act 1996* (Norway), chapters 3 and 4 which confers many rights to the Ministry of Petroleum and Energy, but not the capacity for a carried interest.

¹²⁷⁶ Economic diversification is generally taken as the process in which a growing range of economic outputs is produced. It can also refer to the diversification of markets for exports or the diversification of income sources. See United Nations Framework Convention on Climate Change (UNFCCC) http://unfccc.int/adaptation/sbsta_agenda_item_adaptation/items/3994.php at 17 March 2009.

¹²⁷⁷ An excellent example of this is the creation and development of the Norwegian diving industry. Olav Wicken, *The Layers of National Innovation Systems: The Historical Evolution of a National Innovation System in Norway* (2007) TIK Working Paper on Innovation Studies No. 20070601, 57.

that was gained for the development of petroleum resources to be utilised for other industrial activities, thereby building a broad industrial base the State can utilise for other industrial activities after the petroleum resources have been exhausted. Generally, the development of petroleum resources in an economy has the danger of causing a ‘resource curse’, since high levels of petroleum exploration and production create a huge influx of labour, knowledge, skills, and money into a State.

The principle of economic diversification is premised on the notion that when petroleum is extracted, there is a value for the State not only from the petroleum itself, but also through the exploitation of the petroleum (production cost spending). If domestic industries can be developed that provide goods and services for the exploitation of petroleum, then that country can capture the production cost spending. Norway sought to use its petroleum licencing framework, particularly the award of licence and the JOA, as a way to implement economic diversification.

The production of petroleum generates high levels of short-term revenue through petroleum taxation. Aside from the possible politically destabilising effects of this revenue,¹²⁷⁸ there is a temptation by many States to utilise the revenue for the short-term, in order to create a ‘better’ society by improving those amenities in society that are favoured by the population, including roads, health, and schools. However, all of these societal resources require maintenance after they have been created. Once the petroleum revenue has ceased, the affected State needs to find a source of income in which to maintain these now essential services. But if all of the resources have been depleted, there is no source of wealth. Economic diversification is a vital tool in sustainable development of petroleum resources, since it assists a State in converting resource endowments and revenue into

¹²⁷⁸ For an excellent account of the effects of petroleum revenue on political stability and instability, refer to Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007).

industrial activities, knowledge and goods that can be utilised by other industries long after the resources have gone.

The production of petroleum creates a huge demand for industrial and technical efforts in order to cope with the demands of a burgeoning oil industry.¹²⁷⁹ In the absence of domestic petroleum support industries, the supply of goods, services, technical expertise and machinery requires importing and re-exporting once the task is over, with no benefit to the State.¹²⁸⁰ Thus, a fundamental premise of economic diversification policy is to ensure that auxiliary services and industries are developed concurrently with the petroleum resources of a nation in order to attempt to avoid resource curse.¹²⁸¹ If a nation is able to direct economic diversification to develop competent industries that can be utilised after the petroleum resources have been exhausted, then that State has been able to sustainably develop its petroleum resources, since it has harnessed the petroleum industries needs, while utilising these needs to create a domestic industrial base.

Economic diversification in Norway

In the UK during the 1970s and 1980s, State ownership of petroleum resources and the use of the discretionary system of licence allocation were utilised to overcome perceived barriers to domestic economic activity, such as the adverse effects of unfettered competition between private companies who possesses or could access the necessary technology for exploration.¹²⁸² The UK employed a method of allocation of licences that enabled discrimination in favour of British

¹²⁷⁹ M Devaraj, 'Government Policies Concerning the Discovery and Development of New Offshore Oil Provinces, with Focus on India and the North Sea' (1983) 8 *Ocean Management* 251, 270.

¹²⁸⁰ M Devaraj, 'Government Policies Concerning the Discovery and Development of New Offshore Oil Provinces, with Focus on India and the North Sea' (1983) 8 *Ocean Management* 251, 270-1.

¹²⁸¹ Auty, Richard M, *Sustaining Development in Mineral Resource Economies: The Resources Curse Thesis* (1993), Chapter two.

¹²⁸² Terence Daintith and Geoffrey Willoughby, *Manual of United Kingdom Oil and Gas Law* (1984), 20-1.

applicants.¹²⁸³ Regulations in force until 1976 required applicants to be British citizens of the UK or colonies, or oil companies incorporated in the United Kingdom.¹²⁸⁴ This enabled the UK government to secure the maximum share of the resource rent for the State as an additional source of revenue, as well as regulating the presence of international oil companies into North Sea activities.¹²⁸⁵

Similarly, since the commencement of petroleum activities in Norway, the State has played a significant role in the regulation of the Norwegian petroleum sector,¹²⁸⁶ being involved in many aspects of the management and development of not only petroleum resources but also associated industries. The result of this sustained State role in developing the petroleum industry in Norway has been the development of a global petroleum cluster, including a global supply industry, drilling and subsea technologies, competent research institutions, world renowned shipping, and strong banking and finance institutions.¹²⁸⁷ This is demonstrated by international sales from the petroleum supply industry, which have tripled since 1995.¹²⁸⁸ This is remarkable given that anti-discrimination provisions of the 1994 EC Directive¹²⁸⁹ effectively ended the

¹²⁸³ Terence Daintith and Geoffrey Willoughby, *Manual of United Kingdom Oil and Gas Law* (1984), 20-1.

¹²⁸⁴ Terence Daintith and Geoffrey Willoughby, *Manual of United Kingdom Oil and Gas Law* (1984), 20-1.

¹²⁸⁵ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 69-78.

¹²⁸⁶ INTSOK – Norwegian Oil and Gas Partners, *Government Role* (2004) <http://www.intsok.no/PHP/index.php?id=79> at 22 December 2006.

¹²⁸⁷ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹²⁸⁸ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* speech given at Mexico-Norway Meeting given on cooperation in the Energy Sector 22 March 2007.

¹²⁸⁹ *EC Directive 92/13 EEC of the European Parliament and of the Council of 25 February 1992 Coordinating The Laws, Regulation and Administrative Provisions Relating to the Application Of Community Rules on the Procurement Procedures of Entities Operating in the Water, Energy, Transport, and Telecommunications Sectors* (1992) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0013:20070101:EN:PDF> at 12 December 2008.

capacity of the Norwegian State to favour Norwegian companies in the supply of goods and services for petroleum operations.

Prior to the early 1960s, Norway had no oil industry, and no thought of developing petroleum resources, as it believed they did not exist.¹²⁹⁰ It did possess a well developed manufacturing base, comparatively strong economic growth, full employment and a current account surplus.¹²⁹¹ After petroleum was found in the North Sea in 1969, the Norwegian government sought to develop and implement policies that not only exploited the petroleum but also developed new industries through economic diversification.

Socio-economic benefits from the development of Norwegian petroleum resources have been generated by successful economic diversification by Norway since the 1960s. The discretionary allocation of petroleum licences by the Norwegian State has implemented Norwegian petroleum policy objectives. These include economic diversification to develop associated industries, the transfer of skills and technology to increase knowledge and competence in the petroleum industry, the development of technological excellence in industry, and investment in infrastructure and human capital.¹²⁹²

Since 1970, Norwegian governments have regarded it as essential to promote competition in the oil industry while at the same time actively promoting the business opportunities for Norwegian industry, thereby achieving success in obtaining high local content in activities.¹²⁹³ This policy was formally declared in 1972 by the *Royal Decree of 8 December 1972*, and implemented through conditions attached to the granting of licences from the third petroleum

¹²⁹⁰ Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 15.

¹²⁹¹ Norwegian Petroleum Directorate, *Facts 2001: The Norwegian Petroleum Sector* (2001).

¹²⁹² Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

¹²⁹³ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

licencing round.¹²⁹⁴ This decree encouraged the economic diversification of Norwegian industry and Norwegian companies through conditions attached to the allocation of petroleum licences. It required, amongst other things, all licencees to use Norwegian offshore suppliers where the Norwegian company was competitive in quality, service, schedule of delivery, and price.¹²⁹⁵

Local content provisions were incorporated to encourage and promote the development of infant petroleum industries. The licencing conditions stipulated strict control over actual supplies of goods and services to the development and production activities, securing Norwegian companies an active part in the competition for deliveries.¹²⁹⁶ During the awarding of supply contracts, the operator was required to inform the MPE of its recommended supplier and Norwegian content, with the MPE then ensured that the Norwegian bidder was awarded the contract.¹²⁹⁷ This preferential treatment for Norwegian companies was applied to all licencees on all fields, resulting in Norwegian companies contracting and supplying 50-70% of goods and services during this period.¹²⁹⁸

To enforce this procurement policy, a Goods and Services Office was created in 1972, to enforce the contracting and procurement requirements of the licencing rounds.¹²⁹⁹ During the awarding of contracts, the Norwegian applicant was

¹²⁹⁴ This round occurred in 1974, therefore it was the first official use implementation of the procurement policy from the 1972 Decree. However there had been some development of local industry prior to this official decree. For an outline of all of the early licencing rounds see Norwegian Petroleum Directorate, *Annual Report, 1998* (1998), 114-115.

¹²⁹⁵ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 71.

¹²⁹⁶ Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000*. http://www.odin.no/odinarkiv/english/stoltenberg_I/oed/026031-090011/dok-bn.html at 23 December 2006.

¹²⁹⁷ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹²⁹⁸ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

¹²⁹⁹ Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

calculated as value added, (in manpower and monetary terms), and Norwegian bidders were awarded contracts.¹³⁰⁰ The linking of petroleum sector licencing and the development of Norwegian industries, services and skills under advantageous procurement law has been fundamental in the success of the Norwegian petroleum industry, both in a domestic sense, as well as on an international scale. This protectionist policy as a tool for economic diversification of the Norwegian industrial sector was implemented since the Norwegian government felt that market forces alone were insufficient to promote economic diversification, therefore the Norwegian government saw the need for government intervention.¹³⁰¹

The linking of economic and social benefits to the granting of natural resource concessions was not unfamiliar to the Norwegian State. The development of water resources for hydroelectric power in the early 1900s generated an unprecedented wave of protectionist and nationalist sentiment in Norway.¹³⁰² This was particularly focused in the Norwegian rural sector, and directed at foreign penetration into Norwegian industry.¹³⁰³ This is not surprising, given that the union between Norway and Sweden was dissolved in 1905. Increasingly anti-capitalist views came to dominate in the period 1906-7, leading to the implementation of the first temporary restrictions on foreign investment in Norwegian hydropower concessions 1907.¹³⁰⁴ Permanent regulation of waterfalls for the generation of hydropower was implemented in the 1909 Concession

¹³⁰⁰Michael Bunter, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* <http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm> at 19 September 2009.

¹³⁰¹ Øystein Noreng with Farshad Tehrani, *The Norwegian Experience of Economic Diversification in Relation to Petroleum Industry and the Relevance to Iran* (2005) the 10th Institute for International Energy Studies (IIES) Conference Tehran 4-5 December 2005, 3.

¹³⁰² Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 311.

¹³⁰³ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 311.

¹³⁰⁴ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 311.

Laws.¹³⁰⁵ These laws stipulated that only public bodies (the State and Kommunes) could exercise the right of free disposal of waterfalls above 1000hp.¹³⁰⁶ All other bodies were obliged to seek a licence (or concession) to generate hydropower.¹³⁰⁷ These concessions were only given for a limited period (for example up to eighty years), with ownership then reverting to the State. Once the concession was granted, the majority of the stock had to be located in Norway. In addition, Norwegian workers and materials were also given preference.¹³⁰⁸ These concession laws decreed that all gains from the development of water resources should be socialised for the benefit of all Norwegians.¹³⁰⁹ Furthermore, the Norwegian government bought over a dozen waterfalls in competition with private investors between 1907-1920, with a view to develop these waterfalls in the interest of public good.¹³¹⁰

When establishing a suitable petroleum licencing concession system in the late 1960s and early 1970s, the Norwegian government drew on this previous experience of granting concessions to private companies to not only control the development of its natural resources, but to ensure that the benefits of the developments were shared with all Norwegians. A common feature of the granting of both hydropower and petroleum licences was a desire to attract foreign capital, but in a manner that could be controlled and directed to serve the interests of Norwegian society.¹³¹¹ In both of these licencing regimes, the objectives of Norwegian national policy was to use the allocation of licences to

¹³⁰⁵ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 311.

¹³⁰⁶ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 312.

¹³⁰⁷ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 312.

¹³⁰⁸ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 312.

¹³⁰⁹ Fritz Hodne, *An Economic History of Norway 1815-1970* (1975), 314.

¹³¹⁰ Johan Vogt, *Elektrisitetens Norge Fra Norsk Vassdrags og Elektrisitetens Historie* (1971), 62-9.

¹³¹¹ Ole Andreas Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No 20070605, 3.

create incentives for integrating new innovation systems into Norwegian society.¹³¹² These incentives were partly derived from the discretionary allocation of licences, which required that Norwegian subcontractors be engaged as a condition of granting the licence.¹³¹³ However, the incentives were also derived from the discretionary authority granted to Norwegian government agencies to distribute rights to companies and bodies it considered would serve Norwegian interests.¹³¹⁴

The allocation of petroleum licences was used to implement the Norwegian ten oil commandments.¹³¹⁵ This ensured that the Norwegian State supervised and controlled all aspects of the Norwegian petroleum industry. This included the coordination of Norwegian interests, and the creation of an integrated Norwegian oil community.¹³¹⁶ The enactment of the commandments through the allocation of licences also ensured that there was fair consideration of social, economic, political and environmental factors in the development of the petroleum resources.¹³¹⁷

The Norwegian government used the discretionary allocation of petroleum licences to pursue national interests. Industrial and regional development, as well as national control of petroleum activities, was established through the licencing system. In diversifying their industrial base, Norway made a number of important decisions that have had a profound effect on the economic diversification of Norway. Importantly, Norway built on existing strengths in the industrial sector.

¹³¹² Ole Andreas Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No 20070605, 3.

¹³¹³ Ole Andreas Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No 20070605, 3.

¹³¹⁴ Ole Andreas Engen, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No 20070605, 3.

¹³¹⁵ These ten oil commandments are discussed in detail in Chapter two above.

¹³¹⁶ See in particular commandments 1, 7 and 8.

¹³¹⁷ See in particular commandments 3, 4, 5, 6, 7 and 9.

As a nation with existing strengths in the maritime industry, Norway demanded that logistical support for the platforms be provided from a Norwegian harbour.¹³¹⁸ This provided advantages to Norwegian marine construction industries and supply companies. Combined with this was the requirement that foreign companies operating in Norwegian territory were required to use Norwegian safety, salary and income tax regulations.¹³¹⁹ In addition, in a manner similar to the hydro concessions of the early 20th Century, international petroleum companies were required to establish a Norwegian company that was subject to Norwegian jurisdiction.¹³²⁰

Since 1994, Norway has been a signatory to the WTO Government Procurement Agreement,¹³²¹ and a member of the EEA, requiring Norway to implement EU legislation relating to the award of petroleum licences.¹³²² As such, Norway's award of licences must be non-discriminatory, based on open, competitive bidding for the licences without favour to Norwegian companies. Therefore, since 1994, Norway has not been able to favour domestic companies through conditions attached to the award of licences. However, the policies that were implemented in 1972 and continued until 1994 led to the effective development of a Norwegian knowledge base and competence throughout the value chain.

The result of this sustained State role in developing the petroleum industry has been the development of a world class petroleum cluster, consisting of national

¹³¹⁸ Erik Vatne, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen, 3.

¹³¹⁹ Erik Vatne, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen, 3.

¹³²⁰ Erik Vatne, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen, 3. This requirement is articulated in s3-3 of the *Petroleum Activities Act 1996* (Norway).

¹³²¹ World Trade Organisation, *Agreement on Government Procurement* (1996) http://www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm at 14 December 2009.

¹³²² *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

oil companies, strong supply industry, industry leader in drilling and subsea technologies, strong research institutions, world renowned shipping, and strong banking and finance institutions.¹³²³ This is demonstrated by international sales within the petroleum supply industry, which have tripled since 1995,¹³²⁴ and Norwegian goods and service account for approximately 50% of the Norwegian petroleum sector.¹³²⁵ This is a remarkable feat given that the anti-discrimination provisions in a number of EC Directives effectively ended this protectionist policy.¹³²⁶

As a consequence of its policy of mandatory economic diversification policy, Norway has developed a number of internationally operating engineering, construction and shipbuilding companies. The policy of economic diversification resulted in the conscious selection of designs that emphasized and utilised existing technologies. This has resulted in an increase in Norwegian exports in machinery, specialised equipment, metals and chemicals. Norway also imports some machinery and equipment, but largely produces and exports specialised equipment. The Norwegian State used the discretionary method of allocation of petroleum licences to develop local industries from the outset, creating industrial capabilities.¹³²⁷ Today, these capabilities are demonstrated in Norwegian strength

¹³²³ Øystein Noreng, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹³²⁴ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

¹³²⁵ Norwegian Petroleum Directorate, *Facts 2008: The Norwegian Petroleum Sector* (2008), 14-22.

¹³²⁶ *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, and *EC Directive 92/13 EEC European Parliament and of the Council of 25 February 1992 Coordinating The Laws, Regulation And Administrative Provisions Relating to the Application of Community Rules on the Procurement Procedures of Entities Operating in The Water, Energy, Transport, and Telecommunications Sectors* (1992) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0013:20070101:EN:PDF> at 12 December 2008.

¹³²⁷ The objective of the Norwegian government today continues to be to promote the efficient use of the countries overall resources within a sustainable framework, managing non-renewable resources in a manner that takes
© Tina Hunter

in deep-sea diving, cold steel technology, and concrete technology, as well as several leading seismic surveying and drilling companies.¹³²⁸

The success of Norway's economic diversification is partly attributable to Norway capitalising on its strong technical and commercial position.¹³²⁹ At the commencement of diversification in 1972, Norway had a strong technological and commercial position in marine operations, including shipping, ship design and ship construction, controlling the fourth largest merchant navy, and a proven history of innovative design in shipping.¹³³⁰ However, the primary reason for the Norwegian success was due to the requirement for international oil companies to support local industries through mandatory requirement for 'local content' as part of the award of a petroleum licence.¹³³¹ The experience of Norway demonstrates that market forces are not enough to encourage the sustainable development of petroleum resources through the diversification of industries. Rather, the development of an internationally competitive industrial sector needs to be driven by the State. In Norway's experience, the State used the allocation of petroleum licences to encourage the necessary economic diversification to ensure the sustainable socioeconomic development of its petroleum resources.

accounts of impacts on national wealth. See Ministry of Foreign Affairs, *Norway's Action Plan for Sustainable Development* (2004) UN Commission on Sustainable Development, 12th Session, New York, 23 April 2004.

¹³²⁸ Olav Wicken, *The Layers of National Innovation Systems: The Historical Evolution of a National Innovation System in Norway* (2007) TIK Working Paper on Innovation Studies No. 20070601, 57.

¹³²⁹ Erik Vatne, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen, 4.

¹³³⁰ Erik Vatne, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen, 4.

¹³³¹ This mandatory requirement essentially amounted to industry protection and enabled the Norwegian firms to become competitive within the marketplace.

Economic diversification through the allocation of licences in Australia: lessons from Norway

Since the allocation of petroleum licences in Australia is made using the WPB method of allocation, there are no requirements for applicants to support the economic diversification of Australian industries as a condition of the award of the licence. Certainly, the allocation of a petroleum licence using the WPB method encourages exploration of the Australian continental shelf. However, there are no conditions attached to the award of the licence, rather economic forces are left to operate in the selection of the applicant.

However, there has been an identified need for an enhanced State role in encouraging economic diversification. The need for Australia to diversify was identified in the late 1980's, with the House of Representatives Standing Committee report *The North West Shelf: Sea of Lost Opportunities?*¹³³² This report argued that major natural resource projects which exploit natural resources should contribute to the economy in more ways than simply through direct revenue, royalty and taxes.¹³³³

The government at the time agreed with the aims of the report, however it disagreed with the emphasis on government intervention,¹³³⁴ stating that it was

‘firmly committed to the view that the primary responsibility for ensuring industry participation in resource development projects rests with the business sector. Our general approach to industry policy is to

¹³³² House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989).

¹³³³ House of Representatives Standing Committee on Industry, Science and Resources, *Sea of Indifference: Australian Industry Participation in the North West Shelf Project* (1998), Appendix V – Summary of Conclusions and Recommendations of the 1989 report *The Northwest Shelf: A Sea of Lost Opportunities*, 89-90.

¹³³⁴ House of Representatives Standing Committee on Industry, Science and Resources, *Sea of Indifference: Australian Industry Participation in the North West Shelf Project* (1998), xiv.

encourage an internationally competitive and outward looking industrial sector.’¹³³⁵

A second parliamentary report, *A Sea of Indifference: Australian Industry Participation in the North West Shelf Project*, was completed in 1998,¹³³⁶ reaffirming the view from *The North West Shelf: A Sea of Lost Opportunities* report that there was a need for local content. It recommended the development of a marine centre that ‘provides common-use facilities, and partnering of government and the private sector to meet the industry, technological and skilling needs of marine and resource industries. This resulted in the creation of the Australian Marine Complex (AMC) in 2003, a 200 hectare marine industrial hub comprising shipbuilding, technology, support and fabrication industries for the marine, defence, petroleum and resource industries.’¹³³⁷ This complex has contributed significantly to the development of local industries supporting petroleum and gas resource development.¹³³⁸ The *Sea of Indifference* report also recommended to the Minister for Primary Industries and Energy that the Department should require those seeking exploration permits or licences if their project proceeds to production to commit to maximizing opportunities for local industry involvement and providing details on how this should be achieved.¹³³⁹

¹³³⁵ Government response to House of Representatives Standing Committee on Science, Industry and Technology, *The North West Shelf: A Sea of Lost Opportunities* (1989), in House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989), 5.

¹³³⁶ House of Representatives Standing Committee on Industry, Science and Resources, *Sea of Indifference: Australian Industry Participation in the North West Shelf Project* (1998).

¹³³⁷ AMC is a marine industrial hub located south of Perth. It serves as a maritime training institute, common use business facility for marine and industrial projects, centre of technological excellence, shipbuilding centre, as well as providing support industries. See Australian Marine Complex, *Overview of Henderson* <http://www.australianmarinecomplex.com.au/facilprec/precsup/precsupoverview> at 15 October 2009.

¹³³⁸ Australian Marine Complex, *Overview of Henderson* <http://www.australianmarinecomplex.com.au/facilprec/precsup/precsupoverview> at 15 October 2009.

¹³³⁹ House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989), xvii.

Essentially, the *Sea of Indifference* report recommended that Australia should require licences to enhance the development of local content as part of the licence application process. The Australian government argued in its response to the 1989 report, and affirmed its response in its petroleum policy review of 1999 that it would leave the development of local content and local industries to market forces. The government argued that it was committed to encouraging an internationally competitive industry.¹³⁴⁰

The result of the Australian government's failure to take a guiding hand in diversifying Australia's industrial base, as part of its development of petroleum resources, has been that domestic industry diversification in Australia has not progressed as it has in Norway. This is demonstrated today by a comparison of the relative exports between Australia and Norway. Australia's primary exports include raw materials including iron ore, bauxite and coal, as well as agricultural products.¹³⁴¹ Primary imports include machinery and transport equipment, computers, telecommunication products and crude oil/petroleum products.¹³⁴² This differs to the diversified portfolio of exports for Norway, including petroleum and gas, machinery and equipment, metals, chemicals, ships, and fish products.¹³⁴³ Imported commodities primarily comprise chemicals, metals and foodstuffs.¹³⁴⁴

¹³⁴⁰ For this commitment see the Australian petroleum policy in Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999), as well as a discussion on the commitment to industry in House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989).

¹³⁴¹ CIA Fact Book, *Australia* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/as.html> at 12 October 2009.

¹³⁴² CIA Fact Book, *Australia* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/as.html> at 12 October 2009.

¹³⁴³ CIA Fact Book, *Norway* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/no.html> at 12 October 2009.

¹³⁴⁴ CIA Fact Book, *Norway* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/no.html> at 12 October 2009.

Australia was in a similar position to Norway in the 1960s when oil and gas was discovered in Bass Strait. Australia's economy, like most developed western countries, boomed in the post war era. In the 1950s and 1960s, Australian manufacturing was assisted by protectionist policies, discouraging foreign investors who noted Australia's lack of competitiveness in the international manufacturing sector.¹³⁴⁵ This prompted a decline in investment in the manufacturing sector. This did not hamper the Australian economy, since the development of mining initiatives to exploit Australia's natural resources underpinned economic expansion in the post war period to 1974.¹³⁴⁶

Australia's manufacturing decline in the 1950s and 1960s, and the role of protectionist policies was addressed in the Crawford Report.¹³⁴⁷ Australia retained high levels of tariff protection until 1973, when the first tariff cuts occurred.¹³⁴⁸ The Crawford report identified tariff barriers as having a substantial detrimental effect on the Australian economy. Furthermore, it concluded that assistance through tariffs and quotas should be reduced in order to stimulate change in the industry sector and encourage specialisation, whilst at the same time generating increased social welfare for the nation as a whole.¹³⁴⁹ Furthermore, the report recommended that general tariff reductions should be accompanied by industry specific policies for highly protected industries providing specific incentives to redirect productive activities.¹³⁵⁰ Further

¹³⁴⁵ Stephen Bell, *Australian Manufacturing and the State: The Politics of Industrial Policy in the Post-War Era* (1993), 24-5.

¹³⁴⁶ Stephen Bell, *Australian Manufacturing and the State: The Politics of Industrial Policy in the Post-War Era* (1993), 24-5.

¹³⁴⁷ Australian Government, *Study Group on Structural Adjustment (Australia). Report March 1979 (The Crawford Report)* (1979).

¹³⁴⁸ Andrew Leigh, 'Trade Liberalisation and the Australian Labor Party' (2002) 48 (2) *Australian Journal of Politics and History* 487, 488.

¹³⁴⁹ Onko Kingma and Paul Volker, 'Structural Adjustment in the Manufacturing Sector: A Review of the Crawford Report' (1980) 5 (1/2) *Australian Journal of Management* 1, 3.

¹³⁵⁰ Onko Kingma and Paul Volker, 'Structural Adjustment in the Manufacturing Sector: A Review of the Crawford Report' (1980) 5 (1/2) *Australian Journal of Management* 1, 4.

significant tariff cuts occurred in 1988 and 1991, with an effective reduction of manufacturing industry assistance from 1970 – 2001 from 35% to 5%.¹³⁵¹

These high levels of tariffs which created industry protection had a substantial impact on the Australian economy, with Australian merchandise exports comprising only 9.5% of Australia's GDP in 1973.¹³⁵² The economic position in Australia, like much of the world, changed dramatically, triggered by the increase in world oil prices in the early 1970's. The Australian manufacturing sector experienced substantial decline in employment levels between 1973 and 1980, with over 80,000 jobs lost in this period, and the industry's share of employment falling from 25% in 1970 to 18% in 1985. As well its proportion of total GDP fell from a high of 29% in 1960 to 18% in 1985.¹³⁵³ This decline continued, with manufacturing's contribution to GDP falling from 17% in 1980 to 13% in 1997.¹³⁵⁴ This contrasted markedly with manufacturing's virtually unchanged share of the United States GDP (19%), and the slight increase in Japan - from 25% to 27% - over the same period. In total, the contribution of manufacturing to the GDP of all industrialised countries fell by only 2%, from 24% in 1980 to 22% in 1997.

This differs to the decline in Australia, led by decline in heavy industries, particularly the steel industry. Today, the Australian manufacturing industry is generally in decline, although there are a number of areas that have retained some strength, or been enhanced, particularly the maritime manufacturing and

¹³⁵¹ Andrew Leigh, 'Trade Liberalisation and the Australian Labor Party' (2002) 48 (2) *Australian Journal of Politics and History* 487, 487.

¹³⁵² Kevin O'Rourke and Jeffrey Williamson, *Globalization and History* (1999), 30.

¹³⁵³ Australian Bureau of Statistics, *Yearbook Australia 2001: Manufacturing From Settlement to the Start of the New Century* (2001)
<http://www.abs.gov.au/Ausstats/ABS@.nsf/Previousproducts/1301.0Feature%20Article382001?opendocument&tbname=Summary&prodno=1301.0&issue=2001&num=&view=> at 18 May 2009.

¹³⁵⁴ Australian Bureau of Statistics, *Yearbook Australia 2001: Manufacturing From Settlement to the Start of the New Century* (2001)
<http://www.abs.gov.au/Ausstats/ABS@.nsf/Previousproducts/1301.0Feature%20Article382001?opendocument&tbname=Summary&prodno=1301.0&issue=2001&num=&view=> at 18 May 2009.

fabrication industry. Australia has the capacity to build and maintain defence ships,¹³⁵⁵ as evidenced by the Department of Defence developing Australia's ship building capability in Australia.¹³⁵⁶ The continued development of defence shipbuilding and repair capacity in NSW, Queensland and Victoria has created the necessary skills, resources and infrastructure that are required for ship building in Australia.¹³⁵⁷ Australia continues to develop physical and human capital for the economic diversification into maritime industries through defence shipbuilding.

The requirements of the offshore petroleum industry can be utilised to assist in the further development of Australia's shipbuilding industries. The industry itself notes that there are challenges in expanding its LNG capacity due to shortages of LNG shipping vessels.¹³⁵⁸ This demand will need to be predominantly met by the construction of new ships in a global ship construction market that is struggling to keep up with demand.¹³⁵⁹ Given the skills, infrastructure and assessed capacity to construct large ships with high local content,¹³⁶⁰ Australia has the capacity to share in the construction of LNG Ships. Ultimately, economic diversification into areas of shortage could place Australia in a position to capitalise on its limited industrial strength. This may ultimately lead to the capacity to build large ships in Australian shipyards, as the demand for LNG and other vessels increases. Like Norway, Australia has the capacity to diversify in regional areas, providing

¹³⁵⁵ Independent Review of Australian Shipping, *A Blueprint for Australian Shipping* (2003), 8.

¹³⁵⁶ This has included the replenishment of HMAS Success, construction of two Oliver Hazard Perry Class FFG's, ten ANZAC Frigates, six Collins Class submarines, six Huon Class mine hunters, fourteen Armidale Class patrolboats, and the refit of two frigates (HMAS Manoora and HMAS Kanimbla). See Deloitte, *Australia's Capacity to Build the LHD Ships* (2007), 12.

¹³⁵⁷ Deloitte, *Australia's Capacity to Build the LHD Ships* (2007), 9.

¹³⁵⁸ APPEA, *Australia's Upstream Oil and Gas Industry: A Platform For Prosperity* (2006) 12.

¹³⁵⁹ APPEA, *Australia's Upstream Oil and Gas Industry: A Platform For Prosperity* (2006) 12.

¹³⁶⁰ The Assessment of Deloitte for the construction of five large warships is that Australia has the capacity to provide 40% of the total project as local content, providing an additional 800 million dollars, and divided between design (10%), metal fabrication (50%) and systems (40%) industries.

employment and regional diversification in areas where traditional manufacturing industries have declined.¹³⁶¹

This economic diversification has an important part to play in the sustainable development of petroleum resources. This has been demonstrated in the economic diversification of Norwegian industries. There, resource endowment 'both spurred and facilitated industrial policies concerning petroleum.'¹³⁶² Australia too has the opportunity to utilise petroleum exploration and production as an opportunity to diversify its industrial activities in a manner similar to Norway.

For the last four decades, economic diversification has occurred through the exertion of market forces. In the same period, Norwegian industry has grown under the guiding hand of government policy, implemented through conditions attached to the allocation of petroleum licences, whilst the Australian industrial experience during the same period under market conditions demonstrates industrial decline in manufacturing and shipping sectors. This may be attributable to market forces, a lack of government control, or a combination of numerous factors.

Whilst it is difficult to determine why Australia has failed to economically diversify, and the root causes are outside the confines of this thesis, it is clear that Australia is now at a crossroads. It has the capacity and capability to utilise the experience of the AMC in Western Australia as well as the example of Norwegian industrial diversification to develop a petroleum sector-driven industrial base in Australia. By investing in the human capital and physical infrastructure, Australia is sustainably developing its petroleum resources. With concentrated effort through defence department procurement and materials

¹³⁶¹ Independent Review of Australian Shipping, *A Blueprint for Australian Shipping* (2003).

¹³⁶² Øystein Noreng with Farshad Tehrani, *The Norwegian Experience of Economic Diversification in Relation to Petroleum Industry and the Relevance to Iran* (2005) the 10th Institute for International Energy Studies (IIES) Conference Tehran 4-5 December 2005, 5.

policies, the Australian shipbuilding industry has been salvaged. By utilising the exploitation of non-renewable resources to build industrial capabilities, Australia has the capacity to encourage sustainable development of petroleum resources for present and future Australian generations.

By implementing a number of the recommendations from the *Sea of Indifference* report relating to a need for economic diversification, it is possible that Australia may be able to address the economic challenges associated with the development of petroleum. Some of these recommendations include maximising opportunities for local industry involvement and providing details of how this will be achieved, providing data which will allow analysis of value added in Australia, maximising the transfer of skills and technology to Australians, and undertaking research, development and design in Australia to the maximum extent possible.¹³⁶³

The award of petroleum licences, as a method of encouraging economic diversification is difficult under the WPB system, since the premise of the WPB system is that the bidder that offers the highest bid is the most efficient company. The implementation of policies other than encouraging investment is difficult under the WPB system, since it is based on purely economic imperatives to encourage overseas companies, resulting in over 150 petroleum exploration companies, many of which are non-Australian, exploring for and producing petroleum from the Australian offshore region.¹³⁶⁴ If Australia were to require local content investment as part of the award of petroleum licencing, as recommended in the *Sea of Indifference* report, it is likely that there would be a greater diversification and investment in local industry.¹³⁶⁵

¹³⁶³ House of Representatives Standing Committee on Industry, Science and Resources, *Sea of Indifference: Australian Industry Participation in the North West Shelf Project* (1998), xvii.

¹³⁶⁴ Trevor Powell, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008), 9-13.

¹³⁶⁵ It is important to note that some diversification has occurred as a result of the establishment of the *Australian Marine Complex* in Western Australia.

Role of the Australian government in utilising the award of licences to encourage economic diversification

At present Australia is a natural resource dependent nation. It is dependent upon agricultural resources and mining resources to fuel economic growth.¹³⁶⁶ Some of these resources, such as agricultural resources, are renewable, ensuring that Australia will enjoy a steady income stream from these resources. However, Australia's mineral resources are non-renewable and so there is an imperative to ensure that when these resources are developed, they are developed in a sustainable manner, to ensure that future generations, and not just present generations, will benefit from the exploitation of these resources.

The Norwegian experience has illustrated that the State can utilise the discretionary allocation of petroleum licences to ensure that petroleum resources are sustainably developed to encourage economic security for present and future generations. For Australia to encourage the sustainable development of its petroleum resources, it needs to allocate petroleum licences in a manner that encourages economic diversification, similar to the demonstrably successful Norwegian licencing system.

It is important to note that government led resource security is not new in Australia. The Australian government has previously ensured the economic sustainability of Australia's resources through the Snowy Mountains Scheme.¹³⁶⁷ In the 1950s and 1960s, the Snowy Mountains Hydro-Electric Authority, a federal government body, developed, constructed and managed the Snowy Mountains Hydroelectric Scheme. This scheme is an integrated water and hydro-electric power scheme, which dams numerous east-flowing rivers, turning them

¹³⁶⁶ Dr Peter Lilly, *CSIRO's Minerals Down Under* (2009) Keynote Address at the 6th Annual Australian Mining Prospect Awards, 13 November 2009.

¹³⁶⁷ Snowy Hydro, *Snowy Mountains Scheme*, (2008) <http://www.snowyhydro.com.au/levelTwo.asp?pageID=66&parentID=4> at 15 December 2009.

westwards to provide valuable irrigation water for the inland agricultural regions of Australia.¹³⁶⁸ The scheme was crucial in Australia's post war economic development, creating secure water supplies for previously ephemeral waterways, thus providing new agricultural areas for Australia's economy and contributing around 3.5% of power to mainland Australia's power grid.¹³⁶⁹

Previous Australian experience in natural resource management, as well as that in Norway, demonstrates that government-lead diversification of existing local industries provides countries with the opportunity to decrease its dependence on non-renewable natural resources, a dependence that can lead to economic inefficiencies and economic distortion. By encouraging sustainable development of petroleum resources through economic diversification and industry building, Australia can build its industrial capacity in a manner similar to Norway in the last four decades. However, as the experience at the AMC in Western Australia has demonstrated, the guiding hand of government is required to encourage industrial diversification.

The Australian petroleum licencing system has the capacity to direct economic diversification of Australian industries. In its present form, the licencing system cannot encourage economic diversification. A shift to the use of a discretionary system of allocation, with clearly established award criteria, would give the Australian State the capacity to stipulate economic diversification in the form of greater use of local content, as first suggested in *The North West Shelf: A Sea of Lost Opportunities*.¹³⁷⁰ By encouraging an increase in local content, economic diversification is encouraged, therefore encouraging sustainable development of petroleum resources. Therefore the Commonwealth should review its method of

¹³⁶⁸ Snowy Hydro, *Snowy Mountains Scheme*, (2008) <http://www.snowyhydro.com.au/levelTwo.asp?pageID=66&parentID=4> at 15 December 2009.

¹³⁶⁹ Snowy Hydro, *Snowy Mountains Scheme*, (2008) <http://www.snowyhydro.com.au/levelTwo.asp?pageID=66&parentID=4> at 15 December 2009.

¹³⁷⁰ House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989).

allocation of petroleum licences. The allocation of petroleum licences should still retain a large emphasis on work program, particularly in the first three years. However, the allocation of licences should also encompass objective criteria that meet Australia's petroleum objectives of increasing international investment as well as encouraging sustainable development.

4.5.4 Transparency, discretion and sustainable development

One of the central tenets of Australian petroleum policy is that the exploitation of petroleum resources occurs within a framework that is predictable, transparent, equitable and timely.¹³⁷¹ This requires that there is transparency in how a government interacts with companies, the process of the petroleum licences, the contracts formed between the parties, the revenue received by the parties and the amount of natural resources produced.¹³⁷² By ensuring that transparency is an integral part of the licencing process, the parties involved are more likely to realise the full economic value for the natural resources being exploited.¹³⁷³

Lack of transparency tends not to be an issue in the cash bid system, since the licence is awarded to the bid that offers the highest amount of money. This forces transparency into the allocation process, since the criteria for the selection of the winning bid is clear to all applicants and potential applicants prior to the award of the licence.¹³⁷⁴

¹³⁷¹ Energy Task Force, *Securing Australia's Energy Future* (2004) 51-3.

¹³⁷² Joseph Stiglitz, 'Making Natural Resources into a Blessing Rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), 16.

¹³⁷³ Joseph Stiglitz, 'Making Natural Resources into a Blessing Rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), 16.

¹³⁷⁴ Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 6.

A major criticism levelled at the discretionary award of licences is that the criteria for selection of winning bids are not transparent. The system is seen as uncertain and unpredictable, since applicants do not know what exploration work or other requirements the State is seeking in a licencing round. This means that the applicants often have to try and guess what the State requires in the licencing round.¹³⁷⁵

The issue of transparency is addressed by the Norwegian licencing system, both within the legal framework,¹³⁷⁶ and guidelines issued by the NPD, which outlines the selection criteria for applicants for companies applying for petroleum licences.¹³⁷⁷ This ensures certainty and transparency in the award of petroleum licences.¹³⁷⁸ Norway awards licences on the basis of objective and non-discriminatory criteria, including the technical and financial capacity of the applicants, the way in which the applicants propose to explore the acreage, and the previous activities of the applicant.¹³⁷⁹ Since joining the EEA in 1994, Norway is subject to EC Directive 94/22/EC,¹³⁸⁰ which requires open, transparent and non-discriminatory criteria in the award of petroleum licences, including open advertising for formal licencing rounds.¹³⁸¹ Whilst Norway

¹³⁷⁵ Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 3-6.

¹³⁷⁶ See *Petroleum Regulations 1997* (Norway), s10, and the *Petroleum Activities Act 1996* (Norway), 3-5.

¹³⁷⁷ Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009.

¹³⁷⁸ *Petroleum Regulations 1997* (Norway), s10.

¹³⁷⁹ *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 5.

¹³⁸⁰ *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

¹³⁸¹ *EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons* (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

retains the right to determine the areas to be made available for petroleum activities,¹³⁸² there is a requirement that no participant is discriminated against.¹³⁸³

Satisfying the EC Directive requirements, the criteria for the award of acreage in Norway are clearly outlined in the PR.¹³⁸⁴ The award of a petroleum licence is made ‘in the interest of furthering the best possible resource management’,¹³⁸⁵ considering the technical capacity and work plan for the field.¹³⁸⁶ The regulations also stipulate that the criteria should be applied in a non-discriminatory manner, in accordance with s3-5 of the PAA, and EC Directive 94/22/EC.

As part of the announcement of each licencing round, the Norwegian Petroleum Directorate (NPD) provides an *Invitation to Apply for a Petroleum Production Lease*.¹³⁸⁷ In this documentation, the NPD clearly stipulates the conditions associated with the grant of a licence. This includes the requirement to enter into a Joint Operating Agreement (JOA), form a joint venture with other participants, and the possible participation by the State.¹³⁸⁸ Importantly, the documentation sets out the award criteria for the licencing round.¹³⁸⁹

¹³⁸² EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art 2 (1).

¹³⁸³ EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006, Art. 2 (2).

¹³⁸⁴ *Petroleum Regulations 1997* (Norway), s10.

¹³⁸⁵ *Petroleum Regulations 1997* (Norway) s10.

¹³⁸⁶ *Petroleum Regulations 1997* (Norway), s10.

¹³⁸⁷ Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009.

¹³⁸⁸ Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) [http://www.npd.no/Global/Engelsk/2%20-](http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf)

Together the JOA, legislation and guidance documents from the NPD provide an applicant for licence in Norway with high levels of information and certainty about the criteria for the award of a production licence, and the conditions for the award of the licence. This ensures certainty and predictability for all participants. In addition, they establish an open, transparent framework under which licences are awarded to applicants based on defined criteria. Informing the applicants of the award criteria within the legislation, the Norwegian government has established a transparent discretionary system of award of licence. This system could serve as a useful guideline for other governments seeking to utilise discretion in the award of petroleum licences, since this system ensures the process is transparent and certain for all participants.

The transparency of the petroleum licences in Australia using work program bidding is problematic. Ostensibly, the licences are awarded to the highest bidder of work program after the Joint Authority (JA) has had regard to the criteria made publicly available.¹³⁹⁰ There is an expectation that a system of award on the basis of competitive work program bidding would be transparent and objective since the licence is awarded to the highest bidder according to criteria available to all applicants in the publicly released *Guidance Notes for Applicants*.¹³⁹¹

[%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf](#) at 13 December 2009, 2.

¹³⁸⁹ For the 20th Licencing Round in 2008, this information includes promoting good resource management, rapid and efficient exploration on the Norwegian Continental Shelf, including the composition of the production licences; relevant financial and technical expertise of the applicants; applicants geological understanding of the area offered for licencing and experience on the continental shelf. These are outlined in Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009, 3.

¹³⁹⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s106 (3).

¹³⁹¹ Department of Resources, Energy and Tourism, *Offshore Acreage Release 2008: Guide Notes for Applicants* (2008) http://www.ret.gov.au/resources/Documents/acreage_releases/2008/site/documents/GuidanceNotesForApplicants2008.pdf at 11 September 2008.

However, an examination of the statutory requirements for the award of a licence under OPAGGSA identifies disturbing discretionary provisions. In selecting the winning bid, the JA is to select '*whichever applicant in the Joint Authority's opinion is the most deserving of the grant of the exploration permit.*'¹³⁹² In making this decision, the JA is required to '*have regard to*' the publicly available selection criteria.¹³⁹³

These statutory requirements in sections 106 (2) and s106 (3) of OPAGGSA provides the JA with the discretion to choose the applicant that it sees as most suitable. No longer is the decision to award a licence made on the highest work program bid submitted by a consortium. Now the decision is discretionary, made on the basis of the JAs opinion of the most deserving applicant.¹³⁹⁴ Furthermore, these provisions require the JA to merely '*have regard to*' the published criteria,¹³⁹⁵ rather than mandatory application of the criteria. This effectively removes the objectivity in the award of licence where there are multiple applicants. Rather than the licence being awarded to the highest work program bidder, as in any bid system, subjective, non-published criteria for the decision-making have been introduced.

This discretion in decision-making raises the issue of transparency. The criterion the JA uses to make a decision based on its '*opinion*' is not publicly available, and the JA uses a subjective '*opinion*' to award a licence on the basis of the published criteria. Furthermore, the JA is only required to '*have regard to*' the published criteria.

¹³⁹² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s106 (2).

¹³⁹³ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s106 (3).

¹³⁹⁴ As stipulated in *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s 106 (2).

¹³⁹⁵ As required in *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s 106 (3).

The cumulative effect of these two provisions is that the award of licences in Australia is a discretionary administrative decision rather than an economic decision based on the winning bidder. No longer is the decision predicated on the economic theory that the one that is willing to pay the most to do the job is the best suited to the work. Instead, there are subjective elements introduced to the award process, reducing transparency and compromising the economic basis of the award of licence upon which this bid system is based on. Furthermore, the PSLA Review committee recommended that the PSLA should be amended to remove the discretionary powers to intervene in technical matters.¹³⁹⁶ To address the current discretionary capacity in the Australian petroleum legislation, the commonwealth should consider incorporating objective criteria for the award of petroleum licences into the OPAGGSR to ensure that the process of award of petroleum licences is made using factual, transparent and current criteria. This will enable the JA to exercise its discretionary powers in a transparent manner.

4.6 Allocation of licences and sustainable development: bid or discretion?

Where the aim of the State is to maximise revenue from oil resources, then licences should be awarded to those companies which value the resource highest, demonstrated by the company with the lowest costs and/or the company that has the most information on the value of the resources present. The auction system captures the economic rent for the State, rather than leaving it in the hands of the oil company.¹³⁹⁷ Furthermore, the auction system provides

¹³⁹⁶ Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000), 9.

¹³⁹⁷ Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 7.

the government both with better information about a company's perception of the value of the resource tract and with the potential for considerable higher revenue from its licencing.¹³⁹⁸ In addition, because the licence is awarded using strict economic criteria, the economic value of the commodity is found, since the true value of a commodity is the price it fetches in a cash up-front fully competitive market.¹³⁹⁹

A drawback with the auction system is that it is not able to extract all of the economic rent, since the value of the resources cannot be known in advance. However, what the auction can do is extract the 'expected' economic rent, as predicted by individual bidders.¹⁴⁰⁰ Indeed, the actual economic rent may be more than the expected economic rent, or may be less. This discrepancy is not a weakness of the method, since it may be seen that the two possibilities balance each other out.¹⁴⁰¹ Furthermore, if the bidder were not permitted to keep the economic rent realised in excess of his bid, the licensee would not be prepared to bid the full amount of the expected economic rent.¹⁴⁰² Therefore, the return to the licensee may be defined as the following equation:

$$\text{Return to Licensee} = AEE - EER$$

Where *AEE* is actual economic rent obtained; and *EER* is economic rent expected to be realised through the bid.¹⁴⁰³

¹³⁹⁸ Rob Fraser, 'Licencing Resource Tracts: A Comparison of Auction and Discretionary Systems' (1991) 17 (4) *Resources Policy* 271, 271; Kjell J Sunnevåg, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3, 15.

¹³⁹⁹ Michael B Bunter, 'A New Approach To Petroleum Licencing' (2002) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007, 10.

¹⁴⁰⁰ Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 6.

¹⁴⁰¹ Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 6.

¹⁴⁰² Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 6.

¹⁴⁰³ Compiled by author.

However, there may be instances where the actual economic rent obtained far exceeds the expected economic rent, causing the government to have lost vast sums of money had the economic rent been captured through cash bidding allocation of licence rather than discretionary allocation. This is the main political objection to the cash bid system of the allocation of petroleum licences. If far more oil is found than is anticipated, the government may be embarrassed by under-collection of resource economic rent.¹⁴⁰⁴

Such an example is the award of production licence 018 over block 2/4 (North Sea). The licence was granted to Phillips in 1965, in the first licencing round under the discretionary system of allocation. This licence resulted in the discovery of the huge Ekofisk field, which has so far produced 4 billion barrels of oil since the commencement of production in 1972.¹⁴⁰⁵ Conservatively, this field alone has earned the Norwegian government US\$40 billion to date,¹⁴⁰⁶ equivalent to US\$6.1 billion in 1965 terms,¹⁴⁰⁷ when the licence was awarded.

Given the unknown prospectivity of the North Sea and the NCS at the time of the award of the licence, it is unlikely that the Phillips consortium would have paid anywhere near the US\$6.1 billion (adjusted 1965 dollars) that the field has yielded to the Norwegian government to date as captured economic rent. Furthermore, Ekofisk has remaining reserves of at least 1.5 billion barrels of oil,¹⁴⁰⁸ likely to earn the Norwegian government at least another US\$15 billion dollars in 2008 prices. For the Ekofisk field, and many other similarly high

¹⁴⁰⁴ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 5.

¹⁴⁰⁵ Statistics calculated to November 2008. Production figures from NPD, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

¹⁴⁰⁶ This conservative value has been calculated by assuming that each barrel of oil has earned the Norwegian government US\$10 in taxes, dividends from Statoil and SDFI.

¹⁴⁰⁷ This amount was calculated at an average rate of 4.55% per annum for the period 1965-2008. See <http://dollartimes.com/calculators/inflation.htm> at 19 January 2009.

¹⁴⁰⁸ Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

yielding fields, it is unlikely that any company would pay the amount required to capture the economic rent.

Although the aim of the auction system is to attempt to capture the economic rent of petroleum for the State, there are different auction designs, with differing capacity to capture the economic rent for a State. The design of an auction contributes to its successful capture of resource rent. The use of sealed bid auction is one means to successfully capture the maximum amount of economic rent, since the bid will correlate with the value of the resource being leased. Simultaneous ascending auctions are also useful, and can be used as a tool for the collection of economic rent, either alone or in combination with PRRT.¹⁴⁰⁹

Often the value of the resource to the State is not only monetary. For some States, the presence of petroleum resources provides an impetus to develop local industries, and develop skills and technologies, as articulated in their petroleum policies. For those States, the exploitation of petroleum resources is not just about realising the maximum economic rent and net present value. It is about sustainably exploiting the resources to develop long term, permanent changes to the economic and social fabric of the State.¹⁴¹⁰

¹⁴⁰⁹ Walter Mead, 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4) *Energy Journal* 1, 15.

¹⁴¹⁰ Joseph Stiglitz, 'Making Natural Resources into a Blessing rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), 16.

4.7 Conclusion: which system of licence allocation has the capacity to implement Australia's petroleum policy objectives?

Successful sustainable development of petroleum resources has been demonstrated by Norway. For over forty years, Norway has focussed on implementing its policy of developing its petroleum resources for the benefit of the Norwegian society as a whole, ensuring that resource management enhances the welfare, trade, industry and industrial development of the country.¹⁴¹¹ Norway has awarded petroleum licences under a discretionary system to be able to stipulate the conditions of the award of licence. Initially conditions were stipulated by Norway when awarding petroleum licences (using 'discretionary' discretionary allocation to ensure benefits for Norway), to enable Norway to engage in a process of economic diversification of industry, and to control petroleum production. Today Norway uses an 'objective' discretionary system of award of petroleum licences, with the criteria clearly outlined in the PR, in accordance with the requirements of the PAA and EC Directives.

For States that wish to develop local industries and companies, the cash bid system of licence allocation may hamper sustainable development of its petroleum resources, since small companies are often unable to provide large up-front payments that are required under the cash bid system,¹⁴¹² although this may be mitigated by the formation of joint ventures.¹⁴¹³ Cash bidding may also hamper sustainable development of petroleum resources since a licence is awarded on the criteria of the highest bidder, where all applicants have the

¹⁴¹¹ *Petroleum Activities Act 1996* (Norway) s1-2.

¹⁴¹² Tim Warman and Lauren Goldblatt, 'The Work Program Bidding System For Exploration Permits Under the *Petroleum (Submerged Land) Act 1967* (Cth) (2008) 27 *Australian Resources and Energy Law Journal* 178, 179.

¹⁴¹³ Michael B Bunter, 'A New Approach To Petroleum Licencing' (2002) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007, 11.

requisite financial and technical capabilities. The State has no capacity to stipulate the conditions of the licence as part of the allocation of the licence. This effectively provides the company with the capability to control the exploration program and process, in order to meet its own objectives rather than the objectives of the State. Usually the objectives of a company do not include the economic diversification of the State unless there is an economic benefit for the shareholders of the company.¹⁴¹⁴

As noted above, a number of petroleum economists and scholars¹⁴¹⁵ have argued that the discretionary allocation of licences is inefficient and unjustified, since the government regulation of the conditions of award interferes with market forces.¹⁴¹⁶ Moreover, many academics are uncomfortable with the notion of the discretionary allocation of licences using a set of politically or economically derived criteria.¹⁴¹⁷ They also assert that the licence is 'given away' under a discretionary system, since the terms of the licence do not capture for the State the economic rent implicit in the licencing of the resource.¹⁴¹⁸ Yet the discretionary award of licence enables a State to select the companies that are most suited to that particular acreage.¹⁴¹⁹ Governments generally favour the discretionary system of allocation, as it provides greater flexibility and control in the allocation of petroleum licences, and encourages exploration.¹⁴²⁰ These

¹⁴¹⁴ Evidence of the operations of multinational oil companies in petroleum producing provinces indicates that companies are likely to use their preferred suppliers and import skilled labour. Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (1991).

¹⁴¹⁵ Including Kenneth Dam, Kjell Sunnevåg, Walter Mead, and Knud Sinding.

¹⁴¹⁶ Michael B Bunter, 'A New Approach To Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007.

¹⁴¹⁷ Knud Sinding, *Auctions and Discretion in Oil and Natural Gas Licencing* (1999) CEPMLP - CP 1/99, 1-3.

¹⁴¹⁸ Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 5.

¹⁴¹⁹ Peter Cameron, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983), 55.

¹⁴²⁰ This includes the Norwegian and the UK governments. See Kenneth W Dam, *Oil Resources: Who Gets What How?* (1976), 4-5 and Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 19-22.

arguments have a commonality of public interest and public good, where the allocation of a licence occurs after the consideration of economic, political, social and other factors. Should Australia desire to encourage investment in its petroleum industry, ensure transparency, and sustainably develop its petroleum resources, it needs to consider a method of allocation beyond work program bidding.

The cash bid system is capable of accomplishing well-defined policies of government revenue maximisation.¹⁴²¹ Furthermore, it has been demonstrated that the bid system is a more efficient and objective alternative to some of the other methods of award. If the aim of the Australian government is to maximise their revenue from the exploitation of the petroleum resources, then the auction system of allocation of petroleum licences is useful.¹⁴²² However, Australia has articulated that its petroleum objectives are two fold: to increase international investment and to sustainably develop the petroleum resources. Australia acknowledges that the WPB system of allocating petroleum licences is less than perfect.¹⁴²³ Furthermore, there is a realisation that there is a need for future research to determine the auction design that best meets the dual aims of ensuring appropriate bids for individual areas and an appropriate spread of productive exploration over both mature and frontier areas.¹⁴²⁴ There is also an acknowledged need for research analysis relating to the extent which competitive work program bidding leads to excessive bids in some Australian

¹⁴²¹ Knud Sinding, *Auctions and Discretion in Oil and Natural Gas Licencing* (1999) CEPMLP - CP 1/99, 35.

¹⁴²² Knud Sinding, *Auctions and Discretion in Oil and Natural Gas Licencing* (1999) CEPMLP - CP 1/99, 35; Ursula M H Kretzer, 'Exploration Prior to Oil Lease Allocation: A Comparison of Auction Licencing and Allocations Based on Size of Work Programme' (1994) 20 (4) *Resources Policy*, 235, 243.

¹⁴²³ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 16.

¹⁴²⁴ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 16.

basins.¹⁴²⁵ Finally, there is an identified need to assess whether the loss of a bid leads to a loss of potential exploration dollars, and why companies only bid sporadically.¹⁴²⁶

Australia's petroleum objectives are to encourage international investment, particularly in frontier areas, and to sustainably develop its petroleum resources. The discretion system is most suitable for pursuing petroleum policies that emphasise policy objectives other than economic efficiency and maximisation of taxable petroleum rent.¹⁴²⁷ In addition, the discretion system is valuable for a State when there is prospective acreage of limited or unknown prospectivity,¹⁴²⁸ demonstrated by Norway's experience in allocating a licence for the Ekofisk field.

Australia acknowledges there are huge areas of frontier acreage requiring exploration. The use of discretionary allocation would enable the government to accumulate data of the fields and assemble knowledge about the prospectivity of these areas. Whilst WPB could accomplish these objectives, the serious flaws associated of Australia's WPB system are less likely to attract the international investment needed to explore these areas. The use of discretionary allocation of licences according to predefined and advertised criteria would be an effective way to explore Australia's petroleum provinces and meet Australia's petroleum policy goals.

¹⁴²⁵ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 16.

¹⁴²⁶ Athol Maritz, *Work Program Bidding in Australia's Upstream Oil and Gas Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the Department of Industry, Tourism and Resources, http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007, 16.

¹⁴²⁷ Knud Sinding, *Auctions and Discretion in Oil and Natural Gas Licencing* (1999) CEPMLP - CP 1/99, 16.

¹⁴²⁸ Michael B Bunter, 'A New Approach To Petroleum Licencing' (2002) 1 (1) *Oil, Gas and Energy Law Intelligence* http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm#anchor06 at 10 March 2007, 10.

The cash bid system used to allocate petroleum licences is appropriate in States where the primary objective of the State is to realise the greatest amount of economic rent. In the free market economy of the USA the use of cash bidding tends to dominate, and is accepted as a method of allocation since it relies on the application of strict economic criteria to meet an economic objective. In Australia, the State has the objective of attracting international investment to sustainably exploit Australia's petroleum resources. In attracting international investment, Australia seeks to provide a stable, transparent and predictable regulatory framework for participants. However, an analysis of the current legislative provisions for the award of licence using work program bidding has illustrated a number of provisions that create uncertainty and inhibit predictability and transparency. In particular, sections 106 (2) and 106 (3) of OPAGGSA enable the JA to award a licence to a bidder using discretion. Although the Act aims to award licences based on objective criteria announced in the annual *Guide for Applicants*,¹⁴²⁹ the provisions of the Act enable the discretionary award of licence based on the *opinion*¹⁴³⁰ of the JA. In addition, the JA is only required to *have regard to*¹⁴³¹ the advertised criteria, rather than it being a mandatory requirement. Together these provisions enable the JA to award a licence based on criteria other than advertised objective criteria.

An element of discretion has also been introduced through the good standing provisions. These provisions enable an oil company to negotiate with the State for the abandonment of a mandatory work program. They also allow a company to negotiate a lower value of exploration work than that originally bid in the work program bid. This has the effect of not only creating uncertainty for

¹⁴²⁹ For example, Department of Resources, Energy and Tourism, *Release of Offshore Petroleum Exploration Areas Australia 2008: An Overview for Applicants* (2008) <http://www.ret.gov.au/Documents/acreagereleases/2008/site/page2.htm> at 12 June 2008.

¹⁴³⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s106 (2).

¹⁴³¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s106 (3).

bidders, but effectively undermining the economic basis upon which the work program bidding system is based.

The effect of the legislative provisions and the good standing provisions is that the system of award of licences is no longer transparent. Nor is it predictable. Although the Australian government seeks to award petroleum licences using work program bidding to provide predictability, transparency and certainty to applicants, it fails. Should Australia seek to achieve national petroleum objectives of attracting overseas investment to sustainably exploit Australia's petroleum resources, the method of allocation of petroleum licences in Australia needs to be reassessed.

If Australia wishes to maintain the use of work program bidding, the current good standing provisions should be revoked. In addition, there need to be legislative amendments that remove the current legislative discretion available to the JA in the award of licences. Only then might the design of the WPB system be appropriate to capture the economic rent.

Australia needs to consider allocating petroleum licences using the discretionary method of allocation, which is demonstrably suited to accomplishing national petroleum objectives that encompass more than capturing economic rent, such as in Australia. The discretionary allocation of licences in Norway demonstrates that this method can be particularly effective to accomplish national petroleum objectives if it is implemented in a manner that assures transparency.

In Norway, although the government allocates licences using its discretion, the criteria for the selection of a licence is provided to applicants prior to the award of licence through petroleum regulations and administrative guidelines. All applicants are aware of the conditions of the allocation of the licence, particularly the role that the State will play in the exploitation of petroleum. In addition, the use of the discretionary system for the allocation of petroleum

licences enables a State to determine the relationship it will have with the oil companies it engages to exploit the resources it owns.

This use of discretion in Norway has enabled the State to define its relationship with the oil companies, as well as accomplish its objectives in exploiting its petroleum resources by setting conditions on the award of a licence. The government stipulation that all fields will be developed sustainably meets national petroleum objectives. In applying for the licences under these criteria, companies acquiesce to the conditions. These conditions of the award of licence enable the State to negotiate with the oil companies in a balanced relationship. The Norwegian State has abundant petroleum reserves that oil companies wish to access, but the State wishes to exploit for the long-term benefit of all Norwegians. Therefore, the State is willing to provide access to its resource on fair terms ensuring that companies will realise an adequate profit. However, the company must comply with the conditions stipulated upon the grant of licence, which ensure that Norway's petroleum objectives of sustainable development of its petroleum resources are met.

Australia's relationship with oil companies differs to the symbiotic relationship that Norway has developed with oil companies through the allocation of petroleum licences. Since Australia allocates its licences under the WPB system, there is an emphasis on encouraging companies with 'deep pockets' to continue to exploit Australia's petroleum resources. The good standing provisions introduced by the Australian government have had serious repercussions on its relationship with international oil companies. Evidence suggests that the Australian government may have favoured some oil majors by cancelling work programs and reducing the monetary value of work requirements. This has created a power imbalance in the relationship, giving some oil companies an advantage. The Australian State has given the impression that it has favoured majors because it 'needs' these large companies in order to meet its petroleum objectives of increasing international investment

to exploit its resources. In the long term this may affect Australia's capacity to attract other international investors, since there may be a perception that some more established companies are favoured.

The Australian government possesses a resource that oil companies need access to in order for the companies to survive. If oil companies are not granted access to oil they cannot continue their core business of exploiting oil resources. If Australia used the discretion system of allocation but stipulated the criteria prior to award of licence, it may be able to establish an equal relationship with the oil companies that seek to exploit its resources.

In order to sustainably develop its petroleum resources, Australia needs to be able to stipulate requirements for the development of its resources. Similar to Norway, Australia could use the allocation of petroleum licences to stipulate particular work or qualities required from applicants in each licencing round. This may include exploration in frontier areas, contribution of data, minimal work programs, or particular exploration of production techniques. All of the criteria should be transparent, and be formulated to achieve policy objectives. This would allow Australia the scope to award a licence to the most appropriate company with the particular capabilities required, rather than the highest bidder. In doing so, Australia would be able to fulfil its national objectives and sustainably exploit its petroleum resources.

5. Regulating Petroleum Extraction for Sustainable Development

5.1 Introduction

Sustainable development of petroleum necessarily requires that as much petroleum as possible is extracted from the field that is being developed in an efficient manner in order to reduce costs. In this chapter I consider whether State regulation of the rate and method of petroleum extraction is necessary to achieve the sustainable development of petroleum resources, or whether the regulation of rate and method of extraction is best left to the companies which specialise in the extraction of petroleum.

The question of regulation of petroleum depletion can be divided in two main questions. One is the question of the overall regulation of the production rate in order to achieve sustainable development for the society as a whole. Another question is regulation of the depletion of petroleum from individual fields in order to secure optimal recovery of petroleum from the fields in production. I will address the first question in section 5.2 and the second in section 5.3.

The main issue I address in this chapter is the role of government control in the extraction of petroleum. In analysing the validity and utility of government regulation in the sustainable development of petroleum resources, I will consider whether the divergence between State and company objectives exists and, if so, whether these divergences influence the sustainable development of petroleum resources. By examining States where the government has regulated petroleum extraction and depletion, and the incentive structure in those States, it is possible to determine whether State regulation of petroleum extraction is likely to contribute to the sustainable development of Australia's petroleum resources.

5.2 Regulation of rate of depletion of oil resources

5.2.1 Introduction

Depletion rate is the rate at which the petroleum is extracted from a field. Control over field depletion can occur when the State intervenes in the rate of production of petroleum. Depletion policy is a fundamental component of oil policy, since depletion rates affect a plethora of economic activities related to petroleum extraction, including employment, government revenue, and company profits.¹⁴³² Furthermore, governments that choose a high rate of depletion are often more exposed to the needs of private companies controlling the relevant technology compared to a government that opts for a low rate of extraction.¹⁴³³

5.2.2 State interests in regulation of the rate of depletion?

Value in the ground versus out of ground

When establishing a regulatory framework for the exploitation of petroleum, the State as the petroleum regulator must determine what is the optimal rate of depletion of its non-renewable resources. Unlike renewable resources, there is not a clear optimum rate of use of exhaustible resources, since the very use of the resource depletes the resource.¹⁴³⁴ The challenge then for regulators is to find a rate of extraction and consumption of the exhaustible resource, coupled with the rate of foreign borrowing/lending, that maximises the present value of the total economic and social welfare gained from the extraction of the resource.¹⁴³⁵

¹⁴³² T Lind and G Mackay, *Norwegian Oil Policies* (1980), 28.

¹⁴³³ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 112.

¹⁴³⁴ David Pearce and R. Kerry Turner, *Economics of Natural Resources and the Environment* (1990) 271.

¹⁴³⁵ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 553.

When a State develops their petroleum resources, it seeks to sustainably develop its petroleum resource by maximising the net present value (NPV)¹⁴³⁶ of the economic rent of the petroleum resource.¹⁴³⁷ This can be accomplished by essentially enlarging the ‘size of the cake’ through an increase in the percentage of oil recovered from a licence area.¹⁴³⁸ A State is likely to increase the recovery of oil when it selects the most efficient and effective licencees with the greatest ability to recover petroleum from that field, rather than the licencee that can pay the most for the licence.¹⁴³⁹ Whether the licencee most capable of increasing the NPV will be the company that bids the highest for the acreage (and is therefore the most efficient economically), or whether it is the operator chosen by State against a predetermined set of criteria are regulatory and policy questions. It is possible to maximise the NPV through the allocation of licence to the licencee with the greatest capacity to extract the petroleum most effectively, and the allocation of petroleum licences is considered in Chapter four.¹⁴⁴⁰

The question of whether the State should exert control over the method of extraction in order to increase NPV has been considered by a number of petroleum producing countries, including Australia, Norway, the UK and Canada. However, the question arises whether the rate and method of extraction from the field should be determined by the oil company that is developing the

¹⁴³⁶ The Net Present Value (NPV) represents the present day value of the future income discounted for a time preference (see definition at <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/1301.0Feature%20Article401997?opendocument&tabname=Summary&prodno=1301.0&issue=1997&num=&view> at 12 December 2009). It is defined as the sum of the of the present value of the net benefits accruing from a natural resource. The NPV of a resource can be expanded during the life of a field when a greater percentage of the oil is recovered than expected. It can also increase due to further discoveries or technologies that delineate the margins of the field to be larger than originally calculated.

¹⁴³⁷ Walter Mead, ‘Towards an Optimal Oil and Gas Leasing System’ (1994) 15 (4) *Energy Journal* 1, 3.

¹⁴³⁸ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 4.

¹⁴³⁹ Kjell J Sunnevåg, ‘Designing Auctions for Offshore Petroleum Lease Allocation’ (2000) 26 *Resources Policy* 3, 4.

¹⁴⁴⁰ Norwegian Petroleum Directorate, ‘Recovering Progress on IOR’ (2008) 2 *Norwegian Continental Shelf* 9, 9-10.

field, or directed by the State that owns the petroleum resources. This question is particularly pertinent for the Australian State as it seeks to sustainably develop its petroleum resources.

The challenge for regulators of petroleum exploitation is determining the optimal timing for the exploitation of natural resources to ensure wealth generation and economic sustainability for the State. The regulation of the exploitation of petroleum is essential for the measured, controlled consumption of the resource to ensure intergenerational equity and sustainability.¹⁴⁴¹ Not all academics agree with this view, with Radetski noting that generally, early exploitation of a finite mineral endowment is preferable unless there is an unequivocal rising price trend.¹⁴⁴²

Another issue that must be considered is that the optimal level of production for an oil company will be different to the optimal rate for the State.¹⁴⁴³ Generally, if left unfettered, the oil companies would choose to produce at a much higher level than the State would wish them to.¹⁴⁴⁴ This is attributable to commercial considerations dictating the need for rapid extraction of large quantities of petroleum, whilst socio-economic conditions may call for a lower depletion rate.¹⁴⁴⁵ Therefore, the regulation of petroleum by the State should balance the optimal rate of extraction desired by the State with a rate of extraction that is attractive to industry and maintains a State's competitiveness in the international commercial petroleum sector.

¹⁴⁴¹ See John E Tilton, 'Exhaustible Resources and Sustainable Development' (1996) 22 (1-2) *Resources Policy* 91, 91-2, and also Marian Radetzki, 'Economic Development and the Timing of Exploitation: A Critical Review of Some Conventional Wisdoms' in Tilton, John (ed), *Mineral Wealth and Economic Development* (1992), 38-9.

¹⁴⁴² Marian Radetzki, 'Economic Development and the Timing of Exploitation: A Critical Review of Some Conventional Wisdoms' in Tilton, John (ed), *Mineral Wealth and Economic Development* (1992), 39.

¹⁴⁴³ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 34.

¹⁴⁴⁴ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 34.

¹⁴⁴⁵ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 899.

The rate of optimal extraction was modelled by Aarrestad, who concluded that some extraction policies are always going to be non-optimal, such as extraction at less than maximal rate in a resource-exporting economy with no international borrowing restrictions.¹⁴⁴⁶ However, he noted that when the rate of growth in the price of the petroleum is greater than the rate of interest on the financial claims, it pays to keep the resource in the ground as long as possible.¹⁴⁴⁷ Conversely, when the rate of growth in the price of the resource is less than the rate of return on financial assets, it pays to shift the resource into financial assets as fast as possible.¹⁴⁴⁸

The exploitation of a natural resource leads to a decrease in the amount of that resource available. At the same time, given the increased consumption of the resource, there is generally a rise in the price of that resource over time.¹⁴⁴⁹ This is demonstrated by the Hotelling's Rule, which aims to maximise the net present value of resource benefits.¹⁴⁵⁰

This rule states that in equilibrium, the marginal productivity of a resource must equal the marginal productivity of capital, expressed in terms of the market interest rate on capital.¹⁴⁵¹ Hotelling's Rule generates a number of basic implications regarding how the finite nature of an exhaustible resource affects the resource price and the extraction path of the resources, since a non-renewable

¹⁴⁴⁶ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 560-563.

¹⁴⁴⁷ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 560-563.

¹⁴⁴⁸ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 560-563.

¹⁴⁴⁹ Rognvaldur Hannesson, 'Saving Petroleum Wealth: Tales of Three Jurisdictions' in Solveig Glomsrod and Petter Osmundsen, *Petroleum Industry Regulation Within Stable States* (2005), 113

¹⁴⁵⁰ Robert Harting and Willibald Kofler, *Resource Economics* (2006), 4.

¹⁴⁵¹ Robert Harting and Willibald Kofler, *Resource Economics* (2006), 4.

resource can be likened to an asset that generates a return over time.¹⁴⁵² Essentially, Hotelling's Rule predicts that exhaustible resources' prices increase at an exponential rate equal to the exchange rate.¹⁴⁵³ This means that economically, the resource that remains in the ground has the same significance and value as a bond. Consequently, in many ways, petroleum in the ground is interchangeable with bonds.¹⁴⁵⁴

According to Hotelling's Rule, as the exhaustible resource is depleted, the price increases, therefore the demand, and hence the consumed quantity, falls. Meanwhile, the resources remaining in the ground continues to be depleted. This cycle of price rise/falling demand continues until a price is reached (the backstop price) where alternative technology (the 'backstop technology') or a substitute resource (either natural or synthetic) will be made available.¹⁴⁵⁵ Upon reaching the backstop price, the resource is blocked and production ceases. At this point, the resource is said to be economically exhausted, even though some of the resource remains in the ground. As there is generally always a 'backstop technology' at a sufficiently high price, no exhaustible resource is ever 'completely' extracted.¹⁴⁵⁶

¹⁴⁵² Jeffrey Kraukraemer, 'Non-Renewable Resource Scarcity' (1998) XXVI *Journal of Economic Literature* 2065, 2065.

¹⁴⁵³ Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, June 21 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.

¹⁴⁵⁴ Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, June 21 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.

¹⁴⁵⁵ Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, June 21 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.

¹⁴⁵⁶ Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, June 21 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.

The challenge for a State is when to extract the petroleum. Under Hotelling's Rule, the owner of a mineral resource (the State) would not leave it in the ground unless it got a return from waiting equal to the return from exploiting the resource and investing the money in the financial markets in order to gain the highest return. Extraction only occurs when the price of the resource rises along a path denoted by Hotelling's Rule equation. At that time, the extraction rate is indeterminate.¹⁴⁵⁷ Yet if prices rise more rapidly than the calculated path during a time period, then it would be less profitable to extract the resource during the period, and economically viable to wait until the end of the time period.¹⁴⁵⁸ Where the price rises slower than the calculated path, then it is more profitable to extract the resource at the beginning of the time period rather than waiting until the end of the time period.¹⁴⁵⁹

Whilst Hotelling's Rule is useful for basic depletion rates, it fails to consider variables such as new finds and technological progress, especially when considering intergenerational equity. Consequently, more sophisticated theoretical models are required to address the variables ignored by Hotelling's Rule.¹⁴⁶⁰

When considering intergenerational equity, and its utilitarian approach of resource development, arguably Hartwick's Rule is the most suitable model to use.¹⁴⁶¹ Under this Rule a constant sustained consumption path requires the

¹⁴⁵⁷ Alan Kneese and James Sweeney (eds), *Handbook of Natural Resources and Energy Economics: Volume III* (1993)781-2.

¹⁴⁵⁸ Alan Kneese and James Sweeney (eds), *Handbook of Natural Resources and Energy Economics: Volume III* (1993)781-2

¹⁴⁵⁹ Alan Kneese and James Sweeney (eds), *Handbook of Natural Resources and Energy Economics: Volume III* (1993)781-2.

¹⁴⁶⁰ Alan Kneese and James Sweeney (eds), *Handbook of Natural Resources and Energy Economics: Volume III* (1993), 847.

¹⁴⁶¹ Robert M Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141,144-5.

investment of Hotelling Resource Rents.¹⁴⁶² Hartwick's Rule defines the amount of produced capital investment required to offset the declining stocks of non-renewable resources, to ensure that the standard of living does not decline as society moves into its indefinite future.¹⁴⁶³

In considering Hartwick's Rule, Solow demonstrates that given this degree of substitutability between produced capital and natural resources, a way to design a sustainable consumption program to ensure intergenerational equity is to accumulate produced capital sufficiently rapidly so that the effects of non-renewable resource depletion are countered by services from enlarged produced capital stock.¹⁴⁶⁴ Hence, it is necessary for a nation to invest all the rent currently earned from exhaustible resources in reproducible capital to provide the maximum return to the resource owners - a policy that Solow sees as the 'right' policy.¹⁴⁶⁵

Similar to other physical capital such as stock, a stock of natural resource is an asset to the owner, with the value of this asset related to the rate of return it is expected to yield to the owner.¹⁴⁶⁶ The rate of this return is comprised of the flow of product generated by the marginal unit of the asset (the dividend rate), the alteration of the asset's physical characteristic over time (which may or may not

¹⁴⁶² Vincent Martinet and L Doyen, 'Sustainability of an Economy with an Exhaustible Resource: A Viable Control Approach' (2006) *Resource and Energy* 17, 19.

¹⁴⁶³ John M Hartwick, 'Intergenerational Equity and the Investing of Rents from Exhaustible Resources' ((1977) 67 (5) *The American Economic Review* 972, 972.

¹⁴⁶⁴ Robert M Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141, 144.

¹⁴⁶⁵ Robert M Solow, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141, 148.

¹⁴⁶⁶ Gerard Gaudet, *Natural Resource Economics under the Rule of Hotelling* (2007) Presidential address delivered at the 41st meeting of the Canadian Economics Association, Halifax, June 2007, 3.

depend on the use being made of the resource, or the size of the resource stock) and the rate at which the asset's market value alters over time.¹⁴⁶⁷

It is however, possible for a non-renewable resource to provide a return whilst remaining in the ground where the net price of the resource rises as the resource becomes scarcer, or supply is perceived to be reduced. Hence, a natural resource can rise in value over time as it becomes increasingly scarce.¹⁴⁶⁸ Arguably, where resource markets are competitive, the State will deplete the non-renewable resource at a socially optimal rate, requiring intervention in the resource market where the markets are not competitive if there are externalities from resource use.¹⁴⁶⁹

Another issue that confronts resource regulators is the rate of optimal use of non-renewable resources. Unlike renewable resources, there is no optimal rate of use of an exhaustible resource, since the very use of the resource depletes the resource.¹⁴⁷⁰ The challenge is to find a path of rate of extraction and consumption of an exhaustible resource, coupled with the rate of foreign borrowing/lending so that the present value of total social welfare is maximised.¹⁴⁷¹

The logical question for regulators of natural resource exploitation that arises from a consideration of resource exploitation theory is when is the optimal time and timing for the exploitation of natural resources to ensure wealth generation and economic sustainability for the State? The rate of optimal extraction was modelled by Aarrestad, who concluded that some extraction rates are always

¹⁴⁶⁷ Gerard Gaudet, *Natural Resource Economics under the Rule of Hotelling* (2007) Presidential address delivered at the 41st meeting of the Canadian Economics Association, Halifax, June 2007, 3.

¹⁴⁶⁸ Gerard Gaudet, *Natural Resource Economics under the Rule of Hotelling* (2007) Presidential address delivered at the 41st meeting of the Canadian Economics Association, Halifax, June 2007, 3.

¹⁴⁶⁹ David Pearce and R. Kerry Turner, *Economics of Natural Resources and the Environment* (1990) 285.

¹⁴⁷⁰ David Pearce and R. Kerry Turner, *Economics of Natural Resources and the Environment* (1990) 271.

¹⁴⁷¹ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 553.

going to be non-optimal.¹⁴⁷² He also made the observation that when the rate of growth in the price of the resource is greater than the rate of interest, it pays to keep the resource in the ground as long as possible. Also, when the rate of growth in the price of the resource is less than the rate of return on financial assets, it pays to shift the resource into financial assets as fast as possible.¹⁴⁷³ Not all academics agree with this view, and Radetski notes that generally, early exploitation of a finite mineral endowment is preferable unless there is an unequivocally rising price trend.¹⁴⁷⁴

The timing of resource extraction is essential for wealth generation. By adopting a controlled approach to petroleum exploitation using Hotelling's Rule of exploitation, it is possible to gain maximum wealth from the exploitation of petroleum resources.¹⁴⁷⁵

Appropriate policies can consider the rate of depletion, and factor this into the regulatory framework to control the rate of depletion of petroleum resources. Where the government chooses a high depletion rate, they are likely to be exposed to the demands and needs of an oil company that controls the relevant technology, compared to a government opting for a low rate of extraction.¹⁴⁷⁶

A regulatory regime that addresses the rate of depletion of petroleum needs to incorporate policy, economic analysis, and an appropriate taxation framework to ensure optimal extraction of petroleum for the sustainable development of

¹⁴⁷² Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552, 553.

¹⁴⁷³ Jostein Aarrestad, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552,560-563.

¹⁴⁷⁴ Marian Radetzki, 'Economic Development and the Timing of Exploitation: A Critical Review of Some Conventional Wisdoms' in John Tilton (ed), *Mineral Wealth and Economic Development* (1992), 39.

¹⁴⁷⁵ Jeffrey Kraukraemer, 'Non-Renewable Resource Scarcity' (1998) *XXVI Journal of Economic Literature* 2065, 2065.

¹⁴⁷⁶ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 899.

petroleum resources in a State. The legal regime regulating resource exploitation is crucial in managing and sustaining economic growth in a resource-endowed State, including the ability of that State to maintain its economic position when the resources have been depleted. A regulatory regime should attempt to establish the optimal depletion path for that resource, for the benefit of the community.¹⁴⁷⁷ Ideally, the regulatory framework should regulate the granting of licences and concessions for the development of that resource.

Social rate of return (SRR)

The relationship between the rate of return from oil production and the expected increase in the price of oil is an important factor in determining the depletion rate for a State.¹⁴⁷⁸ This relationship is known as the social rate of return (SRR), and reflects the total value of all benefits associated with investment that accrue to members of a society. Since the SRR is often lower than the private rate of return, preferred rates of extraction often differ between private and public interests in the same petroleum-producing province.¹⁴⁷⁹

In some petroleum-producing developed nations, the SRR has been an influence in determining the rate of production. This was particularly true in the North Sea. In the United Kingdom during the 1970's both the Conservative and Labor governments opted for a higher rate of extraction, with the government concluding that a relatively higher SRR exists as a consequence of the countries' poor economic and financial situation.¹⁴⁸⁰ Conversely, the Norwegian government perceived a low rate of SSR, as a consequence of the

¹⁴⁷⁷ Allen K Kneese, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281, 285.

¹⁴⁷⁸ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 113.

¹⁴⁷⁹ An example of this is where the expected rate of increase in the price of oil is between the private rate of return and the social rate of return. In this scenario, it would be rational for private companies to accelerate production, but it would be rational for governments to keep the oil in the ground. See Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 113 for this example.

¹⁴⁸⁰ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 113-4.

limited absorptive capacity of the smaller Norwegian economy, prompting the implementation of lower petroleum production rates.¹⁴⁸¹

Reducing the risk of resource curse and Dutch disease

As noted above, there are two major challenges to the State when exploiting petroleum and other non-renewable resources. First is the non-renewable nature of the resource.¹⁴⁸² Once the resource is exhausted, it cannot be replaced, and there is no ongoing revenue stream. Thus, these resources need to be exploited in a manner that provides financial benefits to both the oil companies and the State during petroleum production, otherwise oil companies will not want to exploit the resources. Consequently, it requires a petroleum regulatory framework that encourages oil companies to continue to participate in petroleum exploitation, whilst regulating the exploitation of these resources in a sustainable manner that ensures an appropriate return to current and future generations.¹⁴⁸³

One impetus to control the rate of production is to lessen the effects of increased oil revenue on a State's economy.¹⁴⁸⁴ One of the greatest economic challenges a State faces in the exploitation of its petroleum resources is avoiding lasting economic setbacks that have befallen many States that are well

¹⁴⁸¹ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 113-4.

¹⁴⁸² Natural Resources are defined as naturally occurring substances that are considered valuable in their natural form: see E F Schumacher, *Small is Beautiful* (1973). Therefore, natural resources encompass minerals, petroleum, fisheries and forestry. Non- Renewable (or exhaustible) natural resources are those that do not regenerate (such as oil or iron ore). Though the geologic processes that created most types of non-renewable resources in the past are still operating today, the time frames are too long compared with their rates of use to be considered renewable. See Jonathon E Snow, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* degree, University of Mainz, Germany, June 21 2000. <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/index.html> at 14 November 2007.

¹⁴⁸³ A detailed consideration of the economic challenges associated with non-renewable resource exploitation, and in particular resource curse and Dutch disease is found in section 1.2.1 above.

¹⁴⁸⁴ Jeffrey D Sachs, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007).

endowed with petroleum resources.¹⁴⁸⁵ In theory, by controlling the rate of production to ensure there is a production ceiling, a State could limit the revenue flowing into the economy.¹⁴⁸⁶ By limiting the sudden wealth in a State it may be possible to stem the effects of resource curse and Dutch disease, both of which originate from the sudden influx of money from the extraction and sale of the non-renewable resources.¹⁴⁸⁷

Where the development of a natural resource displaces other industries, there is a negative effect on the competitive position of these industries, causing currency appreciation.¹⁴⁸⁸ Dutch disease is intricately linked to a factor moving effect (the reallocation of factors of production such as capital and labour from other activities to resource extraction), spending effect (arising from the increased aggregate demand created by resource receipts, which if created to domestic currency, can cause periods of excess demand in the economy), and a spill over loss effect (the loss of positive externalities associated with the negative effect on the competitive position of the non-resource traded sector).¹⁴⁸⁹

It has been postulated that Australia is affected by resource curse and Dutch disease.¹⁴⁹⁰ Concomitant with a meteoric resource boom in Australia has been a

¹⁴⁸⁵ Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz, 'Introduction, What is the Problem With Natural Resource Wealth?' in Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), 1.

¹⁴⁸⁶ Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz, 'Introduction, What is the Problem With Natural Resource Wealth?' in Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007), chapter 1.

¹⁴⁸⁷ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 6.

¹⁴⁸⁸ George Soros, 'Foreword', in Macartan Humphries, Jeffrey D Sachs and Joseph E Stiglitz (eds), *Escaping the Resource Curse* (2007).

¹⁴⁸⁹ Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department, 5.

¹⁴⁹⁰ James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 201.

decline in the manufacturing industry, with the boom of recent years creating a slow strangulation of many manufacturers through import competition, increased cost of inputs, and high interest rates.¹⁴⁹¹ By itself, this decline in manufactured goods is not necessarily alarming, although an assessment of the manufacturing sector notes that the overwhelming effect of the commodity boom was negative for manufacturing.¹⁴⁹²

However, the onset of resource dependency or exacerbation of resource dependency occurs through a resource boom where the economy effectively regears itself to the influence of resource-based investment, creating inflationary pressure.¹⁴⁹³ Indeed, excessive inflationary pressure has occurred in Australia, leading the IMF to conclude that inflation in Australia is a challenge associated with the commodity boom, causing infrastructure and other capacity constraints, especially in the mining and housing sector.¹⁴⁹⁴

Whilst a detailed economic analysis of the presence of resource curse and Dutch disease in Australia is outside the confines of this thesis and best left to economists, this overview of Australia's economy suggests that resource curse and Dutch disease appears to have taken a foothold in Australia.¹⁴⁹⁵ This is evidenced by socio-economic displacement and de-industrialisation, and deepening socio-spatial divides at local, interstate and international levels.¹⁴⁹⁶

¹⁴⁹¹ Access Economics, *Business Outlook, December 2008: Batten down the Hatches* (2009) www.accesseconomics.com.au at 9 November 2009, 38.

¹⁴⁹² Access Economics, *Business Outlook, December 2008: Batten down the Hatches* (2009) www.accesseconomics.com.au at 9 November 2009, 38.

¹⁴⁹³ James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 201.

¹⁴⁹⁴ International Monetary Fund, *Australia – 2008: Article IV Consultation: Concluding Statement* (2008) <http://www.imf.org/external/np/ms/2008/070108.htm> at 10 September 2009.

¹⁴⁹⁵ James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 201.

¹⁴⁹⁶ James Goodman and David Worth, 'The Mineral Resources Boom and Australia's Resources Curse' (2008) 61 *Journal of Political Economy* 201, 201.

The resource curse that appears to have infected Australia provides the Australian government with a new impetus for greater reform in the petroleum and mineral resources sector. Certainly, petroleum production is a small component of Australia's resources sector. However, reform in the regulation of petroleum production to encourage socio-economic sustainable development can be used as an impetus and perhaps even a template for reform in other parts of Australia's resources sector.

5.2.3 How can the rate of depletion be regulated?

One method for encouraging the sustainable development of petroleum resources is through government control on the rate and method of petroleum production. The efficiency and effectiveness of this has been tested by a number of countries, most notably Norway,¹⁴⁹⁷ but also Malaysia.¹⁴⁹⁸

There are a number of ways to control petroleum production, including production rate ceilings, the number of exploration and/or production licences awarded, and the number of fields approved for development. Some states opt for 'go slow' policies for depletion,¹⁴⁹⁹ whilst others opt for maximum exploration and production.¹⁵⁰⁰ For some States, such as Norway, the regulation

¹⁴⁹⁷ There is a plethora of literature that outlines the policy of Norway and its impact. See for example Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980); International Energy Agency, *Energy Policies of IEA Countries* (2004); Bernard Taverne, *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008); Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991); Jerome Davis, *Does One Size Fit All? Reflecting on Governance and North Sea Licensing Systems* (2004) Paper given at BC Offshore: Potential and Problems: A MASC Workshop for Lawyers March 18-21, 2004. British Columbia; and M Devaraj, 'Government Policies Concerning the Discovery and Development of New Offshore Oil Provinces, with Focus on India and the North Sea' (1983) 8 *Ocean Management* 251.

¹⁴⁹⁸ Jeffrey R Vincent, 'Resource Depletion and Economic Sustainability in Malaysia' (1997) 2 *Environment and Development Economics* 19.

¹⁴⁹⁹ This is signified by the Norwegian approach to petroleum production particularly in the 1970's. See Chapter 2 for an outline of the development of Norwegian Petroleum Policy, and Chapter three for a discussion on how Norway's petroleum policy has been successful in encouraging sustainable petroleum development. See Brent F. Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991) for a discussion of depletion policy.

¹⁵⁰⁰ This was apparent in the UK during the 1970's and 1980's, where rapid exploration and development was the mandate of the British government.

of the rate of petroleum production has varied over the last four decades, as the State strives to find a method to control production. It must be remembered that while a State may establish a policy that limits the rate of production, the implementation of such a policy may be difficult.¹⁵⁰¹ This may be attributable to geophysical factors related to the petroleum fields, economic constraints, or socio-political issues where the State may possess the ability to restrict production but declines to exercise that power.¹⁵⁰²

Australia, in line with its petroleum policy objectives, has embarked on a free market philosophy where the government does not expressly set the rate of production. Rather, the role of the government is confined to establishing macroeconomic policy, reducing commercial risk, and removing impediments to industry competitiveness.¹⁵⁰³ Whilst there is no government depletion policy relating to overall annual production rates or production rates for individual fields, there is the capacity for regulation of production. One of the primary means of regulating the depletion rate is through the licences awarded to petroleum companies.¹⁵⁰⁴

Government control over the award of petroleum licences gives an implied regulation over production rate. Australia conducts annual petroleum licencing rounds,¹⁵⁰⁵ where a mix of mature, under-explored and frontier regions are released.¹⁵⁰⁶ By providing a mix of acreage in differing phases of exploration,

¹⁵⁰¹ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 28.

¹⁵⁰² T Lind and G Mackay, *Norwegian Oil Policies* (1980), 28

¹⁵⁰³ Department of Resources, Energy and Tourism, *Release of Offshore Petroleum Exploration Areas Australia 2008: An Overview for Applicants* (2008) <http://www.ret.gov.au/Documents/acreagereleases/2008/site/page2.htm> at 12 June 2008, 10.

¹⁵⁰⁴ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 28.

¹⁵⁰⁵ For a detailed outline and analysis of the award of licences in Australia, see Chapter five.

¹⁵⁰⁶ Department of Resources, Energy and Tourism, *A Guide for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, 3.

the State is effectively staggering the number of fields that are likely to commence production, hence influencing the rate of production from Australian petroleum fields.

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPAGGSA) provides the legislative capacity to regulate the rate of depletion of petroleum fields in Australia. Section 189 of OPAGGSA enables the Joint Authority (JA) to direct rate of extraction so long as not contrary to good oilfield practice.¹⁵⁰⁷ In particular, s189 (1) enables the JA to direct the licensee to take all necessary and practical steps to increase or reduce the rate of petroleum recovery.¹⁵⁰⁸

In the early 1960's, the US oil major *Phillips*¹⁵⁰⁹ requested what the Norwegian government perceived as exclusive rights over exploration of the North Sea. The Norwegian government responded by delineating a clear position on the exploitation of its petroleum – handing over the natural resources on the Norwegian Continental Shelf (NCS) to a single company was out of the question.¹⁵¹⁰ From the outset, the Norwegian approach to petroleum production has been to control exploitation of petroleum. Under the Royal Decree of 9 April 1965 relating to *Exploration for and Exploitation of Submarine Petroleum Resources* (the 1965 Decree), the parliament had the right to 'issue regulations concerning the exploration for and exploitation of submarine resources.'¹⁵¹¹ The parliament also laid down rules for exploratory drilling and exploitation of petroleum resources under the North Sea.¹⁵¹²

¹⁵⁰⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2009), XXXVIII.

¹⁵⁰⁸ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) s189.

¹⁵⁰⁹ Now US oil major Conoco-Phillips.

¹⁵¹⁰ Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 18.

¹⁵¹¹ *The Royal Decree of 9 April 1965 relating to Exploration for and Exploitation of Submarine Petroleum Resources* (Norway).

¹⁵¹² Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 39.

The policy of government regulation of the rate of petroleum production in Norway was outlined in the 1974 Report to the Storting (the Norwegian Parliament) on petroleum production in Norway.¹⁵¹³ In its report to the Storting, the Norwegian Department of Finance outlined the need for government control over petroleum production, noting that

‘... democratically elected institutions must have full control over all important aspects of petroleum policy: exploration, rate of extraction safety measures and localisation... It is important to have public direction and control of the exploitation of petroleum resources’.¹⁵¹⁴

However, the Ministry also concluded that the rate of depletion should not be controlled once production had commenced, but rather by delaying the development of fields. The reasoning for this view was that ‘... the harsh climatic conditions on the shelf mean that individual fields must be exploited at a relatively rapid pace, before the installed equipment has to be renewed.’¹⁵¹⁵

The staggering of production from fields is facilitated by State regulation over petroleum activities, and participation in petroleum activities.¹⁵¹⁶ Throughout the 1970s, and to a lesser extent the 1980s, the Norwegian government used the award of licences in licencing rounds as a method for controlling production rates. This was especially implemented in the 1970s where there were only three licencing rounds in the decade.¹⁵¹⁷ As noted by Norway’s Prime Minister, ‘professors and so-called experts from other countries ask us to speed up oil

¹⁵¹³ Ministry of Finance, *Petroleum Industry in Norwegian Society* (1974) Storting Report No. 25, 1973-4.

¹⁵¹⁴ Ministry of Finance, *Petroleum Industry in Norwegian Society* (1974) Storting Report No. 25, 1973-4, 10.

¹⁵¹⁵ Ministry of Finance, *Petroleum Industry in Norwegian Society* (1974) Storting Report No. 25, 1973-4, 10.

¹⁵¹⁶ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 31.

¹⁵¹⁷ The third licencing round occurred in 1974, the fourth in 1978 and the fifth in 1979. See Norwegian Petroleum Directorate, *Annual Report, 1998* (1998), 114-5.

production, but we don't want it. The point is to be sensible and be careful.'¹⁵¹⁸ Today, this view is reflected in the *Petroleum Activities Act 1996* (Norway) (PAA), where 'prudent production' is required when conducting petroleum activities.¹⁵¹⁹

The control of exploration through the award of licence in the first two decades of Norwegian petroleum production was neither satisfactory nor successful in limiting petroleum production to the stipulated 90 million tonnes of oil equivalent (toe) per annum.¹⁵²⁰ However, the Norwegian government felt that the rate of production needed to be limited and evaluated, particularly on the basis of the Norwegian labour industry, regional policies, concerns for the environment, patterns of settlement, the energy situation in Norway and the rest of the world, and, importantly, what serves Norwegian society as a whole.¹⁵²¹ The 1980s saw the Norwegian government control rates of petroleum production through means other than the award of licences. The government attempted to implement a flexible approach to depletion through the regulation of investment in offshore activities rather than production levels.¹⁵²² This was facilitated by clauses in the petroleum laws that included the right to postpone the development of a petroleum field.¹⁵²³

This flexible approach to petroleum production attempted to maintain a moderate tempo of production. Ultimately, the policy of regulation of investment of offshore activities was not successful, partly as a result of intense

¹⁵¹⁸ Norwegian Prime Minister Trygve Bratelli to the *New York Times* in 1975. See Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002), 19-21.

¹⁵¹⁹ *Petroleum Activities Act 1996* (Norway), s4-1.

¹⁵²⁰ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 118-119.

¹⁵²¹ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 38.

¹⁵²² Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 118.

¹⁵²³ T Lind and G Mackay, *Norwegian Oil Policies* (1980), 39.

political jockeying for the right to develop a field.¹⁵²⁴ These policies did not succeed in maintaining the rate of petroleum production below 90 million tonnes oil equivalent. Total petroleum production has hovered around 250 million standard cubic metres per annum since the 1990s,¹⁵²⁵ when the production ceiling was lifted, although oil production is gradually decreasing as reservoirs age.

Today, Norway still exerts control over the rate of production from its Continental Shelf. However, rather than imposing a production ceiling,¹⁵²⁶ this control over production rate is exerted through a combination of the conditions of the award of a licence and the development of the field as a method for controlling production. The PAA enables the Ministry to require the ‘prudent production’ of petroleum resources,¹⁵²⁷ including the capacity to stipulate a production schedule¹⁵²⁸ other than those stipulated or approved upon the approval of the *Plan for Development and Operation* (PDO).¹⁵²⁹ In addition, the Norwegian State has the right to set conditions for the granting of petroleum production licence and for conducting petroleum activities based solely on the need to ensure that petroleum activities are carried out in a proper manner.¹⁵³⁰ This specifically includes the right to stipulate a production schedule or vary the

¹⁵²⁴ This difficulty was illustrated by the intense politicization of the development of the Haltenbacken fields (including Snorre, Brage, Oseberg North, Heidrun and Draugen fields). See Nelsen, 121-2 for a detailed discussion of the events, and Norwegian Petroleum Directorate, *Annual Report, 1998* (1998) for a discussion of the Haltenbacken resources.

¹⁵²⁵ Svein Gjedrum, *From Oil and Gas to Financial Assets – Norway’s government Pension Fun* (2008) Speech Given at the Commodities, the Economy and Money conference in Calgary, Canada 20 June 2008, http://www.norges-bank.no/templates/article_70345.aspx_qat_26_January_2009, 1.

¹⁵²⁶ Production ceiling was stipulated in the 1970’s and 1980’s, but was almost impossible to enforce due to economic, social and geophysical reasons. See Svein Gjedrum, *From Oil and Gas to Financial Assets – Norway’s government Pension Fun* (2008) Speech Given at the Commodities, the Economy and Money conference in Calgary, Canada 20 June 2008, http://www.norges-bank.no/templates/article_70345.aspx at 26 January 2009.

¹⁵²⁷ The *Petroleum Activities Act 1996* (Norway), s4-1.

¹⁵²⁸ The *Petroleum Activities Act 1996* (Norway), s4-4.

¹⁵²⁹ The PDO is required under s 4-2 of the *Petroleum Activities Act 1996* (Norway), and is discussed in detail in section 6.3.2 below.

¹⁵³⁰ *Petroleum Regulations 1997* (Norway), s11.

production rate,¹⁵³¹ in order to ensure that the petroleum resources are exploited in a manner that considers the long-term perspective of Norwegian society.

5.2.4 Regulation of depletion rate as tool for sustainable development of petroleum resources

The Norwegian experience has illustrated that the implementation of policies to reduce the rate of production were not as successful as desired. The reason for this included the international recession during much of the 1980s, the disintegration of the Norway's national incomes policy, and a failure to restructure the Norwegian industrial sector during this period.¹⁵³² As a consequence, the Norwegian strategy of regulation of production to control the influx of resource revenue and the potential effects of that revenue through a production ceiling of 90 million standard cubic metres of petroleum per annum was abandoned in the 1980s.¹⁵³³

In its place, the Norwegian State implemented a number of strategies to absorb the influx of huge volumes of petroleum revenue into the Norwegian economy, and reduce the risk of resource curse and Dutch disease.¹⁵³⁴ One of the most important was the creation of a sovereign wealth fund in 1990,¹⁵³⁵ as a tool to assist the Norwegian economy in coping with the influx of petroleum revenue,

¹⁵³¹ *Petroleum Regulations 1997* (Norway), s11.

¹⁵³² T Lind and G Mackay, *Norwegian Oil Policies* (1980), 41.

¹⁵³³ Svein Gjedrum, *From Oil and Gas to Financial Assets – Norway's Government Pension Fund* (2008) Speech Given at the Commodities, the Economy and Money conference in Calgary, Canada 20 June 2008, http://www.norges-bank.no/templates/article_70345.aspx qat 26 January 2009.

¹⁵³⁴ These strategies are comprehensively analysed in Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department.

¹⁵³⁵ This sovereign wealth fund is known as the Government Pension Fund – Global. It was formerly known as the Norwegian Petroleum Fund. For a discussion on the history of the fund see Sovereign Wealth Fund Institute, Norway (2009) <http://www.swfinstitute.org/fund/norway.php> at 12 April 2009, and Tore Eriksen, *The Norwegian Petroleum Sector and the Government Pension Fund – Global* (2006). http://www.regjeringen.no/upload/FIN/Statens%20pensjonsfond/The_Norwegian_Petroleum_Sector_te.pdf at 7 November 2009.

particularly in times of high oil market prices.¹⁵³⁶ This succeeded and today the fund is also used to shield the non-oil portion of the economy from oil price fluctuations.¹⁵³⁷

Another strategy is to regulate petroleum production from the fields on a macroeconomic scale, through the use of PDO's and the conditions of the award of licence.¹⁵³⁸ This is mainly to enable the State to optimise depletion of the fields in accordance with the government's policy of prudent production and wealth creation for Norwegian society.¹⁵³⁹ Given the unsuccessful Norwegian experience for the first fifteen years of petroleum recovery, it appears that regulation of the rate of petroleum recovery does little to contribute to the sustainable development of petroleum resources. Furthermore, strategies implemented by the Norwegian State over the last fifteen years, particularly a sovereign wealth fund, seem to have been successful in reducing the risk of resource curse and Dutch disease.¹⁵⁴⁰

The Norwegian experience, combined with reluctance by the Australian State to engage in regulation of petroleum extraction rates, indicates that State regulation of the rate of petroleum extraction would not encourage sustainable socio-economic development of Australia's offshore petroleum resources. Therefore, Australian government should not contemplate the use of State control over the rate of petroleum production as a tool for the sustainable development of petroleum resources.

¹⁵³⁶ Tore Eriksen, *The Norwegian Petroleum Sector and the Government Pension Fund – Global* (2006) http://www.regjeringen.no/upload/FIN/Statens%20pensjonsfond/The_Norwegian_Petroleum_Sector_te.pdf at 7 November 2009, 16.

¹⁵³⁷ Svein Gjedrum, *From Oil and Gas to Financial Assets – Norway's Government Pension Fund* (2008) Speech Given at the Commodities, the Economy and Money conference in Calgary, Canada 20 June 2008.

¹⁵³⁸ See *Petroleum Activities Act 1996* (Norway).

¹⁵³⁹ The management of petroleum extraction using PDOs is considered in section 6.3 below.

¹⁵⁴⁰ As analysed in Erling Røed Larsen, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department.

5.3 State regulation of petroleum extraction for sustainable development

5.3.1 Why should field production be regulated by the State?

1. Peak oil

The finite nature of petroleum resources has an impact on the recovery of petroleum from any field or geological province. Given the increased global demand for petroleum, and the corresponding increase in global production,¹⁵⁴¹ as well as the looming spectre of a possible peak oil scenario, it is sensible for both States and oil companies alike to recover the greatest amount of petroleum from producing fields.

The geologist Hubbert¹⁵⁴² long ago claimed that petroleum exploitation is finite, and follows a bell curve. Initially it rises, then flattens out, and finally declines.¹⁵⁴³ He termed this exploitation path ‘peak oil’, defining it as ‘the maximum rate of the production of oil in any area under consideration, recognising that it is a natural resource, subject to depletion.’¹⁵⁴⁴ Hubbert predicted that United States oil hegemony would cease in 1970, as petroleum demand surpassed production.¹⁵⁴⁵ Although many colleagues ridiculed this

¹⁵⁴¹ BP, *BP Statistical Review of World Energy: June 2009* (2009), 4-8.

¹⁵⁴² M King Hubbert, see <http://www.hubbertpeak.com/Hubbert/> at 12 December 2009.

¹⁵⁴³ M King Hubbert, *Nuclear Energy and the Fossil Fuels* (1956) Presented before the Spring Meeting of the Southern District Division of Production, American Petroleum Institute, Plaza Hotel, San Antonio, Texas, March 7-9, 1956 <http://www.hubbertpeak.com/Hubbert/1956/1956.pdf> at 14 December 2009, 8-11.

¹⁵⁴⁴ Colin Campbell, *What is Peak Oil?* (2006) Association for the Study of Peak Oil and Gas <http://www.peakoil.net/> at 8 November 2006.

¹⁵⁴⁵ M King Hubbert, *Nuclear Energy and the Fossil Fuels* (1956) Publication No. 95, Shell Development Company, Exploration and Research Division <http://www.energybulletin.net/print.php?id=13630> at 4 December 2006.

concept, Hubbert's predictions proved accurate, with US demand exceeding declining US production in 1973, thereby becoming and remaining a net petroleum importer.¹⁵⁴⁶ Furthermore, Hubbert predicted there would come a time where the world would have used 50% of its proved reserves, and begin the steady decline in production.¹⁵⁴⁷ His prediction was that a global oil peak would occur between 1995 and 2000, and it is possible that without the oil shocks in the last few decades of the 20th century, this would have occurred.

Whether global oil reserves are running out, and we are approaching or have arrived at peak oil is the subject of much controversy. Peak oil is a theory that is difficult to prove until it has occurred, since the peaking of oil cannot be predicted accurately, with the event only becoming clear through a 'rear-view mirror.' By then, an alternative or solution is too late.¹⁵⁴⁸ The relevance of peak oil theory is that it defines, to both governments and oil companies alike, the global importance of a resource that is finite in nature - finite in individual fields, petroleum regions, and globally. Certainly oil production from many fields, including Norwegian fields,¹⁵⁴⁹ demonstrates that oil recovery is flattening out and relatively few new fields are being found.¹⁵⁵⁰

¹⁵⁴⁶ Matthew Simmons, *Is the Glass Half Full or Half Empty?* (2003) Proc. 2nd International Workshop on Oil Depletion, Paris, France, May 26-27 2003.

¹⁵⁴⁷ Matthew Simmons, *Is the Glass Half Full or Half Empty?* (2003) Proc. 2nd International Workshop on Oil Depletion, Paris, France, May 26-27 2003.

¹⁵⁴⁸ Matthew Simmons, *Is the Glass Half Full or Half Empty?* (2003) Proc. 2nd International Workshop on Oil Depletion, Paris, France, May 26-27 2003.

¹⁵⁴⁹ Oil production has been declining from Norwegian fields for several years. Refer to production figures from Norwegian fields at <http://www.npd.no/en/news/Production-figures/> at 12 February 2010.

¹⁵⁵⁰ For statistics on world resources refer to BP, *BP Statistical Review of World Energy 2009* (2009) http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/2009_downloads/statistical_review_of_world_energy_full_report_2009.pdf at 12 February 2010.

2. Field sterilisation

Companies extract petroleum from individual fields, often with little knowledge of the overall aquifer or regional field structure, or rates of recovery from nearby fields. Extraction from one portion of a reservoir typically affects other sections of the reservoir. Therefore, it is necessary for a coordinated approach to reservoir depletion, to ensure maximum recovery.¹⁵⁵¹ This regional view is essential to ensure that reservoir development is coordinated by a body that has the regional data and technical knowledge to assess the development, as well as the authority to implement changes where required.¹⁵⁵²

Resource sterilisation occurs when individual companies develop fields on an individual basis, but the combined effect is to strand some petroleum in the reservoir.¹⁵⁵³ This petroleum is unable to be developed due to reservoir geology (often due to subsistence), access to the field, or access to facilities for development.¹⁵⁵⁴ Sterilised fields are challenging, requiring timely development of fields if it is to be avoided.¹⁵⁵⁵ If small discoveries and fields are located in existing production areas with large installations, it is possible that these small fields may be profitably produced. However, fields and installations have a ‘shelf life’. In particular, installations generally only have a field operating life of 20-30

¹⁵⁵¹ I refer to the excellent example provided by the West Australian Department of Mines and Petroleum in their submission to the Productivity Commission’s. See Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009.

¹⁵⁵² Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009.

¹⁵⁵³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 86.

¹⁵⁵⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 86.

¹⁵⁵⁵ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation* (2002), 17.

years, after which they need to be decommissioned and removed.¹⁵⁵⁶ In mature provinces, the fields and installations are towards the end of their life. If the development of small and stranded fields is to occur, it needs to take place whilst existing infrastructure is still functional. Otherwise, the infrastructure will be removed, and it will not be cost effective to develop small or stranded fields if new installations have to be constructed. If facilities are shared between participants with a common interest of extracting petroleum, the result is cost savings and increased earnings for companies since these small fields are produced at a profit. This also results in higher government revenue through taxes, thereby maximising the value of petroleum resources.¹⁵⁵⁷

3. The State as owner and regulator of petroleum resources

The State as resource owner has the right and obligation to regulate its petroleum resources for petroleum development. Therefore, the Australian government, as owner of Australia's petroleum resources is responsible for the management of Australia's petroleum resources in accordance with national interests.¹⁵⁵⁸ This management comprises many functions, including the allocation of secure title, managing timing and method of extraction, and ensuring appropriate return to the community for extracting non-renewable resources to the community through an appropriate taxation system.¹⁵⁵⁹

Although resource management is not defined in Australian petroleum legislation, the basis for State management of Australia's non-renewable

¹⁵⁵⁶ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 17.

¹⁵⁵⁷ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 911.

¹⁵⁵⁸ These national interests are articulated in Australia's petroleum policy, which is discussed in chapter 3.

¹⁵⁵⁹ Australia Productivity Commission, *Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector - Draft Report* (2008), 70.

resources arises from two sources.¹⁵⁶⁰ The first is the concept of sustainable development.¹⁵⁶¹ The second is a set of guidelines outlined by the Australian government in the annual *Overview for Applicants: Release of Offshore Petroleum Exploration Areas*, and the accompanying *Guidance Notes for Applicants: Release of Offshore Petroleum Exploration Areas*.¹⁵⁶² In the guidance notes for the grant of a production licence, the Australian State recognises that its sovereign rights over offshore petroleum resources confers a responsibility to ensure that present and future generations of Australians derive optimal benefit from the petroleum resources of the seabed beneath the Commonwealth's marine jurisdiction.¹⁵⁶³ In addition, the 2002 report *Managing Australian Mineral Wealth for Sustainable Economic Development*¹⁵⁶⁴ provides an analysis of how the Australian government needs to manage non-renewable resources in order to achieve sustainable development of those resources and Australian society in general.¹⁵⁶⁵

The Western Australian Department of Minerals and Petroleum (DMP) notes that the key reason for government management of petroleum resources is for the long-term benefit of the community, and not just private commercial benefit.¹⁵⁶⁶ The DMP includes efficient and equitable intergenerational benefit as key

¹⁵⁶⁰ A discussion on Australia's petroleum regulation and the use of administrative guidelines can be found in Chapter three.

¹⁵⁶¹ Australia's policy relating to the sustainable development of its petroleum resources is outlined in Chapter two.

¹⁵⁶² Department of Resources, Energy and Tourism, *A Guide for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009, Department of Resources, Energy and Tourism, *An Overview for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009.

¹⁵⁶³ Department of Industry, Resources and Tourism, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 7.

¹⁵⁶⁴ Ken Willett, *Managing Australian Mineral Wealth for Sustainable Economic Development* (2002).

¹⁵⁶⁵ Ken Willett, *Managing Australian Mineral Wealth for Sustainable Economic Development* (2002).

¹⁵⁶⁶ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009. 3.

requirements in the extraction of petroleum.¹⁵⁶⁷ Furthermore, the Western Australian government reiterates that the State has a mandate to ensure that the return from diminishing natural resources is optimised. This means balancing the outcomes between the public interest by maximising ultimate recovery to provide significant income through value creation, with industry's interests in maximising the net present value of Australia's petroleum resources and maximisation of profit.¹⁵⁶⁸

The resource management policy position of the DMP is analogous to that of the Norwegian government. Both see the role of the State as one of stewardship. What differs are the legal tools that are available to implement this stewardship role. Norway has a general legal competence to implement its manage field development. This particularly arises under the prudent production requirements of s4-1 of the PAA, as well as the capacity for the State to direct either joint petroleum activities,¹⁵⁶⁹ or direct companies to allow third parties to access or use their facilities to enable optimal production to occur.¹⁵⁷⁰ The Australian Commonwealth government has the legislative capacity to encourage joint production under a unit development agreement,¹⁵⁷¹ and the legislative capacity to direct third party access to infrastructure for the purpose of greenhouse gas activities.¹⁵⁷² However, there is no general legislative or administrative capacity for the Commonwealth to compel a company to provide third party access to facilities to increase petroleum recovery.

¹⁵⁶⁷ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 3.

¹⁵⁶⁸ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 3.

¹⁵⁶⁹ *Petroleum Activities Act 1996* (Norway), s4-7.

¹⁵⁷⁰ *Petroleum Activities Act 1996* (Norway), s 4-8.

¹⁵⁷¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s191.

¹⁵⁷² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s194.

4. Conflict between State and company goals

The relationship between the State that owns the petroleum resources and the private oil companies that have been awarded the proprietary rights to exploit those resources is difficult since each has different goals in the development of the petroleum,¹⁵⁷³ yet requires the participation of the other to accomplish their goals.¹⁵⁷⁴ Therefore the State balances the need to maximise the benefit to society from the development of those resources with the need to establish a regulatory framework that will enable the oil companies to realise their commercial goals.

Economic theorists support the view that government intervention is necessary for the development of petroleum resources. Economist Stiglitz notes that the most successful approaches to the management of natural resources has been where a State has decided to regulate the resource depletion, as well as participate in the extraction of the resources.¹⁵⁷⁵ These countries have learned the requisite skills from a range of oil companies, and used the knowledge to maximise the development of the petroleum for the benefit of the country.¹⁵⁷⁶ Furthermore, his analysis demonstrates that full privatisation has seen governments get the worst deal in realising the real value of the oil.¹⁵⁷⁷ In particular he notes that ‘Norway’s story is important, because it destroys the shibboleth that efficiency and welfare maximisation can be obtained only through privatization.’¹⁵⁷⁸ Control over extraction of a national asset (the petroleum) is given to a profit-maximising

¹⁵⁷³ The differences in the goals of the State and companies is considered in section 1.5.2 above.

¹⁵⁷⁴ Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 19.

¹⁵⁷⁵ Joseph Stiglitz, ‘What is the Role of the State’ in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 43.

¹⁵⁷⁶ Joseph E Stiglitz, ‘What is the Role of the State’ in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 43.

¹⁵⁷⁷ Joseph E Stiglitz, ‘What is the Role of the State’ in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 43.

¹⁵⁷⁸ Joseph Stiglitz, ‘What is the Role of the State’ in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 30.

private enterprise that seeks to minimise what they give the government for the right to extract the State's petroleum, returning the maximum to the shareholders in that private enterprise.¹⁵⁷⁹ This has the capacity to cause tension between the State and oil companies in the exploitation of petroleum. If the objective of the private oil companies is not being realised, or threatened in any way, it is possible that the oil company will withdraw from petroleum activities in that jurisdiction.

This creates difficulty for Australia since it has an active policy to attract international investment, and seeks to encourage and retain investment from international oil companies. Therefore, the goal of State regulation of field production should be to implement State petroleum policy objectives, and to achieve desired outcomes. It must be remembered that regulation is not just about realizing economic incentives. If one examines the Global Financial Crisis (GFC) that commenced in 2008, it is apparent that the lack of State regulation of banking and finance that was seen as economically efficient created havoc in the financial system.¹⁵⁸⁰

If the government were to extract the petroleum itself, without the assistance of oil companies, the government would regulate the extraction, as it would regulate any other government activity.¹⁵⁸¹ However, the government is compelled to utilise oil companies for the development of the resources, since it lacks the competence and necessary skills to develop the resources, and is reluctant to invest public capital into high-risk exploration ventures.¹⁵⁸² This desire to attract international oil companies is demonstrated by the Joint Authority's response to

¹⁵⁷⁹ Joseph Stiglitz, 'What is the Role of the State' in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 29-34.

¹⁵⁸⁰ United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009) [http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009.

¹⁵⁸¹ For example the regulation of media and broadcasting in Australia under the *Telecommunications Act 1997* (Cth) and the *Broadcasting Services Act 1992* (Cth), where the State participates as owner of the *Australian Broadcasting Commission (ABC)*.

¹⁵⁸² Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (1980), 19.

the default on the Cornea field by a Shell-Chevron Joint Venture ('Shell') in 1997.¹⁵⁸³ Shell took operatorship over blocks WA-265-P and WA-266-P in Western Australia, contiguous to the Shell-held Cornea structure in block WA-241-P.¹⁵⁸⁴ When the consortium defaulted on the primary work program, Shell and Chevron, in separate negotiations, concluded agreements with the then Australian government to maintain its good standing with the Commonwealth and West Australian governments, despite the cancellation of the licences. These agreements were subject to the completion of exploration work in areas not taken up in recent releases.¹⁵⁸⁵ The outcome of these negotiations then became embodied in legislation as part of an amendment to the PSLA in 2000. These legislative amendments enabled the JA to rank multiple applicants based on its opinion, and could exclude an applicant that is not deserving of the grant of an exploration permit.¹⁵⁸⁶ Both the acquiescence of the Australian government in enabling the Shell consortium to cancel the work program, and the legislative legitimisation of the good standing provisions, demonstrate the capacity of the Australian government as petroleum regulator to alter the regulatory framework to encourage commercial investment by international oil companies.

An effective regulatory framework is one that unites the divergent interests of the participants, creating a balanced relationship where each of the parties is able to fulfil their objectives. The divergent interests of these two parties are reconciled through the legal regulatory framework, which is established by the State to implement the policy objectives for the exploitation of petroleum. For Australia, that means that the regulatory framework should assist the government in the sustainable development of the petroleum resources whilst attracting overseas

¹⁵⁸³ For a detailed analysis of the Cornea field see section 4.3.2 above.

¹⁵⁸⁴ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 129.

¹⁵⁸⁵ David Maloney, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127.

¹⁵⁸⁶ Now embodied in s106 (2) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

investment. For the oil companies, the regulatory framework should assist in maximising profits.

It is important for States to periodically assess the effectiveness of the framework that manages the petroleum resources. Even countries such as Norway, which direct petroleum extraction from offshore fields, has evaluated and adjusted its system of regulation for petroleum resources.¹⁵⁸⁷ The State must be prepared to re-evaluate policies and regulatory framework to create the right incentives for enhanced resource development. As noted by the Norwegian MPE in 2002, ‘governments must be willing to consider whether established principles and the prevailing policy framework create the right incentives for enhanced value creation, and possibly adapt policies to ensure resources are not wasted’.¹⁵⁸⁸

The capacity of State regulation of petroleum extraction to maximise the socio-economic benefits from extraction has been modelled by the Norwegian government in its Storting report *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. In this report the Norwegian government modelled the likely recovery of petroleum from the NCS based on alternative scenarios, as illustrated in figure 6 below.

¹⁵⁸⁷ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 19.

¹⁵⁸⁸ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 19.

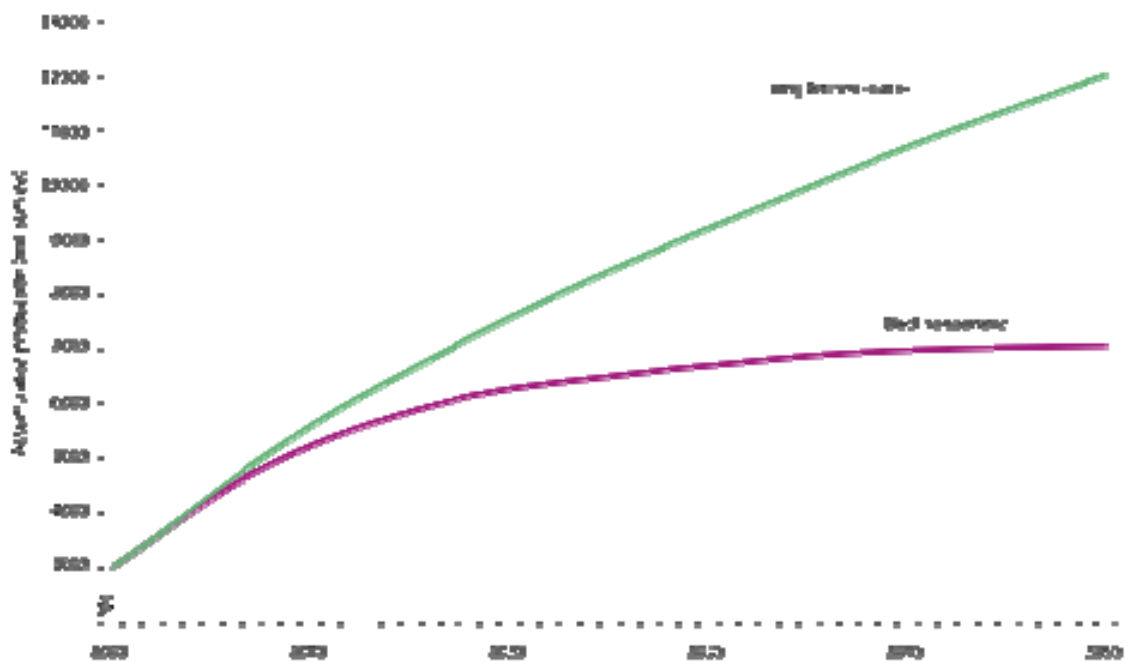


Figure 6: Two possible scenarios for the development of remaining petroleum resources on the Norwegian Continental Shelf (Source: Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation (2002)*, 9).

The decline scenario models the likely recovery of petroleum from the NCS utilising current trends in the regulation of petroleum activities on the NCS, where the extraction of petroleum is regulated by the activities and decisions of petroleum companies and the Norwegian State relies on current technological developments and regulatory framework. Both parties reap the returns made from investment, although there is a relatively rapid (20 years) decline of petroleum resources on the NCS, resulting in some sectors of the petroleum industry phased out during this period.¹⁵⁸⁹ A second scenario, the long-term scenario, models the likely petroleum recovery from the NCS under an aggressive, State regulated

¹⁵⁸⁹ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation (2002)*, 8.

framework of petroleum resource development governed by technological developments, skilling and enhanced expertise.¹⁵⁹⁰ This option requires the support of, and significant contributions from, companies and government, with both parties committed to efficient exploration of the remaining petroleum resources.¹⁵⁹¹ In addition, it relies on the development of future technologies to increase the recovery from fields, and to maximise the recovery from all reservoirs, ensuring that no field sterilisation occurs.¹⁵⁹²

The Norwegian government has embraced the long-term scenario. The principle behind this scenario is that major petroleum assets would otherwise be lost to the community if the government fails to exploit them while they have them.¹⁵⁹³ Economic modelling by the Norwegian government suggested that if the fields currently on stream on the NCS cease production in line with current *Plan for Development and Operations* (PDO), more than 31 billion barrels of oil will be left behind.¹⁵⁹⁴ The Norwegian State reiterates that these resources can be recovered through the development of new recovery techniques and the State directed requirement of the use of IOR techniques should occur. Furthermore, the Norwegian State has directed all participants that maximum recovery from the use of IOR techniques is required as part of each fields' PDO.¹⁵⁹⁵

The Norwegian government sees its role as driving the recovery of the resources it owns through an extraction policy that is premised on sustainable extraction,

¹⁵⁹⁰ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 8.

¹⁵⁹¹ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 8.

¹⁵⁹² Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 8.

¹⁵⁹³ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 9.

¹⁵⁹⁴ Norwegian Petroleum Directorate, 'Recovering Progress on IOR' (2008) 2 *Norwegian Continental Shelf* 9, 10.

¹⁵⁹⁵ For an example of this refer to the development plans for Ekofisk II (1997) and Ekofisk Growth (2003) available at <http://www.npd.no/engelsk/cwi/pbl/en/field/all/43506.htm> at 12 November 2009.

where the most petroleum possible is extracted from a field, rather than what is commercially viable for an oil company. This enhanced recovery has both policy perspectives as well as practical applications, including technology, field development and market conditions. This assessment of alternative development scenarios undertaken by Norway demonstrates that it is profitable for the State to control the extraction of petroleum. In monetary terms, the difference between revenue derived from the value creation from the long-term scenario and the decline scenario has been estimated to be 2000 billion NOK.¹⁵⁹⁶ The realisation of the improved oil recovery scenario is difficult and expensive, requiring the development and use of new technologies, with the partnership between government and industry crucial.¹⁵⁹⁷

Should the Australian government wish to accomplish its stated policy goals of *creating a policy framework to expand Australia's resource base*,¹⁵⁹⁸ it needs to direct the method of extraction. The net benefit will be the greater recovery of petroleum resources that will provide revenue for the government and oil companies alike. It will cost money to realise these resources, however evidence from the NCS shows that it will also provide net benefits. The key reason for loss of revenue, Stiglitz notes, is because governments rely on private sector companies to extract their resources.¹⁵⁹⁹ These companies have the goal to maximise their revenues, and to minimise those accruing to the country. This results in an inevitable conflict of interest. Furthermore, Gao notes that international petroleum agreements are the product of a single-minded pursuit of narrow commercial interests. They are not designed to encourage sustainable

¹⁵⁹⁶ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 8. Note that 2000 billion NOK converts to approximately AU\$550 billion.

¹⁵⁹⁷ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 8.

¹⁵⁹⁸ As articulated in Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999).

¹⁵⁹⁹ Joseph Stiglitz, 'What is the Role of the State' in Macartan Humphreys, Jeffrey D Sachs and Joseph E. Stiglitz (eds), *Escaping the Resource Curse* (2007), 23.

development, but rather to rapidly exploit the petroleum resources.¹⁶⁰⁰ Hence, the challenge for the Australian government is to attract and retain oil companies to exploit petroleum resources, but also maximise its return.

5.3.2 How can field depletion be regulated for sustainable development?

State control over reservoir depletion and coordination of aquifer development

A major challenge in mature areas is that the expected sizes of discoveries are declining.¹⁶⁰¹ Some jurisdictions with mature areas have identified not only the importance of discovering and developing the petroleum resources in these areas before existing infrastructure in connection to other fields is shut down, but also see a need for government coordination of the development of mature petroleum fields.¹⁶⁰² Government coordination in these areas is especially important, since small discoveries often cannot justify a standalone development, but can be profitable with a tie-in to existing facilities. Therefore, government coordination is required to tie these developments to major installations, including auxiliary resources such as pipelines, storage facilities and land-based terminals.¹⁶⁰³ Third party access to facilities and tie-in of production has been a feature of many fields on the NCS. In particular, the northern North Sea fields of Gullfaks A, B, and C,

¹⁶⁰⁰ Zhiguo Gao, 'International Petroleum Exploration and Exploitation Agreements: A Comprehensive Environmental Appraisal' (1994) 12 *Journal of Energy and Natural Resources Law* 240, 248.

¹⁶⁰¹ Oil Voice, *Norwegian Government Announces APA 2009 Awards* (2010) http://www.oilvoice.com/n/Norwegian_Government_Announces_APA_2009_Awards/5a49b6c49.aspx at 24 February 2010.

¹⁶⁰² For instance in Norway. See the discussion regarding State control and access to third party facilities for oil and gas production in Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 909-912.

¹⁶⁰³ Similar to what is being required by the Norwegian Government as its Norwegian Continental Shelf fields mature. Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation* (2002). 17-18. See also the legislative requirements for third party access to production facilities: Petroleum Activities Act 4-8.

Gullfaks Sør and Gimle have integrated processing and accommodation facilities, and are also involved in production and transport of petroleum from the Tordis, Vigdis and Visund fields.¹⁶⁰⁴

Mature fields and declining production is a well-recognised problem in the mature provinces of the NCS, where over half of the known oil reserves have been extracted from the NCS.¹⁶⁰⁵ This decline in resources and production creates the likelihood that field sterilisation or production from these fields will be phased out unless special measures are adopted.¹⁶⁰⁶ These measures are both technical and administrative, since the Norwegian government sees itself as playing a pivotal role in the solution to resource sterilisation. In particular, the Norwegian government sees the need to harmonise and coordinate the use of existing facilities to ensure third party access to required facilities for the development of small or stranded fields.¹⁶⁰⁷ To facilitate third party access, the NPD regulates access to facilities.¹⁶⁰⁸ One of the major problems with petroleum production is that some fields, which were developed in the 1970s – 1990s, have ceased production but still have substantial resources remaining that were not able to be recovered at the time the field was developed. Improvements in petroleum recovery technology mean that additional petroleum can now be recovered from a field.

¹⁶⁰⁴ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 107.

¹⁶⁰⁵ To the end of 2009 the total sum of production from the Norwegian Continental Shelf 5.3 billion Sm³ oil equivalents (o.e.) have been produced. 82 discoveries and almost 289 projects for increased recovery from fields in production, along with approved projects, results in a portfolio of 4.8 billion Sm³ o.e. of remaining, proven resources. See <http://www.npd.no/en/news/News/2010/The-shelf-in-2009/The-shelf-in-2009---The-resource-accounts/> at 24 February 2010.

¹⁶⁰⁶ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002), 19.

¹⁶⁰⁷ Ministry of Petroleum and Energy, *On the Petroleum Activity: Report no. 38 to the Storting (2004)*. Unofficial English Translation (2004), 5.

¹⁶⁰⁸ Third party access to facilities is regulated by the *Regulations Relating To The Use Of Facilities By Others. Laid Down By The Ministry Of Petroleum and Energy On 20 December 2005 Pursuant to Section 10-18, First Paragraph, and Section 4-8 of the Act of 29 November 1996 No. 72 Relating to Petroleum Activities and Section 86 of the Regulations of 27 June 1997 No. 653 to The Petroleum Activities Act 1996* (Norway). See <http://www.npd.no/en/regulations/regulations/facilities---use-by-others/> at 19 February 2010.

The Norwegian State has determined that access to larger parts of mature areas is critical, so that time-critical resources¹⁶⁰⁹ can be rapidly explored and produced.¹⁶¹⁰ To facilitate the extraction of oil in these provinces, the Norwegian Government implemented a policy shift regarding licencing in mature areas, introducing in 2003 a scheme for the annual award of production licences in predefined areas (APA) in mature areas of the NCS.¹⁶¹¹ The system is based on the designation of large, predefined exploration areas that encompass all mature areas on the NCS, and these areas will continue to be expanded as more areas on the NCS mature.¹⁶¹² The APA system enables the award of a licence over a mature province (either old oil fields or small stranded fields in the province) that has already produced petroleum, using existing infrastructure while it still remains - sort of an oily ‘picking over the bones.’¹⁶¹³ This is to ensure that areas close to existing and planned infrastructure are fully developed,¹⁶¹⁴ by utilising existing infrastructure and ensuring production from time-critical acreage in mature areas. This contributes to sound utilisation of production and transport capacity of the NCS whilst at the same time ensuring that the recovery from these mature fields is optimised by utilising existing facilities and infrastructure.¹⁶¹⁵

¹⁶⁰⁹ Time critical resources are those that require imminent development before existing facilities are decommissioned.

¹⁶¹⁰ Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 33.

¹⁶¹¹ Ministry of Petroleum and Energy, *On the Petroleum Activity: Report no. 38 to the Storting (2004). Unofficial English Translation* (2004).

¹⁶¹² Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 33.

¹⁶¹³ The purpose of the APA-rounds is to enhance exploration activities in mature areas, where expectations are smaller discoveries that cannot justify an independent development. It is therefore good resource management to discover and develop these resources before existing infrastructure in connection to other fields are shut down. APA-rounds are also considered important to enhance exploration activities and employment in the industry and supply industry.

¹⁶¹⁴ Norwegian Petroleum Directorate, *Production Licence – Licence to Explore, Discover and Produce* (2008) http://www.npd.no/English/Emner/Ressursforvaltning/Undersokelse_og_leting/Konsesjonsrunder/2008_10_17_Utvinningsloyve.htm at 26 January 2009.

¹⁶¹⁵ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, ‘Energy Law in Europe’, in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 899.

Some Australian regulators claim the need for government intervention in field extraction. The Western Australian Department of Mines and Petroleum (DMP) is one such regulator,¹⁶¹⁶ clearly articulating what it sees as the role of the regulator in the regulation of field development:

In particular, the aquifer depletion example demonstrates that while industry may well have superior technical resources, Government agencies are better placed in terms of regional technical knowledge with unlimited access to regional data needed to regulate matters on a wide geographic basis. This enables Government to appropriately manage resources to encapsulate potential public good spillovers or externalities. Such issues are beyond the individual operator's control or interest.¹⁶¹⁷

Aquifer depletion has occurred in a number of mature oil producing regions including the Dampier and Barrow Sub-Basins in Western Australia, the Northern Territory and Victoria. As these aquifers finite, their depletion can lead to a drop in pressure in a region, with a subsequent loss of oil in yet to be discovered or developed hydrocarbon fields.¹⁶¹⁸ The view of DMP is that the government role as regulator needs to coordinate aquifer depletion, since aquifer management is beyond an individual operator's control. DMP has been a pioneer in this issue, initiating and commissioning three studies on the Dampier and Barrow Sub-Basins to quantify the oil loss in Western Australian Basins. These studies have shown that in Western Australia, up to 770 million barrels of oil and around four billion dollars in royalties could be foregone by 2030 if aquifer

¹⁶¹⁶ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 3-4.

¹⁶¹⁷ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 4.

¹⁶¹⁸ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 4.

depletion continues unabated. The issue has also been specifically raised by the Western Australian and Commonwealth governments in relation to the impact that the Pluto development will have on the neighbouring Wheatstone gas field, as both share the same aquifer.¹⁶¹⁹ Whilst there have been a number of studies relating to the likely loss due to the need for aquifer regulation, there has been little legislative response by Western Australia, since the regulation of petroleum activities in these basins occurs through OPAGGSA, and requires Commonwealth legislative change to direct field depletion.

The Western Australian government has also noted that condensate production from an offshore Western Australia LNG project will lose 24 million barrels of condensate without government intervention, due to the method of recovery of the gas, and reservoir pressure.¹⁶²⁰ Not only will this encourage field sterilisation and less than optimal recovery, but represents a loss of State resources valued at between \$1 billion and \$2 billion, depending on oil prices.¹⁶²¹ The DMP recognises that State intervention in the regulation of petroleum production is critical to ensure the sustainable development of Australia's petroleum resources.

Contribution of geological data

One of the major difficulties in State regulation of petroleum fields to maximise the recovery of petroleum is the collation and analysis of petroleum data. Regulation of petroleum field production is reliant upon an analysis and interpretation of data from the petroleum fields. In Norway, all data is provided

¹⁶¹⁹ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 4-5.

¹⁶²⁰ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009, 3.

¹⁶²¹ Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009 4.

to the NPD,¹⁶²² which collates and analyses field data to determine the condition of a field and then recommend a method of recovery or plan of action for the aquifer. All companies are required to submit an Annual Status Report (ASR) for fields in production to the Norwegian Petroleum Directorate (NPD) by 1 November of each year, in accordance with section 47 of the PR and Section 29 of the *Resource Regulations 1997* (Norway).¹⁶²³ The ASR forms the basis for the NPD's evaluation of whether a field is operated in accordance with the preconditions in the regulations.¹⁶²⁴ These preconditions stipulate that production must take place in such a way that the maximum volume of petroleum in the deposits is produced, ensure production conforms to prudent technical and financial principles, and ensure recovery is accomplished so as to avoid the loss of petroleum or reservoir energy as required under section 4-1 of the PAA.¹⁶²⁵ The report is required to describe relevant plans and possible measures for optimal recovery during the remaining lifetime of the field.¹⁶²⁶

The present regulatory framework in Australia for the reporting of production data for the regulation of field production is shared between Commonwealth and state bodies. This split of regulatory functions between the states and the Commonwealth creates regulatory burden,¹⁶²⁷ and duplicates reporting

¹⁶²² The NPD has this capacity as one of its main objectives. See <http://www.npd.no/en/About-us/Collaboration-projects/> at 12 February 2010.

¹⁶²³ Norwegian Petroleum Directorate, *Guidelines for Annual Status Report for Fields in Production* (2009) <http://www.npd.no/en/Reporting/Production/> at 22 February 2010, 1.

¹⁶²⁴ Norwegian Petroleum Directorate, *Guidelines for Annual Status Report for Fields in Production* (2009) <http://www.npd.no/en/Reporting/Production/> at 22 February 2010, 1.

¹⁶²⁵ Norwegian Petroleum Directorate, *Guidelines for Annual Status Report for Fields in Production* (2009) <http://www.npd.no/en/Reporting/Production/> at 22 February 2010, 1.

¹⁶²⁶ Norwegian Petroleum Directorate, *Guidelines for Annual Status Report for Fields in Production* (2009) <http://www.npd.no/en/Reporting/Production/> at 22 February 2010, 1.

¹⁶²⁷ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009) <http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009, 227-269.

requirements.¹⁶²⁸ Not only are oil companies required to report field production data to multiple agencies,¹⁶²⁹ but there is no one centralised agency which collates and analyses this production data. In order for government regulation of petroleum resources to occur in Australia, there would be a need for a single national offshore petroleum regulator that would collate all data relating to field production.¹⁶³⁰

A single regulatory body would not only reduce duplication of regulation but could also undertake the analysis of data from petroleum producing fields in Australia. The establishment of a new national regulator should incorporate a PIAF-type system¹⁶³¹ of field data accumulation and analysis. This would allow the State the capacity to analyse recovery rates from fields and direct IOR techniques to those fields with lower recovery rates or difficult geology. The Australian government is in a unique position as resource owner and regulator. They have the regional knowledge (through the Geoscience Australia petroleum geology database), expertise, incentive and the authority to coordinate the efforts of individual companies to optimise the recovery of oil resources.

¹⁶²⁸ This has issue of duplication of reporting has been identified by major oil companies and the peak industry body APPEA in response to the productivity Commission's request for submissions. For example Woodside, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 11 http://www.pc.gov.au/data/assets/pdf_file/0008/85985/subdr011.pdf at 17 October 2008, 2.

¹⁶²⁹ For example Woodside was required to report field data to Federal, State and Northern Territory governments for 2007 and 2008 seismic data. See Woodside, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 11 http://www.pc.gov.au/data/assets/pdf_file/0008/85985/subdr011.pdf at 17 October 2008, 2.

¹⁶³⁰ This issue of a central administrative body for sustainable socio-economic development of Australian petroleum is addressed in section 3.4 above.

¹⁶³¹ A PIAF-type system sets *performance indicators analysis for fields* (PIAF), and then uses this accumulated field data to analyse the recovery of oil fields. For a consideration of the PIAF system in Norway see Gunnar Berge, *The Working Relationship Between the Authorities and the Industry* (2007) http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_GUNNAR_BERGE.pdf at 12 November 2009, and Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 43.

Appointment of the operator

The role of the operator is crucial in the development of oil and gas resources. An important condition in the award of petroleum licences in Norway is the capacity of the State to appoint or approve the operator of the Joint Venture Agreement (JVA).¹⁶³² The operator has a legal obligation under the JOA to act on behalf of the other participants of the joint venture to ensure that all necessary consents, approvals, and licences are obtained for the petroleum activities undertaken. The operator not only carries out the day to day management of the field,¹⁶³³ but prepares and submits all necessary logs, reports and records. In addition, the operator has the right and obligation to obtain all necessary consents, approvals and licences, and to enter into requisite agreements in the name and on behalf of the JV for the purposes of the petroleum activity.¹⁶³⁴ The operator has a duty to act on behalf of the other parties without gaining a profit from his operatorship.¹⁶³⁵ Generally, but not always, the operator has a substantial percentage interest in the licence.¹⁶³⁶

The operator is selected by the State because of the companies' demonstrated capacity to lead the exploration and production of petroleum from that particular field. The State selects the operator based on what is best for the interests of the Norwegian society rather than for the best interests of the company, since the operator on a Norwegian field is expected to not only conduct the joint operations that have been approved by the management committee, but also to take the

¹⁶³² As stipulated in section 3-7 of the *Petroleum Activities Act 1996* (Norway).

¹⁶³³ Art. 3.1, *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway).

¹⁶³⁴ Art. 3.2 of the *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway)

¹⁶³⁵ Art. 3.2, *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway).

¹⁶³⁶ Michael B Taylor and Sally M Tyne, *Taylor and Windsor on Joint Operating Agreements* (1993), 1.

initiative in proposing the operations to be carried out.¹⁶³⁷ The State also has to approve a change of operator, or to change the operator.¹⁶³⁸

By selecting the composition of the joint venture and selecting the operator, the Norwegian State is able to unite technical capabilities and skills with financial backing to develop the field. This is also important since no two petroleum fields are the same, each having a unique geology and presenting challenges in maximising production. The State utilises the technical expertise of smaller specialised companies but also the economic security of majors companies in order to accomplish the optimal extraction of petroleum for that field. This is important, since some fields may require exceptionally specialised extraction methods or technologies that only certain companies can provide. The technical challenges of the unusual chalky reservoirs of Ekofisk provide a clear example of how unique geologies require unique engineering solutions to ensure maximum recovery of petroleum from the reservoir.¹⁶³⁹

The operatorship of a field also provides many benefits for a company. Given the expectation that the operator will show initiative in extracting as much petroleum as possible, it provides the operating company with the capacity to develop and test new technologies that will enhance the recovery of petroleum. This effectively provides a company with extremely cheap research and development opportunities, since all expenses relating to the joint venture are paid by the joint venturers on a pro rata basis according to their participating interest.¹⁶⁴⁰

Effectively, the selection or approval of the operator by the State assists a State in meeting the technological and commercial challenges associated with the

¹⁶³⁷ Michael B Taylor and Sally M Tyne, *Taylor and Windsor on Joint Operating Agreements* (1993), 3.

¹⁶³⁸ As stipulated in section 3-7 of the *Petroleum Activities Act 1996* (Norway).

¹⁶³⁹ T. B Jensen, K J Harpole and A Oosthus, *EOR Screening for Ekofisk* (2000) Society of Petroleum Engineers Paper SPE 65124, 1-2.

¹⁶⁴⁰ See Art. 8.1, *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway).

sustainable development of petroleum resources in two ways. Firstly, it ensures that the company best suited to developing the field is appointed as operator so that the technical expertise can be effectively utilised. Secondly, it encourages technological innovation and skilling, since the operator is not required to develop new or requisite technology from its own coffers. Rather, as operator, the research and development (R&D) costs are largely covered by all of the JV parties where the expenses are for the petroleum activities in that field.¹⁶⁴¹

State regulation of petroleum extraction

At a minimum, the State exerts legislative control over the development of a field through the award of a production licences. In most jurisdictions, including Australia, the USA, the United Kingdom, the State exerts control over field development by ensuring that the licensee has met all statutory requirements for environmental and other considerations.¹⁶⁴²

For many petroleum producing countries, such as Australia, that is where State control ends. Production licences are granted subject to appropriate conditions relative to safety, resource management, protection of the environment and native title.¹⁶⁴³ An applicant for a production licence is required to submit a notice outlining the nature of the proposed development, the method of operation and its environmental impact as part of the field development plan.¹⁶⁴⁴ The field development plan provides a production overview of the plan for production, describing the essential features of the proposed development, including reservoir

¹⁶⁴¹ *Norwegian Petroleum Directorate, Joint Operating Agreement* (Norway).

¹⁶⁴² Other considerations may include navigation and maritime safety, heritage protection, fishing activities, defence activities submarine telecommunication cables and insurance requirements.

¹⁶⁴³ Western Australian Department of Industry and Resources, Petroleum and Royalties Division, *Administration of Petroleum Titles in Western Australia and Adjacent Offshore Areas* (2008) http://www.doir.wa.gov.au/documents/Admin_of_Pet_Titles_WA_Adjacent_Offshore.pdf at 27 October 2008.

¹⁶⁴⁴ Western Australian Department of Industry and Resources, Petroleum and Royalties Division, *Administration of Petroleum Titles in Western Australia and Adjacent Offshore Areas* (2008) http://www.doir.wa.gov.au/documents/Admin_of_Pet_Titles_WA_Adjacent_Offshore.pdf at 27 October 2008.

information and modelling, drilling methods, project schedule and reservoir management and development.¹⁶⁴⁵ Once the petroleum licence has been granted, the oil companies have full control over the depletion of the field. Furthermore, once production has commenced the State has the legislative capacity to regulate production only in relation to environmental matters.¹⁶⁴⁶

Petroleum production in Australia is regulated by Part 2.4 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) as associated regulations. Together, these stipulate how production licences can be granted, the period of the production licence, and the renewal of production licences.¹⁶⁴⁷ Recovery of petroleum from a field is regulated by sections 189 and 190 of OPAGGSA. Section 189 enables the JA to direct a licensee to recover petroleum from a production licence area.¹⁶⁴⁸ This direction can occur at the commencement of production,¹⁶⁴⁹ essentially establishing the right of the State to direct the licensee to take all necessary and practical steps to recover the petroleum.¹⁶⁵⁰ There is also the provision under s189 (2) of the OPAGGSA for the Commonwealth to direct the licensee to take steps the JA thinks necessary and practicable for, or in relation to, the recovery of petroleum in the licence area.¹⁶⁵¹ This further direction can only be given where there is a direction in force from the outset, and the JA is not satisfied with the steps taken by the licensee to recover the petroleum.¹⁶⁵²

¹⁶⁴⁵ Department of Industry, Tourism and Resources, Resources Division, *Offshore Petroleum Guideline for Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 22-26.

¹⁶⁴⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s161.

¹⁶⁴⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth)

¹⁶⁴⁸ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189 (1).

¹⁶⁴⁹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189.

¹⁶⁵⁰ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189.

¹⁶⁵¹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189 (2).

¹⁶⁵² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189 (2).

In practice, the JA does not stipulate petroleum recovery from the outset. Rather, offshore petroleum in Australia is recovered using good oilfield practice (GOP) as a guide of how the recovery of the petroleum should proceed. Broadly, GOP is defined as ‘practices that are generally accepted in the international oil industry as being good, safe and efficient in the carrying out of exploration, or as the case may be, development operations that an experienced reasonable and prudent operator engaged in similar activity under similar circumstances would use.’¹⁶⁵³ Bunter notes that definition of GOP is ambiguous and is somewhat negative in application.¹⁶⁵⁴ He points out that it is hard to determine what practices do conform to GOP. Furthermore, Bunter sees a need for rigorous standards to determine what GOP is and promote GOP in oilfield operations.¹⁶⁵⁵

Good oilfield practice is defined in OPAGGSA¹⁶⁵⁶ to be ‘all those things that are generally accepted as good and safe in the carrying on or exploration for petroleum or petroleum recovery operations.’¹⁶⁵⁷ In the context of OPAGGSA, GOP is concerned with all things ‘good and safe’ for the operation of petroleum operations. It fails to encompass optimal resource extraction for value creation for a community and the optimisation of petroleum production to ensure the sustainable development of a State’s resources. Rather, it is concerned with the physical aspects of production – the process of extracting the resource safely and without damage to the environment in the most economically efficient manner.

The Commonwealth has a role in regulating the management of the resources to ensure that the recovery of petroleum is carried out in accordance with good oilfield practice, in a way that is compatible with the long-term recovery of the

¹⁶⁵³ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 309.

¹⁶⁵⁴ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 309.

¹⁶⁵⁵ Michael Bunter, *The Promotion and Licencing of Petroleum Prospective Acreage* (2002), 309.

¹⁶⁵⁶ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s6.

¹⁶⁵⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s7.

resource.¹⁶⁵⁸ To fulfil these roles, the definition of good oilfield practice in section 7 of OPAGGSA needs to be expanded to encompass field recovery rates and optimize recovery for the benefit of the community. At present the definition of GOP only covers good and safe operations rather than the optimisation of recovery of petroleum from fields. Until this occurs, GOP as a yardstick for resource management will fail to assist Australia in meeting national petroleum objectives.

Australia has the legislative provision to direct the recovery of petroleum¹⁶⁵⁹ to satisfy its objectives of sustainably producing its petroleum reserves. Yet it chooses not to, instead relying upon the vague qualification of GOP to direct oil companies in the production of petroleum. Why the JA chooses not to direct the companies to perform certain activities, rather relying on GOP to determine the recovery of petroleum by oil companies is perhaps attributable to historic attitudes of minimal State regulation of company activities.

For some jurisdictions, such as Norway, the State regulates all matters related to the production of petroleum to enable the State to accomplish its petroleum policy objectives. Although the award of a petroleum licence confers rights upon the licensee, the subsequent activities of the licensee are subject to government regulation and control,¹⁶⁶⁰ since the PAA confers upon the State a broad capacity to control all important aspects of the development under the ‘prudent production’ requirement.¹⁶⁶¹ In addition, the petroleum regulations relating to the

¹⁶⁵⁸ Department of Industry, Tourism and Resources, *Report on the Consolidation of Regulations under the Petroleum (Submerged Lands) Act 1967* (2007), 24.

¹⁶⁵⁹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189 (2).

¹⁶⁶⁰ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, ‘Energy Law in Europe’, in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 890.

¹⁶⁶¹ *Petroleum Activities Act 1996* (Norway), s 4-1.

mandatory PDO contain extensive requirements as to the contents of the Plan,¹⁶⁶² ensuring the State is able to control the recovery of the petroleum, particularly the method of recovery.¹⁶⁶³

The legislative capacity of the Norwegian government to direct petroleum operations is conferred under the PAA and the *Petroleum Regulations 1997* (Norway) (PR). Section 1-2 of the PAA stipulates that the management of Norwegian petroleum resources be in a long-term perspective for the benefit of the Norwegian society as a whole. This broad legislative requirement is coupled with the prudent production requirements of s4-1 of the PAA. Together these give the State a wide scope and high level of discretion to direct petroleum activities to ensure that petroleum production occurs for the best interests of the State. Furthermore, express legislative provisions enable the State to regulate production schedule,¹⁶⁶⁴ postpone development of a field,¹⁶⁶⁵ and direct third party access to facilities.¹⁶⁶⁶

These legislative provisions are supported by broad petroleum regulations, especially section 11 of the PR. Under these regulations, the conditions for granting a licence and conducting petroleum activities are based solely on the need to ensure that petroleum activities are carried out in a proper manner. This proper manner provision includes considerations for national security, public order, public health, transport, safety, protection of biological resources and

¹⁶⁶² Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 890, and *Petroleum Regulations 1997* (Norway), s16-30.

¹⁶⁶³ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen, and Nygard Dagfinn, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 890.

¹⁶⁶⁴ *Petroleum Activities Act 1996* (Norway), s4-4.

¹⁶⁶⁵ *Petroleum Activities Act 1996* (Norway), s 4-5.

¹⁶⁶⁶ *Petroleum Activities Act 1996* (Norway), s 4-8.

national treasures, systematic resource management or the need to ensure fiscal revenues.¹⁶⁶⁷

In both the Australian and Norwegian jurisdictions, the production of petroleum requires the approval of a field development plan (FDP). This plan is essentially an outline of the licensee's plan for the development of a petroleum field, and is used in both the Australian and Norwegian jurisdiction for that purpose.

In Australia, the operator is required under OPAGGSA¹⁶⁶⁸ to apply for a production licence for the commercial production of petroleum.¹⁶⁶⁹ The licensee is required to produce a *preliminary field development plan* as part of the consultative process for the JAs approval of the production licence and associated infrastructure requirements.¹⁶⁷⁰ After approval of the *preliminary field development plan*, and in consultation with the government, a *finalised field development plan* is submitted to facilitate formal field approval requirements. The granting of the production licence confers production rights on the licensee.¹⁶⁷¹ If a licensee wishes to change a FDP, it is required to seek the approval of the relevant bodies in accordance with OPAGGSA.¹⁶⁷²

Government regulation of petroleum extraction in Australia is essentially a linear process. Upon approval of a FDP and the commencement of petroleum extraction, the JA has no statutory authority or contractual capacity to alter the

¹⁶⁶⁷ *Petroleum Activities Regulations, 1997* (Norway), s 11.

¹⁶⁶⁸ Required under s169 of *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

¹⁶⁶⁹ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s169.

¹⁶⁷⁰ Department of Industry, Tourism and Resources, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002), 8.

¹⁶⁷¹ See s170 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

¹⁶⁷² *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s168 (4) and (5)

terms of the FDP.¹⁶⁷³ Essentially, this means that once a FDP has been negotiated and approved, and the production licence conferred, the oil company has total control over the method of extraction of petroleum from the field, presuming it complies with environmental requirements and operates within the conditions of the grant of a production licence. Government intervention only occurs if the oil company fails to comply with the statutory requirements relating to defence, shipping and the environment.

In Norway, the grant of a production licence confers the right to exclusive exploration activities, including the drilling of test well. It does not automatically confer the right for production (similar to the Australian exploration licence). The commencement of production rests upon the approval of a PDO.¹⁶⁷⁴

When a new deposit is to be developed, the oil company must submit a PDO for approval.¹⁶⁷⁵ Petroleum production must be conducted in accordance with the *prudent production* concept, encompassing the use of appropriate technologies and sound economic principles, to ensure that as much of the petroleum resources are recovered.¹⁶⁷⁶ To that end, the PDO must contain an account of the economic, resource, technical, commercial and environmental aspects of the production, as well as decommissioning and disposal of the installation once production has ceased.¹⁶⁷⁷ Where production is planned in two or more stages, the plan must, as

¹⁶⁷³ Section 189-90 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) are only available to the JA to regulate the recovery of petroleum where the JA has made an initial direction for the recovery of petroleum.

¹⁶⁷⁴ *Petroleum Activities Regulation 1997* (Norway), s20-24.

¹⁶⁷⁵ Norwegian Petroleum Directorate, *Guidelines To Plan For Development And Operation Of A Petroleum Deposit (PDO) And Plan For Installation And Operation Of Facilities For Transport And Utilisation Of Petroleum (PIO)*.2000 (2000) http://www.npd.no/regelverk/r2002/frame_e.htm at 22 March 2009.

¹⁶⁷⁶ *Petroleum Activities Act 1996* (Norway), s 4-1

¹⁶⁷⁷ *Petroleum Activities Act 1996* (Norway), s 4-2.

far as possible, comprise a total development plan rather than a stage development plan.¹⁶⁷⁸

Production cannot commence until the Ministry for Petroleum and Energy (MPE) has approved the plan.¹⁶⁷⁹ Where there has been significant deviation from the original production plan, the MPE may require a new or amended plan to be submitted and approved.¹⁶⁸⁰ An important part of the PDO is an environmental impact assessment which interested parties are given the opportunity to comment upon in a hearing round.¹⁶⁸¹ The impact assessment describes the development's expected impact on the environment, any trans-boundary environmental effects, and affect on natural resources, fisheries and society in general.¹⁶⁸² The government's consideration of this assessment and development plan ensures a prudent project in terms of resources, as well as acceptable consequences for other matters of public interest.

The Ministry also has to approve the expected production schedule, which can only be altered if warranted by resource management or other significant social considerations.¹⁶⁸³ The Ministry can stipulate for periods of time, the quantity of petroleum that may be produced, injected or cold vented at any time, and stipulates that burning of petroleum is not allowed without Ministry approval.¹⁶⁸⁴ The regulation of depletion is not for the purpose of controlling overall production output. Rather, it is to ensure the effective and efficient production from the field and to protect the reservoir. On all production matters, the Ministry

¹⁶⁷⁸ *Petroleum Activities Act 1996* (Norway), s 4-2

¹⁶⁷⁹ *Petroleum Activities Act 1996* (Norway), s 4-2

¹⁶⁸⁰ *Petroleum Activities Act 1996* (Norway), s 4-2.

¹⁶⁸¹ *Petroleum Regulations 1997* (Norway), s22 and s22a.

¹⁶⁸² Norwegian Petroleum Directorate, *Facts 2007: The Norwegian Petroleum Sector* (2007), Chapter four.

¹⁶⁸³ *Petroleum Activities Act 1996* (Norway), s 4-4.

¹⁶⁸⁴ *Petroleum Activities Act 1996* (Norway), s 4-4.

has discretion to, when warranted by substantial socio-economic related considerations, require that production be prepared, commenced, continued or intensified.¹⁶⁸⁵ In addition, the Ministry is able to order the use of production facilities by others (third party access), where deemed necessary for efficient operation or for the benefit of society.¹⁶⁸⁶

The requirement of the PDO in Norway is to ensure that there is an efficient evaluation of the development of the petroleum resources. However, the requirement for a PDO extends beyond the physical and economic production requirements of the field. It reflects a blend of commercial and socio-economic considerations,¹⁶⁸⁷ to ensure that the value added for the Norwegian society at large is maximised and there is a qualitative government approval process.¹⁶⁸⁸ The information that the State receives in the PDO is used for multiple reasons, not just for the development of that particular field. Rather, the information is used to enable the State to obtain and maintain an overall view of production on the NCS as a whole, enabling strategic planning of field depletion, production and use of facilities.¹⁶⁸⁹

The PDO is also used by the State to maximise petroleum extraction by controlling the operations of participating oil companies.¹⁶⁹⁰ As part of the

¹⁶⁸⁵ *Petroleum Activities Act 1996* (Norway), s 4-6. See also Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 900.

¹⁶⁸⁶ *Petroleum Activities Act 1996* (Norway), s 4-8.

¹⁶⁸⁷ Finn Arnesen, Ulf Hammer, Per Håkon Høisveen, Knut Kaasen and Dagfinn Nygard, 'Energy Law in Europe', in Martha M Roggenkamp, Catherine Redgwell, Inigo Del Guayo and Anita Rønne (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007), 900.

¹⁶⁸⁸ Jan Bygdevoll, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHEXV5/PHEXV5DOC03_bygdevoll.pdf at 12 March 2009, 5.

¹⁶⁸⁹ Jan Bygdevoll, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHEXV5/PHEXV5DOC03_bygdevoll.pdf at 12 March 2009, 5.

¹⁶⁹⁰ Jan Bygdevoll, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHE.XV5/PHEXV5DOC03_bygdevoll.pdf at 12 March 2009, 7-8.

approval of the PDO, the Norwegian Petroleum Directorate (NPD) focuses on the areas in the PDO where there are differences between what is optimal for Norwegian society, and what is optimal for the licencees.¹⁶⁹¹ The NPD assessment of the PDO seeks to establish a development plan that optimises the needs of all participants, making recommendations to the Parliament and Ministry of the best possible path of development for the parties. Thus, the PDO is used to not only approve the physical requirements to develop a field, but also to achieve the society interests in petroleum production. Rather than leave the evaluation of the field and its production capacity to the operator and joint venture, the NPD does its own analysis of the planned development in order to ensure that the differences between the companies interest and the State's interest are minimised.¹⁶⁹² This analysis not only provides a solid foundation for the decision on whether to allow production on a field from a physical point of view, but also ensures that the development of Norwegian petroleum resources is sustainable for Norwegian society.

In order to ensure the optimal development of petroleum resources for Norwegian society, the PDO is a circular process. This means that once a field has been approved for production, decisions affecting the recovery of petroleum are not solely left to the licencee. Rather, the State continues to monitor the field,¹⁶⁹³ requiring technical innovation for fields where there is the capacity to increase the rate of recovery from the field. The State has the capacity to mandate the oil

¹⁶⁹¹ Jan Bygdevoll, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHEXV5/PHEXV5DOC03_bygdevoll.pdf at 112 March 2009, 11.

¹⁶⁹² Jan Bygdevoll, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHEXV5/PHEXV5DOC03_bygdevoll.pdf at 112 March 2009, 12.

¹⁶⁹³ Alongside the development of technology for the recovery of petroleum has been the development of the ability to collate and process large volumes of information. The Norwegian Performance indicator analysis for fields (PIAF) is a new approach to systemising large volumes of data from fields. Collected and then used to analyse the condition of Norwegian petroleum fields on the Norwegian Continental Shelf. This assists the government identify fields which pose challenges in the recovery of petroleum, allowing remedial actions to be taken to ensure optimal recovery of petroleum from that field. PIAF not only provides an overview of the Norwegian fields from a portfolio sense, but also allows trends to be identified, including delays in drilling, less or more field injection and lower than expected recovery rates.

company to review the recovery technique in order to meet revised recovery targets. It does this for value creation in Norwegian society, sustainably extracting petroleum for present and future generations.

A consideration of the Ekofisk field in the North Sea demonstrates that continued State analysis of petroleum recovery from a field assists the State in recovering far greater amounts of petroleum than if petroleum recovery from a field is decided wholly by the commercial imperatives of the oil companies. When oil was initially discovered in the Ekofisk area in 1969, the field's lifetime was estimated to be 25 years.¹⁶⁹⁴ The original Ekofisk PDO in 1971 estimated the total recovery of petroleum from the field to be 17%, because of the complex chalk formations in the field.¹⁶⁹⁵ Predictions for recovery from the field in 1988 were that only 20-30% of the field would be recovered.¹⁶⁹⁶ In the early 1990s, there were concerns regarding the safety of Ekofisk due to subsidence and poor maintenance, with Phillips seeking to decommission parts of the Ekofisk field due to falling production and subsidence in the production facilities.¹⁶⁹⁷ However the NPD directed Phillips to submit a revised PDO in 1994, resulting in the redevelopment of Ekofisk production facilities and the use of increased recovery techniques.¹⁶⁹⁸ Today, IOR technology means that the revised recovery for Ekofisk at the end of its production life will be closer to 50%.¹⁶⁹⁹ The legislative capacity of the Norwegian State to compel Conoco-Phillips to continue

¹⁶⁹⁴ DNV, *Ekofisk, - Ageing with Pride* (2004), 1.

¹⁶⁹⁵ Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

¹⁶⁹⁶ Stig S Kvendseth, *Ekofisk The First 20 Years* (1991), 194.

¹⁶⁹⁷ Phillips, Norway Reach Agreement on New Platform, Extend Licence' (1994) *The Journal Record* <http://www.highbeam.com/doc/1P2-5655454.html> at 12 December 2009.

¹⁶⁹⁸ Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009, and Phillips, Norway Reach Agreement on New Platform, Extend Licence' (1994) *The Journal Record* <http://www.highbeam.com/doc/1P2-5655454.html> at 12 December 2009.

¹⁶⁹⁹ Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

production and improve recovery in Ekofisk illustrates the circular regulator process in effect - although Conoco-Phillips wished to close the field, government review of the field prevented the closure. Instead, the State directed Conoco-Phillips to employ IOR techniques¹⁷⁰⁰ to maximise the recovery of petroleum from the field.

The experience of Norway in the extraction of petroleum from Ekofisk highlights the early position of the Norwegian State in the development of its petroleum resources: however inexperienced the Norwegian government was in exploiting petroleum resources, the State would still exert control over the exploitation over the resources it owned. Whilst the Norwegian government had little experience in the exploitation of petroleum resources, it had previously capably managed the development of water resources.¹⁷⁰¹ This experience provided the precedent for the government to reject the North American system of minimal intervention in the exploitation of petroleum resources, preferring instead a highly regulatory and participatory approach to petroleum exploration.

The decision by the Australian government to allow Shell to abandon its mandatory work program in licence area WP-255-P and WP-266-P demonstrates the imbalance of power that may exist in the relationship between the State and oil companies. In this instance, although the Minister stated that ‘maintaining the integrity of the work program bidding system, with fairness to all companies exploring offshore, is the overriding concern of the Government’¹⁷⁰², Shell and Chevron were able to negotiate special conditions and abandon their work program. Effectively, this placed Shell and Chevron, two of the ‘Seven

¹⁷⁰⁰ The specific techniques included pressure injection and directional drilling. See Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

¹⁷⁰¹ For a discussion of the Norwegian use of the Concession system for the development of water resources, refer to section 1.5 above.

¹⁷⁰² Senator the Honourable Nick Minchin, Federal Minister for Industry, Science and Resources, in David Maloney, ‘Australia’s Offshore Petroleum Work Program Bidding System’ (2008) 21 *Journal of Natural Resources* 127, 136.

Sisters’,¹⁷⁰³ in a position of favour and dominance, demonstrating the Australian government’s willingness to enable them to abandon their mandatory work program. The message that it sent to oil companies was that the Australian government, although it has a regulatory framework in place for the award of licences, it is willing to waive it for large and powerful corporations.

If the Ekofisk field had been located in the Australian jurisdiction, it would have been closed when the operator chose to do so. This is because the Australian offshore petroleum regulatory framework confers field recovery decisions solely on the company, since the petroleum regulators assume that the oil companies will act in the best interests of the field.¹⁷⁰⁴ This is not necessarily true, as illustrated by Ekofisk. Analysis of the remaining known reserves on the Norwegian Continental Shelf shows that if recovery was left solely to oil companies, then petroleum resources will be exhausted within 20 years.¹⁷⁰⁵ The scenario for government driven petroleum recovery is a much different scenario, depicting a recovery of an extra 31 billion barrels of oil.¹⁷⁰⁶

The Norwegian approach to regulating the recovery of petroleum can assist Australia in recovering a far greater percentage of petroleum from its fields. To do so would require Australia to make changes to its present petroleum regulatory framework. There is a need to confer legislative capacity on the State to assess and review field production. This is possible through existing legislative provisions in sections 189-190 of OPAGGSA. By directing the initial recovery of

¹⁷⁰³ The ‘Seven Sisters’ refers to the seven most powerful oil companies in the world. See Anthony Sampson, *The Seven Sisters* (1976).

¹⁷⁰⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2008), 81-2.

¹⁷⁰⁵ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation* (2002), 8-9.

¹⁷⁰⁶ Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation* (2002), 8-9.

petroleum prior to production,¹⁷⁰⁷ the JA can invoke section 189 (2) of OPAGGSA during the life of the field, altering recovery where necessary to ensure sustainable extraction of petroleum.

It is not just a change in the legislative capacity that is required in order for Australian State to regulate petroleum recovery. There also needs to be a shift in the policy framework, establishing a greater regulatory role for the State in the recovery of petroleum in Australia. Given the sustainable development policy platform of the recently elected Australian government, it is possible the State may mandate a greater State role in the regulation of petroleum extraction. A change in policy, together with a review of the petroleum regulatory framework could enable the State to assume a greater role in the regulation of petroleum recovery to ensure the sustainable extraction of petroleum.

Conditions of allocation of a petroleum licence

The auction system of licence allocation provides the government with better information about a company's perception of the value of the acreage area offered for licence and encourages a potential for higher revenue upfront.¹⁷⁰⁸ However, this focus on price fails to consider the overall package that may be offered by bidders, including skill, technology, or specialisation in the geology that is present in a formation. This focus on price and value may lead to a maximisation of resource rent, but may not result in the most efficient exploration for and recovery of petroleum resources for the licence area.¹⁷⁰⁹

Whether an oil company or the State determines the exploration work program raises the question of which party is most capable of exploiting the petroleum

¹⁷⁰⁷ *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), s189.

¹⁷⁰⁸ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 30.

¹⁷⁰⁹ Tim Warman and Lauren Goldblatt, 'The Work Program Bidding System For Exploration Permits Under the *Petroleum (Submerged Land) Act 1967* (Cth) (2008) 27 *Australian Resources and Energy Law Journal* 178, 179.

resources – the State as owner of the resources, or the oil companies who are awarded propriety rights to the resources. The issue of whether the State or the oil company should control the work program is illustrated by the exploration in the Ekofisk field.¹⁷¹⁰ Prior to the discovery of the Ekofisk field, Trygve Lie of the Norwegian Department of Industry declared to Phillips in 1962 that ‘I believe you are mistaken. Norway has neither oil nor gas.’¹⁷¹¹ Phillips persisted, gaining exploration rights under conditions that required mandatory work program. As part of the conditions stipulated in North Sea Exploration Licence 018 awarded to Phillips Petroleum, the Norwegian government stipulated a requirement for a mandatory amount of exploration wells. In fulfilling their work program obligations, Phillips had spudded a number of dry holes. When drilling a mandatory well, they encountered technical difficulties and attempted to abandon the drilling program.¹⁷¹² Norwegian petroleum authorities insisted that the mandatory work program be carried out, and reluctantly Phillips spudded a new well, 300 metres from the abandoned well.¹⁷¹³ This well struck the giant oil field subsequently named Ekofisk, with estimated recoverable reserves of 4.5 billion barrels of oil.¹⁷¹⁴

This insistence of the Norwegian State to control petroleum activities as a condition of the award of a petroleum licence, even though it was sceptical of the existence of petroleum resources and with a limited knowledge of petroleum

¹⁷¹⁰ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 30.

¹⁷¹¹ Tryve Lie in Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 15.

¹⁷¹² Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 30.

¹⁷¹³ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 30.

¹⁷¹⁴ As at October 2008. See Norwegian Petroleum Directorate, *NPD's Fact Pages Field: Ekofisk* (2008) <http://www.npd.no/engelsk/cwi/pbl/en/field/all/43506.htm> at 12 December 2008.

activities, demonstrates the importance of fulfilling work program obligations.¹⁷¹⁵ Had the Norwegian government allowed Phillips to abandon the work program, Ekofisk may not have been found. In addition, it is likely that petroleum exploration on the NCS would have been abandoned, since the thirty two previously spudded wells had been dry, and oil companies that had been awarded licences on the shelf were poised to cease exploration activities.¹⁷¹⁶

In Australia, although there are mandatory work program requirements as part of fulfilling the work program bid for award of licence, there is also the capacity to abandon the work program under the good standing provisions. As such there is no necessity or imperative for an oil company to fulfil its work program requirements, as demonstrated by the abandonment of work program drilling by the Shell Consortium on the Cornea Field.¹⁷¹⁷

If Phillips engaged in petroleum exploration under a licence granted under the Australian system of work program bidding, it is questionable whether Phillips would have found Ekofisk. Had there been the capacity for Phillips to abandon its remaining work program and still be awarded exploration licences, would they have abandoned their exploration activities in licence area 018, thereby failing to find the Ekofisk field? This question remains unanswered because the Norwegian government forced Phillips to complete its work program, which resulted in the Ekofisk field being found. Under current Australian good standing provisions, given the Ekofisk scenario, the work program would have almost certainly been abandoned, similar to the abandonment of the work program by Shell in WP-255-P and WP-266-P. If the Ekofisk licence was subject to the current good standing provisions in Australia, it is unlikely that Phillips would have been forced to

¹⁷¹⁵ Brent F Nelsen, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991), 30.

¹⁷¹⁶ Stig S Kvendseth, *Ekofisk The First 20 Years* (1991).

¹⁷¹⁷ Maloney, David, 'Australia's Offshore Petroleum Work Program Bidding System' (2008) 21 *Journal of Natural Resources* 127, 129-131.

conclude the work program, and Ekofisk would not have been found at that time. If the Shell consortium was forced to continue the proposed work program, in the Cornea field, petroleum may have been found in the licence areas WA-265-P and WA-266-P. Since petroleum exploration in the licence areas was abandoned under the current good standing provisions, the area has not been fully explored.

The JA has an unusual amount of discretionary power to relax aspects of the offshore petroleum regulatory regime where required.¹⁷¹⁸ The conferral of discretion in the administration of offshore petroleum in Australia means that there is an area of decision left to the administering authority in some circumstances.¹⁷¹⁹ There has been a general trend towards the reduction of discretion in Australian offshore petroleum over the last few decades. This has occurred as a result of the removal of some JA/DA power and the introduction of procedural or substantive restriction on the exercise of existing powers.¹⁷²⁰ In addition, the government's discretionary power that the government has defined and disseminated through published guidelines.¹⁷²¹ Whilst some measure of discretion is necessary for petroleum regulators to ensure that petroleum activities are carried out to reliably promote public interest, it also cannot be fully prescriptive, stipulating all controls in minute detail.¹⁷²²

A consideration of Australia's current offshore petroleum regulatory framework highlights the relationship between the State and oil companies. The State in Australia currently engages in a minimalist role in petroleum exploitation. It is

¹⁷¹⁸ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), xvi.

¹⁷¹⁹ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), xvi.

¹⁷²⁰ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), xvi

¹⁷²¹ Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), xvi. For guidelines in the award of petroleum exploration licences, see Department of Resources, Energy and Tourism, *Guidelines for Applicants 2009* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 12 July 2009.

¹⁷²² Terrence Daintith, *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study* (2005), xvi.

content to confine itself to the allocation of licences and ensures that field development complies with environmental and safety regulatory requirements. By doing so, the State allows oil companies to utilise their knowledge of oil exploration and production to control the exploitation of petroleum activities. This may be attributed to a lack of knowledge by the Australian regulatory authorities. This lack of knowledge has been identified as an issue in some regulatory bodies, and has contributed to unnecessary regulatory burdens in the upstream petroleum sector.¹⁷²³

An important consideration is whether information pertaining to geological formations and the mandatory field work programs should be assessed by the State, or left to the exploring oil company. This is a dilemma, since as owner of the resource, the State should have control and input into how its resources are to be explored and developed. However, oil companies argue that governments do not have the requisite knowledge to assess the information, whereas the core business of the oil companies is to assess geological information and explore for oil. The discretion the Australian government has to award acreage based on its opinion under s106 (2) of OPAGGSA is seen by some to supplant the knowledge of the companies who specialise in the exploration, development and production of petroleum.¹⁷²⁴ The discretionary power of the government in allocating licences bestows upon the government the right to award a licence based on the State's assessment of the geological and geophysical capacity of the field, and the capacity of the proposed work program to explore that field. Yet the State enters into a relationship with the oil companies because of its need for the expertise and knowledge oil companies generate and possess as part of their core business of petroleum exploitation. Consequently, the State allocates petroleum licences based on administrative decisions that have been reached through its knowledge

¹⁷²³ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2008), 81-2.

¹⁷²⁴ Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2008), 82.

of petroleum geology, even though the government invites oil companies to explore for petroleum because of their superior knowledge skills and technical competence in petroleum exploration.

Use of technology to increase recovery of petroleum

It is the recovery of oil that provides income, rather than petroleum exploration and field development.¹⁷²⁵ Therefore, one of the most important challenges to companies is to profitably obtain as much oil and gas from a field as possible.¹⁷²⁶ The optimal extraction rate for any oil field is 100% extraction. This rate of extraction does not occur, as a consequence of reservoir structure.¹⁷²⁷ Generally, oil recovery rates are a function of the recovery techniques used. Recovery rates from fields are not a function of the recovery methods that the companies choose. Rather, they are a function of the recovery methods that companies do not choose. Typically, oil recovery occurs in two stages. Primary production occurs where oil flows out under its own pressure.¹⁷²⁸ Secondary production occurs where oil recovery is assisted.¹⁷²⁹ Together these two methods of extraction typically realise one third of the oil in the field.¹⁷³⁰ Moreover, these methods use well-defined techniques that are industry standard and relatively cheap.

¹⁷²⁵ Norwegian Petroleum Directorate, *The Petroleum Resources of the Norwegian Continental Shelf 2005* (2006) <http://www.npd.no/NR/rdonlyres/B0B16455-11DD-44D7-A554-6B83C49B4641/0/ResourceReport2005.pdf> at 21 December 2006, 6.

¹⁷²⁶ Norwegian Petroleum Directorate, *The Petroleum Resources of the Norwegian Continental Shelf 2005* (2006) <http://www.npd.no/NR/rdonlyres/B0B16455-11DD-44D7-A554-6B83C49B4641/0/ResourceReport2005.pdf> at 21 December 2006, 6.

¹⁷²⁷ D. K Larue and Yunjun Yue, 'How Stratigraphy Influences Oil Recovery' (2003) 22 (4) *Leading Edge* 333, 333.

¹⁷²⁸ 'Primary Recovery Methods' (2010) *Schlumberger* <http://www.glossary.oilfield.slb.com/Display.cfm?Term=primary%20recovery%20method> at 24 February 2010.

¹⁷²⁹ 'Secondary Recovery' (2010) *Schlumberger* <http://www.glossary.oilfield.slb.com/Display.cfm?Term=secondary%20recovery> at 24 February 2010.

¹⁷³⁰ National Energy Technology Laboratory (NETL), *Exploration and Production Technologies: Improved Recovery: EOR* (2008) www.doe.gov at 2 February 2009.

However, as fields mature, improved oil recovery techniques (IOR) are required to maintain levels of production from the field,¹⁷³¹ substantially increasing production costs. In addition, unit costs for oil recovery are rising, costing more to produce each barrel of oil, and operating costs for oil installations constitute an increasing share of total costs.¹⁷³² Techniques for IOR are expensive due to the high research and development costs associated with developing techniques to optimise field yields and a reliance on the development of specialist technologies and expertise.¹⁷³³

It is unlikely that companies are going to implement expensive, specialised technologies that are likely to recover only a further few percent of petroleum. Rather, companies tend to employ traditional techniques to recover a reasonable percentage of easy oil, abandoning a field when it becomes economically marginal.¹⁷³⁴ Consequently, decreased recovery may lead to the field becoming economically marginal, as a result of field geology and structure, field sterilisation, or a combination of the two. Furthermore, the likelihood of the use of IOR is a function of global oil prices, where the lower the price, the less likely that IOR techniques are going to be employed, since there is much less profit to be realised.

Yet it can be profitable for oil companies to extract the maximum petroleum. The maximum extraction of petroleum can provide financial benefits to all parties, since the oil companies recover more oil to sell and the State can gain revenue

¹⁷³¹ Norwegian Petroleum Directorate, *The Petroleum Resources of the Norwegian Continental Shelf 2005* (2006) <http://www.npd.no/NR/ronlyres/B0B16455-11DD-44D7-A554-6B83C49B4641/0/ResourceReport2005.pdf> at 21 December 2006, 6.

¹⁷³² Norwegian Petroleum Directorate, *The Petroleum Resources of the Norwegian Continental Shelf 2005* (2006) <http://www.npd.no/NR/ronlyres/B0B16455-11DD-44D7-A554-6B83C49B4641/0/ResourceReport2005.pdf> at 21 December 2006, 6.

¹⁷³³ Department of Energy, *Enhanced Oil Recovery/CO₂ Injection* (2010) <http://www.fossil.energy.gov/programs/oilgas/eor/index.html> at 24 February 2010.

¹⁷³⁴ Joseph E Stiglitz, 'Making Natural Resources into a Blessing Rather a Curse' in Svetlana Tsalik and Anya Schiffrin (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005), Chapter one.

from the taxation of the oil produced. However, if oil companies are left undirected in the requirements for method of oil recovery, the decisions for extraction will be governed by the cost of extraction method and world oil prices. Therefore it is likely that a company will choose the extraction methods that will lead to high production and low extraction cost. Furthermore, it is likely that companies will not employ additional extraction rates necessary to maximise resource extraction unless directed to by the resource owner. As such, companies are likely to declare fields as economically marginal and abandon the fields, even though recoverable petroleum remains.

Role of the State in developing technology, research and knowledge

It is through the use of technology that petroleum recovery rates can be optimised. To optimise the recovery of petroleum, it is often necessary to employ a range of IOR techniques. These techniques include microbial solutions,¹⁷³⁵ combined foam and gas injection, water/surfactant solutions and directional drilling.¹⁷³⁶ This strategy has been used successfully on the Norwegian Continental Shelf (NCS), where stringent requirements for enhanced oil recovery has forced companies to engage in research in oil recovery in partnership with the State, and led to the development of field specific techniques for enhanced petroleum recovery.

Norwegian excellence in optimising petroleum extraction from fields arose from a program of oil skills, knowledge and technology which commenced in the 1970s. This program mandated interaction between the companies, government and research institutions driving and directing national competence in the oil and gas industry.¹⁷³⁷ The cornerstone of this development was the transfer of skills,

¹⁷³⁵ As employed on the Snorre field in Norway.

¹⁷³⁶ Norwegian Petroleum Directorate, 'Big Assets in Small Pores' (2008) 1 *Norwegian Continental Shelf* 7-8. A range of IOR techniques have been developed in Norway, leading to some of the highest recovery rates in the world.

¹⁷³⁷ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007

expertise and technology from international oil companies through contractual conditions and obligations, attracting the best of international expertise, and the promotion of cooperation between international and national oil companies.¹⁷³⁸

Utilising the licencing framework, the Norwegian State established knowledge and technology transfer agreements with international oil companies.¹⁷³⁹ This transfer of expertise from international oil companies and the development of necessary technology, as a legislative requirement or condition of the grant of a licence through the JOA has been the key to the development of the Norwegian petroleum industry and national industry competence.¹⁷⁴⁰

Prior to the 1960s, Norway had no oil industry, but with the discovery of Ekofisk in 1969, the Norwegian government realised that it needed to rapidly increase its knowledge of petroleum resource management and recovery.¹⁷⁴¹ This required the acquisition of new knowledge, and applying the knowledge and skills learnt to develop new ideas and designs to meet the demands of these new conditions. The Norwegian government sought to learn as much as possible about the oil industry through the active cooperation with private oil companies.¹⁷⁴² In order to find and develop Norwegian petroleum resources in a manner that generated the greatest possible benefit to Norwegian society by maximising the rate of

http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

¹⁷³⁸ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007

http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

¹⁷³⁹ This transfer occurred from the third licencing round in 1974.

¹⁷⁴⁰ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007

http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

¹⁷⁴¹ Øystein Noreng 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹⁷⁴² Øystein Noreng 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

depletion, the Norwegian government encouraged multiple company participation in exploration development and production.¹⁷⁴³

Today, the Norwegian petroleum industry has a need and a responsibility to continue to engage in research and development, in order to develop effective technologies to maximise the extraction of petroleum from varying geological provinces and greater water depths. Consequently, the challenge for a State is whether participating oil companies should be left to engage in improved oil recovery, technological research and development (hereafter known as TRD) at their own behest, or whether the government should intervene, directing and guiding the development of a research strategy and implementing it as part of the petroleum licencing framework.

A possible solution to this challenge lies in an analysis of the development of TRD in Norway. Furthermore, it is possible to analyse the role that knowledge and skills transfer has played in the development of TRD competence in Norway. Continuous development of technology in partnership with foreign companies and a clear focus on safety and the environment have been key elements of Norwegian petroleum policy and petroleum activities on the NCS. The policy objectives of the Norwegian government, as enunciated in the ten oil commandments,¹⁷⁴⁴ was to develop a new industry on the basis of petroleum,¹⁷⁴⁵ with the State coordinating Norwegian interests at all levels to create an integrated Norwegian oil community.¹⁷⁴⁶ The lynchpin of this was the use of TRD to increase competitiveness in areas such as IOR, floating production

¹⁷⁴³ Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000*. http://www.odin.no/odinarkiv/english/stoltenberg_I/oad/026031-090011/dok-bn.html at 23 December 2006.

¹⁷⁴⁴ For an outline of the ten oil commandments refer to section 2.6.5 above.

¹⁷⁴⁵ Commandment 2.

¹⁷⁴⁶ Commandment 7.

platform design and construction, subsea systems, drilling equipment, project management and engineering.¹⁷⁴⁷

Norwegian companies gained much of their knowledge from foreign operators in the early years, as a result of the licencing agreements that forced the foreign operators to develop their R&D in Norway using Norwegian research institutions and companies.¹⁷⁴⁸ Utilising the petroleum regulatory framework, the Norwegian State established skills and technology transfer agreements with international oil companies, ensuring technology and knowledge was transferred to Norway.¹⁷⁴⁹ The third licencing round saw the introduction of mandatory technical competence transfer, with the fourth licencing round in 1979 introducing provisions for technology development between foreign oil companies and Norwegian research institutions.¹⁷⁵⁰ In addition, cooperation agreements forced the oil companies to provide funding, insight and expertise, contributing to the development of petroleum and associated technologies in Norway.¹⁷⁵¹ As a part of this goal of acquisition of knowledge and skills, the State-owned oil company Statoil was established, with a goal of rapidly training staff in order to assume the operatorship of fields as quickly as possible.¹⁷⁵² The international oil companies were utilised for staff training through staff exchanges, and integrated project teams assisted in developing national competency in petroleum technology and knowledge. The State also implemented targeted research and development to

¹⁷⁴⁷ Odd Roger Enoksen, *Capabilities of the Norwegian Oil and Gas Industries: How Can We Increase Cooperation Between India and Norway* (2006) Speech given at the Indo-Norwegian Business Cooperation in the Oil and Gas and Maritime Sector. Mumbai, India, 30 October 2006.

¹⁷⁴⁸ Vatne, Erik, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen.

¹⁷⁴⁹ Øystein Noreng 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹⁷⁵⁰ Øystein Noreng 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹⁷⁵¹ Øystein Noreng 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

¹⁷⁵² Bjørn Vidar Lerøen, *Drops of Black Gold: Statoil 1972-2002* (2002).

assist in overcoming the technical barriers encountered in natural resource exploitation.¹⁷⁵³ Norwegian companies were then able to take this newly acquired knowledge to develop solutions to the unique NCS geological challenges.

Today recovery rates on the Norwegian Continental Shelf are among the best in world, with the average field recovery currently around 46%.¹⁷⁵⁴ This means that more than half of the oil will be left in the ground, unless the recovery rate is improved.¹⁷⁵⁵ The NPD believes that maximum recovery from current producing fields for as long as it is prudent, from a socioeconomic and safety perspective, is one of the most important tasks.¹⁷⁵⁶ The Norwegian government seeks to increase this recovery rate to at least 50%, although even that is not adequate, as 50% of the oil remains in the reservoir.¹⁷⁵⁷ To accomplish this goal, oil companies, the State, and the Norwegian supply industry have been encouraged to develop technology to increase output from the producing fields, and to make extraction of smaller deposits around larger fields (stranded deposits) profitable, with a target recovery rate of 55% oil, and 75% gas.¹⁷⁵⁸

The Norwegian State recognises that it is expensive for companies to develop the technologies and innovation they require to satisfy Norwegian policy objectives

¹⁷⁵³ Odd Roger Enoksen, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007 http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

¹⁷⁵⁴ Norwegian Petroleum Directorate, *More Focus on Improved Oil Recovery* (2008) http://www.npd.no/English/Aktuelt/Nyheter/2008_11_12_mer_trykk.htm at 12 March 2009.

¹⁷⁵⁵ Norwegian Petroleum Directorate, *More Focus on Improved Oil Recovery* (2008) http://www.npd.no/English/Aktuelt/Nyheter/2008_11_12_mer_trykk.htm at 12 March 2009.

¹⁷⁵⁶ Norwegian Petroleum Directorate, *More Focus on Improved Oil Recovery* (2008) http://www.npd.no/English/Aktuelt/Nyheter/2008_11_12_mer_trykk.htm at 12 March 2009.

¹⁷⁵⁷ Norwegian Petroleum Directorate, *More Focus on Improved Oil Recovery* (2008) http://www.npd.no/English/Aktuelt/Nyheter/2008_11_12_mer_trykk.htm at 12 March 2009.

¹⁷⁵⁸ Odd Roger Enoksen, [mention that he was minister for oil and energy] *Capabilities of the Norwegian Oil and Gas Industries: How Can We Increase Cooperation Between India and Norway* (2006) Speech given at the Indo-Norwegian Business Cooperation in the Oil and Gas and Maritime Sector, Mumbai, India, 30 October 2006.

of value creation and resource maximisation.¹⁷⁵⁹ Consequently, since it is the State that requires the optimisation of oil recovery, then the State sees its role as the driver of research in that area.¹⁷⁶⁰ In earlier petroleum licencing rounds, the Norwegian government attached research conditions to the award of licences, in order to achieve research strategies. Today, this State driven research acts as a ‘push’ effect. The government develops new techniques in conjunction with industry, and ‘pushes’ the resultant techniques onto operators as part of the overall Norwegian Continental Shelf management strategy. This effectively forces licence applicants to utilise the existing technology to develop new and existing fields (the ‘pull’ effect). The sum of the ‘push-pull effect’ is that the Norwegian government plays a leading role in developing technology that maximises production on the Norwegian Continental Shelf, encouraging companies to utilise the technology if they wish to remain competitive in the award of production licences. The result of this sustained State role in developing the petroleum industry has been the development of a world class petroleum cluster, consisting of national oil companies, strong supply industry, industry leadership in drilling and subsea technologies, strong research institutions, world renowned shipping, and strong banking and finance institutions.¹⁷⁶¹

To continue to strengthen the competitiveness of both the NCS and the Norwegian supply and service industry, a number of research groups have been initiated, including INTSOK, to promote the internationalisation of the

¹⁷⁵⁹ As the Norwegian government notes ... ‘development of the remaining resources base must be based to a great extent on technologies which are not available today and which have to be created. That will make it possible to produce oil and gas from ever more challenging fields...As the resource owner, the government has a substantial interest in ensuring the maximum value creation from the industry in the future. The resource base provides the greatest opportunities, but these require that major technologies and expertise related challenges in developing oil and gas resources are resolved.’ See Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2)*. Unofficial English Translation (2002).14-15.

¹⁷⁶⁰ This was articulated in Norwegian Ministry of Education and Research, *Climate for Research: Report no. 30 to the Storting (2008-9)*. Unofficial English Translation (2009), 2, which underlined the importance of research in the energy sector

¹⁷⁶¹ Øystein Noreng, ‘Norway: Economic Diversification and the Petroleum Industry’ (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.

Norwegian oil and gas industry.¹⁷⁶² This is accomplished through the monitoring of global market conditions to coordinate marketing activities, guidance and advice to small-medium sized partner companies to access international markets.¹⁷⁶³ OG21, the national R&D strategy for the oil and gas sector has been established to strengthen Norway's competitiveness in the international arena with world-class competence, a leading global industry and the most innovative offshore province in the world.¹⁷⁶⁴ Other strategies include the establishment of KonKraft, where the NPD works with the Norwegian oil and gas industry to strengthen competitiveness on the NCS and outside of Norway.¹⁷⁶⁵ In addition, PETROMAKS has been established with the sole function of developing programs to optimise the recovery of petroleum from the Norwegian Continental Shelf.¹⁷⁶⁶

The success of the Norwegian State in sustainably extracting its petroleum is attributable to the development and use of technology. The petroleum activities on the Norwegian continental shelf are in a technologically new area, with new challenges because of increased depth of water, field pressure and temperature, differing geologies, and harsh environmental conditions. These factors required the development of new, innovative solutions merging petroleum and marine

¹⁷⁶² Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009), 57.

¹⁷⁶³ Norwegian Petroleum Directorate, *Why Norway: The Norwegian Oil and Gas Clusters* (200?) http://www.npd.no/English/Emner/Ressursforvaltning/Promotering/whynorway_oil_gas_cluster.htm at 22 December 2006.

¹⁷⁶⁴ Norwegian Petroleum Directorate, *Why Norway: The Norwegian Oil and Gas Clusters* (200?) http://www.npd.no/English/Emner/Ressursforvaltning/Promotering/whynorway_oil_gas_cluster.htm at 22 December 2006

¹⁷⁶⁵ Norwegian Petroleum Directorate, *Facts 2006: The Norwegian Petroleum Sector* (2006) <http://www.odin.no/filarkiv/278568/Fakta-eng2.pdf> at 21 December 2006, 19; Kjell-Arne Oppeboen, *KonKraft: A Cooperation Process to Strengthen The Oil and Gas Business in Norway* 20 October 2004 (2004) Speech given at Rio Oil and Gas Conference, 2004.

¹⁷⁶⁶ The Research Council of Norway, *Petromaks – Petroleum Research in Norway: Large Scale Programme Optimal Management of Petroleum Resources - Petromaks* (2007) <http://www.forskningsradet.no/servlet/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobheadername1=Content-Disposition%3A%2Fblobvalue1=+attachment%3B+filename%3DPETROMAKSenglish%2C0.pdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1232250148713&ssbinary=true> at 12 February 2010.

knowledge and competencies.¹⁷⁶⁷ Australia faces similar challenges, with exploration and drilling occurring in some deep waters in a range of diverse environments that are challenged by annual cyclones,¹⁷⁶⁸ fierce winds and high seas.¹⁷⁶⁹ The importance of IOR has been recognised in the Australian petroleum industry, which notes that enhanced oil recovery from existing fields would contribute to the replacement of reserves in the offshore petroleum fields.¹⁷⁷⁰

The Australian petroleum industry acknowledges that there are technological barriers to assist in maximising the recovery from existing oil fields. In particular, the industry notes the example of the Norwegian government initiating a billion dollar research and development program in conjunction with oil companies, research institutes and service companies with the aim of maximising oil recovery from existing Norwegian fields.¹⁷⁷¹ Furthermore, in a House of Representatives Standing Committee inquiry into resource exploration impediments,¹⁷⁷² evidence was given to the House that the use of Norwegian IOR recovery techniques could prove valuable in resource recovery on both the North-West Shelf and in Bass Strait.¹⁷⁷³ In particular, evidence was tendered that the use of CO² geosequestration could substantially improve recovery of petroleum.¹⁷⁷⁴

¹⁷⁶⁷ Vatne, Erik, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen.

¹⁷⁶⁸ Particularly in the North Western Australian offshore fields in the Indian Ocean and the Timor Sea.

¹⁷⁶⁹ Particularly in Bass Strait, the Tasman Sea and the Great Australian Bight region.

¹⁷⁷⁰ APPEA, *Australia's Upstream Oil and Gas Industry: Platform for Prosperity* (2006),10.

¹⁷⁷¹ APPEA, *Australia's Upstream Oil and Gas Industry: Platform for Prosperity* (2006),14

¹⁷⁷² House of Representatives Standing Committee on Industry and Resources, *Enquiry into Resource Exploration Impediments* (2003), I&R 465.

¹⁷⁷³ House of Representatives Standing Committee on Industry and Resources, *Enquiry into Resource Exploration Impediments* (2003), I&R 465.

¹⁷⁷⁴ House of Representatives Standing Committee on Industry and Resources, *Enquiry into Resource Exploration Impediments* (2003), I&R 465.

There is no legislative provision in the Australian petroleum framework that compels a company to develop technology or invest in Australia's industries.¹⁷⁷⁵ However, by establishing the legislative capacity for the State to regulate the method of extraction of petroleum, require greater recovery of petroleum through IOR, or require companies to utilise IOR to increase oil recovery, the Australian government could encourage greater recovery of offshore petroleum resources. Otherwise, companies will continue to extract the 'easy oil', that is oil that can be easily recovered using primary and secondary oil recovery techniques, which typically require less investment. By encouraging IOR, and assisting oil companies to develop technologies to achieve greater oil recovery, the Australian government can encourage the sustainable extraction of petroleum

5.4 Conclusion

The regulation of the rate and method of recovery of petroleum from fields has been applied as a method for the regulation of petroleum activities to meet national petroleum policy objectives in varying degrees, in a number of jurisdictions, for the last 40 years. The success of such regulation has been mixed.

In Norway, there were initial attempts to limit the rate of production from North Sea fields to less than 90 million tonnes oil equivalent. However, the experience of Norway illustrates that attempts to limit field production has been unsuccessful in encouraging sustainable development of petroleum resources. Based on this experience, it is recommended that Australia does not regulate the rate of production to encourage sustainable petroleum production.

Sustainable development of petroleum resources in Norway is encouraged through the legislative requirements for prudent petroleum production that encourages the development of Norwegian petroleum resources by ensuring that

¹⁷⁷⁵ Productivity Commission, *Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Draft Research Report* (2008), XXVIII.

as much of each field is required to be produced. The major tool utilised by the Norwegian State to encourage sustainable petroleum development is the PAA and the PR which require a PDO for all petroleum activities. This gives the capacity for the State to continually evaluate the method of extraction to ensure that optimal depletion occurs. As part of the PDO, the Norwegian State works in partnership with industry and research organisations to develop technologies to maximise the recovery of petroleum from offshore fields.

The Australian government also requires the use of a field development plan. However, the use of this plan is confined to obtaining all of the necessary regulatory requirements for the granting of a petroleum licence. The view of the Australian State is that while new discoveries and technological progress continue to offset the effects of depletion of petroleum resources, these actions should satisfy the reasonable requirements for intergenerational equity.¹⁷⁷⁶ However, there is a question as to how long that trend will continue.¹⁷⁷⁷ Already we have seen Australia move from a self-sufficient petroleum producer to a net petroleum importer, where petroleum resources account for over 6% total imports. Furthermore, there is evidence from Western Australia that government regulation of field depletion is required to ensure that field sterilisation does not occur.

Australia has identified the need to develop oil recovery techniques through research and development. The industry peak body APPEA recognises the advantages of the Norwegian innovation system, and evidence tendered to the House of Representatives acknowledges that IOR techniques would assist in greater recovery from Australian offshore oil fields. Given these identified requirements and the success of the Norwegian experience, the sustainable development of Australian petroleum resources is more likely to be encouraged

¹⁷⁷⁶ Ken Willett, *Managing Australian Mineral Wealth for Sustainable Economic Development* (2002) 12.

¹⁷⁷⁷ Ken Willett, *Managing Australian Mineral Wealth for Sustainable Economic Development* (2002) 11.

from State regulation of petroleum extraction, and the development of oil recovery techniques that will contribute to optimal extraction of depletion from fields.

6. Summary, Reflections and Conclusions

6.1 Introduction, hypothesis and research questions

In this thesis I have discussed how a State like Australia can meet some of the central challenges linked to exploitation of petroleum through legal regulation. My main focus has been how Australia can use its legal framework regulating petroleum resources as a basis for sustainable development and to develop Australia's industrial and technological base.

The unique role of petroleum in the global economy and world energy, and the dependence of most States upon products derived from petroleum, influences geopolitics, and global economics. It creates a political as well as economic need for good management of the limited petroleum resources, by those States that have petroleum resources in their territory. This fact, as well as economic considerations, makes it necessary for petroleum-producing States to consider how they will regulate the exploitation of their petroleum resources in order to maximise its value so that the State benefits from the sustainable development of this non-renewable resources.

An important part of the legal framework that is utilised to regulate petroleum activities is the regulation of the allocation of petroleum licences and the regulation of petroleum production from a field. Once petroleum is produced, a concern for any petroleum endowed State is how the revenue that is realised from the extraction of petroleum should be integrated into a petroleum producing economy, in a manner that is least likely to have profound economic effects on the producing country. If resources are developed too quickly, without measures to manage the revenue, too much money may be released into a national economy. If this occurs, a State runs the risk of developing resource curse and will not benefit from the resource revenue.

When seeking to solve these economic challenges, a State needs to balance the needs of oil companies with its national petroleum policy objectives, in order to ensure that companies continue to invest in the petroleum province. This requires States to establish and maintain a legal regulatory framework that addresses these challenges in a manner that encourages sustainable development.

My hypothesis in this thesis has been that there are aspects of the Australian petroleum legal regulatory framework that presently does not encourage the sustainable development of Australia's offshore petroleum resources. In testing this hypothesis, I critically analysed the capacity of the current Australian petroleum regulatory framework to encourage the sustainable socio-economic development of Australia's offshore petroleum resources, utilising a critical functional analysis.

In assessing Australia's current capacity to sustainably develop its offshore petroleum resources, I analysed a number of petroleum functions, including petroleum policy, regulatory legislative frameworks, the award of licences, and the regulation of petroleum field development. I did not focus on a detailed evaluation of the rules regulating petroleum functions. Rather I focused on the principles and policies relating to the overall principle of sustainable development of Australia's offshore petroleum resources. I have instead focussed my analysis of sustainable social and economic development of petroleum on the legal regulation of petroleum activities to optimise the extraction of petroleum from a field. Whilst I acknowledge that the sustainable development of petroleum resources necessarily requires the conversion of natural resource wealth to other forms of wealth, an analysis of such conversion is outside the confines of this thesis. Rather, I have focussed on the economic and regulatory challenges confronting States the sustainable extraction of petroleum, analysing the regulatory framework encourages sustainable extraction.

My hypothesis raised two research questions. Firstly, is the current Australian offshore petroleum regulatory framework effective in encouraging the sustainable development of Australia's petroleum resources? Secondly, if the Australian regulatory framework is inadequate for sustainable development, is there a more effective way the Australian regulatory framework could manage the development of petroleum resources to encourage the sustainable development of these resources?

In this chapter, I present a summary of my research findings. In addressing the research questions, I have critically analysed the capacity of the Australian offshore petroleum regulatory system to regulate the extraction of offshore petroleum resources to maximise the value of these resources for the benefit of all Australians, considering a number of legal regulatory tools. The regulatory tools I have analysed are the petroleum policy, the regulatory legislative framework, the award of petroleum licences by the State, and regulation of the rate and method of petroleum extraction from petroleum fields. I consider whether these tools encourage the sustainable development of Australia's offshore petroleum resources. I compared how these tools have encouraged sustainable extraction of petroleum in Australia and Norway. I have utilised the analysis of the legal regulatory frameworks of these jurisdictions to not only analyse the current capacity of the Australian petroleum legal regulatory framework to encourage sustainable development, but to also evaluate options for change to the Australian system of regulation to engender greater sustainable development of petroleum.

6.2 Sustainable petroleum development and petroleum policy

In Chapter two I analysed Australia's offshore petroleum policy, to determine if the current policy encourages sustainable development of petroleum resources.

This analysis demonstrated that petroleum policy is crucial in the development of petroleum resources. Without sound policies, resource development becomes ad hoc, uncontrolled and is not likely to benefit the State or its people. Experience in Norway had demonstrated that high levels of government control and regulation on petroleum exploitation by oil companies and the revenue generated encourages sustainable development of the resources for the benefit of present and future generations. The policy combination of government control and participation, strong institutions and regulatory framework, responsiveness to change through regulatory discretion, and appropriate fiscal policy for the generation of wealth has created a policy framework in Norway that is conducive to generating wealth for the benefit of all participants.

An analysis of Australia's policy framework demonstrates that petroleum policy has been revaluated and altered since the discovery of petroleum in Bass Strait in the 1960s. In the 1990s there were several policy reviews, with petroleum policy in the last ten years focused on commercial exploitation and attraction of investment to the Australian petroleum industry. Australian policy is directed toward industry dominance of the petroleum industry, with the Australian government reliant on the Australian petroleum industry to achieve petroleum resource exploitation.

Currently, the major beneficiary of Australia's petroleum policy appears to be the petroleum industry. Australian petroleum policy established in 1998 focuses on encouraging overseas investors to exploit Australian petroleum resources. As a consequence, Australia's petroleum policies favour oil companies rather than the sustainable development of petroleum. However, a change in government in 2007 has altered the focus of Australia's national petroleum objectives. Today, the Australia State is focussed on creating a petroleum regulatory framework that expands Australia's resources base and addresses regulatory burden within a framework of sustainable development. To date, the Australian petroleum policy does not reflect these aims. Rather it is an aspiration of the Australian

government to create a policy framework that achieves the sustainable development of Australia's resources base.

To generate options for the sustainable development of Australia's petroleum resources, I examined the Norwegian petroleum policy framework, which focuses on the sustainable development of petroleum resources. Since the discovery of petroleum on the Norwegian Continental Shelf in the late 1960's, the Norwegian State has developed a cohesive petroleum policy with State control and participation for the benefit of its people as the lynchpin. From the beginning, Norwegian petroleum policy was formulated with a focus on State participation and control to ensure benefit for the people. Whilst there have been reviews of Norway's petroleum policy, the focus on the benefit for the people has remained constant. The regulatory and fiscal policies that have developed continue to focus on State control and participation for the benefit of the State and its community.

Petroleum policy is crucial in the development of petroleum resources. Without sound policies, resource development becomes ad hoc, uncontrolled and is not likely to benefit the State or its people, Furthermore, experience in Norway had demonstrated that high levels of government control and regulation on petroleum exploitation by oil companies and the revenue generated encourages sustainable development of the resources for the benefit of present and future generations. The Norwegian policy strategies of government control and participation, strong institutions and regulatory framework, responsiveness to change through regulatory discretion and appropriate fiscal policy for the generation of wealth has created a policy framework that is conducive to generating wealth for the benefit of the all of the participants.

Australia, petroleum policy in the last ten years has focused on the commercial exploitation and attraction of investment to the Australian petroleum industry. It is primarily is directed toward industry control of the petroleum industry, with the

Australian government and the Australian petroleum industry working in close cooperation to achieve petroleum resource exploitation. However the election of the Rudd government in 2007 has refocused Australian petroleum policy, establishing a goal to develop a policy framework where Australia's petroleum resource base is increased and resources are developed utilising the principles of sustainable development.

To generate options for the sustainable development of Australia's petroleum resources, the Norwegian petroleum policy framework is almost universally recognised as a successful policy framework for the development of petroleum resources. Since the discovery of petroleum on the Norwegian Continental Shelf in the late 1960s, the Norwegian State has developed a cohesive petroleum policy with State control and participation for the benefit of its people as the lynchpin. From the beginning, Norwegian petroleum policy was formulated with a focus on State participation and control to ensure benefit for the people. Whilst there have been reviews of Norway's petroleum policy, the focus on the benefit for the people has remained constant. The regulatory and fiscal policies in Norway today continue to focus on State control and participation for the benefit of the State and its community.

My analysis of Australian and Norwegian petroleum policy concludes that in order to sustainably develop its petroleum resources, Australia requires a substantial re-examination of its petroleum policy framework. Rather than the policy being solely directed toward commercial development, Australian policy needs to focus on the development of this State-owned resource for the benefit of the community. Furthermore, in developing its petroleum policy objectives, Australia should assert the role of the State in developing the people's resource for the benefit of all generations.

6.3 Legislation and sustainable petroleum development

In Chapter three I considered whether the current offshore petroleum regulatory legislative framework that the Australian government (as owner of the petroleum) uses to regulate petroleum activities, is appropriate for the sustainable development of its petroleum resources.

The World Bank views short, thorough, broad, generic petroleum legislation as the cornerstone of effective petroleum legislative framework. Furthermore, the World Bank stipulates that this broad legislation should be not overly detailed, and should be accompanied by enabling regulations to give both parties a clear legal framework to develop petroleum resources. The current Australian petroleum legislative framework comprises the large (over 850 pages) prescriptive, rule based *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth), which creates unnecessary regulatory burden with economic and social costs. This regulatory burden arises as a consequence of the minutiae of regulatory detail contained in the Act. Furthermore, the brief (15 pages) *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985* (Cth), that regulates the fees to be paid and forms required for well discoveries, does little to assist in creating a regulatory framework that encourages sustainable development. This framework falls short of the criteria defined by the World Bank as an effective legislative regulatory framework, generates regulatory burden, and fails to encourage the sustainable development of Australia's offshore petroleum resources.

My analysis of the regulatory legislative frameworks from other jurisdictions demonstrates the capacity of the legal regulatory framework to encourage the sustainable development of petroleum resources. The petroleum legislative framework for onshore petroleum development in South Australia indicates that

its objective based legislative framework, with broad enabling legislation and complementary regulation, reduces regulatory burden.

The value of principle and objective based regulatory legislative framework is confirmed by the capacity of the Norwegian petroleum regulatory framework, which encourages the State and oil companies to develop the petroleum resources to meet the interests of the State whilst still realising a profit for the participating oil companies. Through its regulatory framework and participation in petroleum activities, the Norwegian State has established and maintained a regulatory legislative framework that encourages the development of Norwegian petroleum resources for the benefit of both the Norwegian State and oil companies alike, whilst enabling the Norwegian State to establish and maintain control over petroleum activities. The State as resource owner acts as the regulatory and administrative body, establishing policies, framework conditions and decisions relating to petroleum activities. In addition, the State also participates directly in petroleum activities through Petoro, particularly in major fields.

The regulatory framework of Norway and South Australia has found favour with the Australian petroleum industry. It is possible that if legislative reform were to occur in Australia, the principle-based legislation that has been implemented in South Australia, and demonstrated in Norway to be effective in sustainably developing petroleum resources, could serve as a useful model of a regulatory legislative framework that encourages sustainable development of petroleum. Furthermore, it is likely that a principle based legislative framework would be embraced by the Australian industry.

As part of an effective legislative framework for the exploitation of petroleum, the World Bank notes the importance of a single regulatory authority. However, at present, petroleum exploitation in Australia occurs under the regulation of the Joint Authority and a Designated Authority. The Australian Productivity Commission has demonstrated that this dual regulatory structure creates

regulatory overlap and inhibits effective petroleum development. The current administrative structure fails to encourage sustainable development of Australia's petroleum resources. This is because the regulation of petroleum is undertaken by seven different governments, under two administrative bodies, with no clear objective focused on implementing national petroleum objectives. An analysis of the single petroleum regulatory body in Norway (the NPD) demonstrates that the creation of such a legal institution is capable of securing the legal and administrative competence to implement the Norwegian petroleum objective of sustainable petroleum development for the benefit of Norwegian society.

The management of Australian offshore petroleum safety was similarly shared between multiple regulatory bodies until 2005, when a single administrative and regulatory authority (NOPSA) was created to regulate offshore petroleum safety. The establishment of NOPSA may serve as a model for a single administrative body for Australian offshore petroleum. The creation of single offshore petroleum administrative body is not only constitutionally possible in Australia, it is necessary to sustainably develop Australia's petroleum resources. The Australian Productivity Commission recommends that a single regulatory body should be established to ensure that effective resource management and development occurs.

Model contracts, such as the model *Joint Operating Agreement* (JOA) that is mandatory in Norway, have been demonstrated by the World Bank to be effective in creating favourable contractual frameworks by stipulating regulatory and commercial conditions for petroleum activities. They also ensure that oil companies operate within a framework that allows the State to fulfil its goal of creating value creation, as well as enabling the companies to maximise their return.

Australia does not have a mandatory or model contract requirement for petroleum activities and participants. However, there are the provisions for State Agreements in Western Australia. Whilst these agreements are not mandatory, where used they encourage efficient and the effective development of resources, and have secured benefits for Western Australian communities. This is because they define the rights and obligations of the parties, establish a framework for an ongoing relationship between the companies and the State and ensure that infrastructure is created for the local community.

Norway has utilised the JOA to regulate petroleum activities for the benefit of the Norwegian State. Firstly, as an external regulatory tool, the Norwegian State uses the provisions of the uniform contract to regulate the activities of the participants. In particular, by utilising the management committee provisions under article 1 of the JOA, the Norwegian State is able to ensure the active contribution of all participants. Secondly, as a participant in petroleum activities through direct State financial interest in petroleum fields, the Norwegian State utilises the JOA to ensure that its national petroleum objectives are met. The success of JOAs in Norway, and State Agreements in Western Australia in enabling the socio-economic benefits to accumulate to the State in the development of petroleum resources suggests that Australia should consider the mandatory use of contracts as a method of establishing regulatory efficiency and securing benefit for the State. This could be State agreements, or the use of a model form joint venture agreement.

The Norwegian experience demonstrates that State participation in the petroleum sector, and a principle based regulatory legislative framework contributes to sustainable development of petroleum, enabling the government to have a wide discretionary role to implement its national petroleum policies of maximising the value of petroleum resource development for the benefit of Norwegian society. It also enables the Norwegian State as a participant to direct petroleum activities to encourage sustainable development. By closely

regulating and administering petroleum activities, the Norwegian government supervises the conditions of production and resource development, to ensure that the activities of petroleum companies are aligned to State interests. Thus, the regulatory legislative framework and administration of petroleum activities that has been implemented by the Norwegian government demonstrates to Australian regulators the capacity to utilise the petroleum regulatory legislative framework to encourage sustainable development of petroleum resources.

6.4 The award of licences and sustainable petroleum development

In analysing the award of petroleum licences in chapter four, I assessed whether the allocation of petroleum licences in Australia encourages the sustainable development of petroleum resources.

My analysis of the bid system of allocation demonstrates that the award of petroleum licences using bidding (cash or work program) is appropriate in States where the primary objective of the State is to realise the greatest amount of economic rent. In the free market economy of the USA, the use of cash bidding tends to dominate, and is accepted as a method of allocation since it relies on the application of strict economic criteria to meet an economic objective. If the Australian government sought only to maximise its revenue from the exploitation of the petroleum resources, then the bid system of allocation of petroleum licences is ideal. However, in Australia, the State has the objective of attracting international investment to sustainably exploit Australia's petroleum resources. In attracting international investment, Australia seeks to provide a stable, transparent and predictable regulatory framework for participants. Yet my analysis of the current legislative provisions for the award

of licence using work program bidding (WPB) highlights a number of provisions that create uncertainty and inhibit predictability and transparency.

In particular, the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPAGGSA) enables the JA to award a licence to a bidder using discretion. Although OPAGGSA aims to award licences based on objective criteria, the provisions of the Act enable the discretionary award of licence based on the *opinion* of the JA after having regard to the advertised criteria, rather than it being a mandatory requirement. Together these provisions enable the JA to award a licence based on criteria other than advertised, objective criteria.

An element of discretion has also been introduced through the good standing provisions. These provisions enable an oil company to negotiate with the State for the abandonment of a mandatory work program. They also allow a company to negotiate a lower value of exploration work than that originally bid in the work program bid. This has the effect of not only creating uncertainty for bidders, but effectively undermining the economic basis upon which the work program bidding system is based.

The effect of the legislative provisions and the good standing provisions is that the system of award of licences is no longer transparent. Nor is it predictable. Although the Australian government seeks to award petroleum licences using work program bidding to provide predictability, transparency and certainty to applicants, it fails. Should Australia seek to achieve national petroleum objectives of attracting overseas investment to sustainably exploit Australia's petroleum resources, the method of allocation of petroleum licences in Australia needs to be reassessed.

Australia's relationship with oil companies differs to the balanced relationship that Norway has developed with oil companies through the discretionary allocation of petroleum licences. Since Australia allocates its licences on a work

bid system, there is an emphasis on encouraging companies with ‘deep pockets’ to continue to exploit Australia’s petroleum resources. The good standing provisions introduced by the Australian government have had serious repercussions on its relationship with international oil companies. Evidence suggests that the Australian government may have favoured some oil majors by cancelling work programs and reducing the monetary value of work requirements. This has created a power imbalance in the relationship between companies and the State, giving some oil companies an advantage. The Australian State has given the impression that it has favoured some oil majors because it ‘needs’ these large companies in order to meet its petroleum objectives of increasing international investment to exploit its resources. In the long term this may affect Australia’s capacity to attract other international investors, since there may be a perception that some more established companies are favoured.

My analysis of the current method of allocation of petroleum licences indicates that if Australia wishes to maintain the use of WPB, the current good standing provisions should be revoked. In addition, there needs to be legislative amendments that remove the current legislative discretion available to the JA in the award of licences. Only then would the design of the WPB system be appropriate to capture the economic rent.

In Norway, although the government allocates licences using its discretion, the criteria for the selection of a licence is provided to applicants prior to the award of licence through petroleum regulations and administrative guidelines. All applicants are aware of the conditions of the allocation of the licence, particularly the role that the State will play in the exploitation of petroleum. In addition, the use of the discretionary system for the allocation of petroleum licences enables a State to determine the relationship it will have with the oil companies it engages to exploit the resources it owns.

This use of discretion in Norway has enabled the State to define its relationship with the oil companies, as well as accomplish its objectives in exploiting its petroleum resources by setting conditions on the award of a licence. The government stipulation that all fields will be developed sustainably meets national petroleum objectives. In applying for the licences under these criteria, companies acquiesce to the conditions. These conditions of the award of licence enable the State to negotiate with the oil companies in a balanced relationship. The Norwegian State has abundant reserves of petroleum that oil companies wish to access, but it also wishes to exploit these resources for the long-term benefit of all Norwegians. Therefore, the State is willing to provide access to its resource on fair terms, ensuring that companies will realise an adequate profit. However, the companies must comply with the conditions stipulated upon the grant of licence, which ensure that Norway's petroleum objectives of sustainable development of its petroleum resources are met.

In order to sustainably develop its petroleum resources, Australia needs to be able to stipulate requirements for the development of its resources. Similar to Norway, Australia could use the allocation of petroleum licences to stipulate particular conditions, work or qualities required from applicants in each licencing round. These conditions may include exploration in frontier areas, contribution of data, minimal work programs, or particular exploration of production techniques. All of the criteria should be transparent, and be formulated to achieve policy objectives. This would allow Australia the scope to award a licence to the most appropriate company with the particular capabilities required, rather than the highest bidder. In doing so, Australia would be able to fulfil its national petroleum goals and sustainably exploit its petroleum resources.

Australia acknowledges that the WPB system of allocating petroleum licences is less than perfect, and may not be the most effective system of licence allocation to accomplish sustainable development of petroleum resources.

Furthermore, Australia acknowledges a need for research pertaining to the extent competitive work program bidding leads to excessive bids in some Australian basins. My analysis of the Australian WPB system of petroleum licence allocation demonstrates that Australia needs to consider allocating petroleum licences using the discretionary method of allocation, which is suited to accomplishing national petroleum objectives that encompass more than capturing economic rent. The Norway experience with the discretionary allocation of licences demonstrates that this method can be particularly effective to accomplish national petroleum objectives if it is implemented in a manner that assures transparency. The use of such transparent discretionary allocation of licences according to predefined and advertised criteria would be an effective way to explore Australia's petroleum provinces and meet Australia's petroleum policy goals.

In reviewing its method its method of allocating petroleum licences the commonwealth should still retain a large emphasis on the work program, similar to Norway. However, the allocation of licences should also encompass objective criteria that meet Australia's petroleum objectives of encouraging sustainable development increasing as well as international investment. The commonwealth could incorporate these objective criteria into the *Offshore Petroleum and Greenhouse Gas Storage Regulations 1985 (Cth)* to ensure that the process of award of petroleum licences is made using factual, transparent and current criteria. This will enable the JA to exercise its discretionary powers in a transparent manner. Furthermore, the current discretionary powers of the State under the WPB system that enable oil companies to abandon their primary work program on the basis of poor results in the first three years should be reviewed. This should be replaced with provisions for the discretionary allocation of petroleum licences using pre-determined criteria outlined in the petroleum regulations.

6.5 The impact of State regulation of petroleum production on sustainable petroleum development

In this thesis I examined whether government control over the method and timing of petroleum depletion is effective in the sustainable development of petroleum resources. I focused on State regulation of the method and rate of extraction of petroleum, considering whether this contributes to the sustainable development of petroleum resources.

The regulation of the rate and method of recovery of petroleum from fields has been applied in varying degrees in a number of jurisdictions in the last 40 years, as a method for the regulation of petroleum activities to meet national petroleum policy objectives. The success of such regulation has been mixed. In Norway, there were initial attempts to limit the rate of production from North Sea fields to less than 90 million tonnes oil equivalent. However, attempts to limit field production were unsuccessful in encouraging sustainable development of petroleum resources. Based on this experience, it is recommended that Australia does not regulate the rate of production to encourage sustainable petroleum production.

Sustainable extraction of petroleum from Norwegian fields is encouraged through legislative requirements for prudent petroleum production. This encourages sustainable extraction by ensuring that as much of each field as possible is produced, and is reviewed continually to ensure that the maximum recovery is accomplished. The major tool utilised by the Norwegian State to encourage sustainable petroleum development is the Plan for Development of Operations (PDO). This gives the capacity for the State to continually evaluate the method of extraction, and the petroleum province as a whole, to ensure that optimal depletion occurs. As part of the PDO, the Norwegian State works in partnership with industry and research organisations to develop technologies to maximise the recovery of petroleum from offshore fields.

The Australian government also requires the use of a field development plan (FDP). However, the role of the FDP is to obtain the necessary regulatory requirements for the granting of a petroleum licence. The view of the Australian State is that while new discoveries and technological progress continue to offset the effects of depletion of petroleum resources, then the State need not be concerned with the regulation of levels of depletion from petroleum fields. However, there is a question as to how long that trend will continue. Already Australia has moved from a self-sufficient petroleum producer in the late 20th century to a net petroleum importer. Furthermore, there is evidence from Western Australia and Norway that government regulation of field depletion is required to ensure that field sterilisation does not occur.

Australia's peak petroleum body APPEA has identified the need increase research and development to develop oil recovery techniques through research and development. APPEA recognises the advantages of the Norwegian innovation system, and evidence tendered to the House of Representatives acknowledges that Norwegian developed IOR techniques would assist in greater recovery from Australian offshore oil fields. Given these identified needs and the success of the Norwegian experience, the sustainable development of Australian petroleum resources is more likely to be encouraged from continued State regulation of petroleum extraction and the development of oil recovery techniques that will contribute to optimal extraction of depletion from fields.

To encourage the sustainable extraction of petroleum from a field, the Australian government should not contemplate the use of State control over the rate of petroleum. Rather, there should be the legislative capacity for the State to direct changes to field depletion methods to optimise recovery from offshore petroleum fields. There should also be a requirement for State and industry research into, and development of, oil recovery techniques that will assist in optimising the amount of oil recovered from Australian fields. In addition, field development plan (FDP) requirements in Australia should be altered to enable the review of

the recovery process and rate during the life of a field. Rather than the FDP only conferring start-up rights, the FDP should also include provision for State review.

To enable sustainable petroleum field extraction in Australia, the ‘good oilfield practice’ provisions of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) should be amended to incorporate not just ‘all things accepted as good and safe’, but to also encompass a capacity for the State to regulate activities to optimise recovery, including the capacity to order third party access to facilities and tie-in agreements. Furthermore, the current legislative provisions regulating recovery of petroleum from a field should be amended to enable the administrative authority to direct a licensee in the recovery of petroleum at any stage of the petroleum production process, not just at the commencement of petroleum production.

6.6 Conclusion

In this thesis, I have demonstrated that there are aspects of the Australian petroleum regulatory framework that fails to encourage the sustainable extraction of Australia’s offshore petroleum resources. By critically analysing a number of petroleum regulatory functions, I have demonstrated that in the areas of upstream offshore petroleum policy, legislative framework, allocation of licences, and field extraction, the current Australian offshore petroleum regulatory framework is not effective in encouraging the sustainable development of Australia’s petroleum resources.

By including an analysis of a number of other petroleum regulatory frameworks, particularly the Norwegian regulatory framework, I have also demonstrated that there is a more effective way Australia could regulate the development of its petroleum resources to encourage sustainable development. My comparative analysis has demonstrated that the Norwegian approach to petroleum resource

development has enabled Norway to balance the needs of Norwegian society with the need to remain attractive to oil companies to ensure the sustainable development of petroleum. The Norwegian approach to petroleum exploitation is premised on the sustainable development of petroleum resources, accomplished through an integrated approach to petroleum regulation.

The use of regulatory tools by Norway to sustainably recover petroleum provides an example of how the regulation of petroleum extraction is capable of encouraging sustainable development of petroleum extraction. Furthermore, my research and analysis demonstrates that it is possible to implement a number of changes in the Australian offshore petroleum regulatory framework to encourage greater sustainability in the extraction of petroleum resources in Australia.

Bibliography

Books, Articles and Reports

- Aarrestad, Jostein, 'Resource Extraction, Financial Transaction and Consumption in an Open Economy' (1979) *Scandinavian Journal of Economics* 552.
- ABARE, *Australia's Petroleum Resource Rent Tax: An Economic Assessment of Fiscal Settings* (2003) ABARE eReport 03.1.
- Access Economics, *Business Outlook, December 2008: Batten down the Hatches* (2009) www.accesseconomics.com.au at 9 November 2009.
- ACIL Consulting Pty Ltd, *Report to the Petroleum (Submerged Lands) Review Committee* (2000).
- Al-Attar, Abdulaziz and Alomair, Osamah, 'Evaluation of Upstream petroleum Agreements and Production Costs' (2005) *OPEC Review* 242.
- Alexander, E and Morton, J, 'Selecting the Winning Bid' (2002) *APPEA Journal* 523.
- Al Qasem, Anis, *Principles of Petroleum Legislation* (1985).
- Anenih, Omon, *The UK Petroleum Production Licence – Is it a Contract or Regulation and Does it Matter?* CEPMLP Annual Review (2002) <http://www.dundee.ac.uk/cepmlp/car/assets/images/Omon.pdf> on 12 December 2008.
- APACHE Energy, *Submission to the Australian Productivity Commission of Regulatory Burden on the Upstream Petroleum Sector* (2008) <http://www.pc.gov.au/dissertations/study/upstreampetroleum/initialsubmissions/sub014.pdf> at 16 September 2008.
- Australian Government, *Study Group on Structural Adjustment (Australia). Report March 1979 (The Crawford Report)* (1979).

Australian Petroleum Exploration Association, *Petroleum Policy in Australia: The Exploration Industry's Perspective* (1985).

APPEA, *Australia's Upstream Oil and Gas Industry: Platform for Prosperity* (2006).

APPEA, *Fast Facts* (2008)

http://www.appea.com.au/index.php?option=com_content&task=blogcategory&id=175&Itemid=295 at 29 January 2009.

APPEA, *Platform for Prosperity: Australian Upstream Oil and Gas Strategy* (2007).

APPEA, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008)
Submission 16

http://www.pc.gov.au/data/assets/pdf_file/0019/83422/sub016.pdf at 17 October 2008.

Arnesen, Finn, Hammer, Ulf, Høisveen, Per Håkon, Kaasen, Knut and Dagfinn, Nygard, 'Energy Law in Europe', in Roggenkamp, Martha M, Redgwell, Catherine, Guayo, Inigo Del and Rønne, Anita (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007).

Arnesen, Finn, 'The Relationship Between the Authorities and the Licencees' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 25.

Attorney-General's Department, *Offshore Constitutional Settlement: A Milestone in Cooperative Federalism* (1980)

http://www.ret.gov.au/resources/Documents/Upstream%20Petroleum/Offshore_Constitutional_Settlement.pdf at 12 October 2008.

Australian Bureau of Statistics, *Yearbook Australia 2001: Manufacturing From Settlement to the Start of the New Century* (2001)

<http://www.abs.gov.au/Ausstats/ABS@.nsf/Previousproducts/1301.0Feat>

[ure%20Article382001?opendocument&tabname=Summary&prodno=1301.0&issue=2001&num=&view=](http://www.environment.gov.au/esd/national/igae/index.html) at 18 May 2009.

Australian Government, Department of the Environment and Water Resources, *Intergovernmental Agreement on the Environment* (1990)
<http://www.environment.gov.au/esd/national/igae/index.html> at 22 December 2008.

Australian Labor Party, *Enduring Labor Values* (2007)
http://www.alp.org.au/platform/chapter_01.php at 18 March 2008.

Australian Labor Party, *The Government: Mid-Term Progress Report* (2009)
www.alp.com.au/media/0609/mspm150.php at 25 August 2009.

Australian Labor Party, *National Platform, 2007* ((2007)).

Australian Liberal Party, *What Does the Liberal Party Stand For?* (2008)
<http://www.liberal.org.au/about/ourbeliefs.php> at 18 March 2008.

Australian Productivity Commission, *Price Regulation of Airport Services* (2002).

Australian Productivity Commission, *Review of Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector: Productivity Commission Issues Paper* (2008)
http://www.pc.gov.au/data/assets/pdf_file/0018/82026/upstream-petroleum-issues.pdf at 11 August 2008.

Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Draft Report* (2008).

Australian Productivity Commission, *Review of Regulatory Burden on the Upstream (Petroleum and Gas) Sector – Research Report* (2009)
<http://www.pc.gov.au/projects/study/upstreampetroleum/report> at 6 May 2009.

-
- Auty, Richard M, *Sustaining Development in Mineral Resource Economies; The Resource Curse Thesis* (1993).
- Bakhtiari, Samsam, *Crude Oil: The Day After Tomorrow* (2006)
<http://www.sfu.ca/~asamsamb/Crude%20Oil%20The%20Day%20After%20Tomorrow/Crude%20Oil%20The%20Day%20After%20Tomorrow.htm> at 11 December 2006.
- Barker, Kate, *Adjusting to Low Inflation – Issues for Policy* Speech to Manchester Statistical Society, Manchester, 18 February 2003. Bank Of England (2003)
<http://www.bankofengland.co.uk/publications/speeches/2003/speech190.pdf> at 26 October 2006.
- Barrymore, S, 'Petroleum (Submerged Lands) Act 1967 – Rewrite and Beyond' (2006) 46 *APPEA Journal* 2006 533.
- Baumol, William and Blinder, Alan S., *Macroeconomics: Principles and Policy* (10th ed, 2006).
- Baunsgaard, Thomas, *Fiscal Policy in Nigeria: Any Role for Rules?* (2003) International Monetary Fund IMF Working Paper WP/03/155
<https://www.imf.org/external/pubs/ft/wp/2003/wp03155.pdf> at 3 December 2008.
- Beckerman, Wilfred, 'Economists and Sustainable Development: the OECD Report on Policies for Sustainable Development' (1997) 5 (4) *World Economics* 1.
- Bell, Stephen, *Australian Manufacturing and the State: The Politics of Industrial Policy in the Post-War Era* (1993).
- Berents, Fridjof, *Norway's Management of the Petroleum Revenues* (2006) UNCTAD Expert Meeting on FDI in Natural Resources, 20-22 November 2006

http://www.unctad.org/sections/wemu/docs/com2em20p007_en.pdf at 3
December 2006.

Berge, Gunnar, *The Working Relationship Between the Authorities and the Industry* (2007)

http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_GUNNAR_BERGE.pdf at 12 November 2009.

Black, Julia, *Principles Based Regulation: Risks, Challenges and Opportunities* (2007) Paper Presented at the Banco Court, Sydney, 27 March 2007.

Bolstad, Malfrid, *Norway's Social Security and Health Service* (2005)

UtenriksDeparmentet

<http://odin.dep.no/odin/english/norway/social/032005-990494/dok-bn.htm> at 30 October 2006.

Börzel Tanja A., and Risse, Thomas, Who is Afraid of a European Federation? (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer.

BP, *BP Statistical Review of World Energy: June 2009* (2009).

Brazil, Pat, *Offshore Constitutional Settlement 1980: A Case Study in Federalism* (2001) Centre for International and Public Law, Faculty of Law, Australian National University.

Bunter, Michael, *The Promotion and Licencing of Offshore Acreage* (2002),

Bunter, Michael, 'A New Approach to Petroleum Licencing' (2003) 1 (1) *Oil, Gas and Energy Law Intelligence*

<http://www.gasandoil.com/ogel/samples/freearticles/roundup_15.htm>

at 19 September 2006.

-
- Bygdevoll, Jan, *Field Development Plan, NPD* (2006)
http://www.ccop.or.th/ppm/document/PHEXV5/PHEXV5DOC03_bygdevoll.pdf at 12 March 2009.
- Cameron, Peter, *The Oil Supplies Industry: A Comparative Study of Legislative Restrictions and Their Impact* (1986).
- Cameron, Peter, *Property Rights and Sovereign Rights: The Case of North Sea Oil* (1983).
- Campbell, Colin *What is Peak Oil?* (2006) Association for the Study of Peak Oil and Gas <http://www.peakoil.net/> at 8 November 2006.
- Carney, Gerard, *The Constitutional Systems of the Australian States and Territories* (2006).
- Castles, Francis G, 'A Farewell to Australia's Welfare State' (2001) 31 (3) *International Journal of Health Services* 537.
- Centrelink, *Report a Suspected Fraud* (2006)
http://www.centrelink.gov.au/internet/internet.nsf/about_us/fraud_index.htm at 12 October 2008.
- Chamber of Minerals and Energy, *State Agreements* (2004).
- CIA Fact Book, *Australia* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/as.html> at 12 October 2009.
- CIA Fact Book, *Norway* (2009) <https://www.cia.gov/library/publications/the-world-factbook/geos/no.html> at 12 October 2009.
- Clarke, Jennifer, Keyzer, Patrick and Stellios, James, *Hanks' Australian Constitutional Law: Materials and Commentary* (8th ed. 2009).
- Committee of Inquiry into Telecommunications Services in Australia, *Report of the Committee of Inquiry into Telecommunications Services in Australia* (Chair J. A Davidson) (1982).

-
- Commonwealth of Australia, *Permit Conditions and Administration – Work Program Bidding System, 01/3/R6, November 2001* (2001).
- Commonwealth of Australia, *White Paper on Employment Policy* (1994).
- Cook, C, Creyke, R, Geddes, R and Hamer, D, *Laying Down the Law* (6th ed. 2005)
- Cook, Kay, *Centrelink Rhetoric and Reality: An analysis of Social Exclusion Amongst Low Income Women* (2004) Victorian Council of Social Services Social Policy Congress 2004, Melbourne, Australia, 4 August 2004.
- Cordes, John, ‘An Introduction to the Taxation of Mineral Rents’, in James Otto (ed) *the Taxation of Mineral Enterprise* (1995).
- Corkery, Jim, *Starting Law* (2002).
- Council of Australian Governments, *CoAG: Meeting Outcomes: Reducing the Regulatory Burden* (2006)
http://www.coag.gov.au/coag_meeting_outcomes/2006-07-14/index.cfm#reduce at 17 October 2007.
- Crommelin, Michael, ‘The Legal Character of Petroleum Production Licences in Australia’ in Terrence Daintith, *The Legal character of Petroleum Licences: A Comparative Study* (1981).
- Cruz, Peter de *Comparative Law in a Changing World* (2nd ed. 1999).
- Kenneth Dam, *Oil Resources: Who Gets What, How?* (1976).
- Daintith, Terence, ‘A Critical Evaluation of the Petroleum (Submerged Lands) Act as a Regulatory Regime’ (2000) *AMPLA Yearbook* 2000 91.
- Daintith, Terence, ‘Administering the Petroleum (Submerged Land) Act: Too Much Discretion or Too Little?’ (2004) *AMPLA Yearbook* 2004 1.
- Daintith, Terrence, *Discretion in the Administration of Offshore Oil and Gas* (2005).

-
- Daintith, Terrence, *The Legal Character of Petroleum Licences: A Comparative Study* (1981).
- Daintith, Terrence, *Research Report: Discretion and Prescription in the Administration of Petroleum Policy* (2005).
- Daintith, Terrence, 'State-Company Relations in Offshore Oil' in Barry Barton, *et. al, Regulating Energy and Natural Resources* (2006).
- Daintith, Terrence, and Willoughby, Geoffrey, *Manual of United Kingdom Oil and Gas Law* (1984).
- Kenneth Dam, *Oil Resources: Who Gets What How?* (1976).
- Dangard, Alain, 'Sustainable Development Indicators for the Minerals Industry: Who Needs Them? What Stakes Justify Producing Them?' in Bastida, Elizabeth, Walde, Thomas and Warden-Fernandez, Janet (ed), *International and Comparative Mineral Law and Policy* (2005).
- Dasgupta, Partha and Heal, Geoffrey, *Economic Theory and Taxable Resources* (1979).
- Davis, Jeffrey, Ossowski, Roland, Daniel, James and Barnett, Steven, *Stabilisation and Savings Funds for Non-Renewable Resources: Experience and Fiscal Policy Implications* (2001).
- Davis, Jerome, *Does One Size Fit All: Reflecting on Governance and North Sea Licencing Systems* (2004) Background Paper: BC Offshore: Potential and Problems a MASC Workshop for Lawyers, Dunismuir Lodge, Sidney BC, March 18-21, 2004.
- Deloitte, *Australia's Capacity to Build the LHD Ships* (2007).
- Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999).

Department of Industry, Tourism and Resources, *Cash Bidding System: A Guide in Relation to the Australian Government's Petroleum (Submerged Lands) Act 1967* (2004).

Department of Industry, Tourism and Resources, *Offshore Acreage Release 2006: Guide Notes for Applicants* (2006)
www.industry.gov.au/acreagereleases/2006/HTML/Guidance/guidance_contents.html at 7 April 2007.

Department of Industry, Tourism and Resources, *Offshore Acreage Release 2006: Roles and Responsibilities of Government* (2006)
www.industry.gov.au/acreage_releases/2006/HTML/Overview/contents_8.HTML at 7 April 2007.

Department of Industry, Tourism and Resources, *Offshore Petroleum Guidelines for a Grant of a Production Licence and Grant of an Infrastructure Licence* (2002).

Department of Industry, Tourism and Resources, *Report on the Consolidation of Regulations under the Petroleum (Submerged Lands) Act 1967* (2007).

Department of Industry, Science and Resources, *Australian Offshore Petroleum Strategy: A Strategy to Promote Petroleum Exploration and Development in Australian Offshore Areas* (1999).

Department of Primary Industries, *Offshore Strategy: Promoting Petroleum Exploration Offshore Australia* (1990).

Department of Resources, Energy and Tourism, *Energy Security* (2008)
http://www.ret.gov.au/energy/energy_security/Pages/EnergySecurity.aspx at 2 October 2008.

Department of Resources, Energy and Tourism, *An Overview for Applicants* (2009)
http://www.ret.gov.au/resources/Documents/acreage_releases/2009/OverviewForApplicants.pdf at 25 August 2009.

-
- Department of Resources, Energy and Tourism, *A Guide for Applicants* (2009) http://www.ret.gov.au/resources/Documents/acreage_releases/2009/GuidanceNotesForApplicants.pdf at 21 August 2009.
- Department of Resources, Energy and Tourism, *Release of Offshore Petroleum Exploration Areas Australia 2008: An Overview for Applicants* (2008) <http://www.ret.gov.au/Documents/acreagereleases/2008/site/page2.htm> at 12 June 2008.
- Department of Resources, Energy and Tourism, *Resources* (2009) www.ret.gov.au/resources/Pages/Resources.aspx at 2 February 2009.
- Department of Resources, Energy and Tourism, *Resources Taxation Legislation* (2008) <http://www.ret.gov.au/resources/enhancing/taxation/Pages/ResourcesTaxationLegislation.aspx> at 12 November 2008.
- Devaraj, M, 'Government Policies Concerning the Discovery and Development of New Offshore Oil Provinces, with Focus on India and the North Sea' (1983) 8 *Ocean Management* 251.
- Ebrahim-Zadeh, Christine, 'Back to Basics - Dutch Disease: Too Much Wealth Manage Unwisely' (2003) 40 (1) *Finance And Development* International Monetary Fund <http://www.imf.org/external/pubs/ft/fandd/2003/03/ebra.htm> at 4 December 2006.
- EIA, *Short Term Energy Outlook 2009-10* (2009) <http://www.eia.doe.gov/steo> at 15 November 2009.
- EIA, *Petroleum Price Navigator* (2009) <http://tonto.eia.doe.gov/dnav/pet/hist/wtotworldw.htm> at 18 November 2009.
- Ellis, Luci, *The Global Financial Crisis: Causes, Consequences and Counter Measures* (2009) Reserve Bank of Australia, Paper Presented at the

Conference 'Australia in the Global Storm: A Conference on the Implications of the Global Financial Crisis for Australia and its Region' Victoria University, Melbourne 15 April 2009.

http://www.rba.gov.au/Speeches/2009/sp_so_150409.html at 12 October 2009.

Energy Task Force, *Securing Australia's Energy Future* (2004).

Engen, Ole Andreas H, *The Development of the Norwegian Petroleum Innovation System: A Historical Overview* (2007) TIK Working Paper on Innovation Studies No. 20070605.

Enoksen, Odd Roger, *Building a Sustainable Petroleum Industry: The Norwegian Experience* (2007) Speech given at Mexico-Norway Meeting on Cooperation in the Energy Sector 22 March 2007

http://www.regjeringen.no/en/tidligere_statsraader/Minister-of-Petroleum-and-Energy/Speeches-and-articles/2007/Building-a-sustainable-petroleum-industr.html?id=460505 at 10 December 2007.

Enoksen, Odd Roger, *Capabilities of the Norwegian Oil and Gas Industries: How Can We Increase Cooperation Between India and Norway* (2006) Speech given at the Indo-Norwegian Business Cooperation in the Oil and Gas and Maritime Sector. Mumbai, India, 30 October, 2006.

http://www.regjeringen.no/en/dep/oed/whats-new/speeches-and-articles/the_minister/speeches-and-articles/2006/capabilities-of-the-norwegian-oil-and-ga.html?id=425665 at 14 December 2009.

Enoksen, Odd Roger, *International Oil and Gas Business Day* (2006) Speech given in Oslo on 21 August 2006,

<http://www.dep.no/oed/english/news/speeches/minister/026031-090187/dok-bn.html> at 22 December 2006.

Eriksen, Tore, *The Norwegian Petroleum Sector and the Government Pension Fund – Global* (2006)

http://www.regjeringen.no/upload/FIN/Statens%20pensjonsfond/The_Norwegian_Petroleum_Sector_te.pdf at 7 November 2009.

Esso/BHP, *Bass Strait Oil and Gas* (2002)

http://www.exxonmobil.com/Australia-English/PA/Files/publication_2002_BassStrait.pdf at 2 August 2007 .

Europa, *The European Commission* (2008)

http://europa.eu/institutions/inst/comm/index_en.htm at 24 August 2009.

Explanatory Memorandum, Offshore Petroleum Bill, 2005 (Cth).

Evans, Gareth, 'The Petroleum Industry: Building Our Achievements' (1985)
25 APPEA Journal 22.

Frewer, Geoff, 'Auctions vs. Discretion in the Licencing of Oil and Gas
Acreage ' in G MacKerron and P Pearson (eds) *The International Energy
Experience: Markets, Regulation and the Environment* (2000).

Gao, Zhiguo, 'International Petroleum Exploration and Exploitation
Agreements: A Comprehensive Environmental Appraisal' (1994) 12
Journal of Energy and Natural Resources Law 240.

Gaudet, Gerard, *Natural Resource Economics under the Rule of Hotelling*
(2007) Presidential address delivered at the 41st meeting of the Canadian
Economics Association, Halifax, June 2007.

Geoscience Australia, *Australia's Maritime Jurisdiction Extended* (2008)
<http://www.ga.gov.au/ausgeonews/ausgeonews200806/inbrief.jsp> at 31
January 2008.

Geoscience Australia, *Big New Oil Program* (2004)
http://www.ga.gov.au/oceans/og_BigNewOil.jsp at 21 October 2006.

Gjerde, Gunnar, *The Norwegian Model And The Working Relationship Between
The Authorities and the Industry- As Seen From The Authorities' Point
Of View* (2007)

http://www.regjeringen.no/Upload/OED/Vedlegg/Norwegian%20model/Norwegian_model_program_Gunnar_Gjerde.pdf at 12 August 2009.

Gjedrum, Svein *From Oil and Gas to Financial Assets – Norway’s government Pension Fun* (2008) Speech Given at the Commodities, the Economy and Money conference in Calgary, Canada 20 June 2008, http://www.norges-bank.no/templates/article_70345.aspx at 26 January 2009.

Godley, James ‘Common Law und Civil Law: eine uberholte Unterscheidung’ (1993) 1 *Zeitschrift fur Europaisches Privatrecht* 498, in Reinhard Zimmermann, ‘Comparative Law and the Europeanization of Private Law’ (2006), chapter in Mathias Riemann and Reinhard Zimmermann (eds) *The Oxford Handbook of Comparative Law* (2006).

Goodman, James and Worth, David ‘The Mineral Resources Boom and Australia’s Resources Curse’ (2008) 61 *Journal of Political Economy* 201.

Gordon, Richard *Statoil: Lessons From a Study of Political Entrepreneurship: Presentation* (2007)
http://www.rice.edu/energy/publications/docs/NOCs/Presentations/Dubai-Gordon_Stenvoll-Statoil.pdf at 12 January 2008.

Gordon Richard and Stenvoll, Thomas, *Statoil: A Study in Political Entrepreneurship* (2007) James A Baker III Institute for Public Policy, Rice University
http://www.rice.edu/energy/publications/docs/NOCs/Papers/NOC_Statoil_Gordon-Stenvoll.pdf at 12 December 2009.

Green, James R and Teece, David J, Four Approaches to Telecommunications Deregulation and Competition: the USA. the UK, Australia and New Zealand (1998) 7 (4) *Industrial and Corporate Change* 623.

Gylfason, Thorvaldur, *Lessons From Dutch Disease: Causes, Treatment and Cures* (2001) Institute of Economic Studies, Working Paper W01:06.

-
- Hammer, Ulf, 'Introduction' in Nordisk Institutt for Sjørett, *Petroleum Law Compendium, Volume 1* (2007) 23.
- Hannesson, Rognvaldur, 'Saving Petroleum Wealth: Tales of Three Jurisdictions' in Glomsrod, Solveig and Osmundsen, Petter, *Petroleum Industry Regulation Within Stable States* (2005).
- Harting, Robert and Kofler, Willibal, *Resource Economics* (2006).
- Hartwick, John M, *Non-renewable Resources: Extraction Programs and Markets* (1989).
- Hartwick, John M, 'Intergenerational Equity and the Investing of Rents from Exhaustible Resources' (1977) 67 (5) *The American Economic Review* 972.
- Hasna, Abdullah M 'Dimensions of Sustainability' (2007) 2 (1) *Journal of Engineering for Sustainable Development* 47.
- Hodne, Fritz, *An Economic History of Norway 1815-1970* (1975).
- Holt-Jensen, Arild, 'The Sharing of Petroleum Resources: Resource Poverty and Richness Around the Northern European Seas With Special Reference to the Norwegian Position' (1996) 39 (2) *Geojournal* 211.
- Hosseini, Kamal, *Law and Policy in Petroleum Development: Changing Relationships Between Transnationals and Governments* (1979).
- House of Representatives Standing Committee on Industry, Science and Resources, *The Northwest Shelf: A Sea of Lost Opportunities* (1989).
- House of Representatives Standing Committee on Industry, Science and Resources, *Sea of Indifference: Australian Industry Participation in the North West Shelf Project* (1998).
- Hubbert, M King, *Nuclear Energy and the Fossil Fuels* (1956) Presented before the Spring Meeting of the Southern District Division of Production, American Petroleum Institute, Plaza Hotel, San Antonio, Texas, March 7-

9, 1956 <http://www.hubbertpeak.com/Hubbert/1956/1956.pdf> at 14
December 2009.

Hubbert, M King, *Nuclear Energy and the Fossil Fuels* (1956) Publication No.
95, Shell Development Company, Exploration and Research Division
<http://www.energybulletin.net/print.php?id=13630> at 4 December 2006..

Hughes, R, Leane, G and Clarke, A, *Australian Legal Institutions: Principles,
Structures and Organisation* (2nd ed. 2003).

Humphries, Macartan, Sachs, Jeffrey D, and Stiglitz, Joseph E, (eds), *Escaping
the Resource Curse* (2007).

Humphries, Macartan, Sachs, Jeffrey D, and Stiglitz, Joseph E, 'Introduction,
What is the Problem With Natural Resource Wealth?' in Humphries,
Macartan, Sachs, Jeffrey D, and Stiglitz, Joseph E, (eds), *Escaping the
Resource Curse* (2007).

Humphries, Marc, *Outer Continental Shelf: Debate Over Oil and Gas Leasing
and Revenue Sharing* (2008) CRC Report for Congress,
<http://ncseonline.org/NLE/CRSreports/07Dec/RL33493.pdf> at 11
November 2008.

Hunt, Constance D, *The Offshore Petroleum Regimes of Canada and Australia*
(1989).

Inamdar, Amar, 'International Best Practice In Sustainable Development',
(2002) Government of Papua New Guinea
<http://www.mineral.gov.pg/GreenPaper/WorkingPaper8.htm> at 22
December 2007.

Independent Review of Australian Shipping, *A Blueprint for Australian
Shipping* (2003).

Ingebrigtsen, Guri, *Increasing Social Inequality, Towards a Fragmented Social
Policy* (2002)

http://www.dep.no/odinarkiv/english/stoltenberg_I/shd/030001-090011/dok-bn.html at 21 March 2008.

International Energy Agency, *Energy Policies of IEA Countries* (2004).

International Energy Agency (IEA), *Energy Policies of IEA Countries – Norway 2005 Review* (2005).

International Energy Agency (IEA), *IEA Commends Norwegian Energy Policy For Exemplary Management of Resources and Wealth, but Outlines challenges on Climate change and Energy Security*. (2005)
http://www.iea.org/textbase/press/pressdetail.asp?PRESS_REL_ID=165
at 21 March 2008.

International Monetary Fund, *Australia – 2008: Article IV Consultation: Concluding Statement* (2008)
<http://www.imf.org/external/np/ms/2008/070108.htm> at 10 September 2009.

INTSOK – Norwegian Oil and Gas Partners, *Government Role* (2004)
<http://www.intsok.no/PHP/index.php?id=79> at 22 December 2006.

Jensen, T B, Harpole, K J and Oosthus, A *EOR Screening for Ekofisk* (2000)
Society of Petroleum Engineers Paper SPE 65124.

Jacobs, Michael, *Sustainable Development as a Contested Concept* in Dobson, A (ed) *Fairness and Futurity* (1999).

Johnson, Daniel, *International Petroleum Fiscal Systems and Production Sharing Contracts* (1994).

Kaasen, Knut, 'Scope of Joint Operating Agreements in Norway' (2000) 261 *Marius* 127.

Keating, Paul, 'The Labor Approach to Petroleum Exploration Development and Pricing' (1980) 20 *APPEA Journal* 16.

-
- Keynes, John Maynard, *The General Theory of Employment, Interest and Money* (1936).
- Keyzer, Patrick, *et. al.*, *Australian Constitutional Law: Materials and Commentary* (7th ed. 2004).
- Kind, Hans Jarle, Osmundsen, Petter and Tveterås, Ragnar, 'Critical Factors in Transnational Companies' Localisation Decisions: Cluster and Portfolio Optimisation' in Solveig Glomsrod and Petter Osmundsen, *Petroleum Industry Regulation Within Stable States* (2005).
- Kingma, Onko and Volker, Paul, 'Structural Adjustment in the Manufacturing Sector: A Review of the Crawford Report' (1980) 5 (1/2) *Australian Journal of Management* 1.
- Johannes Kjøde in Norwegian Petroleum Directorate, 'A Long Road to Travel: How Norway Hands out Petroleum Acreage' (2007) 2007 (1) *Norwegian Continental Shelf* 24.
- Kneese, Allen K, 'The Economics of Natural Resources' (1988) 14 *Population and Development Review* 281.
- Kneese, Alan, and Sweeney, James (eds), *Handbook of Natural Resources and Energy Economics: Volume III* (1993).
- Kommunal og Regionaldepartementet, *The Main Features of the Norwegian Election System – Summary* (2005)
http://www.dep.no/odinarkiv/english/bondevik_II/krd/016051-090142/dok-bn.html at 1 August 2006.
- Kraukraemer, Jeffrey 'Non-Renewable Resource Scarcity' (1998) XXVI *Journal of Economic Literature* 2065.
- Kretzer, Ursula M H, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299.
- Kumar, Raj 'Taxation for a cyclical industry' (1991) June *Resources Policy* 133.
- Kvendseth, Stig S, *Ekofisk The First 20 Years* (1991).

-
- Larsen, Erling Røed, *Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors* (2004) Discussion Papers No. 377, May 2004, Statistics Norway, Research Department.
- Larsen, Erling Røed, 'Escaping the Resources Curse and Dutch Disease? When and Why Norway Caught Up With and Forged Ahead of its Neighbors' (2006) 65 (3) *American Journal of Economics and Sociology* 605.
- Lee, Myungan, 'Measure of the Insitu Value of Exhaustible Resources: An Input Distance Function' (2006) 62 *Ecological Economics* 490.
- Leigh, Andrew, 'Trade Liberalisation and the Australian Labor Party' (2002) 48 (2) *Australian Journal of Politics and History* 487.
- Lerøen, Bjørn Vidar, *Drops of Black Gold: Statoil 1972-2002* (2002).
- Leben, Charles, 'A Federation of Nation States or a Federal State' (2000) *Harvard Jean Monnet Working Paper (Symposium)*, part of Jean Monnet Working Paper No.7/00, Symposium: Responses to Joschka Fischer.
- Liberman, Sima, *The Industrialization of Norway 1800-1920* (1970).
- Lilly, Dr Peter, *CSIRO's Minerals Down Under* (2009) Keynote Address at the 6th Annual *Australian Mining Prospect Awards*, 13 November 2009.
- Lind, T and Mackay, G, *Norwegian Oil Policies* (1980).
- Local Government Association of Australia, *Declaration on the Role of Australian Local Government* (1997)
<http://www.alga.asn.au/about/declaration.php> at 12 August 2009.
- Lloyd, Christopher, 'Economic Policy and Australian State Building: From Labourist Protectionism to Globalisation' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003).
- MacKerron G, and Pearson, P, (eds) *The International Energy Experience: Markets, Regulation and the Environment* (2000).

-
- Mallesons Stephen Jaques, *Joint Ventures* (2005)
<http://www.mallesons.com/publications/2005/Dec/8222123W.htm> at 12
July 2009.
- Maloney, David, 'Australia's Offshore Petroleum Work Program Bidding
System' (2008) 21 *Journal of Natural Resources* 127.
- Marcel, Valerie, *States of Play: National Oil Companies Control 80% of the
Worlds Oil Resources But They Are Not All The Same* (2009)
http://www.foreignpolicy.com/articles/2009/08/17/states_of_play at 27
November 2009.
- Maritz, Athol *Work Program Bidding in Australia's Upstream Oil and Gas
Industry, 1985 – 1999* (2003) ABARE Report 03.14, Prepared for the
Department of Tourism and Resources
http://www.abare.gov.au/publications_html/energy/energy_03/er03_work_program.pdf at 12 December 2007.
- Martinet, Vincent and Doyen, L, 'Sustainability of an Economy with an
Exhaustible Resource: a Viable Control Approach' (2006) *Resource and
Energy* 17.
- Mead, Walter 'Towards an Optimal Oil and Gas Leasing System' (1994) 15 (4)
Energy Journal 1.
- Michelat, Thomas and Rasmussen, Dag Erik, *Country Reports: Norway
Legislation Guide* (2006)
<<http://www.iflr1000.com/default.asp?page=38&CH=3&sIndex=2&CountryID=53>> at 20 October 2006.
- Miles, Catia Malaquias 'AIPN 2002 Model Joint Operating Agreement in Oil
and Gas Joint Ventures' (2003) 22 *Australian Resources and Energy
Law Journal* 153.
- Minchin, Senator Nick, *Media Release: Governments Agree to Shell
Maintaining Good Standing* (1999).

-
- Ministry of Finance, *Petroleum Industry in Norwegian Society* (1974) Storting Report No. 25, 1973-4.
- Ministry of Foreign Affairs, *Norway's Action Plan for Sustainable Development* (2004) UN Commission on Sustainable Development, 12th Session, New York, 23 April 2004.
- Ministry of Petroleum and Energy, *Norway, APA 2008 – Broad Interest for Mature Norwegian Shelf* (2008)
<http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2008/apa-2008--broad-interest-for-mature-area.html?id=528899>
at 12 October 2008.
- Ministry of Petroleum and Energy, *APA 2009: Continued Broad Interest for Mature Areas on the Norwegian Continental Shelf* (2009) Press Release 16 September 2009, <http://www.regjeringen.no/en/dep/oed/press-center/Press-releases/2009/apa-2009-continued-broad-interest-for-ma.html?id=577167> at 19 October 2009.
- Ministry of Petroleum and Energy, *Oil and Gas Activities: Report no. 38 to the Storting (2001-2). Unofficial English Translation* (2002).
- Ministry of Petroleum and Energy, *Norwegian Oil History in Brief*, (2006)
<http://www.odin.dep.no/filarkiv/204702/FactsOG0104.pdf> at 23 December 2006.
- Ministry of Petroleum and Energy, *Petoro AS* (2006)
http://www.dep.no/oed/norsk/dok/andre_dok/brosjyrer/026031-120016/dok-bn.html at 23 December 2006.
- Ministry of Petroleum and Energy, *Report no. 38 to the Storting (2003-2004) On Petroleum Activity. Unofficial English Translation* (2004).
- Ministry of Petroleum and Energy, *Speech by the State Secretary Bjorg Sandal, in Baku, Azerbaijan 5 June 2000.*
http://www.odin.no/odinarkiv/english/stoltenberg_I/oed/026031-090011/dok-bn.html at 23 December 2006.

Ministry of Petroleum and Energy, *The State's Direct Financial Interest* (2004)
<http://www.odin.dep.no/oed/english/doc/026031-120017/dok-bn.html> at
23 December 2006.

Ministry of Petroleum and Energy, *Statoil ASA* (2006)
<http://www.odin.no/oed/english/doc/026031-120018/dok-bn.html> at 23
December 2006.

Mommer, Bernard *Private Landlord-Tenant Relationship in British Coal and
American Oil: A Theory of Mineral Leases* (1997).

Morgan, Bronwen and Yeung, Karen, *An Introduction to Law and Regulation:
Text and Materials* (2007).

Morse, Edward L, 'The Battle For Energy Dominance' (2002) March/April
Nature [http://www.foreignaffairs.org/20020301faessay7969/edward-l-
morse-james-richard/the-battle-for-energy-dominance.html](http://www.foreignaffairs.org/20020301faessay7969/edward-l-morse-james-richard/the-battle-for-energy-dominance.html) at 27
December 2006.

Moss, Guiditta Cordero, 'Contract or Licence? Regulation of Petroleum
Investment in Russia and the Role of Foreign Legal Advice' (1998) 3-11
CEPMLP Internet Journal
<http://www.dundee.ac.uk/cepmlp/gateway/index.php?news=28136> at 12
January 2008.

Myhra, Espen, *Introduction to Different Licencing Systems*, (2006) 5th
Workshop of Philippines Petroleum Policy and Management Case Study,
14-18 March, 2006, Cebu City,
[http://www.ccop.or.th/ppm/document/PHWS5/PHWS5DOC07_myhra.p
df](http://www.ccop.or.th/ppm/document/PHWS5/PHWS5DOC07_myhra.pdf) on 11 November 2008.

National Energy Technology Laboratory, *Exploration and Production
Technologies: Improved Recovery: EOR* (2008)
<http://www.netl.doe.gov/technologies/oil-gas/index.html> at 2 February
2009.

-
- Nelsen, Brent F, 'Explaining Petroleum Policy in Britain and Norway, 1962 – 90' (1992) 15 (4) *Scandinavian Political Studies* 307.
- Nelsen, Brent F, *The State Offshore: Petroleum, Politics and State Intervention on the British and Norwegian Continental Shelves* (1991).
- Niskanen, William A, *The Concise Encyclopaedia of Economics* (2002) <http://www.econlib.org/library/Enc1/Reaganomics.html> at 12 October 2009.
- NOPSA, *History of NOPSA* (2008) <http://www.nopsa.gov.au/history.asp> at 10 August 2008.
- Noreng, Øystein, *The Oil Industry and Government Strategy in the North Sea* (1980).
- Noreng, Øystein, 'Norway: Economic Diversification and the Petroleum Industry' (2004) XLVII (45) *Middle East Economic Survey* <http://www.mees.com/postedarticles/oped/a47n45d01.htm> at 23 December 2006.
- Noreng, Øystein with Tehrani, Farshad, *The Norwegian Experience of Economic Diversification in Relation to Petroleum Industry and the Relevance to Iran* (2005) The 10th Institute for International Energy Studies (IIES) Conference Tehran 4-5 December 2005.
- Norges Bank, *Government Pension Fund, Global: Size and Return* (2009) http://www.norges-bank.no/templates/article_41397.aspx as at 26 August 2009.
- Norges Offentlige Utredninger, *Organiseringen av statens deltagelse i petroleumsvirksomheten* (1983) NOU 1983.
- Norsk Finans Departementet, *Report No. 29 to the Stortinget (2002 – 2001): Guidelines for Economic Policy* (2002).

Norsk Hydro 1905: *A New Working Day – 2 December 1905* (2006)

<http://www.hydro.com/en/About-Hydro/Our-history/1900---1917/1905-A-new-working-day--2-December-1905/> at 17 March 2009.

Norsk Oljedirektoratet, *Mange Søkere til TFO 2008* (2008)

http://www.npd.no/Norsk/Emner/Ressursforvaltning/Undersokelse_og_leting/Konsesjonsrunder/2008_10_3_TFO2008.htm at 4 August 2009.

Norsk Sosial- og HelseDepartementet, *White Paper no. 50 (1998 – 1999): The Equitable Redistribution White Paper* (1999)

<http://www.dep.no/aid/english/doc/reports/030005-994052/dok-bn.html> at 17 March 2009.

Norway in International Trade (2005)

<http://www.norway.org/policy/trade/trade/general.htm> at 22 December 2006.

Norwegian Petroleum Directorate, *A Long Road To Travel: How Norway Hands out Petroleum Acreage* (2008)

http://www.npd.no/English/Emner/Ressursforvaltning/Undersokelse_og_leting/19.9.2007+Ein+grundig+prosess.htm?print=true at 22 June 2008.

Norwegian Petroleum Directorate, *Annual Report, 1998* (1998).

Norwegian Petroleum Directorate, 'Big Assets in Small Pores' (2008) 1
Norwegian Continental Shelf 7.

Norwegian Petroleum Directorate, *Fact Pages: Ekofisk* (2008)

<http://www.npd.no/engelsk/cwi/pbl/en/index.htm> at 19 January 2009.

Norwegian Petroleum Directorate, *Facts 2001: The Norwegian Petroleum Sector* (2001) .

Norwegian Petroleum Directorate, *Facts 2003: The Norwegian Petroleum Sector* (2003).

-
- Norwegian Petroleum Directorate, *Facts 2006: The Norwegian Petroleum Sector* (2006) <http://www.odin.no/filarkiv/278568/Fakta-eng2.pdf> at 21 December 2006.
- Norwegian Petroleum Directorate, *Facts 2007: The Norwegian Petroleum Sector* (2007).
- Norwegian Petroleum Directorate, *Facts 2008: The Norwegian Petroleum Sector* (2008).
- Norwegian Petroleum Directorate, *Facts 2009: The Norwegian Petroleum Sector* (2009).
- Norwegian Petroleum Directorate, *Guidelines To Plan For Development and Operation of a Petroleum Deposit (PDO) and Plan for Installation and Operation of Facilities for Transport and Utilisation of Petroleum (PIO), 2000* (2000) http://www.npd.no/regelverk/r2002/frame_e.htm at 22 March 2009.
- Norwegian Petroleum Directorate, *History* (2005) <http://www.npd.no/en/About-us/Organisation/History/> at 12 October 2008.
- Norwegian Petroleum Directorate, *Invitation to Apply for Petroleum Production Licence*, (2008) <http://www.npd.no/Global/Engelsk/2%20-%20Topics/%5BLicence%20awards%5D/Invitation%20to%20apply%20for%20petroleum%20production%20licence.pdf> at 13 December 2009.
- Norwegian Petroleum Directorate, *More Focus on Improved Oil Recovery* (2008) http://www.npd.no/English/Aktuelt/Nyheter/2008_11_12_mer_trykk.htm at 12 March 2009.
- Norwegian Petroleum Directorate, *The Norwegian Petroleum Directorate* (2009) <http://www.npd.no/en/About-us/> at 27 November 2009.

-
- Norwegian Petroleum Directorate, *Newsletter No. 15, October 1998* (1998)
<http://www.npd.no/engelsk/npetres/newsletter/no1598/default.htm#Ekofisk%20IOR> at 22 June 2008.
- Norwegian Petroleum Directorate, *Norwegian Organisation of the Petroleum Sector* (2006) <http://www.regjeringen.no/en/dep/oed/The-Ministey/Other-political-Staff/avskjedigete/State-Secretary--Anita-Utseth-/Speeches-and-articles/2006/The-Norwegian-organisation-of-the-petroleum-sector.html?id=420787> at 2 December 2008.
- Norwegian Petroleum Directorate, *Production Licence – Licence to Explore, Discover and Produce* (2008)
http://www.npd.no/English/Emner/Ressursforvaltning/Undersokelse_og_leting/Konsesjonsrunder/2008_10_17_Utvinningsloyve.htm at 26 January 2009.
- Norwegian Petroleum Directorate, 'Recovering Progress on IOR' (2008) 2 *Norwegian Continental Shelf* 9.
- Norwegian Royal Ministry of Justice, *Administration of Justice in Norway: A Brief Summary* (1980).
- Norwegian Storting, *Comprehensive Management Plan for the Marine Environment and the Waters off Lofoten* (2006) Storting White Paper No. 8 (2005-6).
- Norwegian Storting, *Petroleum Industry in Norwegian Society*, (1974) Storting Report No. 25 1973-4.
- Norwegian Storting, *Storting Melding No. 73* (1983-84) .
- Norwegian Storting, 'Storting Proposal No. 114 (1971-1972)', 8 in Arnesen, Finn, Ulf Hammer, Høisveen, Per Håkon, Kaasen, Knut and Dagfinn, Nygard, 'Energy Law in Europe', in M Roggenkamp, Martha, Redgwell, Catherine, Guayo, Inigo Del and Rønne, Anita (eds), *Energy Law in Europe: National, EU and International Regulation* (2nd ed. 2007),

-
- Ogus, Anthony 'Regulation' (2004) in Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (2007).
- Olsen, Willy H, *Petroleum Revenue Management- An Industry Perspective* (2002) 2 Paper presented at the Oil, Gas, Mining and Chemicals Department of the WBG and ESMAPO, Workshop on Petroleum Revenue Management, Washington DC, 23-24 October 2004.
- Onorato, William T, *Legislative Frameworks Used to Foster Petroleum Development* (1995) World Bank Policy Research Working Paper 1420.
- Onorato, William T, 'World Petroleum Legislation: Frameworks that Foster Oil and Gas Development' (2001) 39 (1) *Alberta Oil Review* 70.
- Oppeboen, Kjell-Arne, *KonKraft: A Cooperation Process to Strengthen The Oil and Gas Business in Norway* (2004) Speech given at Rio Oil and Gas Conference, Rio, 20 October 2004.
- Organisation for Economic Cooperation and Development, *Economic Survey: Norway* (2005).
- Organisation for Economic Cooperation and Development, *E-Government Studies: Norway Assessment* (2006)
[http://www.oilis.oecd.org/COMNET/PUM/egovproweb.nsf/viewHtml/index/\\$FILE/Norway_exesum.pdf](http://www.oilis.oecd.org/COMNET/PUM/egovproweb.nsf/viewHtml/index/$FILE/Norway_exesum.pdf) at 21 March 2006.
- Organisation for Economic Cooperation and Development, *Glossary of Statistical Terms* (2007)
<http://stats.oecd.org/glossary/detail.asp?ID=1730> at 13 December 2009.
- Organisation for Economic Cooperation and Development, *Managing Across levels of Government: Norway* (1997)
<http://www.oecd.org/dataoecd/10/12/1902291.pdf> at 8 August 2006.
- Origin Energy, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector*

(2008) Submission 27

http://www.pc.gov.au/data/assets/pdf_file/0003/85872/subdr027.pdf at 27 November 2009.

O'Rourke, Kevin and Williamson, Jeffrey, *Globalization and History* (1999).

Orucu, A Essin, 'Methodology of Comparative Law' in J M Smits (ed), *Elgar Encyclopaedia of Comparative Law* (1998), 442.

OSPAR Commission, <http://www.ospar.org/eng/html/welcome.html> at 3 April, 2007.

OSPAR Commission, *About OSPAR* (2008)

[http://www.ospar.org/content/content.asp?menu=000101000000_000000_000000](http://www.ospar.org/content/content.asp?menu=00010100000000_000000_000000) at 24 August 2009.

OSPAR Commission, *Principles* (2008)

http://www.ospar.org/content/content.asp?menu=00320109000000_000000_000000 at 24 August 2009

Parer, Warwick, 'Delivering National Prosperity' (1998) Address to the 1998 APPEA Conference 9 March 1998, Canberra. 38 *APPEA Journal Part 2*.

Parer, Warwick, *Launch of the Commonwealth Government's Minerals and Petroleum Resources Policy Statement Parliament House, Canberra 2 February, 1998* (1998)

http://www.daff.gov.au/data/assets/pdf_file/0003/23763/ministers_parer_speeches.pdf at 2 December 2008.

Paris Club, *Agreements With Norway as a Participating Creditor Country* (2006)

http://www.clubdeparis.org/en/countries/countries.php?INDICE_DET=37 at 26 October 2006.

Parker, David, *The History of Privatisation: Volume 1: The Formative Years 1970-1887* (2009).

Pearce, D W (ed), *The MIT Dictionary of Modern Economics* (1986).

Pearce, David and Turner, R Kerry, *Economics of Natural Resources and the Environment* (1990).

Pearce, Dennis, *Delegated Legislation in Australia* (2005),

Petroleum, Industry and Resources of South Australia, *Petroleum Act 2000 Summary*, (2008)

http://www.petroleum.pir.sa.gov.au/legislation/relevant_acts_and_regulations at 15 August 2009.

Petroleum (Submerged Lands) Review Committee, *National Competition Policy Review of the Petroleum (Submerged Lands) Legislation: Exposure Draft* (2000).

Pezzey, John, *Sustainable Development Concepts, An Economic Analysis* (1992) World Bank Environment Paper No. 2.

Powell, Trevor, *Discovering Australia's Future Petroleum Resources: The Strategic Geoscience Information Role of Government* (2008).

Primary Industries and Resources South Australia, *Petroleum Act 2000 Summary* (2009)

http://www.petroleum.pir.sa.gov.au/legislation/relevant_acts_and_regulations at 12 August 2009.

Radetzki, Marian, 'Economic Development and the Timing of Exploitation: A Critical Review of Some Conventional Wisdoms' in Tilton, John (ed), *Mineral Wealth and Economic Development* (1992).

Rasen, Bjorn, 'Great Regime – But Time for a Revision Says Architect' (2009) *2 Norwegian Continental Shelf* 7.

Rawls, John, 'A Theory of Justice' in J C Smith and David N Weisstub *The Western Idea of Law* (1983).

Report of the World Commission on Environment and Development UN GAOR 96th Plen mtg, UN Doc A/Res/42/187(1987)

<http://www.un.org/documents/ga/res/42/ares42-187.htm> at 12 December 2007.

Roberts, Colin, 'Resource Regulatory Systems' (2006) *Australia's Paydirt* 93.

Rodgers, Trudi and Webster, Stewart, *Resource Rent Mechanisms in Australian Primary Industries: Some Observations and Issues* (2007) Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference 2007, Queenstown, 13-16 February, 2007.

Ross, Michael L, *Nigeria's Oil Sector and the Poor* (2003).

Ruddock, Phillip, *Selection and Appointment of Judges* (2005) Speech Delivered at the University of Sydney Law School, 2 May, 2005.

Sa, Paolo de, 'Mineral Policy: A World Bank Perspective' in Bastida, Elisabeth, Walde, Thomas and Warden-Fernandez, Janet (eds), *International and Comparative Mineral Law and Policy* (2005).

Saavedra, Miguel de Cervates in Ebrahim-Zadeh, Christine 'Back to Basics - Dutch Disease: Too Much Wealth Manage Unwisely (2003) 40 (1) *Finance And Development* International Monetary Fund <http://www.imf.org/external/pubs/ft/fandd/2003/03/ebra.htm> .

Sachs, Jeffrey D, 'How to Handle the Macroeconomics of Oil Wealth' in Macartan Humphreys, Sachs, Jeffrey D and Stiglitz Joseph E, (eds), *Escaping the Resource Curse* (2007).

Sachs, Jeffrey and Warner, Andrew, *The Curse of Natural Resources* (2001) 835.

Salmon, Patrick, *Scandinavia and the Great Powers 1890-1940* (1997).

Sandal, Bjorg, *Norwegian Oil and Gas Policies – Changes and Challenges* (2001) Speech given by Minister of Petroleum and Energy at Norwegian-American Chamber of Commerce 1 May 2001

http://www.odi.no/ordinarkiv/english/stoltenberg_I/oed/026031-090018/dok-bn.html at 22 December 2006.

Saunders, Peter, 'Australia is not Sweden: National Cultures and the Welfare State' (2001) 17 (1) *Policy* 29.

Schou, Ingjerd, *Challenges to our Welfare System* (2004)

http://www.dep.no/odinarkiv/english/bondevik_II/asd/044051-090081/dok-bn.html at 22 December 2006.

Schumacher, E F. *Small is Beautiful* (1973).

Sejersted, Francis, 'Nationalism in the Epoch of Organised Capitalism – Norway and Sweden Choosing Different Path' in Alice Teichova (ed), *Nation, State and the Economy in History* (2003).

Select Committee in Energy, Third Report Session 1981-2, *North Sea Oil Depletion Policy* (1982) [55], in Kretzer, Ursula M H, 'Overcapitalisation in Licencing Systems Based on Size of Work Programme' (1993) 19 (4) *Resources Policy*, 299.

Shields, Deborah J, 'Nonrenewable Resources in Economic, Social and Environmental Sustainability' (1998) 7 (4) *Nonrenewable Resources* 251.

Simmons, Matthew, *Is the Glass Half Full or Half Empty?* (2003) Proc. 2nd International Workshop on Oil Depletion, Paris, France, May 26-27 2003.

Sinding, Knud, *Auctions and Discretion in Oil and Natural Gas Licencing* (1999) CEPMLP Publication 1/99.

Singleton, G., et al, *Australian Political Systems* (7th ed. 2003).

Smith, Adam, *An Enquiry into the Nature and Causes of the Wealth of Nations* (1776)

Smith, Adam, *The Invisible Hand* (2008).

Smith, J C, and Weisstub, David N, *The Western Idea of Law* (1983).

-
- Smits, J M, (ed), *Elgar Encyclopaedia of Comparative Law* (1998).
- Snow, Jonathon E, 'Theory of Exhaustible Natural Resources: Surprises for the Geologist' (2000) Inaugural Lecture for the *Habilitation* Degree, University of Mainz, Germany, June 21 2000 *Extraction of Exhaustible Resources: Economic Theory* <http://www.mpch-mainz.mpg.de/~jesnow/MineralEcon/habil/econ/econ.htm> at 14 November 2007.
- Snowy Hydro, *Snowy Mountains Scheme*, (2008) <http://www.snowyhydro.com.au/levelTwo.asp?pageID=66&parentID=4> at 15 December 2009.
- Solow, Robert M, 'On the Intergenerational Allocation of Natural Resources' (1986) 88 (1) *Scandinavian Journal of Economics* 141.
- Solveig, Glomsrod and Osmundsen, Petter, *Petroleum Industry Regulation Within Stable States* (2005).
- Soros, George 'Foreword', in Humphries, Macartan, Sachs, Jeffrey D and Stiglitz, Joseph E, (eds), *Escaping the Resource Curse* (2007).
- South Pacific Regional Environmental Program, *Agreement Establishing the South Pacific Regional Environment Programme (SPREP)* (1993) <http://www.sprep.org/legal/documents/AgreementEstablishingSPREP.PDF> at 24 August 2009.
- South Pacific Regional Environmental Program, *Fact Sheet: About SPREP* (2008) <http://www.sprep.org/factsheets/pdfs/aboutsprep.pdf> at 24 August 2009.
- Sorrentino, Constance, 'International Unemployment Rates: How Comparable Are They?' (2000) June *Monthly Labor Review* 3.
- Sovereign Wealth Fund Institute, *Norway* (2009) <http://www.swfinstitute.org/fund/norway.php> at 12 April 2009.

Spraak, Torben, 'Explicating the Concept of Legal Competence' in Jaap C Hage and Dietmar Pfordten (eds) *Concepts in Law* (2009).

Statoil, *Government is Biggest Share Holder* (2006)

<http://www.statoil.com/STATOILCOM/HMS/SVG03503.NSF/UNID/A5294A11452CEECCC1256E61002EAC5E?OpenDocument> at 23

December 2006.

Statoil Hydro, *Top 20 Shareholders* (2008)

<http://www.statoilhydro.com/en/InvestorCentre/Share/Shareholders/Top20/Pages/default.aspx> at 21 October 2008.

Stephens, John D, *The Scandinavian Welfare State: Achievements, Crisis and Prospects* (1995) United Nations Research Institute for Social Development Discussion Paper 67.

Stiglitz, Joseph, 'Making Natural Resources into a Blessing Rather a Curse' in Tsalik, Svetlana and Schiffrin, Anya (eds) *Covering Oil: A Reporter's Guide to Energy and Development* (2005).

Stiglitz, Joseph E, 'What is the Role of the State' in Humphreys, Macartan, Sachs, Jeffrey D, and Stiglitz Joseph E (eds), *Escaping the Resource Curse* (2007).

Storey, Tony and Turner, Chris, *Unlocking EU Law* (2005).

Strongman, John, *Sustaining the social Licence: Enduring Challenges, Evolving Solutions* (2009) Paper presented at the Sustainable Development 2009 Conference (SD09), Mineral Council of Australia, Adelaide, South Australia, 26-28 October, 2009.

Sunnevåg, Kjell J, 'Designing Auctions for Offshore Petroleum Lease Allocation' (2000) 26 *Resources Policy* 3.

Taverne, Bernard, *An Introduction to the Regulation of the Petroleum Industry: Law, Contracts and Conventions* (1992).

-
- Taverne, Bernard, *Petroleum Industry and Governments: An Introduction to Petroleum Regulation, Economics and Government Policies* (1999),
- Taverne, Bernard *Petroleum Industries and Governments: A Study of the Involvement of Industry and Governments in the Production and Use of Petroleum* (2nd ed. 2008).
- Taylor, Michael P and Tyne, Sally M, *Taylor and Winsor on Joint Operating Agreements* (1993).
- Taylor, Michael P and Winsor, Thomas P, *Joint Operating Agreements* (1989).
- Teichova, Alice, (ed), *Nation, State and the Economy in History* (2003).
- Tempest, Paul, (ed), *Politics of Middle East Oil* (1993).
- The Norwegian Welfare System* (2002)
<http://library.thinkquest.org/18802/norwelf.htm> at 30 October 2006.
- Thompson, Janna, *Intergenerational Equity: Issues of Principle in the Allocation of Social Resources Between This Generation and the Next* (2003) Department of Parliamentary Library Information and Research Services, Australian Parliament House. www.aph.gov.au/library at 12 November 2007.
- Tilton, John E, 'Exhaustible Resources and Sustainable Development' (1996) 22 (1-2) *Resources Policy* 91.
- Tronslin, Peter, 'The Norwegian Petroleum Regime' (1986) 115 *Marius*, 1.
UK Economy Under Mrs Thatcher 1979 – 1984
<http://www.economicshelp.org/2007/03/uk-economy-under-mrs-thatcher-1979-1984.html> at 19 January 2009.
- United Kingdom Department of Trade and Energy, *The Energy Report* ('*The Brown Book*') (1998).

-
- United Kingdom Financial Services Authority, *The Turner Review: A Regulatory Response to the Global Banking Crisis*, March 2009 (2009)
http://www.fsa.gov.uk/pubs/other/turner_review.pdf at 15 October 2009.
- United Nations Development Program, *The World Energy Assessment: Energy and the Challenge of Sustainability* (2000).
- United Nations Development Program, *Human Development Indices: A Statistical Update 2008* (2009)
http://hdr.undp.org/en/media/HDI_2008_EN_Complete.pdf at 25 August 2009.
- United Nations, Division for Ocean Affairs and the Law of the Sea (2007)
Chronological Lists of Ratifications of, Accessions and Successions to the Convention and Related Agreements as at 5 March, 2007 (2007)
http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm#The%20United%20Nations%20Convention%20on%20the%20Law%20of%20the%20Sea at 22 March 2007.
- United Nations Framework Convention on Climate Change (UNFCCC)
http://unfccc.int/adaptation/sbsta_agenda_item_adaptation/items/3994.php at 17 March 2009.
- United Nations General Assembly Resolution 1803 (XVII) of 14 December 1962, *Permanent Sovereignty Over Natural Resources*. Adopted by General Assembly Resolution 1803 (XVII) of 14 December 1962.
- United Nations General Assembly Resolution 3281 (XXIX) of 12 December 1974, *Charter of Economic Rights and Duties of States*. Adopted by General Assembly Resolution 3281 (XXIX) of 12 December 1974.
- United States Committee on Capital Markets Regulation, *The Global Financial Crisis: A Plan For Regulatory Reform* (2009)
[http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_\(5-26-09\).pdf](http://www.capmksreg.org/pdfs/TGFC-CCMR_Report_(5-26-09).pdf) at 12 October 2009.

United States Congress, *Executive Order 12287 – Decontrol of Crude Oil and Refined Petroleum Products January 28 1981* (1981)

<http://www.reagan.utexas.edu/archives/speeches/1981/12881a.htm> at 12 October 2009.

United States Department of the Interior, Coastal Marine Institute, *Fiscal System Analysis: Concessionary and Contractual Systems Used in Offshore Petroleum Arrangements* (2004).

United States Department of Labor, *Current Employment Statistics* (2005) <http://www.bls.gov/ces/home.htm#overview> at 26 October 2006.

Usui, Norio ‘Dutch Disease and Policy Adjustments to the Oil Boom: A Comparative Study of Indonesia and Mexico’ (1997) 23 (4) *Resources Policy* 151.

Valdes, Juan Gabriel, *Pinochet’s Economists: the Chicago School of Economics in Chile* (2008).

Vatne, Erik, *Global Markets – Local competence? Internationalisation of the Norwegian Petroleum Industry* (2000) Working Paper 78/00, SNF Project No 4225, Research Council of Norway, PETROPOL Program, Bergen.

Vincent, Jeffrey R, ‘Resource Depletion and Economic Sustainability in Malaysia’ (1997) 2 *Environment and Development Economics* 19.

Vogt, Johan, *Elektrisitetlandet Norge Fra Norsk Vassdrags og Elektrisitetsvesens Historie* (1971).

Walker, Andrew, ‘“Blood Oil” Dripping From Nigeria’ (2008) *BBC New* 27 July 2008 <http://news.bbc.co.uk/2/hi/africa/7519302.stm> at 12 December 2008.

Warman, Tim and Goldblatt, Lauren, ‘The Work Program Bidding System For Exploration Permits Under the Petroleum (Submerged Land) Act 1967 (Cth)’ (2008) 27 *Australian Resources and Energy Law Journal* 178.

-
- Watts, Rob, *After the White Paper: Renovating Social Policy in the 1990's* (1995) 1994 National Conference on Unemployment, Unemployment: challenges and solutions, Queensland University of Technology Carseldine Campus.
- Weaver, Jacqueline Lang, 'Sustainable Development in the Petroleum Sector' (2003) in Bradbrook Adrian and Ottinger, Richard L, (eds), *Energy Law and Sustainable Development* (2003) IUCN Environment Policy and Law Paper No. 47.
- Western Australia Department of Industry and Resources, *State Agreements* (2007) http://www.doir.wa.gov.au/documents/investment/State_Agreements_text_v2.pdf at 30 March 2008.
- Western Australian Department of Industry and Resources, Petroleum and Royalties Division, *Administration of Petroleum Titles in Western Australia and Adjacent Offshore Areas* (2008) http://www.doir.wa.gov.au/documents/Admin_of_Pet_Titles_WA_Adjacent_Offshore.pdf at 27 October 2008.
- Western Australia Department of Industry and Resources, *State Agreements* (2009) <http://www.dsd.wa.gov.au/6641.aspx#6666> at 3 September 2009.
- Western Australian Department of Mines and Petroleum (WADMP), *Productivity Commission Draft Research Report: Comments from the Western Australian Department of Mines and Petroleum* (2009) www.pc.gov.au/projects/study/upstreampetroleum at 29 January 2009.
- Western Australia Department of Mines and Petroleum, *Title Search Request* (2009) <http://www.dmp.wa.gov.au/5776.aspx> at 27 November 2009.
- Wicken, Olav, *The Layers of National Innovation Systems: The Historical Evolution of a National Innovation System in Norway* (2007) TIK Working Paper on Innovation Studies No. 20070601.

-
- Willett, Ken *Managing Australian Mineral Wealth for Sustainable Economic Development* (2002).
- Williams, Howard R, Maxwell, Richard C and Meyers, Charles J, *Cases and Materials in the Law of Oil and Gas* (1956).
- Winsvold, Lars and Thorsen, Bard, *Norwegian Courts and the Administration of Justice* (2001) Utensriksdepartementet
http://odin.dep.no/odinarkiv/English/Stoltenberg_I/ud/032001-990374/dok-bu.html at 8 August 2006.
- Woodside, *Submission to the Productivity Commission Review of the Regulatory Burden on the Upstream Petroleum (Oil and Gas) Sector* (2008) Submission 33
http://www.pc.gov.au/_data/assets/pdf_file/0008/85985/subdr033.pdf at 17 October 2008.
- World Bank, *Using Extractive Industries for Sustainable Development* (2008)
World Bank International Oil and Gas Resources Management Seminar
Libreville, Gabon, April 27-30, 2008.
- World Summit Outcomes*, [48] UN GAOR 60th sess. UN Doc A/60/L.1 (2005).
- Yergin, Daniel, *The Prize: The Epic Quest for Oil, Money and Power* (1991).
- Yergin, Daniel and Stanislaw, Joseph, *Commanding Heights: The Battle Between Governments and the Marketplace that is Remaking the Modern World* (1999).
- Zweigert, Konrad and Kotz, Hein, *An Introduction to Comparative Law* (2nd ed. 1998).

Cases

Bonser v La Macchia (1969) 122 CLR 177.

Commonwealth v Tasmania (1983) 158 CLR 1.

EFTA Surveillance Authority v Kingdom of Norway (Norsk Tipping Case) (2007) Case E-106.

Murphyores Inc Pty Ltd v Commonwealth (1976) 136 CLR 1.

NSW v Commonwealth (1975) 8 ALR 1.

NSW v Commonwealth; Western Australia v Commonwealth (2006) 231 ALR 1.

Powell v Apollo Candle Co (1885) 10 App Cas 282.

Thomas v Mowbray (2007) 237 ALR 194.

Legislation

Act of 21 June 1963 Relating to Exploration for and Exploitation of Submarine Natural Resources (Norway).

Australian Energy Market (Gas Legislation) Act 2007 (Cth).

Commonwealth of Australia Constitution Act 1900 (Imp).

Coastal Waters (State Powers) Act 1980 (Cth).

Coastal Waters (Northern Territory Powers) Act 1980 (Cth).

Coastal Waters (State Title) Act 1980 (Cth).

Coastal Waters (Northern Territory Title) Act (Cth).

Commonwealth Powers (Industrial Relations Act) 1996 (Vic).

Concession Act 1917 (Norway).

Constitution of Australia.

Constitution of Norway.

Continental Shelf Act 1964 (UK).

Criminal Code Act 1899 (Qld).

EC Directive 92/13 EEC European Parliament and of the Council of 25 February 1992 Coordinating The Laws, Regulation And Administrative Provisions Relating to the Application of Community Rules on the Procurement Procedures of Entities Operating in The Water, Energy, Transport, and Telecommunications Sectors (1992) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0013:20070101:EN:PDF> at 12 December 2008.

EC Directive 94/22/EC of 30 May 1994 on the Conditions for Granting and Using Authorizations for the Prospection, Exploration and Production of Hydrocarbons (1994) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31994L0022:EN:HTML> at 24 December 2006.

Environment Protection and Biodiversity Conservation Act 1999 (Cth).

Environmental Protection (Sea Dumping) Act 1981 (Cth).

Explanatory Memorandum, Offshore Petroleum Bill, 2005 (Cth).

Offshore Minerals Act 1984 (Cth).

Offshore Petroleum Amendment (Datum) Act 2008 (Cth).

Offshore Petroleum Amendment (Miscellaneous Measures) Act 2008 (Cth).

Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008 (Cth).

Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008 (Cth).

Offshore Petroleum Amendment (Greater Sunrise) Act 2007 (Cth).

Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth).

Offshore Petroleum and Greenhouse Gas Storage Regulations 1985 (Cth).

Outer Continental Shelf Lands Act 1953 (US).

Petroleum Act 1998 (UK).

Petroleum Act 2000 (SA).

Petroleum Activities Act 1996 (Norway).

Petroleum Regulations 1997 (Norway).

Petroleum (Submerged Lands) Act 1967 (Cth).

Petroleum (Submerged Lands) Act 1982 (Vic).

Petroleum (Submerged Lands) Act 1982 (Qld).

Petroleum (Submerged Lands) Act 1982 (SA).

Petroleum (Submerged Lands) Act 1982 (Tas).

Petroleum (Submerged Lands) Act 1982 (NSW).

Petroleum (Submerged Lands) Act 1981 (WA)

Petroleum (Submerged Lands) Legislation Amendment Act (No. 1) 2000 (Cth).

Petroleum (Submerged Lands) Registration Fees Act 1990 (WA).

Petroleum (Submerged Land) Regulations 1985 (Cth)

Petroleum (Submerged Lands) Taxation Act 1967 (NSW).

Protection of the Sea (Prevention of Pollution From Ships) Act 1983 (Cth).

Regulations Relating To The Use Of Facilities By Others. Laid Down By The Ministry Of Petroleum and Energy On 20 December 2005 Pursuant to Section 10-18, First Paragraph, and Section 4-8 of the Act of 29 November 1996 No. 72 Relating to Petroleum Activities and Section 86 of the Regulations of 27 June 1997 No. 653 to The Petroleum Activities Act 1996 (Norway).

Royal Decree of 9 April 1965 relating to Exploration for and Exploitation of Submarine Petroleum Resources (Norway).

Royal Decree of 8 December 1972 Relating to Exploration of and Exploitation of Petroleum in the Seabed and Substrata of the Norwegian Continental Shelf (Norway).

Sea and Submerged Lands Act 1973 (Cth).

Trade Practices Act 1974 (Cth).

Workplace Relations Act 1996 (Cth).

Workplace Relations Amendment Act 2005 (Cth).

World Heritage Properties Conservation Act 1983 (Cth).

Conventions, Treaties and Agreements

Agreement Relating to the Exploration for and the Exploitation of, the Petroleum Resources, and Certain Other Resources, of the Continental Shelf of Australia and of Certain Territories of the Commonwealth and of Certain Other Submerged Land signed October 16, 1967.

The Energy Charter (2006) <http://www.encharter.org/index.php?id=5> at 3 April 2007.

