

Practicing urban climate governance

Organisational work and energy demand reduction in Nordic cities

Jesse Benjamin Schrage

Thesis for the degree of Philosophiae Doctor (PhD)
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This thesis is for you all.

Abstract in English

Deep, rapid and sustained reduction of energy demand is required over the next 30 years to meet our climate targets. Addressing those will mean profound changes in infrastructures and technologies, but will also fundamentally challenge the norms, behaviours, and practices that reproduce everyday life. Recently, urban areas around the world have become key actors in this transition. However explicitly targeting urban demand and consumption remains a blind spot in the urban climate governance literature. The scholarship has tended to highlight the structures and factors necessary to scale-up climate action but has overall provided little insights into the more invisible bureaucratic and political work that is necessary to advance climate action locally. More specifically, it is unclear how energy demand reduction will come to challenge the organisational work of municipalities, and the everyday practices of its civil servants.

Taking my conceptual grounding in theories of sociology, this thesis brings a social practice lens to the everyday organisational work that is carried out in municipal climate departments. Understanding this challenge from a social practice lens is here highly generative: by focusing on what people do, and the meanings associated to it, theories of social practice have offered considerable insights in the dynamics of agency, allowing notably to understand how innovations or constraints materialise, and the ways in which actors are enabled by organisational and wider social practices. Applying this lens to understand how the urban governance of climate change is practiced allows to contribute to ongoing debates on the agency deployed by cities to affect energy demand. Importantly, the perspective offered in this thesis is that understanding governance practices, how they change, and how they are maintained is critical to understand the implications of realising low-carbon urban futures.

Focusing on a range of Nordic cities, I bring such lens to consider the work of civil servants, planners and project manager immersed in the work of addressing climate change. We know very little about how addressing urban energy demand will

come to challenge their work, the struggles they engage in, or how their practices change over time. The notion I advance in this thesis, namely that of *Practicing*, aims to conceptualise local climate governance efforts as a matter of organisational social practices. By using this term, I advance the more active dimension that is part of the work of local climate governance, the “doing” that is part of preparing, implementing, and organising local climate work

In this PhD thesis, I ask the question: How does the ambition of urban energy demand reduction challenge ongoing organisational practices in Nordic cities? To answer this question, this thesis builds on interviews, policy document analysis, workshop notes and field work, and focuses on the climate work performed across a number of Nordic cities, and then more specifically considering Bergen, Norway. Nordic cities are often advanced as being highly ambitious in climate action, often for developing innovative governance tools. But at the same time, Nordic citizens also display some of the highest consumption-emissions in Europe, and it is therefore critically important to focus on how local climate municipal organisations engage in targeting urban energy demand. I develop my argumentation through the four articles included in this thesis.

In Paper 1, I (with co-author Kristin Kjærås) analyse the measures contained in urban climate plans according to their impacts on changing demand practices. Taking an intervention-in-practices lens to categorise urban climate interventions in ten Nordic cities, this article provides an empirical mapping of urban climate interventions. This article provides a mapping of energy demand intervention, and details how an intervention-in-practice framework can complement governance approach already adopted by cities to reduce climate emissions. Critically, we stress the intervening in energy demand would require moving beyond non-committal measures and address everyday urban practices to a wider extent. Article 2 provides a follow-up to these findings and attempts to explain these intervention patterns in terms of organisational practices. By considering the work practices performed by civil servants involved in local climate work in those same ten Nordic cities, this paper finds that the local agency for governing urban demand is contingent on actors

navigating a number of tensions. I consider the tools, materialities and identity-related dynamics that affect civil servants' work and show how engaging in demand reduction requires extensive work in challenging conventional planning practices. Importantly, the findings of this paper help us understand the novel forms of agency that organisations can mobilise and reveal the many contradictions that planners must engage in to advance local climate work. In article 3, I explore this further and consider how contradictions were employed in the work of civil servants. In this article, I (with co-authors Håvard Haarstad and Knut Hidle) consider the strategic work that is carried out by practitioners involved in the making of a new climate plan for the city of Bergen (Norway). The analysis reveals new sets of contradictions in climate governance, and the strategic work operated by civil servants in advancing local climate work. The paper shows how the efforts operated by civil servants allowed the legitimisation, expansion and signalling of local climate work. Finally, the last contribution to this thesis, article 4, reflects on how the strategic work of planners in the city of Bergen allowed to broaden what was considered politically feasible in local climate work. In that article, I (and co-author Håvard Haarstad) examine how actors navigated between dynamics of appropriateness and consequence, and by doing so were able to construct a climate plan that was not only ambitious, but also politically palatable and feasible. Crucially, we show the considerable *adjustment* work that was employed in the work of legitimating a local policy agenda.

Together, by revealing the complex internal contingencies of how municipal organisations govern climate change broadly, and a reduction of energy demand more specifically, these pieces offer a number of contributions. First, they show the rich organisational life that occurs within municipal climate departments. Inside the “black box” of city bureaucracies and planning organisations are civil servants that chart, map, calculate and implement climate plans, mobilising others in the process. Second, these articles also show that as much as civil servants deliberately seek to advance more ambitious local climate politics, their work remains constrained by existing organisational practices. Tensions and contradictions are part and parcel of navigating organisational work, with the effect of constraining the agency that these

actors can muster. Third, these pieces also bring light onto the underlying norms that civil servants need to engage in, and the deeply political work that organisational work requires.

By looking at local climate governance efforts through its social practices, this thesis offers a practical entry point into the organisational work involved in the legitimisation of local climate agendas and the agency mobilised by civil servants engaged in climate governance efforts.

Abstract in Norwegian

En omfattende og vedvarende reduksjon av energibehovet er nødvendig i løpet av de neste 30 årene for å nå våre klimamål. En slik reduksjon vil bety dyptgripende endringer i infrastruktur og teknologier, men vil også fundamentalt utfordre normene, atferdene og praksisene i hverdagen. Nylig har urbane områder rundt om i verden blitt sentrale aktører i denne overgangen. Likevel er eksplisitt fokus på det urbane energibehovet og forbruk fortsatt en mangel i litteraturen om urban klimastyring. Forskningen har hatt en tendens til å fremheve strukturene og faktorene som er nødvendige for å skalere opp klimatiltak, men har samlet sett gitt lite innsikt i det mer usynlige byråkratiske og politiske arbeidet som er nødvendig for å fremme klimatiltak lokalt. Mer spesifikt, det er uklart hvordan energibehovsreduksjon kan utfordre kommunenes organisasjonsarbeid og planleggeres hverdagspraksis.

Med min konseptuelle forankring i teorier fra sosiologi, tar denne ph.d.-avhandlingen i bruk sosial praksis som analytisk perspektiv til å analysere det daglige organisasjonsarbeidet som utføres i kommunale klimaavdelinger. Denne tilnærmingen har vært svært generativ: ved å fokusere på hva folk gjør, og betydningene knyttet til det, har teorier om sosial praksis gitt betydelig innsikt i dynamikken i forvaltningen, noe som spesielt gjør det mulig å forstå hvordan innovasjoner eller begrensninger materialiserer seg, og måtene aktører aktiveres på av organisatoriske sosiale praksiser. Ved å bruke dette perspektivet for å forstå hvordan styringen av klimapolitikk praktiseres, kan det bidra inn i debatter om politikk og handling som brukes av byer for å påvirke reduksjon av energibehovet. Videre er perspektivet viktig for forståelse av styringspraksis, hvordan den endres og hvordan den opprettholdes. En slik innsikt er avgjørende for å forstå implikasjonene av å realisere urbane fremtider med mindre karbonavtrykk.

Med fokus på nordiske byer, bruker jeg perspektivet til å vurdere arbeidet til forvaltning, planleggere og prosjektledere som arbeider med å håndtere klimaendringer. Vi vet svært lite om hvordan det å møte reduksjon av energibehovet vil komme til å utfordre arbeidet deres, stridene de engasjerer seg i, eller hvordan

deres praksis endres over tid. Ideen i denne oppgaven, nemlig *praktisering*, tar sikte på å konseptualisere lokal klimastyringsinnsats som et spørsmål som handler om organisatoriske sosiale praksiser. Ved å bruke dette begrepet vektlegger jeg den mer aktive dimensjonen som er en del av arbeidet med lokal klimastyring, det vil si «å gjøre» som er en del av å forberede, gjennomføre og organisere lokalt klimaarbeid.

I denne ph.d.-avhandlingen stiller jeg følgende spørsmål: Hvordan utfordrer ambisjonen om reduksjon av energibehov pågående organisasjonspraksis i nordiske byer? Avhandlingens empiriske materiale bygger på intervjuer, dokumentanalyse, workshop-notater og feltarbeid. Fokus er på klimaarbeidet utført på tvers av en rekke nordiske byer generelt, og mer spesifikt på Bergen, Norge. Nordiske byer er ofte svært ambisiøse når det gjelder klimatiltak og med å utvikle innovative styringsverktøy. Samtidig har nordiske borgere også noen av de høyeste forbruksutslippene i Europa, og det er derfor kritisk viktig å fokusere på hvordan lokale kommunale organisasjoner engasjerer seg for å målrette politikken. Jeg utvikler min argumentasjon gjennom de fire artiklene som er inkludert i denne avhandlingen.

I artikkel 1 analyserer jeg (sammen med medforfatter Kristin Kjærås) klimatiltak og deres innvirkning på praksis. Ved å ta en intervensjon-i-praksis-tilnærming for å kategorisere urbane klima intervensjoner i ti nordiske byer, gir denne artikkelen en empirisk kartlegging av urbane klima intervensjoner. Artikkelen gir en kartlegging av energibehovsinngrep og beskriver hvordan et intervensjon-i-praksis-rammeverk kan utfylle styringstilnærminger som allerede er tatt i bruk av byer for å redusere klimautslipp. Vi understreker at å gripe inn i reduksjon av energibehovet vil kreve å gå ut over uforpliktende tiltak, og heller i større grad adressere hverdagslige urbane praksiser. Artikkel 2 gir en oppfølging av disse funnene og forsøker å forklare disse intervensjonsmønstrene i form av organisatorisk praksis. Ved å vurdere arbeidspraksisen utført av lokale planleggere involvert i lokalt klimaarbeid i de samme ti nordiske byene, viser denne artikkelen at den lokale handlekraften for styring av det urbane energibehovet er avhengig av aktører som navigerer i en rekke spenninger. Jeg studerer verktøyene, materialitetene og de identitetsrelaterte

dynamikkene som påvirker planleggeres og embetsfolks arbeid, og viser hvordan det å engasjere seg i reduksjon av energibehovet utfordrer konvensjonell planleggingspraksis. Artikkelen hjelper oss til å forstå de nye formene for handling som organisasjoner kan mobilisere. Samtidig viser den de mange motsetningene som planleggere må engasjere seg i for å fremme lokalt klimaarbeid. I artikkel 3, utforsker jeg dette videre og vurderer hvordan motsetninger er blitt brukt i embetsfolks arbeid. I denne artikkelen undersøker jeg (sammen med medforfatterne Håvard Haarstad og Knut Hidle) det strategiske arbeidet som utføres av utøvere som er involvert i å lage en ny klimaplan for Bergen by (Norge). Analysen viser nye sett med motsetninger innen klimastyring, og i det strategiske arbeidet som drives av embetsfolk for å fremme lokalt klimaarbeid. Artikkelen viser hvordan arbeidet drevet av embetsfolk og planleggere muliggjorde legitimering, utvidelse og signalisering av lokalt klimaarbeid. Det siste bidraget til denne avhandlingen, artikkel 4, reflekterer over hvordan det strategiske arbeidet til planleggere i Bergen by tillot å utvide det som ble ansett som politisk gjennomførbart i lokalt klimaarbeid. I den artikkelen undersøker jeg (og medforfatter Håvard Haarstad) hvordan aktører navigerte innen en dynamikk av hensiktsmessighet og konsekvens, og ved å gjøre det var i stand til å konstruere en klimaplan som ikke bare var ambisiøs, men også politisk velsmakende og gjennomførbart. Artikkelen viser det betydelige omstillingsarbeidet som ble lagt ned i arbeidet med å legitimere en lokalpolitisk agenda.

Til sammen, ved å vise de komplekse interne beredskapene for hvordan kommunale organisasjoner styrer klimaendringene generelt, og en reduksjon av energibehovet mer spesielt, gir disse artiklene flere bidrag. Først viser de det rike organisasjonslivet som utfolder seg innenfor kommunale klimaavdelinger. I den "svarte boksen" av byråkratier og planleggingsorganisasjoner er embetsfolk og planleggere som kartlegger, beregner og gjennomfører klimaplaner, og samtidig mobiliserer de andre i prosessen. For det andre, disse artiklene viser at selv om embetsfolk bevisst søker å fremme mer ambisiøs lokal klimapolitikk, forblir deres arbeid begrenset av eksisterende organisasjonspraksis. Spenninger og motsetninger er en del av navigeringsarbeidet i organisasjonen, med den effekt at det begrenser handlekraft som disse aktørene kan mobilisere. For det tredje bringer disse arbeidene også lys

over de underliggende normene som tjenestemenn må engasjere seg i, og det dypt politiske arbeidet som organisasjonsarbeid krever.

Ved å undersøke lokal klimastyringsinnsats gjennom planleggeres sosiale praksiser, gir disse artiklene en praktisk innsikt til det organisatoriske arbeidet involvert i legitimering av lokale klimaagendaer og den handlekraft embetsfolk mobiliserer i klimastyringsarbeid.

List of Publications

- Schrage, J. & Kjærås, K. (2022) How do cities challenge patterns of demand? Characterising the local governance of climate change in Nordic cities. *Environment and Planning C* 40(7), pp. 1473-1491.
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(Contributions: Schrage 100%)
- Schrage, J., Haarstad, H. & Hidle, K. (2023) The strategic value of contradictions: exploring the practices of climate planning in Bergen, Norway. *Journal of Environmental Planning and Management* 0(0), pp. 1-20.
(Contributions: Schrage 90%, Haarstad 5%, Hidle 5%)
- Schrage, J. & Haarstad, H. (Submitted) How is feasibility in local climate politics constructed? Balancing between appropriateness and consequence in advancing urban low-carbon plans. *Manuscript Submitted to Environmental Politics*
(Contributions: Schrage 90%, Haarstad 10%)

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1. Introduction

“There are little white spaces, rare moments when randomness interacts with your life to create a truly free space where you can make a choice. A bubble of agency”

Serac, from *Westworld*

It took a while, but increasingly a considerable share of the population within high-income countries have come to terms with the notion that, when it comes to climate action, we are possibly at a critical juncture in human history (Arıkan & Günay, 2021). Sometime around 2015, a number of pivotal events came into place. At the end of that year, the Paris Agreement allowed the international community to anchor temperature targets to limit dangerous levels of global heating. And later the IPCC 1,5°C special report outlined how severe the implications of such ambitions were: there is a unequivocal need for deep and rapid transformations of society, both in production, but also in consumption systems (IPCC, 2018). Yet 8 years on, and more than 240Gt of carbon dioxide emitted, climate politics feel decidedly entrenched, wedged between high commitments and low implementation. Where then to look for those “little white spaces”?

Failures of the international community in relation to climate governance have become platitudes of this governance space (Bernauer, 2013). Yet, beyond international climate treaties, some catharsis is to be found from where most of the human population live today: from cities and urban areas (Dantec et al., 2022; NewClimate Institute et al., 2021). Indeed, while constituting hotspots of climate emissions, cities globally have also come to acquire a crucial presence in its response. An extensive literature has reported on the range of innovative and experimental policies and governance instruments that have emerged in those spaces (Bulkeley, 2019; van der Heijden, 2019). However, while local public entities around the world have increasingly become visible in their efforts in driving low-carbon transformations, a key concern brought-up in this thesis is that the existing literature

has tended to overlook the often hidden, organisational work that occurs within climate municipal organisations. So while this thesis builds on the urban climate governance literature, it also departs from it on the premise that “[w]hat is largely missing [...] is a sober assessment of the mundane aspects of climate change governance on the ground” (Castán Broto & Westman, 2020).

Critically, climate action is contingent on recognising ‘that since energy demand is an outcome of what people do, any radical change depends on reconfiguring the practices that comprise everyday life’ (Shove et al, 2015, p.275). The everyday demand of energy, of mobility services or of material resources might therefore come into conflict with an urban agenda bound on the reduction of its climate gases. How will targeting energy demand challenge the work of urban planners? What agency can they mobilise in the process? Crucially, in this thesis I advance the notion that understanding *the practices* of urban climate governance is critical in order to further comprehend and advance local climate action.

Reducing urban energy demand will play a significant role in mitigating climate emissions (Anderson et al., 2014; Bouzarovski, 2020; Creutzig et al., 2021). “Energy demand” is the term used to describe the consumption of energy by human activity, whether that consumption occurs locally or elsewhere (Sorrell, 2015). While reducing energy demand has often been framed as a matter of novel infrastructures and low-carbon technologies, there is increasing consensus that it will also fundamentally require existing behaviours and cultural norms to change (Creutzig et al., 2016a). Indeed, the policy narrative around energy has in majority been centred around the provision or improvement of technological solutions. But addressing how people lead their lives, the goods and services they consume every day, and the ensuing energy demand that is generated is critical to reach the global 1,5°C target (Alfredsson et al., 2018; Welch & Southerton, 2019). For the first time, the 2022 IPCC Assessment Report included a chapter on energy demand, and demand-side measures (IPCC, 2022). This novel inclusion is part of a general trend towards acknowledging the crucial role of energy demand, and the consumption of goods and services in low-carbon transformations. At the centre of this discussion on demand-

side mitigation, is that demand-side reduction of emissions will unavoidably involve radical forms of lifestyle and consumption changes (Alfredsson et al., 2018)

Importantly, despite the recognition in the literature for the need to reduce energy demand and consumption, the issues remains a “blind spot” in municipal climate governance today (Millward-Hopkins et al., 2017) and we have little knowledge of the governance challenge that targeting energy demand represents. In a recent review of the literature, Dawkins et al. (2019) note that “few studies examine the specific role of local government in advancing sustainable consumption” (1455), stressing the considerable challenge that energy demand reduction represents for planning bureaucracies. As will be discussed below, cities are not one coherent whole: underneath it lays a messy and diverse reality of citizens, bureaucrats, politicians and local groups all interacting with diverging interest, aims and political projects (Aylett, 2013b). In this context, it becomes interesting to understand how civil servants navigate these potentially contradictory dynamics, and with what agency.

The perspective offered in this thesis is that understanding local governance practices, how they change, and how they are maintained through social and material elements is critical if we want to understand what governing climate change entails. Civil servants, planners and project manager working in cities are deeply immersed in the work of addressing climate change. We know however very little about how addressing urban energy demand will come to challenge their work, the struggles they engage in, or how their practices change over time. In this thesis I operationalise the literature on Social Practice Theory as applied to everyday consumption and organisations to explore how bureaucratic actors mobilise for climate action.

It has become a common approach to perceive climate change not just as a technical or scientific challenge but rather as encompassing the former within a wider cultural, social reality (Urry, 2011). The notion advanced by a number of sociologists, in the likes of Bourdieu or Giddens, that “social practice [...] rather than the individual as a relatively isolated entity, should be at the core of the analysis”

(Boström et al., 2017, 11) provides the theoretical anchor of my thesis. Notably, I draw notably on the notion of “field” as advanced by Pierre Bourdieu, and more recent work from a second generation of social practice scholars (Nicolini, 2012; Schatzki, 2002; Shove et al., 2012) to understand the practices of local climate governance. Social practice theory has come to offer a number of contributions to the field of sustainability research: not only in helping conceptualise demand as a product of social practices (Rinkinen et al., 2020), but also when it comes to think about agency around forms of sustainable consumption (Sahakian & Wilhite, 2014). Critically, it also has increasingly a role to play when it comes to think through the institutional work necessary to organise and affect emission reductions (Vaara & Whittington, 2012a) and think through broader dynamics of sustainability transitions (Laakso, et al., 2021; Schatzki, 2015). In this thesis I bring the “practice turn” that materialised in these literatures into debates on urban climate transformations. Throughout the various papers in this thesis, I operationalise this literature by drawing more specifically from an intervention-in-practice framework (Spurling & McMeekin, 2015), by focusing on climate governance practice elements (Shove et al., 2012), on the role of contradictions in organisational work (Seo & Creed, 2002), and from work on sociological institutionalism (von Billerbeck, 2020).

Such approach is warranted for a number of reasons. First and foremost, urban climate change has increasingly been associated with issues of production and consumption (Alfredsson et al., 2018; Southerton & Welch, 2018). Recognising the growing scale and impact of urban areas beyond their territorial border, and well into their hinterlands, city networks like C40 have brought increased focus on consumption-based accounting emissions (Bailey et al., 2019). Since it allows to “better understand the scale of consumption-based emissions and explore what cities can do to reduce them” (p. 27), such focus offers a space to explore novel policy work (Athanassiadis et al., 2018). Second, our understanding of how urban transitions can be governed has also been tainted by a number of highly visible forms of governance. Innovative low-carbon experiments, international city networks and leading mayors & climate champions constitute the prime ways through which urban

climate governance has been framed (van der Heijden, 2019). But seeing governance in such active, dynamic and conspicuous ways might obscure the more invisible, mundane and contingent manner in which urban climate transitions operate. Increasingly, scholars have recognised that governing towards low-carbon arrangements is more than a matter of articulating policy frameworks and instruments, and that understanding the possibilities (or limitations) for action needs to recognise how matters of “low-carbon” are inextricably entangled in material, discursive or social practices (Bulkeley, 2019; Grandin et al., 2018). This requires a shift in thinking of transition as technical or systemic shifts only, and acknowledge the deeply political and contested nature of low-carbon arrangements. Taking a practice lens to study such processes offers then a more “practical” understanding of the efforts, across social and material configurations, that would produce urban low-carbon transformations (McGuirk et al., 2016).

This thesis brings this analytical lens to consider the urban climate governance practices across 10 Nordic cities, and then considering the case of Bergen (Norway) more specifically. The Nordics are a particularly relevant case study because the region has a long history in engaging with local climate planning. Cities in the Nordic countries of Denmark, Finland, Iceland, Norway, and Sweden are often viewed as being at the forefront of climate action. At the same time, while the Nordics display low territorial emissions, they are also infamous for the particularly high-emissions and ecological footprint that characterizes Nordic lifestyles (Heinonen et al., 2022). Hence, understanding how Nordic cities engage with consumption and demand-side interventions offers insightful knowledge to understand local climate governance.

1.1 Purpose and Research Question

Taking my conceptual grounding in field theory and theories of social practices, this thesis brings a social practice lens to the everyday bureaucratic work that is carried out in municipal climate organisations. The overarching aim is to contribute to the literature on urban climate governance by highlighting the critical

role of organisational actors in advancing a local climate agenda. More specifically, my objective is to explore how questions of energy demand reduction are navigated, the range of agencies mobilised by civil servants, and its implication for thinking about the governance of climate change locally. Some of the research questions explored in this thesis will therefore seek to answer questions relating to the relevance of social practices for understanding governance processes.

The main research question guiding this thesis is:

- How does the ambition of urban energy demand reduction challenges ongoing organisational practices in Nordic cities?

This main research question is operationalised through the following three sub-research questions:

1. How do cities' climate policies intervene in energy demand reduction?
2. How do civil servants advance a reduction of urban energy demand?
3. What are the political implications of advancing a reduction of urban energy demand?

1.2 Summary of papers

In this PhD, I contribute a practice theoretical perspective to ongoing debates in the literature on urban climate governance. I do so through four articles.

In paper#1, Kristin Kjærås and I ask the questions “How do cities challenge patterns of (energy) demand?”. By considering the climate and energy strategies of 10 Nordic cities, we use a social practice lens to understand how, and to what extent these cities target everyday demand patterns in the development of low-carbon policies. Contemporary demand-side approaches have been critiqued for their focus on the provision of low-carbon technologies and individual-level interventions.

Instead, we argue that understanding how measures target and intervene in everyday practices provide a much needed lens for approaching the systemic aspects of low-carbon interventions. Using an intervention-in practice-framework to understand urban interventions, we find that current climate strategies rely heavily on non-committal measures in the domains of mobility and housing, and forms of household self-governance. Such perspective contributes to the literature on urban climate governance in two ways: from a theoretical perspective, it broadens the range of governance approaches adopted by cities to govern a reduction of urban emissions. From an empirical perspective, it reveals the shortcomings of urban climate interventions in considering the deeper interventions which would considerably challenge the practice performed by urban citizens. It also significantly reveals the ways in which municipal organisations operate and intervene in society, or intervene in practices.

In paper #2, I take a practice lens to explore the range of organisational practices that produce the patterns of intervention revealed in paper #1. While extant literature has amply focused on the outputs of successful urban climate governance, there has been less focus on the organisational challenge that affecting energy demand will represent. By foregrounding the work practices of civil servants engaging with these issues, this paper offers new insights into the possibilities and constraints of affecting energy demand. Inspired by work on social practice theory applied to organisations, it maps the tools, materialities and identity-related dynamics that affect civil servants' work. Building on interviews, document analysis and field notes taken in ten Nordic cities, the paper finds that the local agency for climate action is contingent on navigating three tensions: (1) broadening the benefits of climate measures beyond carbon emissions, (2) challenging often politically attractive technologies, and the associated range of actors seen as relevant and (3) the unclear role and responsibility of municipalities in relation to intervening in citizen's energy demand. By identifying the organisational tensions that civil servants face, the paper helps to understand the challenges encountered in advancing a local climate agenda, and the novel forms of agency that organisations can mobilise.

In paper #3, Håvard Haarstad, Knut Hidle and I explore the agency that civil servants can mobilise in their climate work, by taking as case study the making of a new climate plan for the city of Bergen, Norway. Previous literature has highlighted the role of external pressures or heroic actors in driving local changes. By highlighting the everyday practices of actors in urban climate governance, we reveal new sets of contradictions in climate governance. Drawing from social practice theory, we examine how contradictions were managed in the process of developing a new climate plan in Bergen, Norway. Using interviews, document analysis and attendance to public events, we explore the strategic value these offer, and the organisational work accomplished by the navigation of contradictions. We highlight three strategic benefits of negotiating contradictions: the legitimisation, expansion and signalling of climate work. By showing the institutional work that is needed to anchor climate within a municipal organisation, the paper argues that considering practices of climate planning reveals novel forms of agency, namely the potential of mundane organisational processes and the pivotal role of civil servants in this work.

In paper #4, Håvard Haarstad and I explore the range of ideas deployed by civil servants in local climate work, and ask the question: How does ambitious climate action become politically feasible? To date, the literature has tended to understand political feasibility through the interaction between citizens and governing institutions, conditioned by the various costs and benefits for the actors involved. By instead considering political dynamics internal to governing institutions, this paper examines the practices of constructing feasibility in local climate governance. We draw on sociological institutionalism to focus on dynamics of fine-tuning between appropriateness and consequence in the making of what is deemed “politically feasible”. Taking as case study climate politics in the city of Bergen (Norway), we find that what is deemed politically feasible is a dynamic product of calibrating (1) relevant policies with the ambitions of the policy target, (2) quantitative storylines with open and qualitative pathways, and (3) radical and ambitious solutions with current political climate. Together, these point to a form of political adjustment

between political and bureaucratic actors, with deep implication for the role organisational work in making local policy goals and action feasible.

Through these papers, I foreground the everyday organisational realities of working to advance local climate action. As a form of *practicing*, these papers contribute to new insights for the urban governance of climate change, and are summarised in the Figure 1 below. First, building on paper#1, *practicing* entails to understand climate governance for the ways in which municipal organisations operate and intervene in society, or intervene in practices. This advances a lens to consider the range of interventions, strategies, and techniques employed to implement policies or programmes. Second, building on paper #2 and #3, *practicing* see climate governance as a set of work practices, reflected in the strategizing and organizing work involved in the implementation of climate action. Crucially, this program is anchored in the work of practitioners working with climate measures, and is visible through the agency mobilised in urban climate interventions. Finally, building on paper #4, *practicing* understands climate governance as a normative program that is based on the ambition to realise and manage political change. Considering the rationalities in which organisational practices are embedded, and their dynamics, provides insights into how a policy problem is constructed and understood, and the range of policy solutions which are perceived as appropriate or feasible.

1.3 Structure of this thesis

The thesis is structured as follows. In the next part I situate the thesis at the intersection of a number of research streams: I draw insights from natural sciences, geography, sociology and sustainability transitions. This literature review aims to provide the reader a better understanding of the challenges of urban energy demand reductions, and the crucial need to open-up discussions on the governance of low-carbon urban transformations. Part III provides an account of the theoretical and conceptual anchoring points of this thesis. Motivated by the necessity to develop a

language for understanding possibilities of change offered in municipal climate organisations, I draw from evolutions and insights offered by theory of practices. There, I ask: what can a social practice perspective offer to understand processes of change in organisational work?

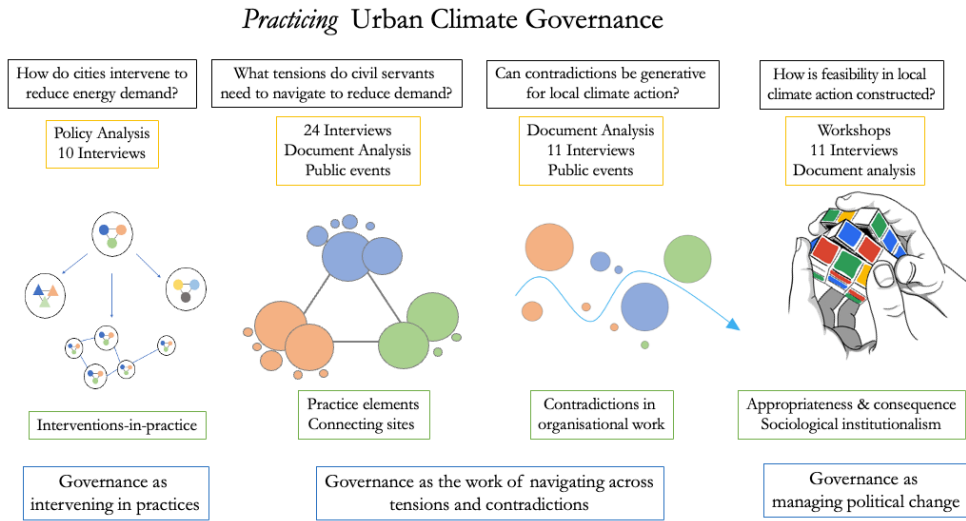


Figure 1. Urban climate governance as *Practicing*. This figure illustrates the key questions explored in each paper (black boxes), the data material gathered (orange boxes), key concepts employed (green boxes), and this thesis' key contributions (blue boxes)

Then, in Part IV I relate to the methodological tactics used in this thesis. I outline the varied forms of data collection that were employed in the “getting at” of said organisational practices. In Part V, the discussion and result section, I attempt to answer the question that initially set out this thesis: How does the ambition of urban energy demand reduction challenges ongoing organisational practices in Nordic cities? I synthesis the result of the four papers that make-up this thesis, and reflect on the policy and research implications of using a practice lens to understand urban low-carbon governance processes. Overall, I argue that intervening in energy demand, and further mobilising urban low-carbon configurations, will necessitate seeing these efforts as a matter of *organisational work*, deeply embroiled in social practices.

2. The practices of urban demand governance

This section provides an overview of the three literatures that are brought in discussion in this thesis, namely the literature on energy demand, urban climate governance and social practices. Navigating through these three bodies of literature, I detail how the agenda for addressing energy demand reduction has evolved (subsection 2.1), discuss how this agenda has come to materialise in cities (subsection 2.2), then argue for a critical need to bring sociological insights into this debate (subsection 2.3).

2.1 Energy demand reduction

2.1.1 Targeting energy demand

High-energy societies have undeniably brought riches and other benefits to many: personal and collective transport infrastructure, affordable housing, mechanized agriculture, food for most... And while such economies have also shown to be compatible with socially progressive agendas on gender, ethnicity and identity politics (Soper, 2020), there is today a critical need to reduce carbon emissions at scale, and within a closing window of opportunity (UNEP, 2022).

Understanding the scale of emissions decrease is key to understand why focusing on energy demand is so critical today. At the peak of the pandemic in 2020, COVID-19 induced economic slowdown resulted in a global emission reduction of about 5%, deemed to be the annual emission reduction necessary every single year to 2030 to have a change of reaching the 1,5°C target. But this global figure hides how the burden should be shared across nations: for developed countries such as those considered in this study, a fair contribution to the goals enshrined in the Paris Agreement imply a reduction of energy-only emissions above 10% per annum (Anderson, Schrage et al., 2018, Anderson et al 2020).

Given the steep reduction of emissions necessary within Nordic countries to contribute fairly to global climate goals, focusing on marginal lifestyles and technological changes only might not be enough (Southerton & Welch, 2018).

Technical improvements such as changes in the form of energy supplied, or the efficiency through which it is consumed have only partly offset the growing appetite of high-consumption lifestyles (Kharas, 2017), and significant changes in mobility, housing and food are required (IPCC, 2022; Ivanova et al., 2020).

But if consumption and energy demand have since long been recognised as a major driver of material resource use and contributor of climate emissions, addressing and confronting it still remains a matter of debate. The debate on the need to reduce energy consumption in order to avoid unacceptable level of material and climate change dates back to the 1970's at least, though we observe its institutionalisation from the 1990s onwards. Rio's Agenda 21 for example dedicated a chapter focusing on 'changing consumption patterns' (United Nations 1993), calling for the necessity of excessive demand to be curtailed, especially the lifestyles in richer societies. The report explains:

“The major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern” (Chapter 4)

Critically, the range of perspectives that came to inform the debate on how to confront consumption have however remained limited. The dominant disciplines that contributed to research on sustainable consumption (SC) relied on socio-psychological and economic approach which foregrounded the notion that it is individual changes in behaviour that were expected to provide the main contributions. At the core of this approach is a model of consumer behaviour that asserts that individuals make decisions by calculating the individual costs and benefits of different courses of actions and choose the option that maximises their benefits. For Jackson (2005, 7), this model relies on a number of assumptions:

- Individual self-interest is the appropriate framework for understanding human behaviour; that

-
- 'rational' behaviour is the result of processes of cognitive deliberation; and that
 - consumer preferences are exogenous to the model – that is to say they are taken as given without further elaboration as to their origins or antecedents.

In this frame, steering consumption becomes a matter of providing knowledge for consumers to make informed choices. The role of policy in this regard is to make the social and environmental costs of private choices “visible” to consumer.

This economic perspective has also been complemented with psychological perspectives on behaviour change. Social psychological models have attempted to conceptualise human behaviour in a more nuanced way, expanding on rational choice theory and accounting for the way values, attitudes interact with behaviour. The theory of planned behaviour proposed by Ajzen (1991) suggested that human behaviour could be appropriately modelled based on the knowledge of individuals' attitude, norms and perceived behavioural control, which together affected an individual' intention and behaviour. Later models have built on Ajzen initial work, incrementally adding new variables to explain environmental behaviours, such as the influences from various values (Stern et al., 1999), interactions with perceived behaviour control and responsibility to act (Klöckner, 2013), or capabilities and opportunities to act (Michie et al., 2011).

Common across social psychological and economic perspectives is their conceptualisation of human behaviour as a linear process where an individual will make informed choices before engaging in a course of action. The orthodoxy of this perspective on behaviour over the past decades has meant that policy perspectives have focused primarily on changing individual's behaviour by focusing on the provision of education and information, and on internalising external costs through pricing (Davies et al., 2010; Fahy et al., 2014; Jackson, 2005).

However, because they fundamentally forgo the deeply social character of how and why we consume, in this thesis I have decided not to adopt this economist-

behaviorist perspective to understand consumption and energy demand. Critically, it has long been argued that interventions in reducing energy demand are normative and contentious politically (Jackson et al., 2004; Princen et al., 2002) and their acceptance vary across cultures and regions of the world (Creutzig et al., 2016b). To understand the implications that energy demand reduction entail for planning organisations, it becomes therefore necessary to approach consumption not as an issue of behaviour, but rather as a social process.

2.1.2 Addressing energy demand as if society mattered

Importantly, resituating energy demand for the services it provides, for the practices it fulfils, and where it is in fact generated has opened-up novel ways of understanding the role of everyday *practices* in creating energy demand (Rinkinen et al., 2020a; Shove, 2022). Increasingly, sociologists have turned their attention towards matters of consumption, and unveiled considerable evidence of the shortcomings that the above understanding entailed.

First among those is that economic and psychological perspective have tended to abstracted energy consumption from what people do. In questioning “what is energy for?”, Shove & Walker (2014) suggest that it is not energy that is demanded every day, but rather the services that it accomplishes. Indeed, the energy I used for travelling with my car, for heating my bathroom, and lighting my house is not done for its own sake: I consume energy in the process of going to the climbing crag, for showering and for the socialisation that lighting allows. In this way, “it makes no sense to treat “demand” as if it was in some way detached from the social arrangements and from the technologies and infrastructures of which societies are composed” (Rinkinen et al., 2019, 8).

Second, psycho-economic approaches give very little insights into how such needs evolve and have therefore tended to abstract energy from the history, cultures and context in which energy demand is situated. Changing expectations of comfort have evolved over time, with significant increases in e.g. indoor room temperature

and household size per person (Kuijer & Watson, 2017), with similar patterns observed in personal mobility patterns, clothing or food (Trentmann, 2012). And at the same time, the cultural meaning of comfort varies also. Work by Wilhite has for example revealed the difference in energy use between Japanese and Norwegian households, revealing how notion of comfort have significant different implications for energy use both in lighting and heating across the two cultures (Wilhite et al., 1996). Critically, reducing energy demand would therefore unavoidably need to engage with the meanings that are associated with everyday activities.

At the centre of this discussion on demand-side mitigation, is that demand-side reduction of emissions will unavoidably involve radical forms of lifestyle and consumption changes (Alfredsson et al., 2018). Implementing household-level innovations such as car-sharing, vegetarianism or avoiding long-haul flights will necessarily interact with existing socio-technical systems, energy cultures and everyday social practices (Creutzig et al., 2018; Nikas et al., 2020). A central concern in this thesis is how these struggles come to matter in the local response to climate change, and the agency that cities can mobilise in the process.

2.2 Agency in urban climate action

2.2.1 The urban age of climate governance

If increases in consumption and their environmental impacts have been a global trend, it is notably in cities that such changes have been the most marked. Undeniably, cities are a critical node to understand what drives emission increases today: cities are serious contributors to climate change, accounting for 60 to 80 per cent of energy consumption and 75 per cent of carbon emissions globally. Though considerable, the urban share of global emissions is set to further increase, as by 2030 close to two thirds of the world's population will be living in cities (from about half in 2008). Urban concentration of emissions is perhaps not surprising, given the concentration of people and activities that drive resource use, and carbon emissions.

But the growth of cities' climate footprint is not distributed equally: research has showed that about a fifth of global emissions are attributable to only 100 cities (Moran et al., 2018), and cities in high-income countries produce close to seven times more per capita emissions than the lowest emitting region (Gurney et al., 2022). This is particularly the case for Nordic countries that display higher-than-average consumption emissions (Bird, 2017).

Early interest in the work of cities in relation to climate action emerged already in the 1990s, and was driven to make the case for a local dimension of climate planning (Betsill & Bulkeley, 2007) and focused predominantly on local government's capacity, knowledge, and ability to cooperate in order to develop low-carbon interventions (Betsill & Bulkeley, 2007; Betsill, 2001; Bulkeley, 2010). Focusing on single case-studies of both large and small cities, this work revealed the voluntary interest that cities displayed in tackling a global problem like climate change (e.g. Deangelo & Harvey, 1998), and how emission reduction was not always the priority, but often coincided with other municipal priorities such as increasing building energy efficiency or developing an improvement municipal transport systems, or attracting external financial interest (Aall et al., 2007; Bulkeley & Kern, 2006). Because of their understanding of climate impacts on the ground, of their accountability to citizens, and of their relevant scale of action, cities became increasingly visible space to govern global climate change (Bulkeley, 2010).

And at a moment where climate action was characterized by international political gridlock (Hoffmann, 2011), cities around the world showed to "lead the way" (Kousky & Schneider, 2003). These first studies undeniably showed the extent to which local climate work operated, the range of policies articulated, the breadth of actors that cities engaged with and the networks that it operated with. Recognising the multiplicity of public and private actors involved in climate action, a shift in the literature operated from recognising that reducing emissions was more than a matter of policy implementation and *planning*, but that it also required significant network "orchestration". To account for the variety of spaces through which city climate organisations acted, such as trans-local and transnational city networks, public–

private collaborative arenas, and local to national arenas (Acuto, 2013), the literature has come to frame cities as actors of urban climate *governance* (Hale & Roger, 2014).

In the last decade, a second generation of scholars have started to challenge the notion that urban climate governance is but a matter of understanding its political drivers, how mitigation could be achieved or what motivates effective management. As I detail below, these scholars have come to look beyond what cities do to reduce emissions and came to focus instead on how climate governance itself became a contested terrain where multiple rationalities and political projects are disputed. Critically, these authors have focused on how climate action has come to affect dynamics of urban governance, highlighting how the diversity of approaches and actors is the context within which climate action is debated and disputed (Bulkeley, 2019). Here below I identify three main ways through which the agency of cities to engage in climate governance has been formulated.

One key opportunity space that has been occupied by cities is city-networks. Over the last two decades, cities have joined both national and transnational networks to advance their knowledge and skills in domains of energy, climate and broader sustainability issues (Bansard et al., 2017; Davidson et al., 2019; Gordon, 2018). The C40 network of cities, Energy Cities, the International Council for Local Environmental Initiatives, or the Global Covenant of Mayors are perhaps the most visible of these municipal networks (Fuhr et al., 2018). These have allowed to position cities in international and national debates as “global climate governors” (Gordon, 2018, 1; Gordon & Johnson, 2018), have provided a network stimulating learning and capacity building, and provided political momentum to affect policy debates at the local and national level (Acuto, 2013; Chan et al., 2019; Heikkinen et al., 2020; Lee, 2013).

In addition, and looking beyond purely institutional responses to climate change, a number of scholars have also started to consider how partnerships between state and non-state actors have started to bypass traditional policy or funding channels

to test for new forms of intervention (Broto & Bulkeley, 2013; Bulkeley & Broto, 2013). Looking beyond climate action plans, *urban experiments* have shown to provide fertile ground for a variety of both technological (e.g., low-carbon infrastructure renewal, retrofitting new energy technologies, novel waste and treatment technologies) and social (e.g. behaviour measures for energy conservation, recycling schemes) alternatives to be considered. These partnerships have shown to broaden the range of activities that traditionally were associated with local climate work, but also most significantly they have offered novel strategic opportunities for cities: they have allowed to access new funding channels, created broad partnerships to advance municipal work, and refashion local concerns (Bulkeley et al., 2015; Evans, 2016; Mukhtar-Landgren et al., 2019). Crucially, urban experiments have become a “key tool to open up new political spaces for governing climate change in the city” (Broto & Bulkeley, 2013, p. 92)

Finally, innovative forms of partnership or democratic participation have also come to matter in the procedural aspects of developing local mitigation action. Though it has often occurred in fields outside of the literature on urban climate governance, the scholarship on grassroot initiatives (Blanchet, 2015; Boulanger & Massari, 2022; Feola & Nunes, 2014), civic engagement (Chu et al., 2018) or collaborative governance (Echebarria et al., 2018) have revealed the vibrant patchwork of groups and actions that occur outside of official municipal spaces. A number of scholars have shown how participatory processes can give legitimacy to local municipal climate programs, moderate public opposition, and allow for dialogue between state and nonstate actors over the direction of local climate politics (Aylett, 2013a; Isaksson & Hagbert, 2020; Sareen, 2020). Importantly, they have afforded the critical insights that in parallel to ongoing municipal work, climate action from NGOs, businesses and citizens happen in ways that can “complement or even contrast existing urban policy and governance arrangements” (van der Heijden et al., 2019, 7).

The three themes shortly introduced above – city networks, urban experiments, and collaborative governance - amount to what I perceive as the broad field of urban climate governance today. But while considering what cities do to reduce climate

emissions is important, *how* they go about doing it is crucial as well. Overall, the “pragmatism” (see Castán Broto & Westman, 2020) that characterises this second generation of authors pointed to the need to recognise the contested and political nature that low-carbon arrangements represents, and how socio-economic, political and identity-related dimensions contribute to the making or unmaking of low-carbon transitions (Bulkeley, 2010; van der Heijden et al., 2019). This means that matters of low-carbon are inextricably embedded in the everyday reality of the city, are contested within its infrastructural and technological choices, and within its politics and identity (Luque-Ayala et al., 2018).

This thesis invariably also fits within this recent “pragmatism” in the urban climate governance literature. So while it builds on it, it also departs from it on the premise that “it is impossible to understand municipal climate policies and approaches to climate governance without understanding—even if only partially and imperfectly—the complex internal context of municipal bureaucracies” (Aylett, 2013b, 1388). Question of how interventions actually engage with the everyday realities of policy action and change have received very little attention within the literature on urban climate governance. Early calls to engage with the everyday implications of climate interventions, both as they occur through the material, and socio cultural dimensions of climate governance have remained, to a large degree, unanswered (Bulkeley, 2010). This is still the case today: in a recent review of the literature, Foulds et al (2022) explain that

“we still know little about how the professional socialisation and the mindsets of civil servants at different levels of government affect the processes of agenda-setting, policy formulation, and implementation in the field of energy efficiency and sufficiency” (9).

It becomes then particularly topical to focus on the role of civil servants as they engage with the everyday work of local climate action and especially when exploring matters of consumption and demand, and their governance by cities. As I argue in paper #2, #3 and #4, the organisational dimension of urban climate

governance has remained under the radar in the academic literature. And the scholars which have focused on civil servants have done so advancing various capacities, knowledge and factors to explain the agency of cities (van der Heijden, 2019). As I explain in the next section, this is however insufficient if we want to understand how material and socio-cultural elements interact in advancing climate governance at the local level.

2.2.2 Governing urban transitions in practice

Recent scholarship has showed how thinking about low-carbon urbanism has required to consider the very infrastructural and material reality that climate transitions entail, and how these come to matter in local politics (Luque-Ayala et al., 2018). For example, the work of Rutherford (2014, 2020) has contributed to show how urban materiality come to play in political and social debates, for example as low-carbon infrastructure becomes the anchoring point for political debates for the Swedish city of Stockholm (2014), or the processual work of creating accountability around energy infrastructure in Paris, France (Rutherford, 2020). His work stresses that despite its inanimate existence, urban materiality is inherently involved in the outcome of energy flows in cities, and that it also, at the same time, “manipulated through the practices and performances of varying groups and interests” (Rutherford, 2014, 1465), implying that physical artefacts have political consequences, and might indeed in some cases constitute political (im)possibilities. Additionally, the work of Haarstad also asks fundamental questions about the embeddedness of infrastructural elements within multilevel and broader policy processes as they unfold in low-carbon transition efforts in Stavanger, Norway (Haarstad, 2016). By foregrounding how local work of low-carbon transitions is mediated through urban infrastructure, he brings attention to how governance processes “places politics in the local and seemingly minute construction of the built environment” (2016, 6). These works are a reminder of the “assembled” nature of both social and technical element, and to see the former and the latter as but part of one seamless web of relationships, with critical implications for thinking about change and interventions (Haarstad & Wanvik, 2016).

In parallel, the social and cultural dimension of urban transitions have also received increased attention. One stream within this body has brought focus on the implications of tackling a “wicked” problem like climate change within bureaucracies and for the very institutional environment within which urban municipalities evolve. Exploring the dynamics of innovation in Durban (South Africa) and Portland (USA), Aylett (2013b) for example reports on the effects of siloed bureaucracies, and how expert knowledge is instrumentalized to block innovation and effective action on climate (see also Aylett, 2011). Similarly, Anguelovski & Carmin (2011) discuss how a lack of resources and institutions to foster climate action might lead to local forms of entrepreneurship and innovation, often by borrowing from other planning domains, and with the aim to find the most appropriate and relevant policy approach to climate mitigation. However, these advances can also come at the cost of program legitimacy, and might inhibit governance capacity and the ability to create rules and norms to support climate action in the long run (Anguelovski & Carmin, 2011; Grandin & Sareen, 2020).

As I have come to mention the word “city” as one coherent whole, these scholars stress how underneath it lays a messy and diverse reality: citizens, bureaucrats, politicians and local groups all interact with diverging interest, aims and political projects. This is the case within municipal bureaucracies also, as climate matters increasingly come in contradictions with, or alongside other municipal priorities (Oseland, 2019) (which acts as the premise for Paper 3). This complexity has led some to focus on the role of intermediary organisations, such as funding bodies (Farstad et al., 2022) or local NGOs (Horne & Moloney, 2018) and businesses (Frantzeskaki & Bush, 2021) as they exert influence *in* and allow governance *of* transition processes. Critically, this recognition of the polycentricity of local climate governance calls for a more collaborative and dynamic governance “ecosystems” that gather a variety of actors in decision making (Hofstad et al., 2022; Vedeld et al., 2021), but it also brings about questions of the desirability of urban transformations (Elmqvist et al., 2019; Hölscher & Frantzeskaki, 2021).

Another stream of research has focused on the interaction between policy interventions and its implications for the everyday life of those affected by climate measures. For example scholars have showed that beyond cases of unintended increases in emissions (van der Heijden, 2020), the success of climate measures is contingent on citizen's cooperation with the scheme itself (Broto, 2012), but can also lead to forms of public resistance (Mehleb et al., 2021), contestation (Madsen et al., 2022) or counter-political movements (Wanvik & Haarstad, 2021). This implies that climate interventions need to be balanced across disruptiveness and implementability (Thaller et al., 2021), and understanding their impact requires to explore the connections between the behaviour, practices and cultural elements of interventions (Kivimaa et al., 2021). Increasingly, these authors have revealed the deeply social and political dimensions within which climate change and its governance are inscribed, showing how legitimacy building is part and parcel of local climate governance (Cashmore & Wejs, 2014), and that local climate action becomes contingent on the "emergence of political priorities and the capacity to achieve them" (Rutland & Aylett, 2008).

What these authors reveal is that, much in resonance with critical urban literature from the last decades, the everyday is, and has remained, a deeply political space (e.g Lefebvre, 2003). While often regarded as "mundane" and with little importance, these authors show how the everyday offers a frame through which larger global questions like climate change are anchored and made sense of. In contrast to the global, highly visible solutions such as those relayed within city-networks like C40, bringing the analytical focus on mundane matters offers an *antidote* to the "dangerous hierarchization of international phenomena over a "sub-politicized" everyday" (Acuto, 2013, 345).

Crucially, this calls for a framework, or theoretical approach that better accounts for the everyday practice reconfiguration that governing urban transitions entail. Considering the social practices of municipal actors allows to better conceptualise the agency, or "manoeuvring space" owned by urban administrations in effecting change, especially as they pertain to change in consumption and energy

demand. Such theoretical approach will be introduced in chapter 3. But before doing so, I first review how matters of consumption and energy demand have been discussed in the literature.

2.2.3 Consumption governance at the local level

As we have seen in the previous section, cities globally have become critical actors in governing local climate efforts. However these efforts have primarily focused on activities and solutions that occur within the territorial boundaries of the city, thus offering only partial insights for consumption-related activities which have indirect environmental impacts that span multiple scales and levels (Millward-Hopkins et al., 2017).

Urban climate governance literature has increasingly recognized the crucial role of consumption and everyday practices in addressing the impacts of urban areas on the climate. Given the considerable mitigation potential of consumption interventions (Ivanova et al., 2020b), these have come under scrutiny of global cities. Recently, the C40 network has started to advocate for consumption-based accounting of emissions so as to evaluate the impact of their activities beyond their territorial borders (Bailey et al., 2019). Accounting for consumption emissions reveals up to 3 times more emissions occurring beyond city boundaries than considering territorial emissions only (Athanassiadis et al., 2018), though this will vary greatly by region (Bailey et al., 2019).

The discussions in the field have received considerable input from the literature on sustainable consumption (Boucher, 2019; Fuchs, 2013; Liu et al., 2017; Southerton & Welch, 2018), which has highlighted the ways in which consumption patterns, lifestyle choices, and individual behaviours can contribute to or mitigate the carbon footprint of individuals. Following Hansen (2023), three different strands can be identified in this broad literature. A first strand, focusing on sustainable consumption and production has highlighted the need for integrated approaches that consider the interplay between top-down policies and bottom-up initiatives to address

consumption-related challenges. This literature has tended to approach issues of consumption and production at a national and international level, focusing on the integration of economic growth with environmental protection and social inclusiveness (Bernstein & Vos, 2021). A second strand has taken the research focus to the level of the household, emphasizing the importance of considering social and cultural norms, as well as the need for education and awareness-raising efforts to encourage sustainable consumption and behaviours (Lorek & Fuchs, 2013). Finally, a third strand has drawn from the insights on sociological work to understand high consumption lifestyles are embedded in material, social, cultural and political context (Hansen & Bo Nielsen, 2023).

However, academic and policy focus for sustainable consumption has overall tended to focus on national-level policies (Dalhammar, 2019; Liu et al., 2017), and research to assess the role of local government in supporting (or inhibiting) sustainable consumption has received little attention. While they represent important actors in governing energy demand, cities are faced with a number of challenges to further advance this work. First is that increased consumption often figures as a priority for municipalities (Romero-Lankao et al., 2018), and that the political commitment to promote sustainable consumption can be lacking, thus undermining efforts to advocate for the issue locally. Furthermore, promoting sustainable consumption can require significant changes to existing practices and behaviours, and there may be resistance to these changes. Additionally, consumption patterns are deeply structured by existing social and material environments, and have structuring effects, even for “willing” consumers (Sanne, 2002; see also Boström, 2020; Dubuisson-Quellier, 2022) and collective actions across scale and consumption sector would instead be required (Alfredsson et al., 2018; Koch, 2020). And finally, from a governance perspective it can also be difficult to measure the impact of sustainable consumption governance initiatives, which can limit their effectiveness and hinder the development of evidence-based policy. Notably, these are questions that I explore in paper 2.

Despite this, to a limited extent the Nordic region as whole has showed to be leading in advancing a local sustainable consumption agenda (Mont et al., 2013). Cities like Helsinki, Stockholm or Copenhagen address consumption within their climate targets. Gothenburg notably has also set consumption-based climate targets for the city for 2030. But beyond these, how cities target consumption remains a blind spot in the literature (Millward-Hopkins et al., 2017), especially when it comes to how its governance is operationalised in cities.

Given these shortcomings, focusing on how cities engage with energy demand reduction is dearly needed. I have argued that if energy demand reduction involves deep changes in lifestyles and consumption (part 2.1), and that the organisational implications of demand reduction have also remained disparate, and we still know very little about how the work of civil servants and planners are challenged in developing and implementing energy demand reductions (part 2.2). In the next section, I argue that there is instructive social practice work that can be drawn upon to better inform our understanding of what such changes would entail.

2.3 The social structuring of energy demand

2.3.1 Understanding consumption

The social scientific study of consumption and environmental behaviour has long history, and the review proposed by Blue (2017), or the anthology proposed by Trentmann (2012) offers a useful outline of its main shifts. While consumption was not a key topic in the social sciences before the middle of the twentieth century, some authors addressed it before that.

Among those is Thorstein Veblen's *Theory of the leisure class* (Veblen, 1994), which remains a classic in the sociology of consumption. In his book, the author advanced the notion that highly visible forms of consumption, what he calls "conspicuous consumption", is what motivates a class of new rich in the U.S. to consume. He advanced the idea that the purchase of luxury goods, like expensive

clothes, cars or dinnerware allowed members of this class to display and communicate their social position. Crucially, what Veblen contributed with is the notion that the consumption of goods is not a trivial practice, but rather that expensive goods were strategically employed to display wealth and status, and that this symbolic display of goods was also imitated by the lower classes.

For Hansen & Bo Nielsen (2023, 6), Veblen's work, along with other contributions from e.g. Simmel or Weber, anchored the notion that "[p]eople do not only consume goods to distinguish themselves from others, but also to associate themselves with others in order to not stand out, to achieve group belonging or to keep up with societal expectations". As we will see later, this is a foundational notion in the sociology of consumption. But despite this initial focus of the relationship between class, consumption and its economic significance, to a certain extent, sociological research on the topic remained limited. This started to change in the 1960s and 1970s (Sassatelli, 2007).

Focus on energy consumption and demand was reinvigorated in light of the oil shocks in the mid 70s, when governments sought to reduce household consumption and focused on matters of energy conservation. The early science on energy conservation considered almost exclusively the technical aspects of energy consumption: the production of energy, its transmission, or its use by buildings. At the time, energy conservation was a matter of finding efficient energy gains along the production and supply of energy. But studies of residential energy use, such as the one lead by Socolow (1978), revealed how energy consumption varied considerably across similar dwellings, leading the authors to stress "the significance of resident behavior in determining energy consumption" (208).

People, and not technologies, started to receive more attention in understanding matters of energy conservation. For Warde, (2017) the field as a whole evolved in three successive waves of development since then.

The first one concerned a shift in focus from work on the production and maintenance of a mass culture, predominantly considering western economies and the

novel entertainment industry that sprang in the inter-war era. Influenced by works of authors from the “Frankfurt School”, consumption was understood in very structural terms: they emphasized the economic structures of capitalism, the role of materialism over cultural elements, and consumers as manipulated and dominated by a culture industry. For these authors, individuals presented therefore very little autonomy in consumption choices, because as consumption was equated with mere replication to a mass culture.

The second turn concerns a shift towards the role of cultural artefacts in consumption, and their role in the making of a “consumer culture”. The explanations of consumption offered by Frankfurt School proponents started to lose traction in the 1980s, as a wave of cultural studies researchers became critical of the idea of a powerful and independent culture industry (Blue, 2017). For these authors, it was important to recognise the symbolic meaning in consumption, and understand that there was creativity, spontaneity and resistance to be found in mass consumption also. This recognition thus favoured analyses of specific examples of how consumption became part of modes of personal identity creation. For Warde, this “cultural turn” implied that “[c]ulture was redesignated as an integral part of everyday life, wherein could be found meaning, personal expression and identity (2017, 41).

Over the last decades, this emphasis on the cultural and symbolic dimension of goods started to diminish in a wake of sociological work that was interested in the material role that objects and technologies occupied within processes of transformation (Guy & Shove, 2013; Warde, 2015). Increasingly, research revealed the importance of the social dimension and significance of the services provided by energy use, and how they are integrated in everyday routine. For example, in a comparison between Norwegian and Japanese households, Wilhite et al. (1996) showed how significant differences exist in energy intensive practices like space heating or hot water use, and how important these practices are for understanding what constitutes “normal” lifestyles in respective countries. Shove (2003) showed how ideas of cleanliness, comfort and convenience evolved, became normalised, and embedded in taken-for granted habits and routines. Critiquing the focus on pricing

and attitude as levers to change behaviour, these researchers remarked the small costs that energy consumption represented for households, and thus that the services it provided remained rather invisible, implying that household's relationship with energy demand is more a matter of habits and convenience, than a matter of choice and preferences (Hand et al., 2005; Lutzenhiser, 1993; Warde et al., 1999). What was needed for these authors was to recognize how energy intensive habits were embedded in everyday life, and not a matter of social performance and positioning. Consumption of food, energy or water was to be understood instead as mundane, ingrained in routine and habits, and based on a shared understanding of how activities should be done (Eckhardt et al., 2015; Shove & Warde, 2002; Warde, 2005).

2.3.2 Energy Demand as structured by social practices

Perhaps for the crucial role that the access, provision and distribution of energy played in industrial and economic activity, and for the perspectives on human behaviour that have dominated the policy landscape, the notion of energy demand and consumption has often been treated as a simple product of efficient technologies, and the knowledge available about an issue (Warde, 2017). The shifts in focus brought by practice scholars not only challenged these levers of change, but also notably contributed with foundational notions to think through matters of energy demand and change.

Arguably, this turn to social practices was fuelled by theoretical developments in social theory, led by Theodore Schatzki (Schatzki, 2002; Schatzki et al., 2001), and which allowed to formulate a number of "theories of practices". These are widely used today, notably in studies of sustainable consumption (Halkier et al., 2011), such as studies of practices of thermal comfort at home (Gram-Hanssen, 2010, 2011), of food consumption (Dubuisson-Quellier & Gojard, 2016; Sahakian & Wilhite, 2014), of hygiene and cleanliness (Jack, 2013), of commuting (Cass & Faulconbridge, 2016), or workplace behaviour (Hargreaves, 2011). It has also, as I show in paper 2 and 3, also become influential in studies of organisational change (Feldman &

Orlikowski, 2011; Jarzabkowski, 2004). By foregrounding practices and not social structures or individual choice, it has provided a more dynamic account of the relationship between systems of provision and individual lifestyles (Spaargaren, 2003), and between habits & choice (Dubuisson-Quellier, 2018). Key to the approach is the recognition that these social practices are “partly constituted by, and always embedded in material arrangements” (Shove et al., 2015, 174), implying a focus on how practices and infrastructure develop together.

A key notion advanced by this body of literature is that people do not consume for consumption’s sake, but consumption is achieved in the process of performing a practice. Consumption is but a “moment” of a practice (Warde, 2017). The many services I enjoy in my home are entirely dependent on various forms of energy consumption: the heating in my bathroom, the lighting of my kitchen, the comfort and cleanliness of my living room. The energy consumption that will result from these services are dependent on the efficiency of the technologies used to deliver those services (the lightbulb’s energy rating, the electrical consumption of my heater or my fridge), but they will also significantly result from my use and, what I deem as appropriate levels of e.g., heating, lighting and comfort. Beyond the household, this is also the case for the demand of mobility, food, clothing, sociability, or health services. To understand energy demand, it is therefore crucial “to understand how clusters of practice evolve and how they are held together by concepts of service” (Shove, 2003, 408). Taking this perspective therefore foregrounds how comfort, hygiene or socialisation are some of the outputs that are sought after, more than specific moments of consumption per se.

Additionally, practice scholars have stressed how engaging in “normal” daily practices is interlinked with material elements. Whether they are objects, or technologies, but also buildings and infrastructure: scholars have stressed how these enable and sustain what people do, and how they come to affect the scope, scale and type of practices performed in built environments, and the associated energy consumption (Coutard & Shove, 2018; Shove & Trentmann, 2019). This entanglement is not unidirectional: as much as infrastructure allows to sustain

practices, the performance of practices and their energy requirements will also come to affect the type, scale and range of infrastructure required. Critically, understanding “how forms of infrastructural provision co-constitute “needs” and practices, and to understand how these emerge and circulate” (Shove et al., 2019,) have been key conceptual openings allowed by taking a practice perspective. This aligns with the insights of the broad field of science and technology studies (within which social practices would belong) which foregrounds the human and non-human nature of social action (see e.g. Verbeek & Crease, 2005).

These developments have been crucial in expanding our understanding of how demand becomes constituted. While understanding how demand changes has often been linked the analysis of social individual obstacles (such as a lack of attitudes or knowledge) and technological assessments to improve energy efficiency, a look at practices has opened a wave of research to consider the technical and social context within which demand is structured (Horta et al., 2014; Shove & Walker, 2014). In an effort to bring these various threads together, and propose a conceptualisation of energy demand from the perspective of practices, I draw from Rinkinen et al., (2020) who suggest that demand is:

1. derived from practices
2. being made, and not simply met
3. is materially embedded
4. is temporally unfolding
5. modified and modulated, deliberately or not, via many forms of policy and governance

These suggestions are a crucial anchoring point in this thesis. So far, I have used the terms consumption and demand alternately. As we have seen previously, consumption has often been associated with matters of individual behaviour, somehow tainted by the individualism and rationality of economic and psychological perspectives. Instead, recognising that consumption choices are structured by social

practices implies seeing these consumptive efforts as matter of socially constructed demand.

Importantly, the debates and evolution within the field of sustainable consumption, and the contribution of social practices within it, are far from resolved (Evans, 2019). The first generation of practice scholars, in the likes of Bourdieu and Giddens, were primarily interested in providing a different account of agency and structure as was existing at the time. But their more notable contribution laid in the social phenomenon they sought to explain: their work was less interested in explaining household-level dynamics (though they are both prominent in the work of both Giddens and Bourdieu), and more focused on the broader power relations and political economic structures in which everyday action is situated (Kennedy et al., 2015).

The work of Giddens and Bourdieu both sought to combine ‘micro’ sociological insights with more traditional ‘macro’ structural questions that concerned the existence and persistence of inequality, power relations, and social reproduction (Berard, 2005). For Bourdieu specifically, his theory of practice maintained that power is reproduced by control over symbols and discourse, and that these are reproduced by dominating as well as dominated classes. The theoretical opening that a practice perspective allowed lead a second generation of scholars to articulate a more grounded understanding of practices, how they are constituted, and how they change (Schatzki, 1996; Shove et al., 2012). As I detail in this subsection, practice-based approaches have provided significant advanced in understanding the possibilities and constrains of advancing sustainable consumption. Yet, in many ways, this second generation have tended to overlook the broader implications of taking a practice stance: for Evans, (2019), the field of sustainable consumption broadly speaking, and the practice perspective notably, has brought limited attention to broader political-economic and economic-geographical structures, lacking analysis of power and inequality as it is reproduced every day.

Importantly, focusing on power and the political dimension of sustainable consumption offers the possibility to connect broader political barriers with their everyday practices (see for example the edited volume by Isenhour et al., 2019). Advancing this agenda would mean bringing more attention to how the “capitalist imperatives of growth, commodification and individualization” (Wilhite, 2016, 2) comes to bear onto everyday energy-intensive habits, but also how those imperatives are reproduced by everyday practices. By focusing on how civil servants engage with energy demand reduction, this thesis seeks to contribute critical knowledge on the role of local municipal actors in advancing, or constraining, a reduction of emissions, and a challenging of energy intensive practices.

2.3.3 Organisational practices of energy demand reduction

Understanding the work of civil servants in urban climate governance by considering the social practices that are performed opens-up new understandings of the agency that can be mobilised. As I argue in paper 2, 3 and 4, there is resourceful insights from the literature on organisational practices (Nicolini, 2012b) and strategy-as-practice (Vaara & Whittington, 2012a) scholarship that can help make sense of the organisational work involved in challenging energy demand.

Overall, this approach foregrounds the notion that practices provide the “micro-foundation” of institutional change (Golsorkhi et al., 2015). Notably, it offers a number of contributions for apprehending practices of urban climate planning.

First, practice approaches highlight human actors and agency, seeing people’s everyday actions as consequential in “producing the structural contours of social life” (Feldman & Orlikowski, 2011: 2). Change is mobilized through collective forms of action, and researchers showed how new practices can become rationalised, and affect the wider environment in which they are situated (Smets et al., 2012). Practice-based approaches therefore understand agency as deeply embedded in its wider institutional environment, where change are focus on changes in mundane everyday

task or routines (Vaara & Whittington, 2012b; Voronov & Yorks, 2015; Whittington, 2006a).

A focus on organisational practices also highlights how variations and improvisation can take place in the mundane bureaucratic work of organisations like climate departments. Scholars have reported how focusing on organisational social practices allows to understand the “shared” understanding that new practices need to mobilise to become established. Scholars have stressed how improvisation and experimentation are therefore possible as long as they remain recognizable and legitimate in accomplishing the task at hand (Lounsbury & Crumley, 2007; Vaara & Whittington, 2012b).

Finally, and related, is that this has bearing for how organisational practices evolve: change occurs when shared understandings are altered. For practice scholars, the dynamics of organisational change and stability is a product of how the complexity of organisational work is handled “in the course of everyday work” (Bjerregaard & Jonasson, 2014).

While common in strategic management and organisational studies, this approach has to a large extent not informed studies in governance of urban climate or demand reductions (see e.g. Holmes, 2021 for an insightful exception). In the next part I develop the conceptual approach used in this thesis to address this gap.

3. Conceptual Approach: *Practicing* urban climate governance

Drawing from sociological theory, the notion I advance in this thesis, namely that of a *Practicing* of urban climate governance, aims to conceptualise local climate governance efforts as a matter of organisational social practices. Why *practicing* and not practices? By using the term practicing I advance the more active dimension that is part of the work of local climate governance, the “doing” that is part of preparing, implementing and organising climate work. As I showed in the literature review, the agency through which city organisations produce change has been under-theorised, and this approach is therefore motivated by the necessity to develop a language for understanding possibilities of change offered between everyday organisational work and the materiality, politics and planning of climate governance.

Before I describe my conceptual approach, a reflection is required: the questions that I address in this thesis, and the fact that I ask those questions within a Department of Geography would warrant a more explicit engagement with debates within geography. Insights from Geography are part and parcel of the work undertaken here: stressing the place-based nature of governance processes, their relationality with other places or the geography of consumption. In relation to this last dimension, the field of geography has built an convincing account of consumption through some of its key concepts: a significant literature has detailed how space, place and scale make a difference in how consumption is manifested (Gregson, 1995; Lane & Mansvelt, 2020; Mansvelt, 2005). Undoubtedly, the field has made a strong case for a spatial dimension of consumer practices. But while this literature has allowed to advance our understanding of the nature of consumption through the many places that it arises from, I have found this literature coming short when it comes to explain how actors engage with energy demand reductions, the internal organisational tensions that might emerge, and their wider governance implications. The sociology of and geography of consumption share an extensive set of insights and approach, no less by recognising the local nature of consumption practices, and how they extend across scales (a core insight of social practice approaches) (Evans, 2020). But

exploring their governance implications, and the role of actors within it required a more thorough engagement with sociological work on social practices. Therefore, in this thesis, the insights provided from the geography of consumption are the background from which I depart to study the sociological and institutional character of local climate work.

This section starts by introducing the understanding of agency that is employed in this thesis, notably by drawing on the notion of “field” which provides the conceptual anchoring point of my approach. Drawing on work on social practices, this is then operationalised through three different dimensions: interventions, organisational practices, and rationalities.

3.1 The manoeuvring space for urban climate action

While the literature on urban climate governance has highlighted the actors (the who) and approaches (the what) that structure urban climate governance, less attention has been brought to the internal organisational work of articulating ambitious measures and interventions (the how) in cities. While the literature has recognised how cities’ climate work is broadly “embedded within multi-level governance structures and networks”, the agency through which city organisations produce change within this context has been under-theorised, often reducing agency to forms of capacities and partnerships. As a result, the internal dynamics of municipal organisations have remained on the side-lines of research on urban climate governance.

Field theory can be generative in this regard. As a sociological lens, fields are useful to understand and explain the “regularities in individual action by recourse to position vis-à-vis others “ (Levi, 2003). As one of Bourdieu’s many “thinking tools” (Townley et al., 2014, 40), fields offer a heuristic that helps to understand how stability and change in social life is produced in a social world that is full of conflicting goals and interests. For Bourdieu, many fields co-exist at the same time:

the fields of education, culture, academia, housing or science all represent separate social spaces governed by their own laws and internal logics (Bourdieu, 1972). The approach assumes that social actors interact with each other within those multiple fields, and that actors' practices will be intelligible only by taking into account the practices of other members of that field. For Bourdieu, a field and its content, is formed by its agents: in the case of local climate governance this would be civil servants (project managers, planners, climate advisors), but also politicians, academic actors, local civil society groups, businesses or members of neighbourhood organisations.

Often compared to magnetic fields, social fields are an analytical tool to explain the structuring effect that is exerted on actors, which will affect their understanding of what is thinkable and appropriate. For Bourdieu, all fields are structured according to certain "rules of the game" within which actors cooperate with one another to produce collective strategic action (Bourdieu, 1972). Importantly, fields are made of a set of norms which allow to differentiate between the normal and legitimate, and the unthinkable and the improper. These unwritten rules dictate how various municipal actors will interact, what they will perceive as normal or legitimate. Critically, civil servants working with advancing ambitious climate work will thus engage through these "structured spaces of positions" (Bourdieu, 1993, 72). And fields are therefore particularly useful to understand agents' actions: they explain how order and stability is produced, explaining the agency of actors as part contestation, part domination. Therefore, in a very practical sense, field theory allows to analyse how actors seeking to advance novel ideas or practices will interact with others (Fligstein & McAdam, 2012). Critically, the relationship between agents and their context is a co-generative one: as their action affects the structuring of the field, they also produce the field and affect its logic.

Field theory has been applied widely to organisations to explain how well-established actors come to be contested, how practices are unsettled, or novel ones are introduced (Emirbayer & Johnson, 2008; Swartz, 2008; Townley et al., 2014). By foregrounding the norms and deeply political ways in which actors interact, field

theory has allowed to create a cultural and political approach to the problem of strategic action and agency (Fligstein & McAdam, 2012; Martin, 2003).

Conceptualising Nordic urban climate governance as a field helps to make visible the norms and “ideational structures” that affect practices of climate governance (Bell, 2012). Thinking of civil servants’ agency in those terms means recognising that these actors need to navigate and affect “representations of “what is good to strive for”” (Levi, 2003, 50). Governance norms will also shape how actors perceive their role, the tasks they operate, and the range of alternative practices that they can or cannot operate.

Importantly, I take this approach to provide a “generative reading” (Emirbayer & Johnson, 2008, 2) to understand the social world of urban climate governance. The notion of field as proposed by Bourdieu is a coherent conceptual theory, but it did not come with a specific set of features to structure analysis. Many have built on his initial conceptualisation to understand the dynamics internal to organisations (see Tatli et al., 2015). Therefore, in this thesis I draw on the concept of field to inform a broad “field sensibility” for urban climate governance, and this sensibility is operationalised by considering the social practices performed by civil servants within organisations.

In this thesis I operationalise the concept of field to think through the implications of broadening and challenging the field of urban climate governance for those that are involved in it, notably when it comes to explicitly affecting the energy demand of citizens. I do so by considering the effects of the field in three ways: first by considering how the field of climate governance affects the range of climate *interventions* seen as relevant and appropriate when it comes to articulate energy demand reductions. This would bring a specific lens to consider the range of interventions, strategies, and techniques employed to implement policies or programmes. Second, a governance field will also affect how actors engage in a set of governance practices to address climate change locally. Challenging elements in the field will mean that civil servants will articulate *strategic agency* to reach their ends. Finally, a governance field will also frame how civil servants come to understand

energy demand reductions. In a broader sense, it allows to understand the *rationalities* of urban climate governance and how a policy problem is constructed and understood, and the range of policy solutions which are perceived as appropriate or feasible.

These three dimensions – interventions, strategic agency and rationalities – form the structure of my conceptual approach. Together, they allow me to explore how governing for a reduction of energy demand in cities is affected by the work of civil servants, to apprehend the range of strategies used to advance climate interventions and explore possibilities to broaden the political agency for ambitious climate work. Recognising the need to navigate both opportunities and constraints of institutional change, in my thesis they amount to a what I call a form *Practicing*. In the following, I detail these 3 dimensions more specifically by relating to social practice theory.

3.2 Interventions in Practice

Taking the view of climate governance as a field implies that the ways in which civil servants engage in governing will be affected by various possibilities for action, structured by the choice of appropriate tools and interventions. How will this structuring affect the range of climate interventions that seek to change the demand for energy of urban citizens? As was advanced in the literature review, dynamics of demand can be understood by considering social practices.

The work of Reckwitz provides a relevant starting point here. For the author, social practices are understood as:

“a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge” (Reckwitz, 2004, 249)

Therefore, a practice – be it the practice of commuting to work, cooking dinner, or preparing a climate strategy – form a coherent unit, a block. This unit becomes recognisable as a practice when different existing elements are brought together in connection: my body, a chair, a computer and a desk chair are the *elements*, or “ingredients” that make-up the practice of writing a thesis for example. In this, I am but the temporary *carrier* of a practice as it is performed, and the performance of this said practice can also be accomplished in a multitude of ways: I can write my thesis wearing a hat, or pink sandals. But to be recognisable as such, a social practice needs to be understandable by those performing it, but also to those observing that practice. Will my supervisors think I write my thesis as I wear a helmet, a harness tightened around my waist, with a climbing rope secured to it? For it to be seen as legitimate, the carrier of a practice needs to draw from a range of conventional elements or certain routinized ways of “understanding, knowing how and desiring” (ibid, 250).

Outlining the role that *elements*, *performances* and *carriers* play, Reckwitz’ account has been further strengthened by recent contributions, for example by Wilhite’s focus on *body*, *things* and *habits* (Wilhite, 2012), but also notably by Elizabeth Shove’s work. In Shove et al (2012) the authors describe how SPT stems from the recognition that social practices are constituted through the integration of different elements performed in practice and, that a given practice’s emergence and/or dissipation is reliant on the links between its defining elements, and whether those are made or broken. Taken together, those two characteristics define a social reality made up of *competences*, *meanings*, and *materials*, which when integrated, create different social practices. Understood broadly, *competences* refer to the skills and knowledge associated and necessary to perform the practice while *materials* relate to the sequence of physical and material activities of that performance (from bodily performances to the use of material artefacts). *Meanings* gathers then the wider signification of that practice (from individual understandings and emotions to wider beliefs and social meanings associated to the practice). The interdependency of these elements helps define practices: the continued renewal of their links, or their interruption, is crucial for a practice to be sustained, changed or interrupted (Shove et

al., 2012). Additionally, if elements are bundled to make-up a practice, practices can also be bundled together into constellation of practices (Hui et al., 2017). For example, the practice of commuting, is often closely aligned or entangled with the practice of food shopping, dropping kids off at soccer practice and cooking dinner. In an organisational context, the bundle of practices that makes-up work, can be a constellation of various practice such as emailing, conference calls, internal seminars or coffee-machine chatter.

Overall, since practices are influenced by the material/technological and human/social arrangements within which they take place, interventions can be studied based on how they intervene, affect or disrupt practices, and what forms of behaviour they allow or hinder. In paper 1 I build on the notion that climate measures can be understood through an intervention-in-practice framework as the one developed by Spurling & McMeekin (2015). This framework allows to map how different types of practice intervention will affect the emergence, persistence and disappearance of practices. Intervention can target both practice elements, but also the connections and bundles that make-up practice constellations. The authors term the three type of interventions “re-craft”, “substitute”, and “change how practices interlock”, which has strong similarities to the much cited Avoid Shift Improve framework (Creutzig et al., 2018). These offer different ways to understand how everyday practices are re-configured and affected by policies and interventions. These are described with more detail in Paper #1. Taking as example low-carbon mobility, “re-crafting” practices would mean a change in the energy intensity of how mobility patterns are performed. For example, replacing diesel buses with electric ones, and hence only affecting the material element of said practice. “Substituting” would include a shift of mobility patterns predominantly from car-based to public transportation-based commuting. In this case, the same service is substituted by another means. This includes a deeper change in the practices elements that are integrated. Finally, “changing how practices interlock” types of interventions would seek to avoid the need for commuting in the first place, and reconfigure the assemblage of practices within which commuting is

situated (how does it affect shopping habits, dropping kids at school and socialising practices?).

Importantly, mapping interventions provide “an analytical entry point”(Moberg et al., 2018, 500) to track the field of urban climate governance. It allows to probe the underlying organisational practices out of which these are produced, which is introduced in the next section.

3.3 Organisational and material dimension of strategic agency

Taking a governance fields approach foregrounds the idea that the work of strategizing cannot be disentangled from the everyday struggles occurring within organisations. A second dimension that I foreground with the concept of *Practicing* is the strategizing work that is inherently implicated in the work of advancing ambitious climate action. Civil servants and climate planning organisations will implement strategies in order to improve or defend local climate work. Here, I draw from insights from the literature on strategy-as-practice (Golsorkhi et al., 2015b), and infrastructure-in-practice to develop my understanding of strategic agency advanced in this thesis (Shove & Trentmann, 2019).

3.3.1 Seeing strategic climate work as practice

Strategy-as-practice research is a distinctive approach to research strategic decision-making, the making of strategies and strategy work (Vaara & Whittington, 2012a). For its focus on the way practitioners are performing strategy work, this approach is particularly relevant to understand how civil servants engaged in climate work go about organising and strategizing to advance local climate concerns. While a wide variety of approaches do exist (see Golsorkhi et al., 2015 for an overview), common among them is their focus on ‘practice’ as a key concept for understanding how individual agency and institutions are linked in organisations (Nicolini, 2013). By foregrounding practices, the field has allowed to study everyday tasks that make

up the work of organisations. But beyond capturing the daily micro tasks and operation that make-up the work of organisations, a practice lens connects those with meanings of what constitutes “good” work, or appropriate and legitimate work within an institution. It allows to contextualise them in a social context, and link broader strategic work to micro-level activity.

Additionally, much in line with the perspective on consumption detailed in the literature review, considering the dynamics of organisational practices stresses that activities that make-up strategic work in organisations need to be understood “as enabled or constrained by the prevailing practices in the field in question” (Golsorkhi et al., 2015, 3). This means studying the tasks that civil servants engage in everyday (e.g. meeting colleagues, developing internal memos, researching solutions, quantifying emission reductions from interventions, ...) are only understandable in relation to the practice that they seek to accomplish (e.g. creating a new climate plan). Critically, such approach stresses that activities are not just about the behaviours of civil servants or ambitious politicians, but rather that they need to be understood as enabled or constrained by prevailing practices. Of importance here is that such activities need to be understood in their wider social context: “actors are not working in isolation but are drawing upon the regular, socially defined *modus operandi*” (Golsorkhi et al., 2015,4). In other words, climate work within an organisation like a climate agency is more than the sum of individual tasks performed by civil servants, it also includes an understanding of what a “normal” performance is.

Finally, drawing from a practice lens to understand strategic work in organisations allows to explain the vicissitudes of everyday climate work: why social action sometimes follows and reproduces “routines, rules and norms” ... and why sometimes it doesn’t (Golsorkhi et al., 2015b). Some authors, such as Jarzabkowski (2003, 2004) for example, foreground the role of routines in structuring the work of managerial actors, especially as they perform strategic activities, interact with other actors and recourse to specific practices to affect organisational work. Others have stressed how practices also reveal the deep agency mobilised by practitioners (Vaara & Whittington, 2012a). Overall, by focusing on different levels of action (individual

or collectives of practitioners), and by considering both content and process of organisational work (Johnson et al., 2007), strategy-as-practice scholarship has advanced a deeply dynamic perspective on organisational and institutional change.

Given these three dimensions, by focusing on the practices carried out by civil servants within organisations, this perspective provides a lens to understand how “different modes of agency unfold as actors develop and realize their interests in particular institutional settings” (Smets & Jarzabkowski, 2013, 1279). The understanding of “strategic work” that I foreground in this thesis (notably in paper 2,3 and 4) builds on a practice perspective. Drawing from Whittington (2006), strategic work is here defined as a dynamic product of ‘practitioners’ (i.e., those who do the actual work of making, shaping and executing strategy), ‘praxis’ (i.e., the concrete, situated doing of strategy) and ‘practices’ (i.e., the routinized types of behaviour drawn upon in the concrete doing of strategy). Seeing strategic activities in this way allows me to capture not only the formal and informal work that is part and parcel of Nordic cities’ climate work, but also the habitual and social “modes of acting through which strategic activity is constructed” (Jarzabkowski, 2003, 26).

3.3.2 The material dimension of strategic agency

Understanding strategic agency only in organisational terms might miss out the significant ways in which the material dimensions of climate governance is also entangled in organisational practices. Indeed, if practice theory can offer insights into what occurs within organisations, it also offers tools to capture what appears across settings and national contexts (Nicolini, 2012b). In fact, understanding urban climate governance as a matter of *practicing* recognises that climate work is infused with ideas of how to carry out practices (e.g. such as carrying out a climate plan), and that these ideas circulate within and between various communities of practices (Lave & Wenger, 1991). Here I draw from recent work that have conceptualised how to understand phenomenon (like consumption and energy demand) that occurs and are widespread across geographical sites (Hui et al., 2017; Shove, 2022).

Critical to this is to recognise the role that infrastructure plays in maintaining various practices together. For early contributors, such as Reckwitz (2004) and Shove et al. (2012), material artefacts, such as a car, can be mobilised in the performance of a practice, such as driving. As I detail above, in their theorising, these authors have stressed how material artefacts are but one of the elements (alongside meanings and competences) that are integrated in the performance of a practice. They are theorised as part of a practice. By contrast, Schatzki (2019) advanced the idea that while material elements and practices are co-dependent, they are in fact distinguishable from a practice. Referring to material arrangements instead, Schatzki refers to the broader infrastructure setting in which practice take place: the road that allows car driving, the electricity network that delivers the energy consumed in households. While these are not directly involved in a practice, they evidently permit the range of practices that make-up everyday activities. In a bid to theorize the characteristics of infrastructural arrangements and how they affect social practices, for Shove et al., (2015), infrastructures typically are:

- Connective and extensive, since they link connected different places together and have a number of entry and exit points (e.g., how the road network ties various origins and destinations together)
- Supporting a variety of practices and various aspects thereof. Infrastructure such as roads sustain a variety of different practices at once (e.g., cars and cyclist), for a diversity of uses (e.g., commuting, shopping or taking a leisurely bike stroll).
- Collective, in that infrastructure provide for a number of users and practitioners. This aspect makes it critically relevant for governance processes since they prefigure as means to reach a range of policy goals, such as economic growth, access to remote areas or traffic diversion.
- Obdurate, in that they are made of long-lasting materials (concrete pipes, stone bridges, steel pylons,) but also because they represent massive investment costs, affecting the perception, and future ability of their replacement.

Together, these characteristics explain how infrastructure both contains and support “specific ideas about normal and appropriate ways of living, effectively transporting these from one generation to the next” (Shove et al., 2015, 280). From a governance perspective, the agency that organisational actors can mobilise in targeting infrastructure need to recognise and engage in the different dimensions that are advanced by Shove in the list above.

Another element of key interest here is how the notion of “circuits of reproduction” advanced by Shove et al. (2012) has allowed to understand how individual practices become widespread over time and space. The authors suggest that instead of being selected within close settings, practice elements in fact circulate freely, are selected and adopted by carriers to address the task at hand. In this thesis, I take this approach to investigate larger-scale social activity including the activities of institutions, and (planning) organisations within them. By focusing both on the *performance* of practices in organisations, such as carbon accounting, project development or the development a new climate plan, and the relationship between them and other practices. For Nicolini (2016), this amounts to a form of “connected situationalism”, in that “performances therefore can be understood only if we take into account the nexus in which they come into being. What happens here and now and why [...] is inextricably linked to what is happening in another ‘here and now’” (102).

This sensibility to how practices associate allows to understand and explain the diversity of micro changes that make-up variations in phenomena, for example in the making of climate plans (e.g. Oseland, 2019). For example the organisational practice of making a climate plan will be affected by ideas found in conferences, C40 newsletters, public lectures or other climate plans from “elsewhere” (see Grandin & Haarstad, 2021). This bears resemblance to the policy mobility literature which advances the need to understand how policies are accessed and mobilised from a global pool of ideas, which are adapted to a specific local setting (Peck & Theodore, 2010). Similarly, this also builds on Giddens notion of *space-time distanciation* (Giddens, 1984, 2013) where he suggests that social relation are not bounded to an

immediate context, but rather that they are “disembedded”, and “controlled or coordinated over longer periods, over longer distances, and over more spheres of activity”(Gotham, 2020, 211). In addition, Schatzki also emphasises the notion of “connecting sites” (see also Everts, 2016; Hui et al., 2017), which gives further weight to the parallel connections occurring between spatially removed sites. This has opened-up the possibility for multi-sited research and connecting practices across different contexts, such as map the connections between EU policies and their local effect on project development (Hampton, 2018), or trends in energy demand (Shove, 2022).

The two notions introduced above (on the role of infrastructure and of circuits of reproduction) offer the premise of paper 2, where I foreground the idea that similar practices of urban climate governance can be found across 10 Nordic cities and study their structuring effects on everyday climate work.

Recently, developments have allowed to conceptualise large social phenomena like urban climate governance as “large nexuses of practice-arrangement bundles or spatially far flung sets of aspects thereof” (Schatzki, 2016, 17), with implications for how to think through the dynamics of institutional climate work. Foregrounding how “chains of actions” creates connections across bundles and practice constellations, Schatzki (2016) stresses how such links allow to understand the formation, persistence, and dissolution of a range of practices across different settings. In this, he explains that key practices such as objective or target setting, managing or incentivising can have the effect to align or discipline other practices (see also Watson, 2017). This is arguably key to understand the work of institutions, such as municipal climate planning organisations, which (inherently) are driven to orchestrate practices, and offer the theoretical backbone to paper 2 and paper 3.

3.4 Rationalities of climate governance

Finally, seeing urban climate governance as a field means that the actors within it are partly structured by a particular set of interlocking norms, a configuration of

ideas on what is adequate to do and to think, and what is not. In Giddens's structuration theory, these norms and ideas act as formal and informal rules which are implicated in the recurrent structuration of actor's actions. For Bourdieu, norms also affect what can be understood as the "feasibility space" of certain action. He explains that

"in imposing different definitions of the impossible, the possible and the probable, cause one group to experience as natural or reasonable practices or aspirations which another group finds unthinkable or scandalous, and vice versa" (Bourdieu, 1972, 78)

Importantly, analysing how social norms fit together within a field allows to map how individuals and organisations contribute to the reproduction and normalisation of practices themselves. For example Shove et al. (2012) explain how the trajectory of practices depends on how well embedded it is in society and on the commitment from a population of practitioners. If reproduced often enough, the ideas and norms carried with the practice become normalised and can further facilitate its deployment. Therefore the norms and ideas associated to a practice are particularly important in facilitating its further reproduction.

Studying the underlying norms and ideas of the Nordic field of urban climate governance would allow to identify how actors relate to and delimit the space of the possible. Understanding governance as the intentional shaping of people's lives and the practices they carry can range from simple (i.e. individual) to highly complex and coordinated interventions into chains of action (as in coordinated policy packages). And while these can vary in their scale, governance also varies in the means that are mobilised to achieve a set goal: from imposition and coercion, to forms of inducements, adjustments and persuasion (Schatzki, 2015). Studying the underlying norms of climate governance in the Nordics allows to distinguish governance interventions which would be "illegitimate", "too radical", or "inappropriate", from those that would be thought of as "possible", "adequate" or "acceptable".

Critically, for urban planners and civil servants, navigating what is deemed appropriate and reasonable while also advancing ambitious climate action is part and parcel of engaging with policy implementation, or the making a new climate plan. Within Nordic urban governance, a number of divergent rationalities exist (see e.g. Hagbert, Nyblom, et al., 2020; Hagbert, Wangel, et al., 2020), and in advancing local climate action it becomes particularly interesting to map how civil servants navigate their underlying norms and ideas. In paper 4 I draw from work in sociological institutionalism (March & Olsen, 1998) to advance the idea that to understand urban planners' agency, it is important to study how they navigate across various governance norms of appropriateness and consequence to advance a new climate plan that is "politically feasible".

4. Methodology and field work

How to study social practices? What tools to draw from to understand the messy and “embroiled” processes of bureaucratic actors? The aim of this section is to detail the range of methods and data sources that were employed in this PhD to capture the interventions in, and the evolution of practices across different sites, social settings and actors.

As a researcher interested in mapping the links between practices and practitioners, a focus on practices foregrounds how individuals are connected through a network of practical activity (Schatzki, 2002). Seeing urban climate governance and the work of civil servants in those terms has some distinct advantages over other approaches. Making a climate plan would for example not be the product of objective state preferences (as would be advocated by critical realist), or of national/local identity (as would be advocated by constructivists), but rather as a product of the myriad decisions and compromises taken within a bureaucratic organisation, and also extending outside of it. Additionally, understanding the agency to advance ambitious climate action in practice-relational terms means that while practitioners can be structured by norms and collective identities, they navigate and affect this space through engaged action. This implies that civil servants working with matters of climate governance are reflexive of the adequacy of governance approaches to address contemporary issues linked with climate change.

In this section, I first delineate the context of my study, namely climate planning in Nordic cities, and then in Bergen more specifically. In a second part, I provide an overview of the qualitative and quantitative methods used to answer the questions asked in this PhD. In a third part I describe the methodological approach taken in this thesis to capture the relational, multi-sited, and interlinked nature of social practices. Notably, I draw from Nicolini (2012)’s notion of “zooming in and zooming out” to consider how the many practice relationships anchored in one setting are related and connected to other settings and sites. Finally, I reflect on the ethical precautions taken in this research, and on my role and (social) practices as a researcher, considering

how the context in which I am situated also led me to frame and approach this research in the way I did.

4.1 Setting the scene: urban climate planning in the Nordics and Bergen

4.1.1 Understanding the Nordics

The Nordic region as a whole, and its countries individually (Sweden, Norway, Finland, Denmark and Iceland) are often portrayed as a “driving force” (Haarstad et al., 2021, 10) or “frontrunners” (Johnson, 2020, 128) in climate action. Today, these countries have some of the world’s most ambitious low-carbon transition policies in place, and they all aim to become carbon neutral by 2050 or earlier (Khan et al., 2021). This ambition is not new and Nordic countries have since long introduced energy and climate policies on, for instance, renewable energy, energy efficiency, and industrial decarbonisation. While national institutional and infrastructural context would differ, the Nordic region as a whole is often advanced as closely related when it comes to its underlying politics and the institutional dynamics underlying its energy and climate policies (Sovacool, 2017). The region’s welfare state policies have also been advanced as critical in articulating social policies and environmental protection (Miles, 1996). But more than its progressive environmental politics, focusing on the Nordic region as a whole, and on a set of cities more specifically, was motivated primarily by my interest in finding out how the work of climate planning is practiced in cities with highly ambitious climate goals.

Nordic cities are displaying some of the most ambition climate and energy goals globally, with all the Nordic capitals displaying climate neutral targets with this decade (see table 1). Climate work in the region is not new and municipal climate planning already started in the 1990’s in a number of Swedish cities after Agenda 21’s call to localise climate action (Jörby, 2002). Given this long history, the region is a particularly interesting case to explore how cities engage in the more difficult

terrain of implementing measures and interventions beyond the “low-hanging fruits” of energy efficiency and behaviour changes. At the time of starting the PhD, the Nordic policy context was particularly ambitious, with urban climate action framed with reports such as *Deadline 2020* (Arup & C40, 2016), C40’s *The Future of urban consumption in a 1.5°C world* (Bailey et al., 2019), and some work that I was involved in: the development of Paris-compliant local carbon budgets in Sweden (Anderson et al., 2018). At that time, a number of projects initiated by Nordic cities also emerged: planning cases, such as Sege Park in Malmö, SEI’s Consumption-based municipal calculator, or specific lifestyle-change programmes initiated in cities, such as Stockholm’s “One tonne life project” emerged. Throughout these projects, questions of energy demand reduction and consumption loomed large. However, mapping the governance field of urban climate planning across the Nordics meant that I became less interested in specific projects or experiments as cases, but rather in the strategic work that occurs within municipal planning organisations.

Focusing on the Nordic region therefore offered a particularly interesting case to explore practices of planning in general, and how they advance ambitious climate action focusing on energy demand reduction in particular. The region as a whole is characterized by a relative autonomy of the municipal level from the national level. Compared to other national contexts, Nordic countries have devolved considerable climate-related responsibilities such as land-use policy, road planning or energy provision at the local level (Tønnesen et al., 2022). This work is often operated in collaboration with regional or county-level administration (Lonkila, 2013). Additionally, the Nordic region is also well known for its welfare state model, in which cities and urban planning is mandated to maintain strong egalitarian systems for distributing social rights and services (Haarstad et al., 2021). This also means that compared to other contexts, Nordic municipalities have a strong role in local service provision: from elderly care to food provision for schools, to local transport services and waste management. To a wider degree, we find also higher levels of trust from citizens in the government.

Cities	Climate Goals	Climate Accounting Focus
Stockholm	1,5tCO ₂ e per capita by 2023 0,4tCO ₂ e per capita by 2040	Territorial
Gothenburg	Territorial - 1.1 tCO ₂ e per capita by 2030 Consumption - 3,3tCO ₂ e by 2030	Territorial & Consumption
Malmö	Climate Neutral by 2030	Territorial
Oslo	95% reduction by 2030 ^c	Territorial
Bergen	85% reduction by 2030 from 2009 levels 1,5tCO ₂ e per capita by 2050	Territorial
Copenhagen	Climate Neutral by 2025	Territorial
Aarhus	Climate Neutral by 2030	Territorial
Helsinki	80% reduction by 2035	Territorial
Turku	Carbon Neutrality by 2029	Territorial
Reykjavik	Climate Neutral by 2040	Territorial

Table 1 – Climate goals and accounting approaches

But beneath this sleek ‘Nordic’ veneer, progress on climate action, and sustainable consumption and production especially remains slow (Huynh, 2023). The need for effective policies, actor commitments and broad policy acceptance has slowed down local climate work. This comes in tandem with a move in the region towards deregulation and privatization of public planning, which is being replaced with competitive approaches to urban planning practice (Haarstad et al., 2021). These undeniably affect the capacity of urban planners to engage in climate-related activities. In parallel, the region as a whole has also seen forms of push back when it comes to a further implementation of climate measures (Sovacool, 2017).

4.1.2 Climate politics in Bergen, Norway

Bringing these discussions by considering the specific case of Bergen, Norway allowed to observe how practices of climate planning evolve within a specific municipal organisation. In Norway, the responsibility for implementing national policy decisions has to a large extent been devolved to local and regional authorities. These levels of governance share a complex division of labour and are together responsible for a number of sectors such as water and sewage services, local road networks, land-use planning and environmental issues (Westskog et al., 2017). Parallel to these mandated sectors, climate-related activities belong to the range of discretionary authority that Norwegian municipalities have some degree of freedom over. This leeway for self-organisation and autonomy means that municipalities can set their own climate goals and targets, and choose the types of policy instruments used to reach them (Aall et al., 2007).

In Norway, the national context for local climate planning has evolved. The period before the 2000s was characterized by a strong focus on the role of the central government in helping local initiatives (Hovik & Reitan, 2004). Around the turn of the millennium, focus on local participation reinvigorated local climate action (Kasa et al., 2012), and over the last two decades, this materialized in the development of various institutional measures, mostly through financing, that could increase local capacity for designing and implementing environmental policies. But while a trend towards the delegation of responsibility for local environmental issues to the municipalities increased, at the same time a number of responsibilities notably became centralized, especially when it comes to energy and climate action. Recently, this became evident through the national ban on household fuel heating systems set in 2020. Since 2016, the national government has introduced financial incentives for local climate work, such as *Klimasats*, a Norwegian state funding scheme to support climate projects and climate measures (Westskog et al., 2022). However, today the main instrument to address climate issues locally remains the city's master plan.

While the focus on the Nordic region was decided early-on during my thesis, the subsequent focus on Bergen was less evident. In the early planning phases of the

thesis, the intention had been to compare different planning practices across different national contexts. However, while analysing the range of climate interventions developed by cities for paper #1, Bergen emerged as a one of the cities which displayed the most interesting intervention profile. Compared to other cities, our analysis found that its climate interventions contained a higher share of interventions which aimed at changing “how practices interlock” or Avoid-type measures. This finding also occurred at a moment where the city was going through heated debates focusing on the increases in the city’s road toll. Focusing on Bergen for paper #3 and #4 then became more than a matter of convenience, it was particularly interesting to understand how that city specifically, and the bureaucratic actors within it, were able to navigate local climate politics.

The country’s largest city after Oslo, Bergen’s history and geography, along with its long-standing identity as “the city of weather” (Bremer et al., 2020; Kommune, 2010)) have led some to call it a “climate city” (Bremer et al., 2020). As I describe in paper #3 and #4, the municipality has since long engaged with local climate mitigation work, being the first in Norway to adopt emission targets in 1996 and addressing emissions from contentious sectors such as transport-related emissions (Aall et al., 2007). Bergen has a parliamentary regime where its City Government is elected for a 4-year cycle, and which makes decisions notably on matters of climate, environment and urban development. Importantly, compared to other big cities in Norway (such as Oslo, Stavanger or Trondheim), Bergen displays more emissions (both in absolute and per capita terms). This is primarily due to emissions from road traffic which are considerably higher in Bergen than in other places, accounting in 2021 to 45% of the city emissions (see figure 2 below). Additionally, the way that the city limits are designed also have an impact for Bergen’s climate profile: unlike some of these other big cities, Bergen’s local airport, as well as the city’s incineration plant all figure on the city’s emissions profile. Their inclusion in the city’s greenhouse gas accounts unavoidably affects how, and what emission reductions measures are discussed by civil servants (Oseland, 2022).

Sectorial share of GHG emissions for the municipality of Bergen

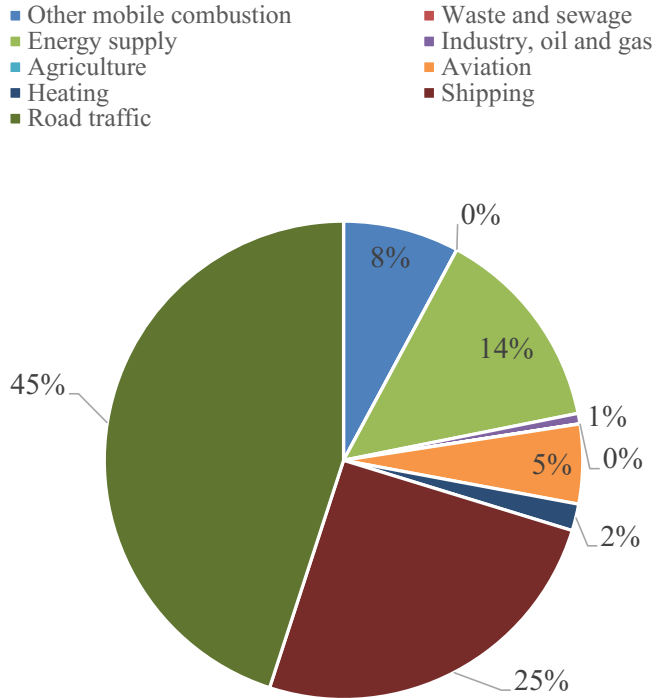


Figure 2. Territorial emissions in Bergen, 2021(Miljødirektoratet, 2022)

Given this setting, the city's 2030 target to reduce emissions by 85% compared to 2009 stands as an ambitious call to action. While the city climate plan, its "green strategy" is a key document to understand how the city aims to reduce emissions, there are at the same time also a number of other processes that govern and affect the work of reducing emissions, such as the regional climate plan, the city's cycling strategy, the waste plan for the city, the action plan for improved air quality, and most notably the city master plan (Bergen Kommune, 2022). With little legislative power devolved to the Agency, the role of civil servants working within the Climate Agency

is therefore critical, as advancing local work is a matter of collaborating with other municipal organisations, with the national and regional government, with local organisations, with the private sector and the public to ensure that climate remains on top of the agenda.

During my PhD the city of Bergen updated its climate action plan. The previous version of that document was developed in 2016. As I discuss in paper #4, after the last city elections from 2019, a favourable political coalition pushed for the establishment of the “Climate Agency”, with the responsibility to spearhead the city’s work on reducing emissions and adapting to climate change. Key in this work was to update the city’s climate plan and articulate a new agenda for the city’s climate work towards 2030.

With this in mind, in the following I describe the general methodological approach taken to understand and map the organisational practices of climate governance.

4.2 Researching organisational work

4.2.1 Qualitative and Quantitative approaches

In this thesis I use a combination of quantitative and qualitative methods to understand the everyday organisational practicalities of urban climate change, with a stronger focus on the latter. Indeed, with the exception of the first paper, paper#2, #3 and #4 rely on qualitative research methods, which are well suited to track the changing nature of the work of bureaucratic actors (Creswell & Poth, 2016). The various sources of data collected are summarised in table 2 below. Here I describe how each type of data source was employed.

Analysis of policy documents was employed to gain understanding, elicit meaning and develop empirical knowledge on the work of civil servants (Bowen, 2009). Organisational documents like climate strategies, climate budgets, policy papers, municipal reports, agendas or background papers were considered in this research (see the appendix for an overview of documents used in this thesis). These

documents act as “institutional facts”: they provide a lens into the reality of organisational processes, of its conventions and of its themes of predilection. And because they are shared within organisations, and used in a multitude of ways (to communicate, to structure, to report and monitor ...), they are particularly useful to uncover key practices at play in organisations.

These documents were used differentially in this thesis. For paper #1, climate policy documents were used to identify the range of measures expected to reduce emissions within each of the considered cities. For paper #2, #3 and #4, content analysis of organisational documents was used to identify the recurrence of certain words or concepts within texts. This allowed to articulate relationships between concepts, meanings and key strategies and was used to contextualise the work of civil servants, serving as background material to prepare for the interviews, or to complement other sources of data (Prior, 2003).

Semi-structured interviews served as a primary source of data, and allowed me to probe for themes, relationships and meanings present in the work of civil servants. The aim of the interviews was to invite interviewees to give descriptions and reflections on their work as civil servants (Leavy, 2020). It provided them with the chance to detail the range of tasks associated with the work of engaging with climate measures, but also share their experiences and meaning of engaging with climate work. Semi-structured interviews combine a set of pre-selected themes with the opportunity to explore particular questions that came-up during the discussions (Crabtree & DiCicco-Bloom, 2006). This gave me some leeway for following up some elements that I, or the interviewee, found generative. The interview guides often included open-ended questions which allowed deeper reflections on behalf of the interviewees, and also to formulate answers combining a range of both personal and professional perspectives (Dunn, 2005). The interview guides were drafted in advance and shared when the interviewee asked for more specific information on the content of the interview.

The participants were selected for their involvement in the respective municipal climate work, either directly (civil servants, public officials, programme managers, planners) or indirectly (consultants, academics, members of NGOs). In both cases a purposive sampling approach was used because it allowed to select the individuals which could provide the most relevant information for the different papers (Emmel, 2013). Interview questions were designed and developed based on the questions explored in each paper, informed by themes present in municipal documents, carefully considering what aspect of practice theory I wanted to relate to, and often also in collaboration with my supervisors which provided feedback and clarifications. Interviews were carried out both in person and online, though given the global context through which this PhD progressed, a majority of the interviews were carried out using Zoom or Microsoft teams. These were then transcribed by hand or using Microsoft word's transcribe tool, where I checked for accuracy by re-working through the interview to correct or add details to the original transcription. The interviews lasted between 20min to 60mins and were all conducted in English as main language, though in some instances interviewees employed Swedish, Norwegian or Danish vocabulary which I translated back to English in the transcription.

The analysis of semi-structured interviews was inspired by the procedure detailed in Flick et al.(2004). First, after transcription, broad themes for the analysis were set up in an initial effort to classify and re-group the data produced. Second, these were further analysed and refined. Often, these categories changed and evolved as my engagement with the material deepened. Third, using this analytical and coding guide, all the interviews were re-coded according to these analytical categories. This allowed to produce case overviews which informed in the last analytical stage for finding connections in data, and the selection of key themes.

Field notes were also gathered throughout this PhD, often taken during interviews, after informal conversations and also during observations at public events, lectures and workshops. Field notes allow researchers to document the context within which a set phenomenon takes place (Creswell & Poth, 2016), and can also allow to

supplement language-based data (Phillippi & Lauderdale, 2018). Field notes allowed me to identify important themes that I saw as recurring throughout my engagement with research participants.

Typically, observations in the field are done either as an “active” participant and non-participant (Cooper et al., 2004). As an active participant, I have engaged with civil servants at practitioners’ conferences, events and workshops, often actively engaging with participants on discussions related to the questions I explore in my thesis. In this mode, I took an active role in the discussions, either framing the debate or simply participating. As a non-participant I attended a number of public events and stayed separate from the activities being observed. I took some field notes with a particular attention to what was being discussed, and what were the participants relating to. This data was used to get a sense of the priorities and tensions presents in the work of civil servants and provided contextual input to my research. A list of the events attended is detailed in table 3 below.

Finally, I also draw data from two workshop carried out in January 2021 and June 2023 with members of the Bergen’s climate agency. Workshops are particularly well adapted to understand and investigate the complex work occurring in organisations (Ørngreen & Levinsen, 2017). The insights from these two workshops (see in the appendix for a more specific description of their content and structure) contributed to paper #4 and allowed me to probe various dimensions of political feasibility. In workshop #1 I employed imaginary climate interventions to assess how civil servants discussed the organisational work that is relevant, or necessary, in making ambitious climate interventions politically feasible. In workshop #2, I wanted to explore how civil servants navigated local climate politics to implement ambitious climate plans, navigating across appropriateness and consequence.

These two workshops offered a particularly relevant and complementary approach to the other sources of data described above. By focusing on hands-on activities, participants were able to explore, ideate and debate collectively on the meaning of their work. These offered important moments to understand the collective

work that was happening within a municipal organisation. Additionally, these workshops offered a space for civil servants to share insights, apprehensions and reflect on the work that they were involved in. These provided critical insights both in the administrative and strategic work that was operated by civil servants in promoting ambitious climate work within the municipality.

Data Source	Paper #1	Paper #2	Paper #3	Paper #4
Geographical scope	10 Nordic cities	10 Nordic cities	Bergen, Norway	Bergen, Norway
Policy documents	<p>Policy analysis of cities' climate strategies.</p> <p>Coded for the sector targeted, the policy instrument employed, and the intervention-in-practice approach taken.</p>	<p>Policy and strategy documents, climate department's websites, white papers, process reports and media documents were analysed.</p> <p>These were coded for the strategies, measures and key areas seen as relevant in their respective climate strategies.</p>	<p>A strong focus was on the city's "Green Strategy" document, considering both its 2016 version from and of its more recent iteration (2022).</p> <p>We also considered how policy documents, white papers, scoping studies and other documents influenced the development of the municipality's new climate strategy.</p>	<p>We focused primarily on the shifts operated by the Climate Agency in the making of its new climate plan, its Green strategy from 2022.</p>
Interviews	10 interviews carried out with key civil servants in each	14 additional interviews carried out with key civil servants, project	11 interviews were carried out, focusing on the "core" group of civil servants which engaged with the making of the climate strategy	

	of the 10 cities considered.	manager and urban planners in each of the 10 cities considered.		
Email exchange	Email exchange with informants was also used as a source of data. Often interviewees contacted me after the interviews to complement what was discussed, including both reflections and project information.			
Public Events	Attendance to physical and online events in Norway, Denmark and Sweden in the period from 2018 to 2022 – see table 5.		Attendance to physical and online events where the new “Green strategy” was presented and discussed.	
Field Notes	Notes gathered through field visits, lectures and presentations in Norway, Denmark, Sweden and the UK between 2017 to 2021.		Notes gathered through field visits, lectures and presentations in Bergen in 2022.	
Workshops			Two workshops were carried out with members of Bergen’s climate agency both before and after the development of the city’s new climate strategy (published in 2022).	
Key concepts employed	Intervention in Practice (Spurling & McMeekin, 2015)	Practice elements (Shove et al., 2012) Connecting sites (Everts, 2016; Hui et al., 2017)	Contradictions in organisational work (Seo & Creed, 2002) Organisational moments	Sociological Institutionalism (von Billerbeck, 2020) Appropriateness and consequence (March & Olsen, 1998)

Table 2. Summary of data collection performed in this thesis.

Event	Scope	Format	Type	Date
CO2 Budget Conference, Uppsala Sweden	International	In-person	Conference	2019
CO2 Budget Conference, Uppsala Sweden	International	Online	Conference	2021
CO2 Budget Conference, Uppsala Sweden	International	In-person	Conference	2023
Localising global climate targets	National	In-person	Workshop	2022
Beyond Oil Conference, Bergen, Norway	International	In-person	Conference	2019
Beyond Oil Conference, Bergen, Norway	International	In-person	Workshop	2022
Oslo's climate budget: how? Oslo, Norway	International	Online	Lecture	2022
Climate assessments, Covenants of Mayors	International	Online	Lecture	2022
Framework to climate budget assessment for cities, I4CE	International	Online	Lecture	2021
The Urban Energy Transition, C40	International	Online	Lecture	2021
C40 World Mayor Summit, C40	International	Online	Conference	2019
C40 World Mayor Summit, C40	International	Online	Conference	2022
Klimaomstilling, Sogndal Norway	National	In-person	Conference	2019
Urban Interventions, Bergen, Norway	International	In-person	Seminar	2020
Municipal Climate Action, Nordic Climate Action	International	Online	Seminar	2021
How Denmark is delivering on Cities race to Zero, COP26, Glasgow	International	Online	Seminar	2021
Nature of Cities Conference	International	Online	Conference	2022
Nordic Climate Project,	International	Online	Seminar	2021
Climate mitigation and adaptation:	International	Online	Seminar	2020

Examples of Nordic climate action, Nordregio				
Sustainable consumption and production: Procurements for a green and just transition of markets, Nordregio	International	Online	Seminar	2021
Planning for sustainable housing and green cities, Nordregio	International	Online	Seminar	2021
Monitoring and evaluation: How to measure progress in the work with the SDGs?	International	Online	Seminar	2021
Energy sufficiency: How to shape sustainable behaviours, Covenant of Mayor	International	Online	Seminar	2022
Climate action planning: A guide for cities, C40	International	Online	Seminar	2021
Tackling consumption-based emissions in the City of Stockholm: The One Tonne Life project, C40	International	Online	Seminar	2018

Table 3. Overview of events attended.

4.2.2 Zooming in and out of practice

To uncover governance practices across and within Nordic cities I build on an extended case study approach. Such approach is particularly well suited to map common practices across Nordic cities since it permits to map “the interrelation of structural ('universal') regularities, on the one hand, and the actual ('unique') behaviour of individuals, on the other” (Van Velsen, 1979, 148). By focusing on how civil servants across various municipal planning organisations act in a given situation, this approach allowed to illuminate the complex relationship between individual bureaucrats and the wider set of alternative norms that they have to negotiate and engage in as they work with implementing local climate plans (as in Paper #2). Despite variation across sites, it allows to identify the elements that shape the wider

field of urban climate governance. Extended case also allows to study how civil servants acting within a municipal setting navigate local climate politics, and also expand the norms of climate governance to increase climate ambition. Taking a more intimate and detailed look at how a climate plan was formulated (as in Paper #3), or how political and bureaucratic actors calibrate policy action (as in Paper #4) allows to retrace the social history of particular event and illuminate the “vicissitudes” of climate governance. Importantly, it allows to combine different methods of data production (Langley & Royer, 2006).

The relational perspective offered by practice theory requires a movement between specific action and wider governance norms. Schatzki’s distinction of practice as performance, and practice as entity is here useful one: where practice as entity refers to ‘a temporally unfolding and spatially dispersed nexus of doings and sayings’ (Schatzki, 1996, 89), practice as performance relate to the integration of various elements in a specific moment and situation. These are inevitably linked-up in a dialectical relationship: for example while ideas of what constitute a legitimate and “normal” climate plan will guide the performance of civil servants involved in its making, it is during the “situated and specific performance” (Higginson et al., 2015, 953) of that the practice will be reproduced, will change, or will remain the same. It would however be a mistake to reduce practices simply to what people do, and to the activity that are carried out: in connecting what people do with their context, practices reveal how human conduct and social order are connected

Because of this, “catching” a practice as a researcher requires first a “zooming in” on the details of how said “practising” is performed and accomplished in a specific context (Nicolini, 2013). In the table below, I regroup the range of sensitising questions which I used throughout my PhD to guide my data collection (see table 4). A diagramming of Shove (2012)’s list of practice elements was also used in complement to map the meaning, material and competences that came together in the performance and description by interviewees of said practices. This diagramming involved representing the Shove’s “triangle” practice model and drawing the range of alternative practice elements that were identified, the connections between practice

elements, and the connections of various practice elements with other practices. Those figures are a familiar way to represent social practice theory, and has been used for their pedagogical value in asking practitioners to represent their everyday activities (Higginson et al., 2015). Together, these allowed me to foreground the role of various practice elements as they are integrated in practice by practitioners.

Focus	Sensitizing questions
Saying and Doings	What is said and done? What activities are they relating to? Through which strategies are practitioners accomplishing their work? With what effects and resistances?
Practical concerns	What do they worry about in practice? What orients their work? What do they perceive as being their main objective? What aspects orient the work of practitioners?
Processes of stabilisation	How are practices stabilised? How are meaning, materials and competences employed in the process of stabilising or changing practices? How is the legitimation of practices performed?
Tools and artefacts	What tools and artefacts are included in the performance of practices? What do these allow or hinder? How do they allow to connect with other practices? How are they embedded in the meaning, materials and competences that make-up a practice?
Mediation work with material elements	How do material infrastructure and urban form affect the performance of practices? What practice elements do they affect? What constrain do they afford?

Table 4. Sensitising questions to zoom-in the work of civil servants (adapted from Nicolini, 2013).

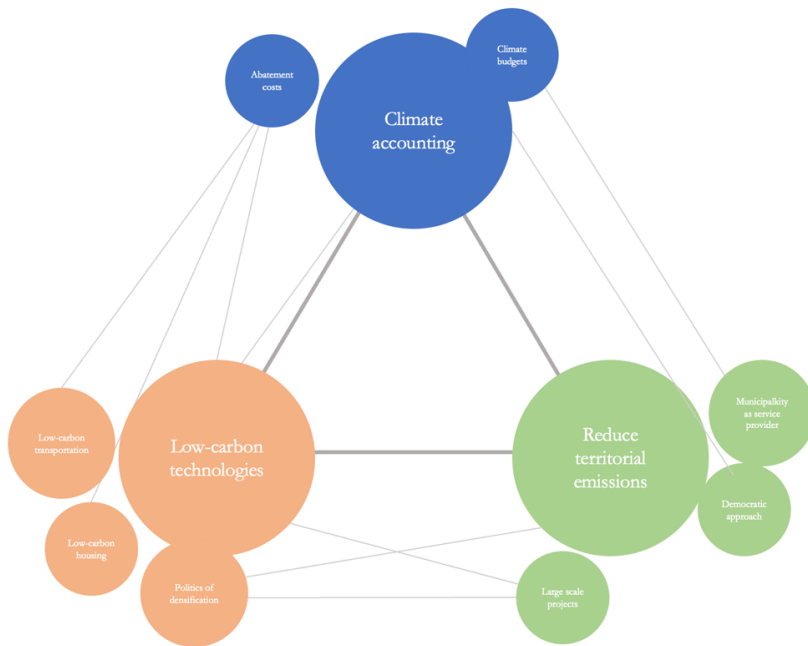


Figure 3. Diagramming of practice elements used to guide the analysis. Schematic mapping of connections between capacities (blue), materials (orange) and meaning-related (blue) elements. The size of each circle represents how often each practice elements was mentioned by civil servants. This is a draft version of the figure displayed in paper #2.

But the relational nature of practices also requires the researcher to “zoom out” so as to extend the scope of the connections between different practice elements and across different sites and contexts (Nicolini, 2013). Understanding local efforts to reduce emissions cannot be fully understood if we would limit our efforts to actions and relationships between civil servants, project managers and politicians. Local efforts must be contextualised in relation to a variety of relationships and connections as they extend beyond specific local efforts. Bringing attention to these relationships allows to map how other practices are affecting, supporting, or constraining local practices, but also how local activity can recursively affect practices elsewhere. This sensibility relates to Latour’s notion that “action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled” (2005, p. 44). During interviews, this meant abstracting the work of

those involved in local climate governance and relate individual experiences to larger politics (both local and global).

In table 5 below I outline a range of sensitising question used to draw-up a sense of how the context affected practice: context is not just the situation in which practices take place, context is in fact the conditions under which activity is taking place. These were particularly useful in paper #2 and #3. The questions are organised around three key focuses: first is the need to follow connections to other practices so as to reveal the interconnected nature of practices. The approach taken here draws from work on multi-site ethnography which foregrounds the need to “follow the thing”, “follow the people”, and “follow the plot”(see Marcus, 1995). A second focus was on how the practices under study contributed to the wider picture and context. Here, I considered how the practices under consideration affected the wider net within which they are situated: does it reproduce existing arrangements? Does it generate contradictions? Thirdly, I focused on how alternative practices or practice elements were encountered by civil servants, asking where and how these were encountered.

Focus	Sensitising questions
Following connections to other practices	How are practices connected to practices happening elsewhere? Which other practices allow or interfere with the practice under consideration? How are bundles of practices kept together?
Contribution to wider picture	How does the practice(s) under consideration contribute to the “wider picture? How does the practice(s) reproduce existing social arrangements, or generate tensions and conflicts?
Encountering alternatives	How does the practice(s) under consideration contribute to the maintenance of the status quo? What interests do they maintain? What alternative practice elements can be found? Where can those be found?

Table 5. Sensitising questions to zoom-out of the work of civil servants (adapted from Nicolini, 2013).

Critically this motion of zooming out required to contextualise what was observed and discussed in the first step and relate it to other forms of data (policy document, observations, attendance to public events), and to other sites and situations also. But this back-and-forth motion was also applied between the empirical material and the conceptual tools made available within the broad tradition of practice theory. This mode of analysis univariably draws from Situational Analysis in that it aims to understand how a variety of discourses, routines, material elements and histories are “constitutive of and consequential for” (Clarke, 2007, 433) the activity being apprehended. This approach is thus well adapted to capture the agency and room for manoeuvre owned by civil servants in engaging with the work of reducing energy demand in cities. Figure 4 provides a schematic illustration of how the approach detailed above has been used to decorticate social practices from an abstract and messy social reality.



Figure 4. From a “messy” social world to the construction and identification of social practices (inspired from Clarke, 2007)

4.2.3 Validity and reliability of data

How to make sure that the data that I capture in this way was valid and reliable? In qualitative as well as quantitative research, verifying the validity and reliability of the data harvested is essential in order for the research to produce results that are credible, but also that demonstrate rigour and have integrity (Noble & Smith, 2015). Throughout this PhD a number of strategies were performed to certify and confirm validity of the research findings.

A first method used to validate my data was to triangulate the various sources of data that I gathered. Triangulations offers a tool to look for “convergence among multiple and different sources of information” (Creswell & Miller, 2000, 124), with the overall aim to verify the data, increase its validity, and confirm the findings through convergence of different perspectives (Olsen, 2004). In practice, this meant that my interviews were prepared by reading extensively in the academic and grey literature on the tensions at play in the work of civil servants (paper #2), or the range of strategies used by organisational members in their efforts to advance local climate efforts (paper #3). These informed the interviews that I had with various civil servants, planners and project managers, but were also questioned by the information that was produced in these interviews. Finally, these were also verified by the content of the various events that I attended, where I focused on the problems and challenges encountered by city bureaucrats.

A second method used in this PhD to validate my results was to share my preliminary findings or draft version of my manuscripts to key civil servants that I had interviewed. Inviting participants to comment on the research findings and themes identified is a strategy for enhancing the credibility of qualitative research (Noble & Smith, 2015). This approach was used in different degrees for the papers in my thesis. For paper #1, initial results of the analysis of policy documents were discussed with civil servants in all the cities considered. Here Kristin Kjærås and I presented our preliminary results and asked civil servants whether that aligned with their understanding of the range of approaches used in their climate plans. For paper #2, this validation was more progressive in that the interviews with the civil servants

highlighted a number of key practices, which I then brought with me into subsequent interviews where I asked for confirmation. For paper 3, a version of the manuscript was shared with a key civil servant which we asked to review the validity of the results and whether the “narrative” detailed in the paper was aligned with their experiences of the process of making a climate plan.

Thirdly, working to maintain rigor in research entails engaging with problems of theoretical relevance and representational accuracy (Sandelowski, 1993). Making sure that the data harvested is a reflection of the reality that I aim to uncover required a good deal of reflexivity in my own approaches. From a methodological perspective, reflexivity is required for the semi-structured interviewing approach taken in this PhD and required of me to employ a number of tactics to uncover perspectives that had not yet been uncovered. For example, I often shared with interviewees the questions that I was trying to solve through my research, openly sharing the theory that I used, or the methods employed (Hathaway et al., 2020). Throughout the interviews, this also required a form of “active” interviewing (Holstein & Gubrium, 1995) where I continuously adapted my interview guide when I felt that it was not adapted to the ongoing discussion. I come back to this in section 4.3 where I discuss my own positionality as a researcher and how it affected my research conduct in this thesis.

4.3 Research ethics and consent

An important share of the data in this thesis was produced through interviews with municipal civil servants. The informants that contributed to this research were all engaged in the climate work of their respective municipality. Initial contact was made by email or through meeting at conferences. Often, the preliminary city-level results from paper #1 were used to reach out to senior planners or climate and sustainability managers, which then brought me in contact with project managers and civil servants more directly working with questions of consumptions or demand reduction in specific sectors. This allowed me to introduce the research that I was carrying out, clarifying my research intentions and asking for consent to participate. In the case of Bergen, I had meetings with senior members of the agency before

beginning the process of interviewing the members that took part in the making of the new climate plan. This allowed me to explain the intentions of my research and explain what topics I was specifically interested in exploring with the civil servants. While I asked participants for their consent through email, I re-iterated at the beginning of each interview what my research aim was, why I asked them to be part of the research, and whether they would allow me to record the interviews.

Interview guides were often shared in advance (see the Appendix for list of interview guides used for the various papers). The interviews often started with broad questions on the work and tasks that the civil servants were involved in. The semi-structured approach taken in the interviews meant that the interview guide served as a backbone to the discussions, and allowed to explore topics and dimensions not include in the guide. I often finished the interviews by asking how I, and my research could be useful in their work.

But the consent to participate in the research is not the same as a consent to process personal data (Anderson & Corneli, 2017). During the interviews I made sure to collect information and data that related exclusively to the work practices of those that I was interviewing. This meant that I was less interested in their personal information, than in the work they were involved in and how they related to others within their municipal organisation. If during the interviews some names, or elements that could lead to the identification of certain individuals were produced, I would edit them out during transcription. Hence the data produced was anonymous and the interviews were handled in line with the recommendations from The Norwegian Data Protection Authority. The interviews were transcribed verbatim and stored on the university's data storage platform.

4.4 My own positionality

Research can be a rather intimate process. The selection of the literature, the identification of relevant cases, the selection of research methods and the production of data, its analysis... These are all personal choices and will unavoidably be affected

by the personal history, positions and worldview of the researcher. Typically, researcher positionality is defined in relation to three elements: the topic under investigation, the research design, and research participants (Wilson et al., 2022). These dimensions are discussed below.

Before starting this PhD, I worked as a researcher on translating the ambitions of the Paris Agreement to local levels of governance, considering both municipalities and regional levels of government in Sweden (see Anderson, Schrage et al., 2018). This work gave me a deep sense of the urgency with which levels of emissions needs to be reduced, and the particular role of so called “developed” countries in reducing their demand of energy in the short to medium term. This work asked a range of questions which I took with me in my PhD: how can local climate action be further advanced? How does such knowledge challenge the practices of municipal civil servants? How can local levels of governance target a reduction of demand and consumption?

These questions deeply affected my positionality and how I perceive myself as a scientist: questioning our levels and patterns of consumption, how they can be governed, and through which governance mechanisms and tools is in my view critical to research in order to understand the deep and rapid emission reduction required. As scientists, we are often called to appear subjective to the issues at hand, asked to comment on the sides as if these challenges were but interesting theoretical exercises. I strongly believe that in these times of climate crisis, such approach is not acceptable nor responsible. With this in mind, part of my work has intended to show the implications that ambitious climate work entail, challenging the idea that change is not “out there”, but requires a deep transformation of those often assumed to be pulling the levers of climate interventions. Additionally, this also included questioning levels of consumption within Nordic cities.

At the same time, these experiences also revealed the critical role that civil servants play within organisations. Perceived as “bureaucrats”, we might be tempted to see civil servants merely as paper pushers, menial clerical workers acting as cogs

in a wider bureaucratic machine. But engaging with civil servants, I came to see the range of agency articulated by these actors: they often worked to “educate” politicians on what ambitious climate targets entailed, looking to diversify the range of tool used in their everyday work, actively working to collaborate with other actors and frame key discussions. For me, it therefore became particularly interesting to further investigate the role they would play in implementing local climate action.

My positionality is also reflected through the broader research design, and outcome I desire with my thesis. The role that I, as an early career researcher, take in relation to my research will unavoidably frame what I do research on, how I will do it, and with what desired outputs. This is something that I explored with colleagues and published as a side project to my PhD (see Schrage et al., 2022). In this piece we reflect on the various positions that early career researchers can take in relation to sustainability issues, at a time where we are faced with the need to engage with transdisciplinary issues, while also navigating critical engagement in knowledge production. This experience allowed me to more specifically identify the role that I, as a scientist, am taking vis-à-vis my research: I am driven to produce scientific knowledge with an explicit aim to inform policy processes, while also being particularly critical to the typical range of measures often foregrounded in urban climate strategies. In my research practice, I have been particularly interested in bringing the critical perspectives provided by social practice theory into debates of climate governance and urban sustainability.

Finally, the context in which research is carried out today has also undeniably impacted how I have approached this thesis. While it might be a cliché to say that academic practice today are driven by a phenomenon of “publish or perish”, it nonetheless depicts a strong undercurrent of the academic way of life (De Rond & Miller, 2005). Beyond affecting morale or job-related stress, it also unavoidably structures intellectual life: it requires to investigate fashionable or “hot” topics, it favours the brevity and speed of journal articles (over longer or deeper explorations through e.g., monographs), and emphasises the quantity of academic texts produced over their quality, boldness or novelty. While being aware of these trends, I must say

that it has regardless affected the way I have worked: pressure to produce what is considered “good” research affected my choice of engaging in an article-based thesis, and the selection of journals I sent my manuscripts to. This is particularly critical for early career researchers, especially when “the risks of doing something unorthodox, something that might offend strongly held prejudices in a particular field, are great” (Smith, 1990, in De Rond & Miller, 2005).

5. Discussions & Conclusion: the everyday blood, sweat and tears of urban climate governance.

“The antidote to despair lies not in hope but in action. In agency. In engaging with all our creative energy in the task ahead”

(Jackson, 2023)

At a time where the climate-related efforts implemented by cities have focused on highly visible elements – such as novel experiments, city networks or courageous mayors – in this PhD thesis I bring attention to the everyday, at times mundane, work that anchors climate work locally. Underneath these “conspicuous” climate solutions are civil servants, bureaucrats and urban planners that chart, map, calculate and implement climate plans. From a research perspective, we know however very little about how these civil servants navigate and affect local climate efforts. The purpose of this thesis has been to understand how civil servants advance local climate work, and energy demand reduction specifically, by considering the social practices in which they are entangled. I argue that to get a grasp of the possibilities and limitations of local climate action, we need to move beyond a current focus on capacities and knowledge for climate governance and explore instead the organisational practices of municipal civil servants. In short, we need a better understanding of the blood, sweat and tears of local climate work.

Overall, this PhD thesis was driven by the need to explore the question *How does the ambition of urban energy demand reduction challenges ongoing organisational practices in Nordic cities?* In this result section, I address this question by first considering the three sub-questions set out at the beginning of this thesis. I analyse the empirical and conceptual contributions brought together in the different papers and do so through three lenses: the range of interventions mobilised by municipal governments (section 5.1), the professional practices on which these rely (section

5.2), and the political openings that focusing on organisational practice implies (section 5.3). Then, in section 5.4, I reflect on the wider governance implications of intervening in patterns of energy demand, specifically considering what the notion of “*practicing*” I advance here brings to ongoing debates on urban climate governance.

5.1 Intervening in practices

The first question I ask in this thesis is: *How do cities’ climate policies focus on energy demand reduction?* Paper 1 and 2 both address this question.

The literature on sustainable consumption has amply described how information provision and technology changes are the key approaches favoured by national policy makers in affecting energy demand (Dalhammar, 2019), especially within the Nordics (Mont et al., 2013). Though studying cities’ climate intervention patterns revealed, overall, similar patterns of interventions, the findings provide more granularity to these debates.

Engaging with the civil servants that articulate and implement local climate plans in Nordic cities, all actors recognised the need to affect the demand and consumption of urban citizens. However, as discussed in Paper 1, current climate interventions significantly underplay the complexity of everyday life and tend to approach pro-environmental behaviour as a matter of technical and individual-level interventions. In paper 1, I show how the demand-side measure articulated by municipal authorities are limited towards targeting individual elements of practices, often employing policy frames that seek to either “re-craft” or “substitute” a practice (see Spurling & McMeekin, 2015). Indeed, the policy documents analysed displayed a strong focus on low-carbon technologies to support electric mobility (such as electric vehicles and biofuels), information campaign (such as safety and information campaigns and car-pooling) and the provision of infrastructure (such as bicycle infrastructure). And while we found that mobility and housing received considerable policy attention, much less climate interventions were found targeting the domain of

food. Those that did were in majority focused on the re-crafting of practices. Additionally, while it is recognised that changes in all constituent elements of a practice is necessary to change a practice, I found alternative elements relating to materials and skills were easier to foreground than those relating to the meaning and understandings of targeting energy demand. Critically, not all alternative elements are necessarily directed to improving sustainability, but instead are directed to maintaining ongoing work practices within an organisation. Since changing practice elements entails “reconfiguring paths and projects” (Shove, 2014), including alternative practice elements in climate governance will mean recognising that some elements are much more entangled than others in organisational work, thus much more “sticky” to change.

But such descriptive accounts are but an analytical entry point to trace the *institutional patterns* of climate policy making. Critically, these patterns of interventions are not accidental, and paper 2 highlights the key “cornerstones” of the wider climate governance discourse in the Nordics that affect what are perceived as the appropriate policy responses to govern urban climate change: territorial perspectives, an understanding of low-carbon through material and technological means, and a notion that urban government are but “enablers” of low-carbon efforts. This has been amply discussed in the literature (e.g. Hagbert et al., 2020; Hrelja et al., 2015), and when it comes to addressing urban energy demand, municipal organisations maintain a set of strategies that make invisible the effects of demand beyond city borders. As was the case for a number of Nordic cities, while targeting demand overall was supported politically by city leaders, delving into measures specifically was contentious politically, but also for the alternative range of technologies and actors that would need to be foregrounded. For the civil servants interviewed, mobilising alternative practice elements that would more explicitly target the demand of urban citizens required however considerable work.

Hence the two papers advance the critical need to broaden the range of interventions and strategies currently countenanced in urban climate action in the Nordics. However, taking everyday life as the starting point of individual pro-environmental practices implies a reckoning with the socio-material complexity that people have to navigate every day. For planners, this means that affecting energy demand and consumption should not be seen as a single field, but rather as interlinked with other practices in everyday life. From a policy perspective, increasing the range of interventions to reduce urban energy demand will require a significant increase in the number of climate policies, but also a broadening of approach that would consider non-climate related policies. As I found in paper 2, including non-climate perspectives such as increased health benefits, improved safety, justice or access had considerable weight in how civil servants advanced the work of reducing emissions locally. Developing tools to detail the many non-CO2 benefits of climate action would therefore offer much needed support to civil servants' climate work.

5.2 Strategic agency for reconfiguring local climate work

The second question explored in this thesis is *How do civil servants advance a reduction of urban energy demand?* And I address this question in paper 2, 3 and 4. Throughout the papers, I show the different ways in which the strategic agency of civil servants is mobilised. Aware of alternative elements that could be mobilised in advancing a reduction of emissions, in paper 2 I highlight the alternative range of tools, technologies and meanings that were identified by civil servants in engaging with local climate work. The availability of these alternative practice elements allowed civil servants to challenge more traditional work and governance practices. In paper 3 I highlight how the mobilisation of contradiction in the making of Bergen's new climate plan allowed to advance the work of the city's climate agency. Strategically foregrounding these contradictions allowed Bergen's climate agency to signal to other parts of the city administration the ambitions of the new climate plan

and legitimise its content. For those involved, this required significant efforts in showing how addressing climate change locally constituted a challenge to all parts of the administration and allowed thus to mobilise others in efforts to address it. Finally, in paper 4, I show that the outcomes of such navigation lead to more than advancing a new climate plan, it notably also had performative effects in that it broadened the political feasibility of working with ambitious climate governance. In that last paper the agency mobilised by civil servants materialises in their ability for fine-tuning their approach between logics of appropriateness and consequence.

In revealing the diversity of strategic work performed in advancing a reduction of energy demand, these papers advances debates on the agency of cities, notably in showing *where* and *how* this agency is mobilised.

In relation to the former, paper 3 and 4 show how the making of a new municipal climate plan is a particularly important moment to study the agency mobilised by civil servants. The process itself of working on a new climate plan in Bergen can be seen as an “institutional project”: it gave civil servants the opportunity to affect the ambition of the climate plan, its framing, who should be concerned by it (both within and outside the municipality) and the range of policies seen as adequate to reach the city’s targets. The stakes are indeed high: as I found in paper 4, this can be explained by the fact that municipal climate plans frame climate work for years to come and therefore offer an opportunity for climate work to be more firmly anchored within the municipal organisations. Additionally, as is discussed in paper #2 and #3, civil servants also engaged significantly with a wide number of actors outside of the municipality. For the case of Bergen, the climate agency included the insights from local businesses, neighbourhood organisations, citizens, academic actors and local schools. Through public meetings, seminars and workshops, the process of including those actors also allowed to communicate the ambition of the new climate plan, and frame what the necessary climate action for the city of bergen was about.

In relation to how the agency of civil servants is mobilised, I point in paper #2, #3 and #4 to how civil servants ‘navigate’ local climate politics in an effort to maintain relevance of their climate plans, but also push for more ambitious local

climate action. By employing this term, I foreground the strategic work that civil servants engage in within organisational environments: they plan and direct the course of their work while also constrained both by their organisational mandate, and the need to produce results in a way that is legitimate by others. This provides a more nuanced contribution to the field of urban climate governance: as the agency of cities in urban climate governance has often focused on the work of “orchestration” (Hölscher et al., 2019) that is operated, the results of the papers point that this work relies on dynamics of adjustments in which fit and focus of local climate work – development of policies, articulation of a climate plan, mobilisation of actors – is negotiated across bureaucratic actors and local political priorities. This was particularly visible in paper 3 and 4 where the policy relevance of the climate plan was negotiated in relation to the feasibility of various policy targets, such as the ambitious 2030 climate goals adopted by the municipality of Bergen.

Additionally, another dimension that emerges throughout the papers is the advocacy work that is operated by civil servants. While civil servants’ work is often described as constrained to accomplishing bureaucratic procedures, often prescribed by municipal priorities, paper #3 and #4 show the deep work they operated in building trust with others, developing ideas, aligning processes both “outside” and “inside” the city administration, all in a bid to advance climate work beyond the range of procedures that civil servants are often expected to perform. This asks key questions about the variety of roles that civil servants involved in policy processes can perform: while the literature often describes ambitious civil servants as “municipal entrepreneurs”(Huitema, 2018), behind that might hide a variety of skills and competences. Packed into this terms might be organisational skills such as storytelling, resources weaving, system building or knowledge brokering (see Needham & Mangan, 2011) that might all contribute to the different facets of advancing local climate action. Further researching these various competences is necessary to broaden our understanding of the organisational work that is required in governing a reduction of energy demand in cities.

Further driving this agenda will however challenge the terrain of what is up for discussion, and by whom (Scoones et al., 2015), and paper #2,#3 and #4 show how local climate work is decidedly entangled in local planning and politics. What emerges when considering paper #2 and #3, is that the way this agency will come to be mobilised will unavoidably depend on local configurations and processes. Indeed, in paper #2 I argue that explicitly targeting energy demand required a broadening of the focus on the benefits of climate interventions beyond CO₂ only. But when considering the specific case of Bergen in paper #3, I show how focusing on the climate effects of various interventions allowed to bring other concerns within the climate plan, such as nature's contributions to climate. For the case of Bergen, including a number of voices and knowledges together was necessary to legitimise the plan, and a focus on CO₂ reductions appeared as the way to bring those together. Additionally, in paper #4 I show that even though civil servants were able to advance an ambitious climate plan, their work was always structured, and somehow constrained by existing norms of what is considered an appropriate climate plan. While external factors to the municipal organisations mattered (e.g., public perception on the measures advanced), internal dynamics revealed to be critical in how the Climate Agency's work was advanced (e.g. engagement with other departments within the municipality, how "palatable" certain measures or ideas were by politicians).

Overall, while at the local level civil servants can support and further enable ambitious local climate work, it remains still a very messy process, fraught with trade-offs and inconsistencies. For their capacities to adapt to the contingencies of everyday bureaucratic work, to draw on a variety of materials and resources available, and in shaping various institutional arrangements, the strategic work performed by civil servants point to a form of "bricolage" (a notion which has been developed by a number of authors, see e.g. Haider & Cleaver (2023), Mayaux et al., 2022)). It points to a form of agency that is deeply structured both in the bureaucratic and political dimension of advancing local climate work.

5.3 Broadening the politically feasible

The third question explored in this thesis asks *What are the political implications of advancing a reduction of urban energy demand?* This question is explored through paper #3 and #4, which reveal different aspects of the political work that is involved in advancing a reduction of energy demand.

While a focus on energy demand is less conspicuous in the last two papers of this thesis, the ambition that is put forth in Bergen's new climate plan will unavoidably affect the everyday demand of energy from *Bergenserene*. In those papers, the "politics" of everyday municipal climate work manifests themselves in different ways. Focusing on the contradictions that the climate agency had to confront, paper 3 shows that these contradictions required civil servants to deal with the politics of knowledge that existed around the making of the plan (which knowledge to include? How to bring together various knowledges?), the politics of goal implementation (what interventions are necessary? What areas need to be targeted?) and the politics of municipal administration in coordinating climate work (What place does climate play in the city's work? How does it align or contradict with other city priorities?). Paper 4 shows how different facets of the political discourses were affected by the work of civil servants, and I refer to 3 dimensions that were of particular relevance for rendering Bergen's ambitious climate plan feasible: aligning the content of the plan with the city's policy ambition, adapting the narrative between quantitative and qualitative storylines, and balancing radical solutions with the political climate of the city. The tactics mobilised by civil servants provided particularly efficient in broadening the political space of the city's climate politics and generate traction in a diverse governance landscape.

Together, these two papers advance the insight that climate politics do not materialise in heated public debates only, but that they also are performed in the normality of bureaucratic work. Within the literature on urban climate governance, civil servants, whether working as urban planners, administrators or project managers are often advanced as problem solvers, apolitical and non-ideological actors more interested in "getting the work done" (see Marshall, 2020). But as scholars of critical

urban studies have long argued, ideology is at its most successful when its effects and manifestations are invisible (Davoudi et al., 2020; Swyngedouw, 2007). Reflecting on how ideology materialises itself in urban planning, Metzger et al. (2021, 302) explain that “it may be that it is precisely when we believe that we are being least ideological that we come to reproduce ideology most efficiently”. Indeed, the process of legitimisation that led to the creation of the new climate plan in Bergen relied on justifying specific ideas, approaches and visions of the future as self-evident and inevitable. It was about creating a new “normal” in climate governance practice. By pointing at how a “legitimate” climate plan was articulated (in paper 3), and how it relied on a careful navigation of institutional norms (in paper 4), the papers point at the normative dimensions that was lying underneath the agency mobilised by civil servants. This was particularly visible when considering the work that concerned the articulation of Bergen’s 2030 goal as a desirable vision of the future, since it unavoidably aimed at moving others in a chosen direction. The various strategies employed by civil servants (e.g. showing benefits of climate reductions beyond CO₂, including a diversity of actors in the making a new climate plan, clarifying the role of the municipality in relation to energy demand reductions, ...) aimed at mobilising other parts of the municipality and the public. Therefore, in their everyday work, civil servants were constantly working with(in) ideology to achieve their aims.

Additionally, the papers also point to the performative effects that the strategy of developing novel solutions or developing a novel climate plan might generate. Seeing strategy as “performative practice” (see Kornberger & Clegg, 2011) offers key insights into the type of agency mobilised by civil servants. For the literature on urban climate governance, self-governing, governing through enabling, governing by provision and governing by regulation are some of the key ways in which cities advance local climate action (Kern & Alber, 2008). However, in light of the deeply normative work that is at play within climate organisations, there is a need to complement these mode of governance with a perspective that recognises the ideological and normative work involved in governing climate action in cities. As a form of “governance through framing”, the work advanced in this thesis stresses how the slow shift in norms that is advanced by civil servants aimed at redefining what

was perceived as “normal” and “acceptable” in local climate politics. In doing so, it aimed at legitimising the outcomes of their work. In this, their impact on policy making and policy implementation can perhaps be described in terms of, if not policy formulation, at least in terms of policy prescription – by framing the possible policy pathways that can be taken.

However, the fact that civil servants were able to create a sense that ambitious climate action was but “the normal thing to do” is also indicative of the post-political condition that was articulated in the process (cf. Swyngedouw, 2007). While this thesis was interested in finding the room for manoeuvre owned by civil servant in climate governance, observing the politics of consensus that were mobilized in the process undeniably asks key questions on the direction and legitimacy of local climate work: who’s understanding of climate action is advanced? what was the role of participation in the process? How can climate planning integrate non-expert perspectives? Further researching the depoliticisation of urban climate governance becomes then critical to uncover how a democratic and ambitious climate plan can be advanced.

5.4 Looking back, thinking forward: *Practicing* as a mode of governance?

Reflecting on the results of all the papers brought together, I now finally ask the question which motivated this PhD: How does the ambition of urban energy demand reduction challenges ongoing organisational practices in Nordic cities?

By foregrounding the notion of *practicing*, I aimed to broaden the range of actors, sources of agency and dynamics currently countenanced in urban climate governance debates. Offering an antidote to the glamorous and extraordinary solutions often brought forward, I have argued for a greater focus on the organisational work that allows these policy aspirations to materialise.

Conceptualising *Practicing* to understand local climate governance efforts, I outline three contributions.

First, focusing on the social practices of climate governance shows the significant agency deployed by civil servants, and the rich organisational life that occurs within municipal climate departments. Inside the “black box” of city bureaucracies and planning organisations are civil servants that showed to mobilise others, legitimate ambitious policy approaches, and navigate critical organisational tensions. Understanding this governance work as *Practicing* allows to map how these effects are anchored in the ongoing organisational work of climate governance in cities. As municipal bureaucrats, civil servants, planners and project managers are often perceived as mere “paper pushers”, employed to realise politically informed decisions. And with its focus on capacities, knowledge and enabling factors, the existing literature rarely frames the agency of civil servants in this way. Much more work is required to further understand the social and institutional dimension of urban climate governance, and the agency deployed by organisational actors in the process.

Second, these articles also show that as much as civil servants deliberately seek to advance more ambitious local climate politics, their work remains constrained by existing organisational practices. *Practicing* therefore also recognises that tensions and contradictions are part and parcel of navigating organisational work, with the effect of constraining the agency that these actors can muster. For civil servants to broaden their room for manoeuvring will require organisational practitioners that question, challenge and broaden the range of ideas relevant to urban climate governance.

Third, these pieces also bring light onto the underlying normative arrangements that civil servants need to engage in, and the deeply political work that organisational work requires. *Practicing* implies that climate governance is also matter of managing political change, and that it relies on a reconfiguration of the political discourse of what is appropriate, legitimate, or effective in urban climate governance. Organisational practices occur in a context characterised by high

consumption, where those interact with production, health, or economic practices. Seeing governance as *Practicing* means recognising that reconfiguring everyday practices is imbued with a notion of what is acceptable or possible to realise. Ambitious climate governance will unavoidably contest existing ideas of what constitutes “normal” governance approaches in the practice of climate governance. In this, both political and organisational practices need to be tightly calibrated to support the orchestration of local climate efforts.

Together, seeing climate governance for its practices means that it is shaped by the innumerable actors and practices carried out every day: from the individual need to travel, to the civil servants forecasting aggregate mobility patterns, to the academics developing alternative scenarios, and to the politicians advocating for the financing of additional tram lines. Steering their aggregated effects will require urban governance to be understood as part science and part art, both requiring a good deal of practice.

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Appendixes

Interview guides

Interview Guide #1 - Interventions in and tension in targeting demand

Context and Purpose

Thank you for taking the time to answer some of my questions. As I mentioned when I contacted you, I am interested in understanding how you target consumption-related and demand-side emissions in the context of the city's climate plans.

Here I want to hear a little more about your work and what contributes to developing the city's low-carbon strategies.

The interviews are semi-structured with room for flexibility, the aim being to allow topics that are relevant to this research and not covered by the guide to come up in the interviews. Expected time is between 30mins and 45mins. Each interview is recorded.

Informant and organisation

To understand the role of the interviewee within the organisation

What is your role in the organization? What are you working with?

Climate work and political feasibility in the municipality

To understand how consumption emissions are targeted in the municipality. Present findings from previous research that details consumption approaches in the Nordics.

Confirm the city's climate targets with the interviewee.

Carbon metrics

- Have you started to map consumption-related emissions with the municipality?
- In a systematic way?
- Have you developed goals in relation to consumption activities?
- Within the city administration and the wider city?

Low-carbon approaches

- How do you approach the work of reducing climate gases in the city?
- What is the role of cooperation and collaborations in your work? In what sectors?
- Urban densification figures as an important approach in the climate work, how do you explain this?

Meanings

- Did you receive political support to map and develop policies to reduce consumption-related activities?
- How do consumption-related emissions change the role that of the city administration? Do you think that the city can challenge people's private life and consumption choices?

Closing questions

Is there anything that I can help you with in your work? Something that you struggle with?

Interview Guide #2 – Contradictions in low-carbon planning

Context and Purpose

Thank you for taking the time to answer some of my questions. As I mentioned when I contacted you, I am interested in understanding the process that led to the development of the new climate plan for the city of Bergen.

Here I want to hear a little more about your work in the organisation - What did you focus on, who did you engage with, what are the various focus areas, etc ...

The interviews are semi-structured with room for flexibility, the aim being to allow topics that are relevant to this research and not covered by the guide to come up in the interviews. Expected time is between 30mins and 45mins. Each interview is recorded.

Informant and organization

Role of the interviewee within the organisation

1. What was your role in the making of the climate plan? What were you working with?
2. How was your task different from your colleagues?

Climate work and contradictions in the municipality

Contradictions in Interactions and Process

1. Who was involved in the making of the plan?
 - a. Who was part of the reference and working group?
 - b. What is the rationale for the composition of those groups?
 - c. During those discussions, where you responsible for leading the discussions? Who took responsibility?
 - d. How were the discussions feeding back into your work?
2. What happened when there were disagreements among the members of those groups?
 - a. Did members of those groups express different perspectives as to what the city ought to do?
 - b. Were some views expressed too radical? E.g., forbid cars to come-in to the city centre?

3. The Climate plan has some strong implications for other departments in the city (e.g., in terms of urban planning, road construction, etc ...
 - a. Where there issues or conflicts with other municipal organisations on how their activities impact climate work?
 - b. Why did you bring those elements to the front? Was it intentional?

Contradictions with Context

Bergen's climate plan is extremely ambitious, more ambitious than the national's government, and more ambitious than most climate plan in the Nordics.

1. How do you explain this?
2. Does climate work in other cities also come to matter for what you focus on here in Bergen?
3. Municipalities are asked to push the climate transition locally, while at the same time remaining legitimate in the strategies and measures you recommend - how does that come to play out in your work?
 - a. is that a subject of discussions internally?
4. What is stopping you of being even more ambitious in the climate plan?
 - a. What would you like to focus on even more?
 - b. Could you go further in your work?

Contradiction in Work practices

1. Was this plan a good opportunity to challenge a few things? What?
2. Did it also challenge the way you work? E.g., more meetings, more assessments, less time...?
3. What have been the biggest challenges in the development of this climate plan?
 - a. In clarifying the targets?
 - b. In showcasing the interlinkages across different topics.
4. Were there contradictions within the organisation that hamper your climate work?
 - a. Does your work conflicts with any other task or role that you might have?
 - b. How do you resolve these contradictions?

Workshop guides

Workshop 1 – Developing ambitious municipal consumption measures – is it feasible?

Context and Purpose

Members of Klimaetaten Bergen were invited to discuss policy measures to address consumption emissions in the city’s climate work. In this workshop, members of Klimaetaten explored the feasibility of implementing a range of policies to reduce consumption locally. As input, the results from Jesse and Kristin’s paper were discussed, as well as insights from the literature on targeting consumption locally. Then the participants were asked to discuss the feasibility of implementing a number of measures along a “cone of plausibility”. This allowed to highlight a number of critical conditions to how feasibility could be navigated: the role of emission reductions, administrative costs or the perceive acceptance of said measure.

Examples of the measures discussed are illustrated in the figures below.

This workshop was carried out in collaboration with Ragnhild Freng Dale and Carlo Aall from Vestland forskning who engaged with civil servants through the TRANSFOM game.


Titel


Reduce Parking Places


Beskrivelse


Reduce the amount of parking places in the city centre by 1/3


Stette



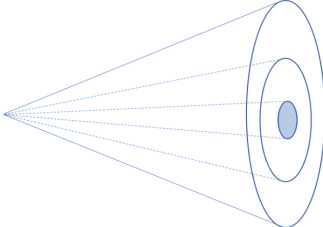








Where does this measure belong to?



Why?

Mobility

The image shows a workshop card on the left and a diagram on the right. The card is titled "Resist the development of new roads" and describes working towards municipal and regional policy to hinder road expansion. It includes a "Støtte" (Support) section with five icons of a person and a checkmark. The word "Mobility" is written at the bottom left of the card. The diagram on the right is a funnel shape with a blue dot in the center, representing a focus or target. The text "Where does this measure belong to?" is above the diagram, and "Why?" is below it.

Titel
Resist the development
of new roads

Beskrivelse

Work towards municipal and
regional policy that will
hinder road expansion

Støtte

Mobility

Where does this measure belong to?

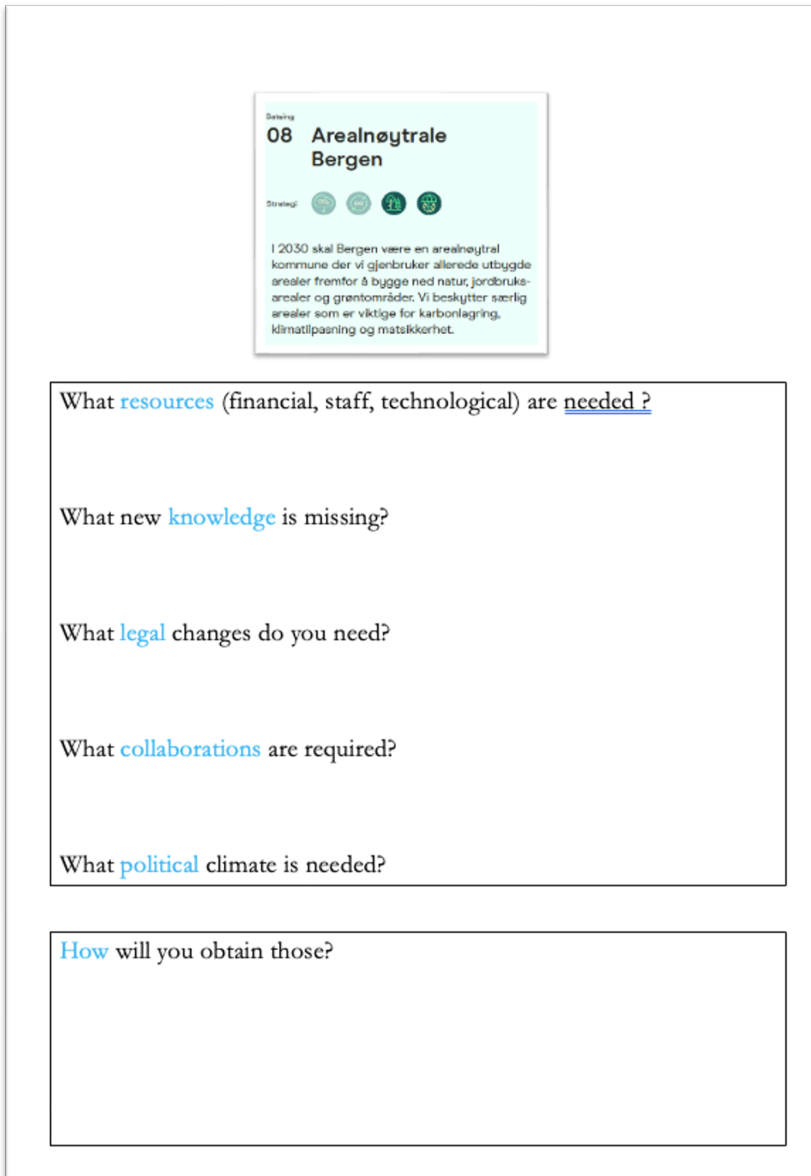
Why?

Figure 1. Examples of measures discussed by civil servants during the workshop.

Worskshop 2 – Finding political feasibility in climate planning

Context and Purpose

Håvard Haarstad and I were invited to present the results from research carried out in 2022 on the development of Bergen's new climate strategy (i.e. paper #3). The aim of this workshop was to (1) communicate and discuss results on the role of contradictions in planning, but also (2) discuss with civil servants how they navigate local climate politics to implement ambitious climate plans. The workshop was planned as follow: Jesse introduced the workshop, and then started the discussions by asking how the climate strategy's goal on "area neutrality" can be achieved (see below). This topic emerged as a particularly contentious one during research for paper #3 and its implementation was debated within the municipality. After describing the results of the research carried out in 2022, Håvard lead a discussion on how to balance necessity versus feasibility in climate policy.



Berling
08 Arealnøytrale Bergen

Strategi

I 2030 skal Bergen være en arealnøytral kommune der vi gjenbruker allerede utbygde arealer fremfor å bygge ned natur, jordbruksarealer og grøntområder. Vi beskytter særlig arealer som er viktige for karbonlagring, klimatilpasning og matsikkerhet.

What **resources** (financial, staff, technological) are needed ?

What new **knowledge** is missing?

What **legal** changes do you need?

What **collaborations** are required?

What **political** climate is needed?

How will you obtain those?

Figure 2. Exploring feasibility in the work carried out by civil servants.

Overview of policy documents used for analysis

The following documents were used in Paper 1 and 2.

City	Documents
Aarhus	City of Aarhus (2016) <i>Climate Plan 2016 – 2020: City of Aarhus</i> . Available at https://lokalcentre.aarhus.dk/media/5160/2017-05-24_climate_plan_2016-2020.pdf
Bergen	City of Bergen (2019) <i>Klimabudsjett</i> . Available at https://pub.framsikt.net/2019/bergen/bm-2019-høp-19-22/#/generic/summary/c1d3ca45-0105-4972-b87a-7c2a2a5ecf16-cn/?scrollTo=t-7
Copenhagen	City of Copenhagen (2016) <i>CPH 2025 – Climate Plan Roadmap 2017 – 2020</i> . Available at https://kk.sites.itera.dk/apps/kk_pub2/index.asp?mode=detalje&id=1586
Gothenburg	City of Gothenburg (2014) <i>Climate programme for Gothenburg</i> . Available at https://goteborg.se/wps/wcm/connect/7ba2b573-9216-4bb9-8a1f-0915b40ce4b5/Climate+program+för+Gothenburg.pdf?MOD=AJPERES
Helsinki	City of Helsinki (2018) <i>The carbon-neutral Helsinki 2035 Action Plan</i> . Available at https://www.hel.fi/static/liitteet/kaupunkiymparisto/julkaisut/julkaisut/HNH-2035/Carbon_neutral_Helsinki_Action_Plan_1503019_EN.pdf
Malmö	City of Malmö (2009) <i>Energistrategi för Malmö (Pr 3083)</i> . Available at http://miljobarometern.malmo.se/content/docs/Energistrategi_Kf_20091217.pdf
Oslo	City of Oslo (2020) <i>Klimabudsjett 2020</i> . Available at https://www.oslo.kommune.no/getfile.php/13342734-1576067822/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Budsjett%2C%20regnskap%20og%20rapportering/Budsjett%202020/Budsjettforslag%202020/unzipped_krnl_fileid_353334/PDFS_Budsjettforslag-2020.2.pdf?download=1 City of Oslo (2020) <i>Klimastrategi for Oslo mot 2030</i> . Available at https://www.klimaoslo.no/wp-

	content/uploads/sites/88/2020/09/Klimastrategi2030_langversjon_web_enkeltside.pdf
Reykjavik	City of Reykjavik (2016) <i>City of Reykjavik's Climate Policy</i> . Available at https://reykjavik.is/sites/default/files/reykjavik_action_plan_carbon_neutral_by_2040.pdf
Stockholm	City of Stockholm (2018) <i>Handlingsplan: Fossilbränslefri vägtransportsektor Stockholm</i> . Available at https://start.stockholm/globalassets/start/om-stockholms-stad/utredningar-statistik-och-fakta/utredningar-och-rapporter/klimat-och-miljo/handlingsplan-fossilbranslefri-vagtransportsektor-2018-01-25.pdf City of Stockholm (2016) <i>Strategy for a fossil-fuel free Stockholm by 2040</i> . Available at https://international.stockholm.se/globalassets/rapporter/strategy-for-a-fossil-fuel-free-stockholm-by-2040.pdf
Turku	City of Turku (2018) <i>Turku Climate Plan 2029: The City of Turku Sustainable Energy and Climate Action Plan 2029</i> . Available at https://www.turku.fi/sites/default/files/atoms/files/turku_climate_plan_2029.pdf

The following documents were used in paper 3 and 4.

Source	Description
Climate Agency	City of Bergen (2016) Green strategy: Climate and energy action plan for Bergen Bergen kommune (2022) Grønn strategi: Klimastrategi for Bergen. Klimaetaten (2022) Kunnskapsgrunnlag til Grønn strategi klimastrategi for Bergen 2022-2030 Klimaetaten (2022) Kva må til for å redusere biltrafikken med 30 prosent innan utgangen av 2023? Klimaetaten kunnskapnotat, Bergen Klimaetaten (2022) Er det mogleg for Bergen å bli tilnærma utsleppsfri i 2030? Klimaetaten kunnskapnotat, Bergen

Norwegian Ministry of Climate and Environment	Norwegian ministry of Climate and Environment (2021) Report to the Storting: Norway's climate action plan for 2021-2030
CICERO	Korsbakken, J.I., Madslie, A., Romundstad R.M. & Aamaas B. (2020) Bergen klimagassutslipp mot 2030. Report 2020:8, Oslo

Paper 1

How do cities challenge patterns of demand? Characterising the local governance of climate change in Nordic cities

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Abstract

Meeting international climate targets will require deep and rapid shifts in urban demand patterns. While the literature has emphasized the role played by cities in the response to climate change, it remains unclear whether or how urban-level interventions actually affect possibilities for low-carbon living, and contribute to the re-configuration of everyday practices. In this paper, we use a social practice lens to understand how, and to what extent a range of Nordic cities target everyday demand patterns in the development of low-carbon policies. Contemporary demand-side approaches have been critiqued for their focus on the provision of low-carbon technologies and individual-level interventions. Instead, we argue that understanding how measures target and intervene in everyday practices provide a relevant lens for approaching the success of low-carbon interventions. Using an intervention-in practice-framework to understand urban interventions, we find that current measures rely heavily on non-committal measures in the domains of mobility and housing and forms of household self-governance. This paper concludes by discussing the policy implications of taking a practice view in developing climate interventions in urban setting, arguing that such perspective broadens the range of governance approaches adopted by cities to govern a reduction of urban emissions.

Keywords

Climate governance, urban policies, everyday consumption, patterns of demand, social practice theory

Introduction

Pathways consistent with the 1.5°C target held under the Paris Agreement will require ambitious and coordinated mitigation efforts over the next 30 years (Masson-Delmotte et al., 2018). Demand-side policies have come to play a critical role in meeting these climate targets, both in reducing

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reliance on controversial technologies and in reducing transition risk (Grubler et al., 2018; Sorrell, 2015). Recent scholarship has shown how behavioural, infrastructural and technological interventions can affect volumes and patterns of consumption (Abrahamse et al., 2005; Ivanova et al., 2018; Ivanova et al., 2020; Moran et al., 2018), revealing that everyday choices in home energy, transport or dietary practices present considerable mitigation potential.

While this literature has the capacity to inform about necessary changes in consumption, it is at odds with the notion that transforming consumption is a matter of individual choice only. Typically, low-carbon interventions have been characterized by policies that emphasise technological efficiency and informed individual consumption (Abrahamse et al., 2005; Dubois et al., 2019). However, a wide sociological literature has shown how consumption is instead deeply ingrained in a behavioural and cultural context, and is modulated through infrastructure and institutions (Coutard and Shove, 2019; Warde, 2017). Transforming consumption therefore requires wider structural change (O'Rourke and Lollo, 2015).

In this paper, we are interested in understanding the urban implications of changing patterns of demand. Understanding the way that demand measures will play out in cities globally is crucial in order to contextualise the profound social as well as technological changes required (Mundaca et al., 2018). Everyday practices and their associated climatic impacts are highly influenced by the structure and organisation of cities (Ewing and Cervero, 2010; Lamb et al., 2018), and a major part of the projected energy and material consumption in the 21st century is expected to take place within them (Grubler et al., 2012).

Changing demand patterns can therefore be viewed as a multi-scalar governance challenge, engaging multiple actors across a wide range of institutions (O'Rourke and Lollo, 2015). Building on Castán Broto's (2017) work, we understand cities as strategic arenas for climate change mitigation and emphasise the role of governance in '[coordinating] multiple forms of state and non-state action' (Castán Broto, 2017: 1). Interventions such as facilitating car free living, supporting shifts to plant-based diets, producing renewable energy, or facilitating refurbishment of old housing stock with low-carbon materials are all measures that urban governments can use to mitigate demand. While cities and other urban settlements constitute critical spaces for intervening in the consumption of everyday life, it remains unclear whether or how urban-level interventions affect urban demand, or contribute to the re-configuration of everyday practices.

Starting from a social practice theory (SPT) perspective, this paper approaches urban energy demand as a consequence of how social practices are organised spatially and temporally across the city. This perspective entails several implications for understanding the relationship between demand and urban interventions.

First, many commentators have underlined that urban form provides structural conditions for specific consumption behaviours (Creutzig et al., 2016a, 2016b; Sanne, 2002). A favoured type of housing will affect commuting distances and their modal source, the energy requirement of housing and their utilities, or the access to different goods and services. Changes in urban form also alter social life through allowing or hampering access to specific spaces of leisure and opportunities for sociability (Heinonen et al., 2013; Shove and Walker, 2010). Framing demand as a matter of consumer end-use only, might therefore disregard how building design, urban infrastructure and systems of provisions influence particular carbon intensive practices (Shove and Trentmann, 2019).

Second, demand is inherently modulated through varying and evolving social practices across the urban landscape (Rinkinen et al., 2020). The idea that policy makers ought to meet demand with a matching supply discounts the notion that changes in urban living are constitutive of an evolving urban demand. Changes in apartment size, the technologies used in the household, or forms of preferred mobility will come to matter for the range of densities, access, forms and quality of energy seen as relevant. For SPT, understanding how changes in social practices affect expectations of

urban livelihoods is therefore necessary to grasp how routines, practices and urban form interact (Rinkinen et al., 2021).

Third, the modulation of demand also has a temporal dimension. Indeed, since the performance of practices is invariably linked to the use of things, space and infrastructure, these also fluctuate daily and seasonally (Shove et al., 2013). The timing of practices, their duration and changes throughout the year come to inform how patterns of demand cluster or spread. This perspective emphasises that changing demand might not only be a matter of affecting the scale of its peaks and troughs, but also of affecting different forms of household time use (Wiedenhofer et al., 2018). Together, these implications suggest that urban infrastructures, social practices and the spatio-temporal patterns of demand are interlinked and that they mutually influence each other (Coutard and Shove, 2019; Rutherford, 2020).

In this paper, we build on a SPT lens to explain and understand how climate interventions affect everyday practices in a number of Nordic cities. This offers a way to understand how city-level measures target the dynamic of demand through their climate plans. Empirically, we use the SPT intervention framing offered by Spurling and McMeekin (2015) to consider the extent to which governance measures target everyday practices and categorise urban climate interventions according to the three practice-informed intervention model: 're-crafting', 'substituting', and 'changing how practice interlock'. We infer that climate and energy goals (and their implementation through policy and strategic documents) represent one particularly important governing tool for cities (Hofstad and Vedeld, 2020). Structuring urban action, these goals and their measures indicate how urban climate and energy governance is organised, which interventions are prioritised, which are not. In other words, understanding climate governance through their stated climate and energy goals and measures reveals the policy space developed by cities locally.

In the context where a number of cities are exploring the implication of affecting consumption-related emissions (Bailey et al., 2019; Johnson, 2020), this paper contributes with an empirical characterisation of demand-side urban climate interventions. Through an evaluation of climate and city strategies in 10 Nordic cities we assess the extent to which their respective climate measures target specific domains, the regulatory approach adopted and the type of intervention-in-practice employed. Framing urban interventions through an intervention-in-practice framework, we uncover the potential of contemporary urban governance to contribute to a deep and rapid shift toward low-carbon demand. We answer the following research question: to what extent, and with what approaches are urban climate measures intervening in consumption dynamics?

The paper is structured in 6 parts. In *Conceptual approach: Social practices, interventions and urban consumption*, we outline our theoretical approach, expanding on social practice theory and Spurling and McMeekin (2015)'s intervention framework. In *Methods*, we describe the methodology. After a presentation of the cities comprising this study, the empirical results are detailed in *Results: Characterizing urban climate interventions* where we analyse current strategies for urban climate interventions. In *Discussion-Urban climate interventions in demand*, we discuss the findings and reflect on the role of cities in relation to consumption governance with consideration for how the design and implementation of climate governance can be strengthened. *Conclusion-Towards governing urban consumption* provides concluding remarks, outlining key insights a social practice approach incurs for the realisation of low-carbon urban futures.

Conceptual approach: Social practices, interventions and urban consumption

Social-practice approaches are common in consumption studies (Røpke, 2009; Shove and Warde, 2002; Warde, 2005) and their relevance has been stressed in work on energy demand more broadly (Creutzig et al., 2018; Rinkinen et al., 2020). As a contribution to the sociology of everyday life,

social practice theory is useful for integrating consumption, routines and the role played by both social and material arrangements in explaining behaviour (Southerton, 2013). In this section, we detail how this theoretical approach and the specific intervention-in-practice framework proposed by Spurling and McMeekin (2015) are used to understand how urban policy measures intervene in demand dynamics.

Consumption and social practice theory

Consumption, for Warde (2015), can best be understood as a moment in the performance of a practice, not as an activity in and of itself. Commuting to work, cooking food or engaging in recreational activities will use resources when people engage in these practices. For social practitioners, these are accomplished in the process of realizing certain standards and norms, for the sake of leisure or other purposes (Warde, 2017), therefore normalizing the type and quantity of resources that are consumed, or the pollutants released during its performance. Attention to social practices allows researchers to understand and situate the reasons why and how people engage in consuming activities (Sahakian and Wilhite, 2014).

The wide body of research pertaining to SPT (see Reckwitz, 2004 for an overview) has produced differing interpretations of what a social practice, as unit of analysis, is. Shove et al.'s (2012) highlights the role played by 'materials and infrastructure, competencies and skills, shared tastes and meanings' in explaining the performance and evolution of practices. To focus on practices as a locus of change shifts the lens of policy analysis away from individuals. For SPT, individuals do not choose specific practices in as much as they are recruited into a practice, and in the process of doing so reproduces its form (Shove et al., 2012). Scholars have stressed how the availability and the integration of these elements are the conditions for a practice to reproduce.

More recently, the literature has also stressed how practices are often sequenced as a 'bundle' or in succession of one another, patterned and sequenced across space and time (Schatzki, 2015). Urban infrastructure and social rhythms play a decisive role in affecting social practices and are seen as interlinked with the patterns of demand that follow (Cass et al., 2018; Shove et al., 2013;; Shove and Trentmann, 2019).

Intervention in practices

While SPT offers robust theoretical and practical cues to describe the nature of social systems, proponents have proved more shy in articulating policies based on its insights, though we observe some empirical cases emerging (e.g. Doyle and Davies, 2013; Jack, 2013; Laakso, 2019; Sahakian, 2018; Schäfer et al., 2018). Chatterton (2011) stresses that affecting social practices across the range of both material and social elements of a practice is important for achieving comprehensive policy approaches. Informing this perspective, Spurling and McMeekin (2015) have contributed with an intervention model to understand how policy framings affect social practices. The authors argue that 'taking social practices – such as commuting, eating, cooking, laundering – as the unit of analysis provides us with a better way to look at change' (19), and propose a three-part framing for interventions in practices, where interventions are understood as a matter of 're-crafting', 'substituting' or 'changing how practices interlock'.

'Re-crafting' entails a change in one or several of the elements of a practice, with the aim of reducing its material footprint. For the authors, this intervention type is in line with traditional policy interventions which focus on the provision of efficient technologies and increased consumer choice. Examples of re-crafting include policy measures such as the introduction of low-carbon technologies or information campaigns for energy savings that would respectively target the material and meaning elements of household energy usage. Importantly, the re-crafting of a practice is

primarily interested in reducing its overall impact and ‘questions neither the necessity of the practice [...] nor the means to fulfill the practice’ (Schäfer et al., 2018: 17). A range of traditional urban policy measures fall into this category of intervention since they rarely intervene in more than one or few elements of a practice and therefore seldom approach practices systematically.

Second, ‘substituting’ practices rests on the intention of replacing carbon intensive practices with other low-carbon practices. In this intervention framing, more sustainable variants of a practice are channelled by policy makers so as to fulfil similar needs or wants, albeit with lower environmental footprint. Unlike the former intervention type, a substitution of practice will question the necessity and means to achieve a said practice to a wider extent than an intervention that seeks to re-craft its individual element(s). Examples of this approach include policies that seek a change in the ‘recruitment to and defection from practices’ (Spurling and McMeekin, 2015: 28) as well as an attention to how variants of a practice compete for time, space and other resources. Policies that would support modal shift towards other forms of commuting practices, for example, from car-based to public transportation or cycle commuting, are an illustration of this intervention type.

Third, ‘changing how practices interlock’ assumes a deeper intervention in the bundle of practices that make-up everyday life. The focus is on altering the routine ways in which a wide range of practices are connected and synchronised together, and this type of intervention framing aims to affect the whole range of practices that contribute to unsustainable resource consumption. For the authors, the two ways in which this type of intervention affect bundles of practices is through considering spatial arrangements, relating to where practices are performed, and the temporal organisation of everyday life, relating to when they take place. how e.g. school and work timetables (Spurling and McMeekin, 2015). Changing eating practices in this framing is equally a matter of intervening in work practices (such as the time and space availability for eating), as it is for systems of food provision and novel institutional organisations, such as after-school canteens (see Shove et al., 2013). A defining feature of this approach is that it questions the needs and social organisation of practices to a much wider extent than other forms of intervention, and requires policy makers to look for intervention areas often outside of the targeted sectors.

Spurling and McMeekin (2015) stress that the intervention types differ in the scale of changes assumed. While the re-crafting of a practice concerns measures that are informative, noncommittal, and which do not require much citizen involvement to be carried out, the substituting of a practice will affect how citizens engage with a practice, and seek to affect its performance vis-à-vis a more sustainable one. In terms of policy making, the different intervention types indicate how consumption and patterns of demand are targeted through various policy instruments (Kammerlander et al., 2020; Schäfer et al., 2018). Since climate interventions will come to affect the materials, competences or meaning of social practices differentially, planning documents and climate strategies can be converted into practice interventions of re-crafting, substitution and changes in sequencing. In the following part, we outline how this approach is employed to uncover city-level approaches.

Methods

In this paper, we interrogate how urban governments, through their climate and energy plan, affect the consumption domains of mobility, housing and food. Direct and indirect emissions related to these domains are non-negligible and account for about three-quarter of total household footprints (Ivanova et al., 2016; Tukker et al., 2010). Mobility, housing and food represent key domains for urban policy-maker engagement (Dawkins et al., 2019; Lamb et al., 2018).

Municipal authorities can affect emissions directly through regulations, the prescription of specific technologies or the provision of public services, but also indirectly through novel forms of

planning and zoning, by affecting systems of provision or through changes in urban form (Creutzig et al., 2016b). This part outlines the research methods and analysis carried out for this paper.

Research method

In order to assess the extent to which cities target consumptive practices, we consider the crucial role played by policies. A common approach in policy analysis employed to map governmental interventions is an assessment of policy *density*, defined as the number of policies instruments in a policy field (Knill et al., 2012). Such approach allows researcher to gauge public policies in relation to defined goals and targets, essentially allowing to evaluate the efficacy of a range of policies. Individual measures are thus defined as ‘building blocks’ (Schaffrin et al., 2015) and can be analysed individually according to the sector they target as well as the instrument logic employed.

Such evaluation can be complemented with an evaluation of an individual measure’s *intensity* – that is, the extent to which measures contribute to reducing carbon emissions. Though some research exist (e.g. Creutzig et al., 2016a), assessing associated emission reduction would however require an evaluation that is beyond the scope of this paper. Instead, we approach policy *intensity* as the depth with which policies intervene in everyday practices. We use the model for assessing intervention depth as outlined in the previous part to qualitatively assess the policies employed and categorise the policy measures as either ‘re-crafting’, ‘substituting’ or ‘changing how practices interlock’. To code policy measures according to the three intervention types, we evaluated each individual measure for their intended purpose and means for achieving this purpose, mapping whether the measure targeted individual elements of a practice, or whether it aimed at substituting or changing the sequencing of practices. Table 1 provides a brief illustration of urban interventions according to each intervention type.

Assessing policy density and intensity provides a way to compare across different sites of policy development and implementation (Dubois et al., 2019; Jahn and Kuitto, 2011; Knill et al., 2010), and is used in this paper as a comparative analysis of policy output across different consumption domains (Knill et al., 2012).

An approach that considers both density of approach and depth of intervention in consumptive practices provides a unique foray in understanding patterns of local climate governance. While policy density has been employed as a method to assess how policies target household consumption (Dubois et al., 2019; Moberg et al., 2018), to our knowledge no studies have used the intervention model detailed above to assess extent of intervention. Inversely, while some literature has employed the intervention model to qualitatively assess municipal-level interventions (Hausknost et al., 2018; Schäfer et al., 2018), no academic literature has done so with a broad policy analysis in view.

The data in this paper was obtained through analysis of cities’ climate strategy reports (See Appendix 1), which we authenticated through interviews and field notes. A limitation of this approach relates to applying the intervention-in practice framework to climate policy documents only. While arguably a wide range of urban interventions would have climate, and practice-related impacts, this paper focuses exclusively on measures from climate strategy and policy documents. Therefore, the breadth of measures included attest more of the cities’ particular approaches through their climate measures, than of the way in which interaction of climate plans with other city-level strategies (such as urban development plans) come to affect everyday practices. This analysis only considered records in English, Swedish, Danish and Norwegian.

Analysis

In the process of screening for relevant policy documents, we looked at a variety of strategy and policy documents for each city. We selected the documents that offered a relevant and comparable level of accuracy in the intervention and measures outlined. The selection of these documents and the

Table 1. Examples of different intervention types for each demand category.

	Re-crafting	Substituting	Change how they interlock
Food	Information campaign on food waste, support for vegetarian or local food	Changes to institutional food provisioning (e.g. organic, local or vegetarian)	Develop local food markets, support for workplace cafeteria
Mobility	Cycle to work campaigns, charging infrastructure for EVs	Cycle parking space, subsidies for e-bikes, extend public transportation network Develop car-sharing initiatives	Support work-from home initiatives. Plan for housing close to mobility hubs or for pedestrian streets
Housing	Bio-mass heating, thermal insulation, PV development	Support the use of wood as building material, education material to reduce energy use	Communalisation of living environment, reduce apartment size

result of their analysis was subsequently triangulated through interviews with civil servants. A total of 558 individual climate measures were considered and the policy density for each city's climate strategy was coded according to the consumption domain it targeted (housing, mobility, food) and the regulatory policy instrument used to target that specific domain (see [Table 2](#)). Policy intensity was assessed through the intervention-in-practice type employed for each measure. Several typologies have been proposed to group different types of policy instruments and we draw from [Knill et al. \(2012\)](#) and [Moberg et al. \(2018\)](#) to inform the city-level regulatory approach used.

Results: Characterizing urban climate interventions

The present section reviews how 10 Nordic cities identify and articulate a range of policies and projects to govern greenhouse gases. In the following, we provide a background to Nordic cities, and characterize the climate interventions forged by these cities. While the dataset showcases diversity in the policy instrument and intervention type employed in the different domains, this overview also reveals where current approaches converge.

Background to Nordic cities

The 10 cities chosen for this study include capital cities in the five Nordic countries, Norway, Sweden, Iceland, Denmark and Finland, as well as second tier cities in the region. Beyond the five capital cities, the five cities Gothenburg, Aarhus, Bergen, Turku and Malmö were chosen with the purpose of gaining a breadth and diversity of climate approaches within the Nordic region. In a global context, these are small and medium sized cities, ranging from approximately 100,000 to 1 million inhabitants. All cities have a predominantly quaternary and tertiary sector economy with a variable degree of secondary sector economic activity. Several of the cities in this study have set ambitious climate strategies and partake in setting global climate agendas through international networks (such as C40, Eurocities, ICLEI, The Covenant of Mayors, Strong Cities Network, Smart Cities Initiative, Fossil-free Energy Districts, Carbon Neutral Cities Alliance).

The five Nordic countries display different energy market features but have overall built their decarbonisation strategies around renewable electricity and heat along with energy efficiency and a focus on transport and industry ([Sovacool, 2017](#)). The Nordic region can more generally be contextualised through 'the Nordic model', understood as a form of welfare capitalism. Greater

Table 2. Policy instruments (adapted from Knill et al. (2012) and Moberg et al. (2018)).

Approach	Policy instrument	Definition
Regulatory	Land use planning	Measure defining areas or times that deserve particular protection
	Physical infrastructure	Measure prescribing the use or development of a specific technology, built infrastructure or process
	Public services	Measure providing or facilitating the access to a public service
Economic	Taxes and fees	Tax or levy for a polluting product or activity
	Subsidies	Provision of funds or other financial advantage to a certain product or activity
Procedural	Cooperation	Develop cooperation with specific actors (public or private)
	Information	Exchange of information between the state and polluters. This also includes the gathering and collection of information or data

equality and a strong welfare state are associated with this model where poverty level is considerably lower than the OECD average (Wessel, 2010). While arguably Nordic cities are comparatively different, this context means that these have developed relatively similar forms of political-administrative patterns of governance based on a relative autonomy from central government, forms of state-led planning and social cohesion (Calmfors et al., 2019).

We have selected the cities in this study based on their relative position within the individual countries and the Nordic region, as well as their public engagement with climate change strategies. These cities share important institutional, but also cultural, economic and political traits, and while playing an important role in framing urban climate action locally and nationally, studies have also highlighted their role in informing climate action elsewhere (see e.g. Johnson, 2020). Additionally, a focus on Nordic cities is of particular importance as the literature on urban climate governance has highlighted gaps between commitments to climate change and action to curb emissions (Van der Heijden, 2019). This paradox is perhaps even more pronounced in Northern Europe, where national and sub-national authorities show comparatively high levels of commitment to low-carbon measures while displaying high rates of consumption (Peters et al., 2011).

Intervention in mobility

All cities target mobility practices to a wide extent and this category receives the highest density across the dataset with 265 measures. Figure 1 displays the regulatory instruments employed to intervene in mobility practices over the dataset. We used the sub-sectors of air traffic, private cars, cycling, public transportation and freight transportation to further detail policy focus. We observed that private vehicles received most policy attention with 126 individual measures, followed by freight, then public transportation, and finally cycling (56, 50 and 26, respectively). The cities that developed measures to address aviation-related emissions is Gothenburg and Stockholm which together detailed three measures, employing information and cooperation-based instruments.

While the different sub-sectors are targeted differentially, we observe general patterns of intervention. Overall, the range of measures that target mobility practices is dominated by the prescription and support of specific low-carbon technologies (such as electric vehicles or biofuels), information campaigns (promotion of bicycle pools, safety and informational campaigns) and land-use and physical changes in infrastructure (provision of bicycle infrastructure, charging nodes for cars or public buses, provision of parking space or areal zoning). Interestingly, the provision of public services also remains a strong intervention approach. Here we collected 42 measures which aimed at reducing climate impacts of services provided by the municipality. These included the

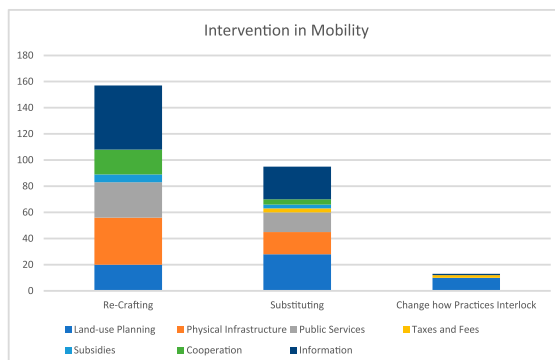


Figure 1. Intensity and density of intervention in the domain of mobility.

development of emission standards for public buses, certification schemes for fuels sold within city boundary or improved maintenance on bicycle routes. Instruments such as taxes and fees or the subsidisation of certain products or activities receive however very little attention by policy makers. The literature on regulation and intervention in practices both emphasise the need to diversify the range of policy instruments in targeting an activity (Stirling, 2010). We observe however a strong homogeneity in instruments used with a predominance of both regulatory and procedural instruments. Economic instruments remain de-prioritised.

The cities show to have more ease in engaging with a *re-crafting* of mobility practices. Overall, these interventions are linked with specific regulatory instruments such as the co-operation with other actors (regional or national government, energy or housing companies), information provision, changes in physical infrastructure and the provision of public services. These interventions have a tendency to target single or multiple elements of a practice without questioning the provision for that specific practice, and are aimed at changing the energy intensity, rather than volume, of social practices. For example, we observed across a number of cities efforts to switch public transport fleet to use low-carbon fuel sources (biofuel or electric), thus not affecting citizens' commuting practices, and only targeting the material element of a practice. The focus on re-crafting of mobility dynamics is paralleled by a generous emphasis on measures that seeks to *substitute* existing mobility practices. Private cars and cycling receive the majority of policy attention here (59 out of 95). While the sector of mobility shows to have a comparatively higher potential for changing the way that practices interlock (Cass and Faulconbridge, 2016), as it connects sites of practices through time and space within the city, relatively few measures in our dataset engage such interventions. We find that these interventions tend to relate to policy objectives not directly related to climate mitigation, but instead focus on urban infrastructure projects or time and environmental-based zoning strategies, which in turn have the effect to reduce the requirement or need for being mobile around the city.

Interventions in housing

Housing receives considerable policy attention in our dataset with a total of 253 measures across the 10 cities. This is comparable to the policy density received in the domain of mobility. Overall, these measures target the production, transport and use of electricity, gas and heat, covering-energy related emissions as well the emissions embedded in housing energy and building maintenance. The distribution of instruments employed across intervention types is displayed in Figure 2. The supply

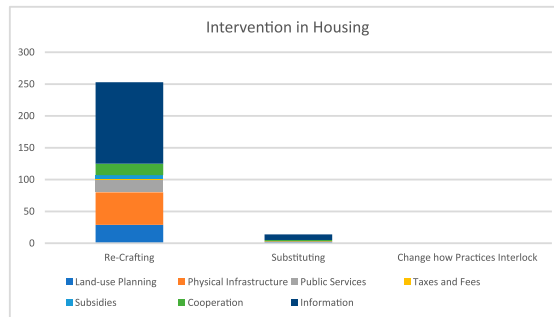


Figure 2. Intensity and density of intervention in the domain of housing.

and use of energy receive highest policy prioritisation with 108 and 73 measures, respectively. Policies targeting building design and waste reduction in energy production and use follow with 46 and 25 measures, respectively.

In this domain, policy approaches can be characterized by a focus towards both a decrease of the intensity by which energy is consumed and a decarbonization in the energy supplied. The instruments used in this domain are dominated by information-based instruments which receive approximately half (128 measures) of policy attention in this domain. Here, we coded a variety of measures which pertained to the provision and collection of data. While the former concern the development of energy guidelines for reducing residential consumption, the later focus on the collection of data across the cities' respective housing stock. The fact that information-based measures dominate the policy mix across different cities has received much attention in the literature, and we find this particularly relevant for the domain of housing. Changes in infrastructure, physical planning and public services receive, respectively, 51, 29 and 20 individual measures. These regulatory approaches tend to focus on the promotion, development or planning for low-carbon energy sources such as the development for district heating, phasing out of fossil-fuels through areal planning or the use of renewable electricity in the housing stock. The use of taxes and fees to target this domain remain absent.

In terms of the intervention types employed to target this sector, we observe a majority of measures that aims at re-crafting housing practices. In relation to reducing demand, these interventions offer little perspectives in reconsidering volumes of consumption. This result is stronger than in the domain of mobility. More than 85% of measures are coded as a re-crafting of practice in the domain of housing. The remaining measures were coded as a substituting of practices and focused mainly on the replacement of heating infrastructure (Figure 2)

Interventions in food

Compared to mobility and housing, the domain of food showed to receive less policy attention. Across the dataset, we observe only 26 measures targeting food-related practices which comparatively, amount for less than 5% of the total count of measures across the 10 cities (See Figure 3 below). This correlates with previous studies which highlighted the lack of policies targeting food consumption at the household-level (Moberg et al., 2018), and this despite the fact that it represents a considerable share in household emissions and holds a high mitigation potential (Ivanova et al., 2018).

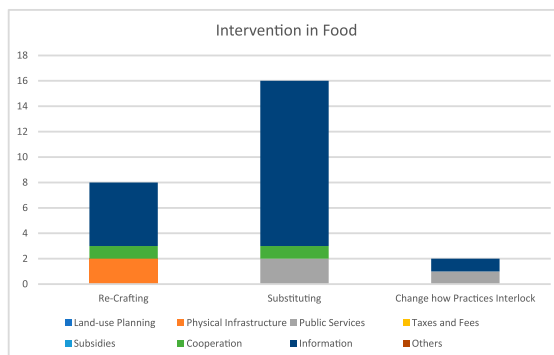


Figure 3. Intensity and density of intervention in the domain of food.

The mix of measures that target this sector has limited diversity as we only coded four types of instruments. Information-based instruments in pair with public services dominate the policy mix. These measures focused on the promotion of local food, dietary changes or food waste reduction through information guides to residents, training for cooking staff and the provision of vegetarian meals in municipally-owned institutions. We did not code any measure employing economic policy instruments. The domain of food shows therefore high potential in targeting consumption dynamics as it is characterized both by a low policy density and a low heterogeneity in policy instrument mix.

Most interestingly, this sector shows more measures that aim at substituting practices than re-crafting them. Our dataset illustrates that while cities tend to articulate policies for sectors such as housing and mobility, the food sector is increasingly seen as a relevant area when planning for climate measures. Earlier studies show that local government have an interest in promoting shifts in food consumption patterns (Dhar and Baylis, 2011; Granvik, 2012), and that there is reduced resistance encountered in these political spaces. In the measures found for this domain, we observe that substitutive interventions concern optional or information-based measures which have low-levels of compulsion. Further, we also coded two interventions in regards to changes in how food practices interlock. These concerned a reduction in meals including meat through support for collective food provisioning.

Discussion – Urban climate interventions in demand

Using an intervention-in-practice approach, we analysed how urban climate policies intervene in demand dynamics. Discussing the relevance of this paper through this lens, we highlight three contributions.

First, understanding demand through an SPT perspective has the capacity to open-up the range of policy instruments used in climate strategies. Though our dataset revealed variations in climate interventions, we find that the measures overall focus primarily on a re-crafting of mobility and housing practices, and on approaches of household self-governance, both emphasising non-committal measures. In relation to energy demand, these ‘shallow’ intervention types might not be sufficient to address the bundles of practices that maintain current volumes and patterns of consumption. For policy makers interested in promoting low-carbon practices, a SPT perspective allows to extend the scope of policy intervention, notably in identifying the complementary range of interventions required to change a practice (Kammerlander et al., 2020). Indeed, since social practices depend on the constant and daily integration of their elements for their reproduction,

changing unsustainable practices requires developing measures that affect meanings, materials and competences simultaneously. For example, affecting practices of car commuting becomes then a matter of affecting urban infrastructure and public transport, transforming images of alternative travel choices (which can be perceived for being too costly, in time, money or status), and support the development of competences which challenge preferences for high emission travel choices. Inherently, this will require increased cross-silo cooperation within city administrations, as it becomes a concern for policy makers involved in changing particular systems of provision, forms of spatial planning and affecting regional mobility patterns (Oseland, 2019).

While this reveals the need to explore how other institutional structures might be more adapted to allow for deeper forms of intervention (Schäfer et al., 2018), it notably also implies that intervention is a matter of continuous engagement with the different elements of a practice, the support for alternative ones, or the destabilization of high-carbon ones. The policy implications of such re-configuration might include forms of engagement currently under used by urban actors, such as experimentation, vision building workshops, strategic conferences and public debates (Geels et al., 2015). In relation to policy formulation, Stirling (2010) suggests that while the intensity and density of policy formulation might be important, assessing their disparity across multiple criteria might provide a novel lens to better assess how demand is targeted.

Second, an attention to the dynamics of social practices compels policy makers to more directly account for the normative implication of shaping a 'living' urban fabric towards set political goals. Although the need to move towards targeting consumption behaviour in urban climate policy making were stressed during dialogues with civil servants, they expressed concerns as to how this translated into novel policies. Understanding demand through a SPT lens entails that governing social practices is contingent on how practitioners adhere, refuse or cooperate with specific policy interventions. The effect (and success) of an intervention, whether they concern the development of city bikes, the support for local energy production or campaigns to eat locally, are contingent on being included in the routine and habits of urban citizens (Laakso, 2019). Governing practices therefore comes with a number of caveats. One of them being that urban interventions cannot be seen merely as temporary and bounded attempts to challenge a high-carbon network of practices. Rather, they are constitutive of the long-term work of reducing climate emissions in a number of domains (Shove and Walker, 2010). This has a number of implications for how governance processes are designed, specifically whether and how practitioners are included in the development, implementation and communication of climate measures (Keller et al., 2016).

Another caveat is that interventions need to be understood in relation to the meaning, materials and competences of different practitioners. Cities are characterised by high forms of inequality in the availability and access to practice elements, which will have implications for who's capacity and who's meaning is affected in the re-configuration of everyday practices. Alternatively, bringing attention to a diversity of practices in housing, food and mobility can also increase the visibility and credibility of alternative low-carbon practices (Laakso et al., 2021). Together, these caveats contribute to the necessity to include forms of reflexive governance in the development, implementation and follow-up of urban climate interventions (Shove and Walker, 2010).

Third, when understood as part of a dynamic network of practices, efforts that aim at targeting a single practice will have a limited impact if the range of practices with which it is enmeshed are not also considered. Findings from this study suggest that cities possess more policy instruments to engage with how practices connect across space, than with their temporal dynamics. We coded a limited though consistent number of measures that sought to change the way practices interlock, and observe that they overall pertain to changes in land-use or the material infrastructure of the city. By challenging material arrangements, these interventions will have an impact on the need for specific

practices, therefore spatially re-arranging the bundles in which they are enmeshed. On the other hand, challenging their temporal arrangement would necessitate a range of intervention types not yet countenanced in policy making. Policies such as work time reduction (Pullinger, 2014) would allow for flexibility and have an impact on when consumptive practices might take place, affecting both systems of provision and individual capacities for re-arranging how everyday practices are reproduced.

Yet, the spatial and temporal distribution of practices, and their related emissions, remains an understudied area. These dimensions of practices allow for greater understanding of how factors such as socio-economic conditions, work-life organisation, and global production chains are linked-up with emissions. While research could map the temporal and spatial distribution of practices, the political willingness and the availability of regulatory tools to interfere in such established dynamics also provides ample research focus. Deeper intervention strategies that affect the way that practices interlock, might contest established notions of public and private divides, conceived notions of freedom of choice as well as socio-economic organisation across scales (Hausknot and Hammond, 2020). In this, refusals to cooperate and forms of contestation might best be seen not as ‘barriers’ in the governance process, but rather as part and parcel of intervening and shaping an urban fabric of social practitioners (Wanvik and Haarstad, 2021). Reconfiguring established patterns of demand would require novel approaches to political legitimacy and the development of new regulatory tools.

Conclusion – Towards governing urban consumption

In a context where social, cultural, institutional and material mechanisms are organised towards inconspicuously high levels of consumption (Boström, 2020), targeting its dynamics will necessitate continued academic and policy engagement. While this has been much more researched at the national level (Kern et al., 2017; Jacobsson and Lauber, 2006; Lockwood et al., 2017; Merkisz et al., 2014; Rosenow et al., 2016), there is a need to understand how cities contribute to, or challenge, its consolidation.

With the intent of understanding practice changes that are induced by urban climate strategies, this paper is relevant for policy makers in working with the design of demand-side policies, beyond forms of ‘consumer scapegoatism’ (Akenji, 2014). In characterizing climate interventions in a number of Nordic cities, we observed that efforts to reduce emissions of greenhouse gases are limited to a range of interventions which seek to re-craft a practice, and which offer little possibilities for affecting patterns or volumes of consumption. Such approach, for Royston et al. (2018: 128), ‘do [es] not address the historical and socio-technical constitution of consumption patterns’ and therefore do not break away from the inertia that supports unsustainable levels of energy and material demand. This procedural lack in considering the demand for goods, services and energy in the way city-level climate strategies are articulated leaves out a considerable quantity of unaddressed emissions which, as ‘invisible energy’ (Cox et al., 2016; Royston et al., 2018) requires a set of policies and governance arrangements that better understand, uncover and address them.

In addressing this topic, this paper outlined some of the implications of taking a SPT approach, and chief among those is the necessity to recognise the dynamic and emergent nature of intervening in social practices. Doing so will entail new forms of behaviours and new technologies, but also need to be anchored around a reflection of what social functions, levels and patterns of demand will a low-carbon urban form be required to fulfil (Jalas et al., 2017). Scholars have showed that movements to reduce household’s living spaces, improving building efficiency and politics of urban densification might not lead to intended economies of scale, but instead might contribute to higher total carbon footprints (Minx et al., 2013; Moran et al., 2018; Ottelin et al., 2019). This will

unavoidably challenge cities in their current efforts, and will require new and novel forms of social innovations.

Seen under this light, the requirement for social policies affecting urban demand will unavoidably face the politics of everyday life, and indeed create tensions, or instabilities as to the political or social feasibility of their implementation. This could limit the use of more ambitious policy instruments and deeper ‘interlocking’ intervention types, or come to affect the policy space through which systems of practices could be affected. As climate effects are becoming increasingly felt in cities throughout the world, undoing the institutionalized ways in which inconspicuously high demand organises everyday life remains a critical task. In this, understanding the range of routines and habits that can be subject to policy intervention will thus be a trial for urban governments.

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Appendix I

City	Documents
Aarhus	City of Aarhus (2016) <i>Climate Plan 2016 – 2020: City of Aarhus</i> . Available at https://lokalcentre.aarhus.dk/media/5160/2017-05-24_climate_plan_2016-2020.pdf
Bergen	City of Bergen (2019) <i>Klimabudsjett</i> . Available at https://pub.framsikt.net/2019/bergen/bm-2019-hop-19-22/#/generic/summary/c1d3ca45-0105-4972-b87a-7c2a2a5ecf16-cn/?scrollTo=t-7
Copenhagen	City of Copenhagen (2016) <i>CPH 2025 – Climate Plan Roadmap 2017 – 2020</i> . Available at https://kk.sites.itera.dk/apps/kk_pub2/index.asp?mode=detalje&id=1586
Gothenburg	City of Gothenburg (2014) <i>Climate programme for Gothenburg</i> . Available at https://goteborg.se/wps/wcm/connect/7ba2b573-9216-4bb9-8a1f-0915b40ce4b5/Climate+program+för+Gothenburg.pdf?MOD=AJPERES
Helsinki	City of Helsinki (2018) <i>The carbon-neutral Helsinki 2035 Action Plan</i> . Available at https://www.helsinki.fi/static/liitteet/kaupunkiymparisto/julkaisut/julkaisut/HNH-2035/Carbon_neutral_Helsinki_Action_Plan_1503019_EN.pdf
Malmö	City of Malmö (2009) <i>Energistrategi för Malmö (Pr 3083)</i> . Available at http://miljobarometern.malmo.se/content/docs/Energistrategi_Kf_20091217.pdf
Oslo	City of Oslo (2020) <i>Klimabudsjett 2020</i> . Available at https://www.oslo.kommune.no/getfile.php/13342734-1576067822/Tjenesterogtilbud/Politikkogadministrasjon/Budsjett%20Cregnskapograpportering/Budsjett2020/Budsjettforslag2020/unzipped_krnl_fileid_353334/PDFS_Budsjettforslag-2020.2.pdf?download=1 City of Oslo (2020) <i>Klimastrategi for Oslo mot 2030</i> . Available at https://www.klimaoslo.no/wp-content/uploads/sites/88/2020/09/Klimastrategi2030_langversjon_web_enkeltside.pdf
Reykjavik	City of Reykjavik (2016) <i>City of Reykjavik's Climate Policy</i> . Available at https://reykjavik.is/sites/default/files/reykjavik_action_plan_carbon_neutral_by_2040.pdf
Stockholm	City of Stockholm (2018) <i>Handlingsplan: Fossilbränslefri vägtransportsektor Stockholm</i> . Available at https://start.stockholm/globalassets/start/om-stockholms-stad/utredningar-statistik-och-fakta/utredningar-och-rapporter/klimat-och-miljo/handlingsplan-fossilbranslefri-vagtransportsektor-2018-01-25.pdf City of Stockholm (2016) <i>Strategy for a fossil-fuel free Stockholm by 2040</i> . Available at https://international.stockholm.se/globalassets/rapporter/strategy-for-a-fossil-fuel-free-stockholm-by-2040.pdf
Turku	City of Turku (2018) <i>Turku Climate Plan 2029: The City of Turku Sustainable Energy and Climate Action Plan 2029</i> . Available at https://www.turku.fi/sites/default/files/atoms/files/turku_climate_plan_2029.pdf

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Paper 2



Three tensions in governing energy demand: A social practice perspective on Nordic urban interventions

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ABSTRACT

Affecting future urban energy demand will play a significant role in mitigating climate emissions. While the literature has amply focused on the outputs of successful urban climate governance, there has been less focus on the organisational challenge that affecting energy demand will represent. By foregrounding the work practices of civil servants engaging with these issues, this study offers new insights into the possibilities and constraints of affecting energy demand. Inspired by work on social practice theory applied to organisations, it maps the tools, materialities and identity-related dynamics that affect civil servants' work. Empirically, the paper builds on interviews, document analysis and field notes taken in ten Nordic cities. The paper finds that the local agency for governing urban demand is contingent on navigating three tensions: (1) broadening the benefits of climate measures beyond carbon emissions, (2) challenging often politically attractive technologies, and the associated range of actors seen as relevant and (3) clarifying the role and responsibility of municipalities in relation to intervening in citizen's energy demand. By identifying the organisational tensions that civil servants face, the paper helps to understand the challenges encountered in advancing a local climate agenda, and the novel forms of agency that organisations can mobilise.

1. Introduction

Reduced energy demand has come to play a crucial role in achieving the deep and sustained carbon reductions required over the next 30 years (Keyßer & Lenzen, 2021; Sorrell, 2015). This interest in reduced energy demand is not new (cf Rosa & Keating, 1988), but it arguably has found a novel resonance in debates on urban climate mitigation (see e. g. Bouzarovski, 2020). Since cities have come to play a particularly important role in developing and implementing local mitigation plans, demand-side action related to technology choices, changes in behaviour, and changes in urban planning and infrastructure has become indispensable to urban spaces (Creutzig et al., 2020; Dietz et al., 2009; Moberg et al., 2018; Mundaca et al., 2018). Yet, while understanding how cities engage with the work of reduced energy demand is crucial to understand urban responses to climate change, it remains critically understudied.

In successive waves of scholarship interest, the literature on urban climate governance has amply focused on the outputs of successful urban climate governance, detailing the various forms of agency that cities have deployed (Castán Broto & Westman, 2020; van der Heijden, 2019). Scholarship has focused on the varieties of technical and social

innovations (Anguelovski & Carmin, 2011), the role of city networks (Gordon & Johnson, 2018) and the various forms of experimentation (Bulkeley & Castán Broto, 2013) that cities have mobilised. Critically, these have become highly visible features for thinking through local climate action. Yet, so far, the transformative potential of these solutions have fallen short of delivering significant action in cities, and it has become increasingly critical to also grapple with the more invisible, everyday practices within which climate action is embedded (Aylett, 2013, 2015).

Questions of how climate work actually engages with the everyday realities of policy action and institutional change have received very little attention within the literature on urban climate governance (Castán Broto & Westman, 2020). Calls more than a decade ago to engage with the everyday implications of climate interventions (see Bulkeley, 2010) have remained, to a large degree, unanswered. This becomes particularly problematic when exploring matters of consumption and demand, and their governance by cities. An emerging scholarship has stressed how developing urban interventions is deeply embedded in the material and cultural make-up of a city (Haarstad, 2016; Hölscher et al., 2019; Rutherford & Coutard, 2014; Shove & Walker, 2010). These have revealed how the agency to reduce energy

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demand are inextricably linked-up with other elements: urban infrastructure (Rutherford, 2014), consumer behaviour (Shove & Walker, 2010) or local politics (Wanvik & Haarstad, 2021) are all bound-up in the organisational work of reducing emissions. Reducing energy demand represents therefore a crucial governance challenge for those involved (Hui et al., 2017; Shove & Walker, 2010).

In order to explicate that challenge, the present article focuses on the civil servants involved in the work of developing and implementing urban climate plans across ten Nordic cities. The Nordic region overall displays highly ambitious local climate work, building on a long history of articulating policies for reduced emissions and energy conservation, and which can therefore be generative for the work and practices of cities elsewhere (Haarstad et al., 2021). Drawing on social practice theory applied to organisations, the article illustrates how interventions in reducing energy demand is anchored in everyday organisational work. Practice theory is particularly amenable to this as it offers a lens to understand how agendas are formed, how their pursuit is planned in organisations and the various practice elements mobilised by organisational actors in the process (Feldman & Orlikowski, 2011; Vaara & Whittington, 2012).

By focusing on the relationship between civil servants' everyday work and the organisational work that leads to climate interventions, this article problematises the room for manoeuvre owned by cities in targeting energy demand. It asks the questions: what tensions emerge around the work of civil servants involved in affecting urban energy demand? Debates on the agency and empowerment required to formulate appropriate urban responses to climate change have been recurrent in the literature (e.g. Van Der Heijden et al., 2019b). This paper contributes to these debates by arguing that the work of broadening climate interventions is inextricably embedded in organisational practices, and contingent on the everyday challenges involved in thinking through climate action.

The paper proceeds as follows. First it outlines key elements to understand the implications of holding a practice lens to understand the making of, and the modification of energy demand. Part 3 then details this paper's analytical approach. The empirical basis of this paper is discussed in Part 4, which builds on analysis of interviews, policy documents and field visits across ten Nordic cities. Part 5 outlines key tensions at play in the work of civil servants involved in local climate work. This paper concludes by reflecting on the urban planning and policy implications these tensions hold for targeting demand in the selected Nordic cities.

2. Energy demand: practices, institutions and governance

There is now a plethora of work that has adopted a practice-based approach to examine the social, material and temporal dynamics of energy demand (Horta, 2018). For practice scholars, the making of energy demand, along with its patterns and variations, is intimately linked with the ordering, and the performance of practices (Hui et al., 2017; Rinkinen et al., 2020). At a domestic level, practices of commuting, cooking, heating one's home or showering are enmeshed in systems of provision and use that give rise to the consumption of energy (Royston et al., 2018; Shove, 2014). At an aggregate level, since the practice elements, or "ingredients", that make-up a practice are a matter of collective conventions, demand is "made" (Rinkinen et al., 2020; Shove & Walker, 2010) in that patterns and levels of energy consumption are an outcome of the systems of provision and supply, but also the institutions that order (both temporally and spatially) everyday life (Hui et al., 2017; Walker, 2021). In this scholarship, energy demand is thus affected by the connections between everyday practices and available practice elements (Shove et al., 2012).

Attempting to change or modify these *everyday* practices will have implications for the *organisational* practices of cities seeking to affect urban energy demand (Freeman et al., 2011; Rinkinen et al., 2020). Primarily, the "distributed" understanding of agency foregrounded in

practice scholarship, implies that the act of steering relies on engagements with various actors and co-evolving elements of practices, many of which are outside the immediate control of those wishing to steer an intervention (Freeman et al., 2011; Geels et al., 2015). Urban scholars have shown that policy implementation depends on the role of "distributed interveners" (Keller et al., 2016) or more experimental forms of governance (Laakso et al., 2017) to affect and steer the availability of practice elements. Unavoidably, the governance of energy demand is a complex and non-linear affair, requiring broad actor involvement into a political process (Kuzemko et al., 2017).

More than other actors, the steering of energy demand is also affected by policies that are beyond those directly linked to energy consumption (Royston et al., 2018). Because "energy demand is embedded in the shared practices and activities that make up the ongoing flow of society" (Hui et al., 2017, 2), demanding energy extends into domains that are often not considered in discussions on demand, such as labour, health or cultural policies (Butler et al., 2018). In other words, meeting the often-ambitious climate goals upheld by city governments will mean a more explicit engagement with the material and cultural elements that underpin what people do (Fahy et al., 2019).

Instructive work has advanced the need for practice perspectives to understand policy implementation (Hampton, 2018; Schatzki, 2015). However, less has been written about the connections between organisations like city administrations and the organisational practices that seek to affect urban demand (see however Holmes, 2021). In the following section the paper details the conceptual approaches developed to understand how this agenda is implemented and practised through the actors involved.

3. Conceptualising organisational practices

To explore the everyday work of demand reduction, this paper draws from practice theoretical scholarship to map practice elements across various sites. This part describes first how this scholarship engages with practices between sites, then details the framework used to capture organisational elements and their tensions.

3.1. Connecting organisational work across sites

Different understandings of social practices exist (Reckwitz, 2004; Schatzki, 2002), but common to these is the notion that enduring change is contingent on the reproduction of a set of everyday practices. While being rather stable entities, the daily integration of various *elements* into practice makes them subject to modification, adjustments and transformations (Laakso et al., 2021).

While most of the practice scholarship has focused on micro-level dynamics, social practice theories also provides conceptual tools to understand larger phenomenon that occurs and are widespread across geographical sites (Hui et al., 2017; Shove, 2022). Of key interest here is how the notion of "circuits of reproduction" advanced by Shove et al. (2012) has allowed to understand how practice element become widespread over time and space. The authors suggest that instead of being selected within close settings, practice elements circulate freely and are selected and adopted by carriers to address the task at hand. In urban governance, the organisational practice of making a climate plan will be affected by ideas found in conferences, C40 newsletters, public lectures or other climate plans from elsewhere (Grandin & Haarstad, 2021). Schatzki similarly emphasises the notion of "connecting sites" (see also Hui et al., 2017), which affords to conceptualise the relational geography between spatially removed sites, especially as it comes to explain demand (Hui & Walker, 2018). Such *connected situationalism* (Nicolini, 2016) has opened-up the possibility for multi-sited research and connecting practices across different contexts (Everts, 2016), for example allowing to map the connections between EU policies and their local effect on project development (Hampton, 2018), or the connected trends in rises in energy demand (Shove, 2022).

3.2. Dimensions of organisational practices

In this article, governance is understood as an activity and bundle of practices in and of itself (Schatzki, 2015). This reframing has a number of implications for how agency in organisation can be understood, notably in relation to how agendas and strategies are shaped, and how their pursuit is planned (Smets et al., 2017; Welch & Yates, 2018).

This paper develops a framework which builds on three practice elements, to think through the connections between practices, organisations, and organisational work. First, it emphasises *the tools and methods* of strategy-making that are mobilised in the work of practitioners. Analytical, strategy or decision-making tools and techniques are part of the practice of strategizing, in that they allow to create predictability in the work of practitioners (Gunn & Williams, 2007; Hodgkinson et al., 2006; Jarzabkowski & Kaplan, 2015). And while they facilitate the habits and procedures indispensable to organisational life, such as communication, accounting or strategy analysis, they can also constrain the performance of practices (Vaara & Whittington, 2012). Once implemented, techniques and tools can become performative in that they can affect how organisations understand themselves and their objectives (Cabantous et al., 2010), and their salience will affect the range of competences seen as necessary for legitimately engaging with the required work (Jarratt & Stiles, 2010). In the work of urban climate governance, GHG inventories (Millward-Hopkins et al., 2017), vulnerability assessments (Smit & Wandel, 2006) and reporting protocols (Robinson & Gore, 2015) play a crucial role in articulating climate into local planning and policy (Rice, 2010).

Second, a focus on organisational practices foregrounds *the technologies and material elements* that municipal actors engage with in setting and mobilising around public goals (Feldman, 2000; Golsorkhi et al., 2015; Hrelja, 2011). Practice scholars have shown how the activities of organisational participants are in larger part entangled with the different material resources of human activities (Levina & Orlikowski, 2009; Orlikowski, 2007). These assemblages of elements imply that changing material elements of practices unavoidably also implies a changing of social relations, whose limits and opportunities must be continuously negotiated (Orlikowski, 2007). This literature has highlighted a number of materialities (such as bodies, clothes, food) and technologies (power point, devices, ...) (see Orlikowski & Scott, 2015), though for the purpose of this paper we focused on the infrastructure, low-carbon technologies and approaches to land-use changes that come to matter for civil servants in their work of energy demand reduction.

Third, climate strategy work is also mediated through the *roles and identities* of organisational members (Bremer et al., 2021). Scholars have shown the importance of institutional rules and values in affecting the work of managers, consultants and other organisational actors, stressing the dynamic relation between practitioners' identity and the broader meaning given to organisational strategy work (Beech & Johnson, 2005). This relation is not only internal to the organisation: wider societal beliefs on what is legitimate will also affect how strategy work is perceived within organisations (Lounsbury & Crumley, 2007). This means that the necessary work to reduce energy demand is inextricably linked with the professional identities and norms of those working with local climate plans (Feldman et al., 2016; Pentland et al., 2012). In the work of civil servants, this means the formulation of local climate initiatives will be impacted by practitioners' worldviews (Aylett, 2013), or the organisational culture within which climate policies are adapted (Schäfer, 2017).

With this in mind, this paper builds on these practice elements – *tools and methods, technologies and materials, and roles and identities* – to analyse the elements brought together in working with local climate governance. Critically, seeing organisational work as a matter of practices foregrounds a much more processual understanding of strategy work, where “the labour of strategy” (Kornberger & Clegg, 2011) is one of constant integration of various practice elements. The following part details the research context in which this approach was applied.

4. Research design

4.1. Research context

Despite varying national context, the Nordic region offers a relevant case to assess common practices in environmental and climate governance. The regions is often advanced for displaying ambitious climate and energy goals (Calmfors et al., 2019), associated with supportive institutional arrangements for climate and energy policies, such as welfare service provision, and strong political and administrative models (Figenbaum, 2017; Haarstad et al., 2021). Such leadership has become especially conspicuous at the urban level, where Nordic cities have since long displayed progressive leadership, and worked to develop ambitious climate goals and innovative governing instruments (Haarstad et al., 2021; Hofstad & Vedeld, 2020), developed in tandem with civil society and private-sector interest (Johnson, 2020).

This study considered the capital cities across all 5 Nordic countries (Stockholm, Helsinki, Oslo, Copenhagen and Reykjavik) as well as 5 s-tire cities (Gothenburg, Malmö, Turku, Aarhus and Bergen). This choice in considering this selection of urban cases is motivated by the combined potential of finding practices at play across a number of organisational environments, while allowing local differences to come through. The cities considered in this study have some of the most ambitious urban climate strategies in place, and in most cases outstripping national climate plans. There remains however a number of sociotechnical challenges to a low-carbon transition for Nordic cities. Over-reliance on future performances offered by technology innovation (in waste, building management or district heating) has questioned future emission reduction (Sovacool, 2017). The existence of strong political support and a supportive policy environment for low-carbon energy has similarly seen forms of push-back, notably in relation to wind energy (Leiren et al., 2020) and mobility-related domains (Wanvik & Haarstad, 2021), thus questioning the political consensus formed around climate policies. Finally, and perhaps due to the long history of working with energy and climate issues in the region, the local ability to engage with emission reduction is also today partly limited by national and regional legislative structure (Bardal et al., 2020).

4.2. Data collection

To understand how local climate work is practised on the ground, this paper takes a qualitative approach, combining the insights from three sources of data. First, 24 interviews were conducted across the considered cities with project managers, planning, energy and climate or housing officers engaged in the development of their local climate work (see Appendix 1, Table 1). The civil servants were contacted based on their involvement with their city's climate work, often through the intermediate of a senior officer interested in the questions explored. The civil servants interviewed were all involved in the development of climate plans in their respective cities. The interviews were loosely structured around the interviewee's personal background, their role and observations of the strategy process, and the challenges encountered in developing demand-side interventions. The interviews, which lasted between 30 min to 90 min, focused on how civil servants perceived their work in view of the often-ambitious climate goals set by the city governments, and aimed at identifying the range of practice elements that were seen as relevant in that work.

Second, analysis of key documents such as policy and strategy documents, white papers, process reports or media documents were also analysed (see Appendix 1, Table 2). The cities considered in this study also developed their own website which gathered all climate-relevant work, and these were analysed by considering the strategies, measures and key areas seen as relevant in their respective climate strategy. This allowed to identify recurring themes, and approaches common to all considered cities, and provided a sense of the range of approaches and interventions favoured by cities in their climate work.

Third, these were complemented with physical and online events in Norway, Denmark and Sweden in the period from 2018 to 2022 (see Appendix 1, Table 3). These gathered municipal civil servants from across respective countries and allowed to harvest field notes that were used for understanding current challenges faced by civil servants working with climate strategies.

5. Results – integrating organisational elements for targeting demand

Examining Nordic cities’ ongoing practices of climate governance allowed to identify several practice elements, some more conventional and emblematic of Nordic urban governance, but also some that were less so (see Fig. 1). In the following, we detail how the existence of various practice elements allowed to map emerging tensions at play in the everyday work of implementing low-carbon plans.

5.1. Tools and methods

Standards, guidelines, models and metrics for assessment shape the formulation and performance of climate-related work. Nevertheless, across all sites, it became evident that specific practices of climate accounting were performed, with considerable implications for the substance and outcomes of planning processes. While the literature frequently highlights the role of greenhouse gas inventories and accounting systems as reducing climate governance to a form of “carbon calculus” (While, 2011), we found in most cases that a focus on CO₂ reductions was only one of the many benefits sought after within the everyday work of advancing demand-side programs. Finding alternative indicators to justify reducing emissions became an important part of

civil servants’ work (Interview #4,7,13,22). A senior official from Bergen for example explained how the planned development of mobility hubs in the city was approached:

“When we go out and present plans that we are going to use this place in the street, we argue on the bases that it’s better for most people and argue that it’s half the price of holding your own car, better for health reasons [and] even better for those that have their own car. So, our job is [...] to present credible alternatives”.

Interviewees stressed a need for improved display of social and economic indicators that would help frame climate interventions. A number of alternatives were explored, such as understanding the effects of climate measures through their economic benefits, metrics to assess their health impacts, or the localisation of broader well-being indexes. For a senior climate strategist from Turku, “having non-climate data is crucial for our work, because we need to show the range of positive elements that adopting a low-carbon lifestyle comes with”.

However, finding alternative dimensions through which to make reduction of energy consumption visible offered a number of frustrations for those employing them. Uncertainty in assessments and feedback of measures, and a lack of tools and granularity in data availability were mentioned by civil servants. When asked about the necessity to assess emission reduction from housing projects, a civil servant from the city of Bergen explained: “but then we don’t really have the tools to measure these other climate issues that are as important. It makes them more invisible.” Many expressed difficulties in finding pertinent public data or assessments to justify particular measures. A city official from Helsinki explains how “we can’t exactly calculate the effect of this or that measure, but we know they are good for the climate”. Exploring novel metrics and indicators became an important part of implementing local climate interventions.

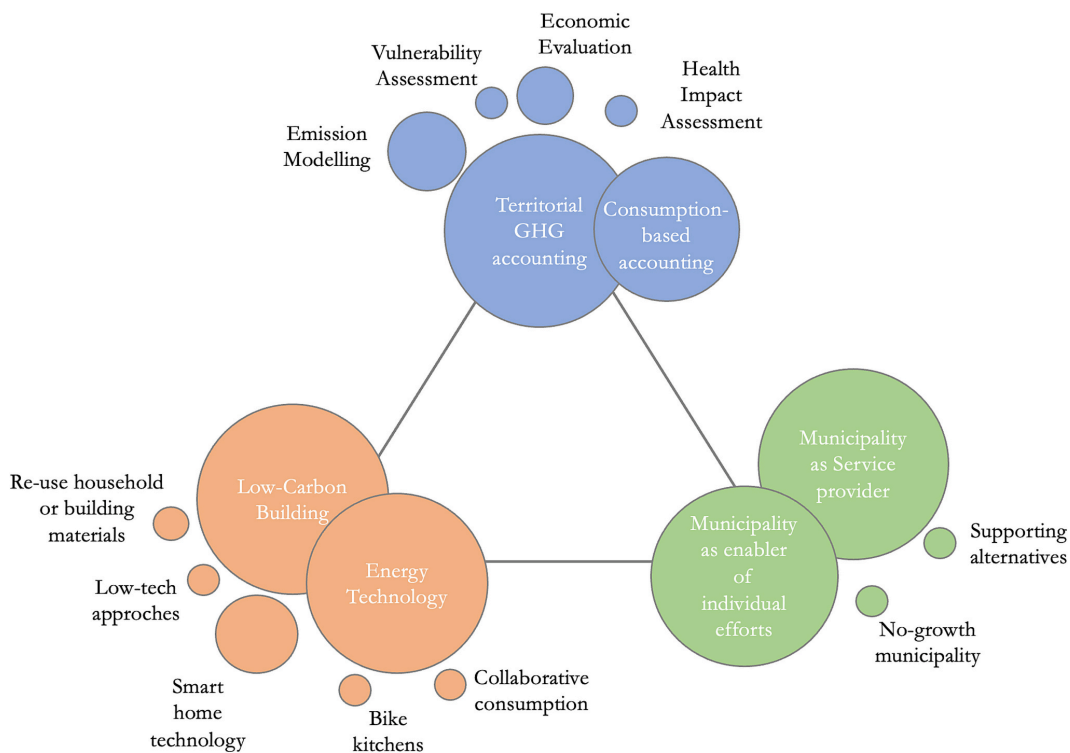


Fig. 1. Practice elements of local climate governance. The recurrence of tools, materialities and meaning-related elements are represented by bubble size.

However, the information displayed by alternative emission assessment tools was at times also problematic for the civil servants involved. This became apparent in the development of novel consumption-based assessment tools which proved particularly contentious. In a bid to further improve oversight over demand-related activities, city officials from Oslo and Stockholm municipality explained how local politicians had demanded to work with consumption-related emissions, so-called scope 3 emissions. Both cities explicitly include consumption-based targets in their latest climate plans ([City Executive Office of Stockholm, 2016](#); [Oslo City Council, 2020](#)), and a number of cities also include consumption-related domains such as clothing, electronics or food in their climate plans ([City of Helsinki, 2018](#); [Göteborgs Stad, 2021](#); [Turku City Council, 2018](#)).

To address this knowledge gap a number of cities were involved in research projects developing consumption-based assessment tools. At the time of writing, Malmö was part of a research project with international research institutes that sought to map the variations in consumption emissions across Swedish cities, down to the post-code level. The ambition of the project was to fill a knowledge gap in emissions assessments and contribute to improve oversight of emissions. However, the city official overseeing the project explained that the project's outcomes started to be problematic as it highlighted the vast inequality of emissions across the city's neighbourhood. For the project manager, the developed tool challenged the way that emissions were made relevant for institutional work: "it is shifting the perspective from seeing the city as a whole, to seeing the city as constituted from different socio-economic groups that have different climate impact" (Project manager, Malmö).

The notion that climate accounting constitutes a social and institutional practice of local climate governance has been noted before. But beyond their structuring effect, civil servants' ability to engage with demand-side measures was contingent on broadening the range of indicators used to assess the benefits of climate projects, but also on how climate tools revealed existing disparities in emissions. Consequently, the ability to develop sectoral policies was contingent on how visible these other dimensions were to civil servants working with climate plans. This tension was part of how civil servants organised their work: the measures that were not so, such as consumption-based accounts or measures whose benefits beyond climate reductions were uncertain, proved more difficult to work with and include in their plans.

5.2. The role of material resources and technologies

If urban climate work is characterised by practices of climate accounting, it is also constituted by the range of technologies and material resources that civil servant actors engage with.

First among those is the focus on efficient low-carbon forms of urban development and technologies. Analysis of policy documents outlined a number of strategies aimed at alleviating climate emissions through infrastructure, technologies and built form. For the various cities studied, forms of compactness, mixed-use and connectivity provided important opportunities to lower emissions, notably in domains such as travel and housing. These come together in urban project such as the RiverCity project in Gothenburg ([Göteborgs Stad, 2012](#)), Lahdenväylä boulevard in Helsinki ([City of Helsinki, 2013](#)) or Energylab Nordhavn in Copenhagen ([Hansen et al., 2010](#)), which all foreground the role played by low-carbon technologies in tandem with often "smart" forms of architecture.

However, many of our informants explained experiencing a dilemma when it came to working with such measures: while efficiency-related projects often assumed that innovations can affect the behaviour of citizens living in those areas, the agenda of efficiency had, at the same time, a clear goal of lessening the use of resources while keeping current standards of living and practices unquestioned. Green technologies such as solar panels, low-carbon district heating and electric buses were foregrounded because of their ability to produce correspondingly

similar results in access to energy, heating and transport, albeit with lower environmental costs. In this, the broader social and material context in which those behaviours take place remained unquestioned. However, when interrogating civil servants on this, this approach was often favoured because such approaches are attractive politically, despite contributing little to the city's climate goals. For many, a focus on efficiency meant that civil servants felt confined to a range of technological solutions that they saw as having little effect on a city's overall climate efforts. For example, in discussing their city's energy efficiency goal, two civil servants from Stockholm explained that:

“Speaker 1: “energy efficiency is a favourite among the politicians, we have city goals on improving efficiency, but that’s not where the [emission] reductions will come from... I mean, we have district heating [in Stockholm], which is already pretty low emissions...”

Speaker 2: It’s important. But maybe not making a further decrease in emissions.

Speaker 1: Yes, compared to the traffic and compared to what we buy and what we build it has very little impact. It’s a problem that it’s where people think the big changes are.” (Project manager, Stockholm).

A second set of elements relates to how civil servants engaged with alternative solutions, often in an attempt to go beyond the range of typical approaches employed to reduce demand. While the pertinence of certain technologies was questioned, for the civil servants interviewed, developing novel measures was often constrained by the necessity to engage with various market actors in co-developing the required industry standards and infrastructure. Indeed, while local government is endowed with a number of responsibilities that it has authority over, engaging with climate questions has since long required the mobilising actors beyond the city administration:

“we won’t be able to implement congestion charges due to a lack of national support. So what we have started is looking at how a coalition of business and local civil society organisations can help us out. It also means we had to revisit our ambitions”

(Senior official, Copenhagen)

“It’s only 10% that the city council has directly influence on ...So the last 90%, comes from sources where the city council does not have direct influence, and that stresses the need for cooperation and involving of companies to reduce consumption. But that changed the discourse quite significantly”

(Senior official, Aarhus)

Thanks to their efforts at collaboration, the local authorities came into contact with local industry actors, which gave them an insight into locations where a high level of ambition could be formulated. Often, these concerned innovations in housing, building or transport-related sectors. However, while broadening the scope of interventions, such collaborations tended to find agreements in the lowest common denominator which, in many cases, diluted ambitious climate projects. From Malmö city, a project manager working with the development of climate initiatives in the city's public housing explains that "many actors are also afraid that it will cost more ... and are afraid that the market will react negatively to new demands, so they don't engage with some of our projects" (Malmö city, email exchange). For some of the interviewees, this required gathering a broader set of actors with whom alternative forms of engagement could be explored. As explained by a project manager working with circular economy at the city of Gothenburg, this required exploring different forms of support and engagement with citizens. Here she describes how these engagements challenged established ways of working:

“With our public housing companies, we have made it easier for the civil society to start up new facilities, bike kitchens, free shops, toy libraries, repair centres, ... We see a lot of positive socio-economic potential in these facilities as well as environmental ones. But we still have a lot of organizational difficulties to make this

happen, like the need to work together and not only in our own silos”.

(Project manager, Gothenburg)

While these alternative spaces allowed to broaden the range of actors beyond traditional modes of collaboration, they proved particularly difficult to implement on a systematic basis: “These other actors help us considerably with these areas that are difficult for us to work with. Like household consumption and energy use. But the relationship has been changing a lot based on who is active in that organisation” (Civil servant, Oslo).

As a result, a second tension in addressing demand-related emissions relates to the notion that the capacity for civil servants to engage in energy demand reduction is produced by the range of materials and technologies seen as relevant to reduce emissions. City officials, while aware of the limited climate impact that more traditional interventions might have, expressed the feeling of being constrained by the range of technologies and infrastructure that was perceived as relevant in their work. For the interviewees, their relevance was maintained both for their political appeal, but also by the established relationships that the municipality had developed with historical actors. Challenging these more traditional technologies and infrastructures required challenging a number of established ideas as to who are relevant actors to engage with in this work.

5.3. The role of identity and meaning

The perceived role that civil servants held in relation to urban interventions affected how climate plans were implemented. Previous work has shown that norms and conventions of commonly accepted behaviour form the context in which policy is formulated and implemented (Jordan & O’Riordan, 1996). While civil servants noted that they received political support for the city’s climate work in general, delving into some measures in particular became increasingly contentious, especially as the relatively trouble-free emissions reductions (e.g. in the energy, waste and transport sector) had been achieved, and more controversial measures were to be taken. In Oslo, a civil servant stated his belief that: “many of the easy things have been done. So it’s basically just really hard and more radical now [...] it gives you much more resistance trying to do measures now, than it was like 3-4 years ago, because [...] the low hanging fruits have been harvested.” (Civil servant, Oslo).

In all cities, the interviewees reported that the city leadership recognised the necessity to keep accelerating cuts in climate emission. However, to go beyond such low-hanging fruits was contingent on the perceived impacts that measures would have on citizen’s everyday life. Here, some sectors proved more difficult to affect than others. For a senior city official from the city of Stockholm, whether a measure would be feasible seemed dependent on how conspicuous its effect would be for the citizens targeted:

“We have made some headway in the energy sector. In district heating for example it is almost well... now more than 80% of a district heat is from green, renewable energy. And the same level in electricity generation. And so this has been an easy things to do because it do’n’t affect the everyday life of people. But when it comes to food, or transport, that has been a lot more difficult”

This was challenging for some of the civil servants interviewed. While some stressed that the city’s role in relation to climate is to provide services to its residents, the necessary measures to target demand-side emissions were deeply challenging in their professional roles. When asked about the necessary interventions required to reach the ambitious targets set by politicians, some interviewees explained:

“I don’t think the politicians understand the full implications of working with these ambitious targets”

(Project manager, Malmö)

“We know we are not discussing about the facts anymore. When it comes to changing people’s behaviours, we are discussing about feelings and identities and that’s why it is so difficult”

(Senior official, Helsinki).

The development of low-carbon plans inevitably runs into issues of what measures are possible within the current political and social context. While the city administration is traditionally responsible for a certain amount of services around the city such as mobility, housing and food, interviewees explained how developing low-carbon measures which questioned the need for various goods and services was a contentious approach in reducing emissions. As explained by a city official in Stockholm city “it’s not really accepted that a city tells people how to live their lives, it’s not really our role” (Senior official, Stockholm city). Similarly, when asked in relation to more ambitious interventions in the sector of food, a municipal strategist from the city of Copenhagen explained that “it will definitely be difficult, because it would start to touch on an area where certain people would ask why does a municipality even matter to focus on this. This is not the role of a municipality” (Project manager, Copenhagen).

Altogether, and as a third tension, the day-to-day political implications of working with often ambitious demand-side policies proved contentious, both in regards to the extent that it would intervene in citizen’s everyday life, and for the perceived role that city government have in relation to service provision. Our interviews related to spaces where more ‘ambitious’ perspectives were expressed: local NGOs engaged in local transition efforts, academic conferences and even from primary schools. For one interviewee, these arenas allowed “to question the growth paradigm in urban planning” (Project manager, Malmö city). Still however, almost all of our interviewees said that these ideas did not have any significant impact on local policy and planning.

6. Discussion and concluding thoughts

Understanding the organisational practices in which urban interventions are entangled is necessary to understand the full implications of affecting energy demand. To further this research agenda, this paper explored the tensions that emerged out of the work of civil servants engaging with climate planning in 10 Nordic cities. It shows, first, that the agency to do so is contingent on making the benefits of low-carbon interventions visible to both politicians and civil society, calling for a *broadening* of the opportunities offered by climate measures beyond a reduction of climate emissions only. Further assessing the health, access or justice impacts of climate projects are potential pathways to enhance a local climate agenda, despite limited understanding of their impacts on reducing climate emissions.

Second, we found that to advance a local low-carbon agenda also entails confronting the range of materialities and technological solutions seen as relevant in the work of civil servants, thus *challenging* often politically attractive technologies and the range of actors seen as relevant. For planning practice, this would require developing and systematising alternative spaces of debate and participative processes with the aim of extending the range of actors and ideas that civil servants traditionally work with.

Thirdly, by focusing on the normative and political tensions at play in the work of civil servants, this article shows that engaging on demand-side interventions relies significantly on *clarifying* the roles and responsibility that civil servants and planners themselves traditionally have adopted in relation to urban demand interventions. For urban planners, this would require careful navigation of the political context within which climate interventions are articulated, carefully shaping the political desirability of projects to reduce energy demand. Taken together, these three tensions (*broadening*, *challenging*, and *clarifying* climate work) allow to grapple with the constraints that plague the work of civil servants. At the same time, they also hold a number of implications for thinking through opportunities in the governance of energy

demand.

First is the reflexivity with which civil servants navigate the work of engaging with demand-side measures. In navigating the tensions identified above, civil servants displayed relative amount of agency in framing, affecting and collaborating to reach the ambitious climate goals set by their respective city administrations. The literature continuously stresses how urban planners' work can be constrained by institutional rules and collective practices, and the findings of this study do align with previous studies in showing how the work of developing low-carbon interventions remained confined to ideas of "greening" and "eco-efficiency" (see e.g. Hagbert et al., 2020). At the same time, this article finds that these practices, far from being blind forms of reproduction, are instead reflexively debated by those enacting them every day. Aware of constraining factors, many of the interviewees sought to broaden the range of elements on which their work relied. This implies that, while the extent to which climate departments can organise and implement a local climate agenda is evidently contingent on a set of institutional factors, it is notably also contingent on non-institutional elements, such as the unpredictability of bureaucratic actors to challenge, re-arrange and implement novelty in their work. In this, a practice lens can open-up this debate to reveal the plenum of alternative practice elements from which civil servant can draw to reconfigure local climate work (Hampton, 2018).

Researchers can play a significant role in this: while undertaking this research, the interviews offered a space for civil servants to reflect on their role within the organisation, often highlighting the conflicts at play in their work. There was therefore an opportunity to discuss the tensions that emerged thanks to the research undertaken, and future work could make use of this space to problematise local capacities. This calls for a more thorough attention to the pathways through which practices feedback, change or become institutionalised, thus highlighting processes of innovation and renewal within organisational work.

Second, locally advancing an agenda of demand reduction is deeply dependent on collaborative work both within and across municipal organisations. The challenge of urban climate governance is often posed as a problem of "alignment" and "orchestration" between various actors (van der Heijden et al., 2019a), and this paper stresses the *reconfigurative* efforts required by civil servants in this work. This has a series of implications for research and policy. From a research perspective, starting from social practices to apprehend the work of policy making challenges more managerial and rational understandings of bureaucratic actors (Freeman et al., 2011). Mainstream accounts of this figure in the literature is one who, provided with relevant information, can conduct the right policy intervention (a point developed by Smith, 2019). However, as was observed in this study, this relation is far from linear, and should be seen as deeply enmeshed in the social, collective, and at times affective dimension of work practices. Understanding how practice elements reconfigure calls for cultivating an attention to ongoing processes of change within organisation, focusing on how climate interventions are negotiated, and their feasibility apprehended. From a policy

perspective, the work of broadening the set of elements from which civil servants draw implies that further reducing demand in cities will require building hybrid forms of governance to bring both public and private actors together (Vedeld et al., 2021). In this sense, exercises of consultation and public engagement of climate work can do more than generate novel ideas, it can also further develop legitimacy and mobilise both institutional and non-institutional practice elements in the process.

Thirdly, changing the practices of urban climate governance also problematises the wider political feasibility of addressing a reduction in energy demand. Matters of political feasibility are often assessed in terms of their political or social dimensions. However, this paper reveals that the "messy" internal dynamics of municipal institutions will also deeply affect the feasibility of reducing energy demand. The level of support for disruptive interventions varied throughout the interviews: for some, interventions in the everyday life of urban citizens was part and parcel of affecting demand and achieving municipal goals. For others these fundamentally challenged the nature of their work, and how conspicuous demand interventions were to affect the everyday life of urban citizens was a concern for some of the civil servants interviewed. Considering the practices of those working with climate interventions asks key questions regarding how municipal governance can harness multiple and sometimes opposing ideas on how to target energy demand. Moving beyond the "low-hanging fruits" of climate interventions will therefore require a more thorough engagement with the multiple spaces through which climate interventions are articulated. The "embeddedness" of organisational practices advocated for in this paper implies that the notion of what is politically feasible is itself dynamically (re)produced by actors that shape and affect climate policy, and therefore a matter of institutional (social) practices. Urban governance is however rarely conceptualised in those terms, and much research is needed to better understand how these practices interweave, accumulate or converge towards low-carbon arrangements (Schatzki, 2015). This is critical to advance both the theory and practice of urban climate governance.

CRedit authorship contribution statement

Schrage, J - conceptualisation, methodology, data curation, formal analysis, visualisation, validation, writing and reviewing the original draft and the revised version.

Declaration of competing interest

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Data availability

Data will be made available on request.

Appendix 1. Overview of data sources used for analysis

Table 1
Overview of interviews.

City	Interview position	Topics covered
Aarhus	Climate strategist Civil servant	Strategic approach to affect consumption emissions Energy consumption and emissions from building sector
Bergen	Senior climate strategist City planner	Behavioural insights for reducing emissions Planning approaches to reduce emissions
Copenhagen	Environmental strategist	Communication and citizen engagement
	City planner	Interventions in mobility
Gothenburg	Environmental consultant	Assessing consumption emissions locally
	Climate strategist Climate specialist	Addressing consumption of goods and services Consumption-based accounting systems

(continued on next page)

Table 1 (continued)

City	Interview position	Topics covered
Helsinki	Project manager	Citizen engagement
	Senior climate strategist	Strategic activities in the city of Helsinki
Malmö	City planner	Addressing consumption of goods and services
	Environmental coordinator	Food-related emissions
Oslo	City planner	Strategic approaches to affect consumption
	Climate strategist	Climate Budget and emission assessment
Reykjavik	Climate strategist	Reducing emission in the building sector
	Environmental coordinator	Strategic tools to engage with citizens
Stockholm	Senior environmental coordinator	Strategic tools to advance local climate work
	Environmental consultant	Diversifying climate indicators
Turku	Senior climate strategist	Strategic approach to reduce emissions
	Environmental coordinator	City efforts in building and energy sector
Turku	City planner	Cooperation and Municipal engagement with citizens
	Senior environmental strategist	Climate accounting systems
	Environmental coordinator	Supporting citizen engagement

Table 2
Overview of climate policy documents.

City	Documents
Aarhus	City of Aarhus (2016) <i>Climate Plan 2016 – 2020: City of Aarhus</i> . Available at https://lokalcentre.aarhus.dk/media/5160/2017-05-24_climate_plan_2016-2020.pdf
Bergen	City of Bergen (2019) <i>Klimabudsjett</i> . Available at https://pub.framsikt.net/2019/bergen/bm-2019-hop-19-22/#/generic/summary/c1d3ca45-0105-4972-b87a-7c2a2a5ecf16-cn/?scrollTo=t-7
Copenhagen	City of Copenhagen (2016) <i>CPH 2025 – Climate Plan Roadmap 2017 – 2020</i> . Available at https://kk.sites.itera.dk/apps/kk_pub2/index.asp?mode=detail&id=1586
Gothenburg	City of Gothenburg (2014) <i>Climate programme for Gothenburg</i> . Available at https://goteborg.se/wps/wcm/connect/7ba2b573-9216-4bb9-8a1f-0915b40ce4b5/Climate-program+for+Gothenburg.pdf?MOD=AJPERES
Helsinki	City of Helsinki (2018) <i>The carbon-neutral Helsinki 2035 Action Plan</i> . Available at https://www.hel.fi/static/liitteet/kaupunkiymparisto/julkaisut/julkaisut/HNH-2035/Carbon_neutral_Helsinki_Action_Plan_1503019_EN.pdf
	City of Helsinki. (2013). Helsinki City Plan—Vision 2050. 1–83. Available at https://www.hel.fi/hel2/ksv/julkaisut/vos_2013-23_en.pdf
Malmö	City of Malmö (2009) <i>Energistrategi för Malmö</i> (Pr 3083). Available at http://miljobarometern.malmo.se/content/docs/Energistrategi_Kf_20091217.pdf
Oslo	City of Oslo (2020) <i>Klimabudsjett 2020</i> . Available at https://www.oslo.kommune.no/getfile.php/13342734-1576067822/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Budsjett%20regnskap%20og%20rapportering/Budsjett%202020/Budsjettforslag%202020/unzipped_krnl_fileid_353334/PDFS_Budsjettforslag-2020.2.pdf?download=1
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Reykjavik	City of Reykjavik (2016) <i>City of Reykjavik’s Climate Policy</i> . Available at https://reykjavik.is/sites/default/files/reykjavik_action_plan_carbon_neutral_by_2040.pdf
Stockholm	City of Stockholm (2018) <i>Handlingsplan: Fossilbränslefri vägtransportsektor Stockholm</i> . Available at https://start.stockholm/globalassets/start/om-stockholms-stad/utredningar-statistik-och-fakta/utredningar-och-rapporter/klimat-och-miljo/handlingsplan-fossilbranslefri-vagtransportsektor-2018-01-25.pdf
	City of Stockholm (2016) <i>Strategy for a fossil-fuel free Stockholm by 2040</i> . Available at https://international.stockholm.se/globalassets/rapporter/strategy-for-a-fossil-fuel-free-stockholm-by-2040.pdf
Turku	City of Turku (2018) <i>Turku Climate Plan 2029: The City of Turku Sustainable Energy and Climate Action Plan 2029</i> . Available at https://www.turku.fi/sites/default/files/a_toms/files/turku_climate_plan_2029.pdf

Table 3
Overview of events attended.

Event	Scope	Format	Type	Date
CO2 Budget Conference, Uppsala Sweden	International	In-person	Conference	2019
CO2 Budget Conference, Uppsala Sweden	International	Online	Conference	2021
Localising global climate targets	National	In-person	Workshop	2022
Beyond Oil Conference, Bergen, Norway	International	In-person	Conference	2019
Beyond Oil Conference, Bergen, Norway	International	In-person	Workshop	2022
Oslo’s climate budget: how, Oslo, Norway	International	Online	Lecture	2022
Climate assessments, Covenants of Mayors	International	Online	Lecture	2022
Framework to climate budget assessment for cities, I4CE	International	Online	Lecture	2021
The Urban Energy Transition, C40	International	Online	Lecture	2021
C40 World Mayor Summit, C40	International	Online	Conference	2019
C40 World Mayor Summit, C40	International	Online	Conference	2022
Klimaomstilling, Sogndal Norway	National	In-person	Conference	2019
Urban Interventions, Bergen, Norway	International	In-person	Seminar	2020
Municipal Climate Action, Nordic Climate Action	International	Online	Seminar	2021
How Denmark is delivering on Cities race to Zero, COP26, Glasgow	International	Online	Seminar	2021
Nature of Cities Conference	International	Online	Conference	2022
Nordic Climate Project,	International	Online	Seminar	2021
Climate mitigation and adaptation:	International	Online	Seminar	2020
Examples of Nordic climate action, Nordregio				
Sustainable consumption and production:	International	Online	Seminar	2021
Procurements for a green and just transition of markets, Nordregio				

(continued on next page)

Table 3 (continued)

Event	Scope	Format	Type	Date
Planning for sustainable housing and green cities, Nordregio	International	Online	Seminar	2021
Monitoring and evaluation: How to measure progress in the work with the SDGs?	International	Online	Seminar	2021
Energy sufficiency: How to shape sustainable behaviours, Covenant of Mayor	International	Online	Seminar	2022
Climate action planning: A guide for cities, C40	International	Online	Seminar	2021
Tackling consumption-based emissions in the City of Stockholm: The One Tonne Life project, C40	International	Online	Seminar	2018

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Paper 3



The strategic value of contradictions: exploring the practices of climate planning in Bergen, Norway

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Understanding how cities develop climate plans is crucial to capture their potential to achieve ambitious climate goals. Previous literature has highlighted the role of external pressures or heroic actors in driving local changes. By highlighting the everyday practices of actors in urban climate planning, we reveal new sets of contradictions in climate governance. Drawing from social practice theory, this paper examines how contradictions were managed in the process of developing a new climate plan in Bergen, Norway. Through a variety of empirical sources, we explore the strategic value these offer, and the organisational work accomplished by the navigation of contradictions. We highlight three strategic benefits of negotiating contradictions: the legitimisation, expansion and signalling of climate work. In conclusion, the paper argues that considering practices of climate planning reveals novel forms of agency, namely the potential of mundane organisational processes and the pivotal role of civil servants in this work.

Keywords: Urban Climate Planning; Urban Climate Policy; Contradictions; Institutional Change

1. Introduction

Cities and their leaders have gained broad international recognition for the critical roles they play in climate governance (Madsen and Hansen 2019; van der Heijden, Bulkeley *et al.* 2019). A broad and multifaceted literature on urban climate action has detailed the ambitious goals and actions enacted in cities across the world (van der Heijden, Bulkeley, *et al.* 2019). In much of this literature, the agency displayed by city administration has focused on the role of pioneering cities in developing both well-known and more innovative interventions and urban experiments (Madsen and Hansen 2019; Castán Broto and Bulkeley 2013; Bulkeley and Castán Broto 2013). However, practices, policies, and politics are the context in which urban climate governance initiatives are articulated (Rutherford and Coutard 2014), and an emerging literature has stressed how the capacity for climate action is inextricably linked with broader political, material and social conditions in which cities are embedded (Sethi *et al.* 2020; Creutzig *et al.* 2018; Bouzarovski 2020; Shove and Walker 2010). Crucially, since these efforts are manifestly

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sticky and place-bound (Farla *et al.* 2012), there is a need to better grasp how local climate work constitutes a pragmatic effort at shaping transformation processes.

Therefore, this paper turns the attention to urban planners and bureaucrats, and the everyday, sometimes mundane, work they do in achieving climate plans and implementing climate actions in cities (Fuenfschilling 2019; Lawrence, Suddaby, and Leca 2011). Research on the role of public bureaucracies and their professionals in local climate governance is not new and has often been mentioned as a key enabling factor in local climate governance (van der Heijden 2019). Scholars have highlighted the role of various forms of resources (including access to finances or the presence of staff), knowledge, or institutional competencies in driving local efforts (see e.g. Hölscher *et al.* 2019; Isaksson and Hagbert 2020; Kern and Alber 2008). These, however, tend to equate agency with actors' "capacities" to affect organisational change, and the result is that the literature has provided less insights into the broader normative work and institutional dynamics that actors have to navigate in advancing ambitious climate work (Castán Broto and Westman 2020).

When it comes to explicating agency, we argue that most of the work on urban climate governance has focused on either the role of exogenous incentives and constraints, or the role of ambitious climate actors in driving local climate initiatives (Anguelovski and Carmin 2011; Gordon and Johnson 2018). The consequence is that agency is predominantly related to highly visible and exceptional forms of innovation, while there is a need for more insight into the everyday practices that underpin and enact these more visible forms of urban climate action.

To address this, we build on instructive work in organisational theory that can help us to make sense of the everyday practices of planners in climate governance, and how these practices play into broader organisational change processes (Golsorkhi *et al.* 2015; Vaara and Whittington 2012). As such, investigating the role of urban administrations working with climate, away from the prominent displays of climate action and towards the agency of organisational practices, can reveal new insights into fundamental contradictions of urban climate governance and how key actors navigate them (Jarzabkowski 2003).

Empirically, we are interested in how planners face and experience contradictions in their everyday work to develop climate plans and actions. Urban climate planning is arguably ripe with contradictions, as governance actors are forced to grapple with the contradictory policies and ambitions of politicians at various governance levels. Previous studies of contradictions across organisational siloes (Oseland 2019), between counter policies (Miller and Mössner 2020) and between environmental and socio-economic goals (Campbell 1996; March and Ribera-Fumaz 2016; Oseland and Haarstad 2022) have highlighted why contradictions emerge, or how they can be overcome.

Here we are, instead, interested in how they are managed and the strategic value they offer in the everyday work of policy actors. For the purposes of this paper, we understand contradictions as "ruptures and inconsistencies both among and within the established social arrangements" (Seo and Creed, 2002, 2). A key empirical issue, then, is to understand how contradictions are navigated in the everyday organisational practices of planners, and whether and how these contradictions, in fact, can be used to drive new "concrete sociotechnical configurations" (Castán Broto 2015, 473) forward – in other words, what organisational work does the navigation of contradictions accomplish.

The paper analyses the role of contradictions in the everyday practices of making a new climate plan for the city of Bergen, Norway. Using interviews, observation and document analysis, we examine three key "moments" in which contradictions were

negotiated during the making of the city's climate plan. We contribute to the literature on urban climate governance by exploring new sources of organisational change in urban climate governance, and by providing a sense of how contradictions are mediated in the everyday work of policy actors involved in the making of urban climate plans.

The paper is structured as follows. In the next section, we review the literature on climate governance and institutional change, arguing that it fails to capture the more distributed and mundane nature of how organisational change occurs. In [Section 3](#) we outline our analytical framework, which draws on theories of practice-driven change in organisational theory. [Section 4](#) provides methodological considerations and empirical context. [Section 5](#) discusses contradictions in the organisational work of making a climate plan in Bergen, Norway. Finally, the conclusion discusses implications of the practice perspective on the wider urban governance literature.

2. Climate planning and institutional change

Climate planning plays a significant role in shaping the governance of climate change in cities (Deetjen *et al.* 2018). As framework documents, these plans constitute a crucial tool through which the development, communication and implementation of local climate ambition is articulated (Guyadeen, Thistlethwaite, and Henstra 2019; Reckien *et al.* 2018). Examining processes of climate planning can contribute to our understanding of how urban institutions change, as well as their ability to deal with the climate challenge.

Early studies in climate-related institutions stressed how changes arise from triggers in the institutional environment to which cities then respond. Such triggers can be sudden shocks, such as extreme weather patterns or environmental hazards which lead to the institutionalisation of climate-related action locally (Roberts 2008). These can also take the form of changes in the national policy landscape, where novel regulatory approaches or sector-specific policies can be enacted, thus spurring local climate-related developments (Kasa, Leiren, and Khan 2012; Jordan, Wurzel, and Zito 2005). Another stream of research has focused on how the circulation and promotion of information through city networks similarly also constitute a key channel through which to understand the effect of exogenous changes locally (Bansard, Pattberg, and Widerberg 2017). Here, the ideas and information promoted in networks such as ICLEI or C40 have a bearing on the range of mitigation action seen as relevant and desirable (Bansard, Pattberg, and Widerberg 2017; Gordon 2018; Gordon and Johnson 2018; Grandin and Haarstad 2021; Schreurs 2008). Similarly, efforts by non-governmental organisations and local citizen groups have also been shown to affect organisational practices of climate planning: for example by triggering more ambitious regulations (Finn 2014; Mah and Hills 2016) or creating accountability, enforcement and compliance (Aylett 2010). In this vein, scholars have reported on how these external efforts have had both complementing and contrasting effects for existing institutional arrangements (van der Heijden, Bulkeley *et al.* 2019).

Institutional theorists have offered insights into the more general mechanisms that lead to such changes. In this view, institutions constitute a set of codes, rules and meaning that shape expectations and direct action, thus offering an idea of what constitutes appropriate behaviours (Gordon and Johnson 2017). Organisations are actively responding to their context, and novel behaviours, organisational forms or practices

come from adaptation to exogenous pressures that drive new “legitimate” behaviours by aligning practices with emerging norms (Holgate 2007; Sippel and Jenssen 2009).

More recently, urban climate governance literature has focused on the agency displayed by institutional entrepreneurs and policy actors driving local climate agendas (Castán Broto 2017; Hughes, Chu, and Mason 2018). Motivated by the need to understand how innovations are introduced within organisations, researchers have focused on the capacity displayed by cities and urban actors in implementing and developing a local climate agenda (van der Heijden 2019), highlighting the need to develop relevant knowledge, skills and competencies in organisations working with climate issues (Reckien *et al.* 2018). Others have focused on the role of institutional entrepreneurs in explaining effective local climate governance (Anguelovski and Carmin 2011; Pasquini and Shearing 2014; Roberts 2016). Ambitious mayors, senior public officials or program managers may catalyse novel projects, the development of local climate experimentation or build local and international networks, and in the process advocate the further expansion and implementation of mitigation targets and plans (Kalafatis and Lemos 2017; Hughes, Chu, and Mason 2018; Krause 2012). For institutional theorists, these local climate champions act as “challengers” that contest existing institutional set-ups (Micelotta, Lounsbury, and Greenwood 2017).

This focus on institutional entrepreneurs as spearheading local changes has broadened our understanding of how organisational change occurs, notably in highlighting the political and networking skills necessary at the organisational level (Brown, Farrelly, and Loorbach 2013). However, we would suggest that these existing approaches downplay how much of the work of developing and implementing climate plans and actions in cities is likely achieved through everyday, sometimes mundane, bureaucratic procedures and practices by urban planners. Thereby, they fail to account for the organisational work at play in governance processes and the strategic effects that contradictions perform.

3. Practices of planning and their contradictions

In order to understand the everyday work of civil servants in planning practice, and how they navigate contradictions in this work, we build on a social practice perspective on organisational change (Golsorkhi *et al.* 2015; Jarzabkowski 2004). A number of theoretical approaches exist (for an overview, see Seidl and Whittington 2014), but common among those is that they foreground the notion that organisational change and stability is a product of how the complexity of organisational work is handled “in the course of everyday work” (Bjerregaard and Jonasson 2014). This perspective, we argue, provides a complementary perspective to existing urban governance literature.

Theories of social practice understand agency as mobilized through collective and habitual forms of action, and as performed within the limits of the resources at their disposal (Mantere 2013; Schatzki 2006; Tsoukas and Chia 2002). Agency is therefore a product of the interaction between actors, collectives and practical activity, and change occurs when shared understandings of what constitutes legitimate organisational work are altered (Lounsbury and Crumley 2007; Vaara and Whittington 2012). In other words, these changes have less to do with external pressures or ambitious institutional entrepreneurs, and more to do with how changes in everyday tasks or routines are anchored in practice (Voronov and Yorks 2015; Whittington 2006).

This approach foregrounds practitioners that take advantage of various possibilities to strategically orient their work to affect organisational change. Actors are seen as embedded change agents, both competent and deliberate in their efforts to affect the recognition and acceptance of sets of routines (Seidl and Whittington 2014; Zietsma and Lawrence 2010). The literature shows the diversity of strategies deployed to change existing practices: using persuasion to coax others that certain managerial techniques are employed (Lozeau, Langley, and Denis 2002), convincing colleagues of the importance of adopting a novel practice (Bjerregaard and Jonasson 2014), or framing organisational episodes with the aim of complementing existing practices (Hendry and Seidl 2003).

This practice approach allows us to examine the role of contradictions in organisational work. We draw on the definition by Seo and Creed (2002) outlined in the introduction section, in which contradictions are understood as ruptures and inconsistencies in established social arrangements. Contradictions can take many forms: contradictions between ambitious climate goals and the actual work to be done, or contradictions in the ways in which changes need to be accomplished in practice. We hold that contradictions can do constructive organisational work in the sense that they allow organisational actors to consider the diversity of available options, and being aware of these therefore “can sharpen actors’ awareness of institutional alternatives” (Smets, Greenwood, and Lounsbury 2015).

Contradictions are key to making a new climate plan. Organisational work is driven forward when contradictory prescriptions on how to carry out a task are faced, and action emerges through the negotiation between competing alternative courses of action (Smets, Greenwood, and Lounsbury 2015; Zietsma and Lawrence 2010). Contradictions therefore have strategic value. Since individuals working within organisations can maintain various, and often contradictory, logics at the same time (see Thornton and Ocasio 1999), the navigation of conflicting prescriptions on how to carry out a task can be used as a resource to drive the work of organisations (Venkataraman *et al.* 2016; Voronov and Yorks 2015).

In Table 1 below we illustrate, in schematic fashion, the contrasts between the different approaches to organisational change discussed above. The bottom line illustrates the approach developed in this paper. For the case study analysis elaborated below, we use this approach as a lens to examine the process of making a climate plan in Bergen, Norway.

4. Methodological approach

We use several different sources of data. First, we studied written documents such as policy documents, white papers, scoping studies and other documents that influenced the development of the municipality’s new climate strategy. Most importantly, we focused on the city’s current climate strategy published in 2016 (“Grønn strategi”), as well as its more recent iteration. In reading the documents we focused on the presence of certain themes and ideas, on the structure of the reports, and the links between them.

Second, we carried out eleven semi-structured interviews focusing on public officials as well as project managers, planners and case officers from municipal departments working on environmental, climate, and urban planning issues. In addition, we carried out exploratory interviews with individuals who took part in the reference and

Table 1. Understanding organisational change – schematic summary of literature discussion.

	Understanding of institutional change	Understanding of agency	Institutional trigger
Exogenous	Driven by environmental changes in legitimacy-granting criteria	In adapting to institutional incentives and constraints	Misalignment of institutional practices with their context
Institutional Entrepreneur	Driven by forms of cultural and organisational entrepreneurship	Driven by agentic actors	Internal actor-based contestation of institutional set-up (norms, priorities, behaviour)
Practice-driven	Driven by everyday, collective organisational work (<i>Praxis</i>)	As an effect of practices, therefore distributed, habitual and embedded in action	Contingent on how contradictions are addressed by organisational actors. Embedded in the ongoing and everyday work of organisational actors.

working groups that provided inputs into the new climate plan. A total of eleven interviewees were thus selected for their involvement in the making of the plan, as well as their knowledge in how the direction for the new climate plan emerged.

Analysis of interview transcripts were triangulated with analysis of policy documents, along with notes from public hearings. This process aimed at identifying themes and organisational processes that lead to the emergence of contradictions. The empirical analysis focused on organisational “moments” when various actors related to contradictions and conflicting roles, tasks and interests, and how those contradictions were negotiated in everyday work to advance the climate plan in the Climate Agency. In reconstructing how contradictions were managed, discussions within the research team and with members of the agency also allowed refinement of the categories and episodes identified below.

5. Managing contradictions in the making of Bergen’s climate plan

5.1. Research context

As in many other contexts, in Norway, municipalities have significant autonomy for climate-related governance and climate action (Westskog, Hovelsrud, and Sundqvist 2017). Municipalities can set their own climate goals and targets, and choose the types of policy instruments used to reach them (Aall, Groven, and Lindseth 2007). Nevertheless, local climate work in Norway relies on coordination with both regional and national authorities (Hanssen, Mydske, and Dahle 2013). The level of climate ambition varies considerably throughout the country, and has been shown to be affected by municipality size, its respective geographic and economic context or its access to government grants (Kasa, Westskog, and Rose 2018).

Bergen municipality’s climate work represents a particularly relevant case to study how organisational contradictions are managed in the making of its new climate plan. While climate work was long since delegated to various municipal entities, the city has, since 2008, gathered all climate-related activities in the “Climate Section”, along with other environmental and planning issues. The section was responsible for the first

spur of municipal climate policy documents. Bergen's previous climate plan, its "Green strategy" was published in September 2016, detailing the overall roadmap for achieving the city's goal of being emission-free by 2030 (Bergen Kommune 2016). With a strong focus on transport, waste, energy and local businesses, the report underscores the city's aim to focus on mitigation work (Bremer *et al.* 2020; Oseland 2019).

The need to bring climate higher up the political agenda led, in September 2020, to the formation of Bergen's Climate Agency. Standing below the city council, but without formal power, it was given responsibility to encourage, co-ordinate and assist action in creating alignment with the city's long-term climate goals. As is the case in other big Norwegian cities (such as Oslo, Trondheim or Stavanger), Bergen's Climate Agency can stimulate climate action both through internal municipal investments, or by mobilising relevant and concerned public and private actors. In March 2021, the city council decided to create an updated version of the city's climate strategy. And while public participation in climate planning work is not required by law in Norway (Westskog, Hovelsrud, and Sundqvist 2017), the new plan was co-developed with inputs from various reference groups with actors from academia, local businesses, civil society groups and municipal actors.

From the outset, Bergen's new climate plan puts itself forward as a highly ambitious document. The former plan focused on delivering a reduction in emissions while also allowing for local (urban) growth and its development into a "green" city. In its new plan, the agency frames its vision as follows: "Bergen is a driving force for a disruptive, radical and fair climate transition, so that everyone in Bergen can live a good life with low greenhouse gas emissions in a changed climate" (Bergen Kommune 2022, 4). This renewed ambition offers a particular opportunity to understand the role of contradictions in the everyday organisational work of climate governance. It is open for exploring how new and old practices are evaluated, the novel routines that are set in place and how organisational challenges were managed in this shift.

In the following we outline three "moments" we identified where contradictions emerged and were negotiated: in the mobilisation of knowledge (Section 5.2), in matching goals with actions (Section 5.3), and in mobilizing actors (Section 5.4).

5.2. Contradictions in mobilizing knowledge

As part of the renewed ambition for the climate plan, the Climate Agency attempted to bring in a broader set of knowledge inputs than the previous plan. In this process, they had to confront challenging questions of what knowledge is relevant to apprehend and intervene for a reduction in emissions. Here we identify the first set of contradictions, in the conflict between openly mobilizing various forms of knowledge and inputs on the one hand, and the need to articulate a coherent set of more narrow approaches, on the other. Working through these contradictions, however, accomplished important work that helped to render climate strategies visible.

Prior to the development of the strategy, the Climate Agency worked on developing a "knowledge basis for the green strategy" (Bergen Klimaetaten 2022) which gathered the variety of knowledge that supported the content of the strategy document. This work allowed the civil servants working on the plan to assess current knowledge and to identify priority areas for the climate strategy. Importantly, this document was developed with the help of external stakeholders invited into a reference group, whose mandate was to provide input to, and feedback on, the document. This group included

members from the regional county level, local environmental, sport and welfare organisations, a local bank, the chamber of commerce and academic actors (see Bergen Kommune 2022, 74).

Coming into this process, the civil servants adopted an open process, where there “were no wrong inputs or knowledge that couldn’t be included” (Interview #10). Interviewees explained that the different forms of knowledge provided by these actors were meant to work in a complementary fashion with each other. As one of the members of the private sector that took part in the reference group said, the aim was “to discuss [the plan] and bring to the table what are for us the most important forms of inputs, comments or suggestions” (Interview #8). For the civil servants organising these exchange meetings, it was important that the reference group felt welcome. As related by a senior member of the agency: “we took into account what was important for their part, and we tried to include those things [in the strategy] ... we just tried to make everyone just happy” (Interview #1). The assumption was that these actors would bring various knowledge domains to the table, and that they would all piece together into a coherent picture of the city. In practice, however, this resulted in a diversity of voices that made the work of synthesis difficult. As explained by one of the members of the climate agency:

I don’t think there was anything [...] that shouldn’t figure in the plan. It was more like members of the [reference] group wanted to put their own perspective into the plan. And that was an issue, that everyone had things that they were very concerned about and that should have been in the plan. At some stage we felt that it became just too big. (Interview #2)

The need to bring a breadth of knowledge into the strategy came into conflict with the actual work of articulating a clear and succinct plan. Including other actors, while necessary to broaden the scope of the climate strategy, also proved problematic. As is related in the quote above, the process of including a variety of inputs also made the work of identifying relevant themes and areas of strategic interventions more difficult. In practice, this had an impact on how the final strategy became structured. While earlier drafts included up to 25 different priority areas, in the final version these were streamlined into twelve priority areas, providing policy goals across both social (e.g. advancing a fair climate transition without increasing inequality and through dialogue and collaboration) and environmental dimensions (e.g. ensuring reduced emissions through fossil-free mobility, renewable energy or low-carbon construction) (see Bergen Kommune 2022). In turn, these supported the strategy’s four interacting goals, namely emission reduction, building a local circular economy, nature conservation and climate adaptation. At the end, for the sake of identifying and defining the knowledge areas relevant for the agency to engage with, it was necessary to reduce the scope that the strategy document would cover. How then, with a diversity of voices, to select the relevant priority areas? As related by a civil servant, this was not a straightforward process:

We really had to find ourselves in this strategy, and it was not a straightforward process. The openness meant that the people not shouting loud enough wouldn’t get their stuff into the strategy. So while what was included did feel at times coincidental, there were a lot of efforts in guiding the process, but also afterwards in systematising this diversity. (Interviewee #10)

Undeniably, the diversity of inputs required civil servants to build coherence and streamline the various inputs into comprehensible goals. While the process through which the climate strategy was produced aimed at reconciling the diversity of knowledge, in practice this also led to the emergence of dominant themes. Although, in theory, the strategy's four goals were meant to be equally important in achieving the city's overall climate targets, in the work of gathering relevant knowledge, the goal on emission reduction received most focus.

As detailed by a member of the agency: "Even though we sort of agreed on the point that these four goals are equally important, it very often felt like the goal concerning reduced emissions was the main goal, and then the other goals were set up in the background" (Interview #1). The necessity to reduce emissions thus became a dominant frame through which some of the other goals could be perceived as relevant. In other words, important aspects of the strategy had to formulate their contributions in relation to their capacity to reduce emissions. For example, as a civil servant working with the inclusion of biodiversity concerns in the strategy explained:

Every time we tried to put something about nature in the plan, it was always questioned... And I sort of understand that because the value of nature in itself is not good enough for a climate strategy. So that's why we have focused on carbon capture and carbon storage, and also nature's ability to adapt. So just to be really, really clear about nature's role in the climate crisis. (Interview #2)

Arguably, gathering the various forms of knowledge commensurate to the ambitious goals set by the city required a broad set of voices. But the need to articulate a coherent set of approaches, generated a set of conflicting situations that had to be negotiated and resolved. In turn, there was a contradiction at play between openly mobilizing various forms of knowledge, on the one hand, and the need to articulate a coherent set of more narrow approaches that would be relevant input for the strategy on the other.

At the same time, we also find that working through this contraction accomplished important organisational work. In negotiating conflicting inputs, the civil servants had to fine-tune their arguments and strategic approaches for the plan, and to carefully situate the dominant goal of emission reductions in relation to other goals, such as nature preservation or the technological development of CCS. By highlighting the need for ambitious climate action locally, and by including a diversity of actors in the making of its strategy, the climate agency accomplished the necessary normative groundwork to maintain climate questions relevant. Crucially, maintaining contradictory positions allowed the central goal of carbon emission reductions to be legitimised, and framed the development of the climate strategy itself in a way that reflected a diversity of actors' positions. By doing so, the climate strategy becomes a product not solely of the Climate Agency, but represents a democratic product informed by a diversity of knowledge of the city's actors.

5.3. Contradictions in matching goals with actions

Having identified the strategic areas of importance necessary to achieve the city's ambitious goals, how then to move onto articulating relevant interventions? How can the necessary actions needed in each priority area be identified? A second task in

strategically approaching climate change locally was to position the climate agency in relation to different strategic areas of importance.

In its new strategy, the city's previous goal of becoming "emissions-free" was operationalised into a climate goal of 85 per cent emissions reduction by 2030 (compared to 2009). This more specific goal implies a series of interventions to reduce emissions, notably within the sectors that today account for an important share of the city's emissions: heating, transport and waste management. Given the scale of interventions, it quickly became obvious that the range of measures needed by far exceed the mandate and resources owned by the municipality. "[T]he goals are so much more than what the municipality can do, within its own organization, and within its means. So that means that the strategy is not telling what the municipality shall do, it is telling what has to happen, and that is a completely different thing" (Interview #1). As this city strategist put it, in order to achieve its goals, the work of the climate agency relies on a number of actions and interventions beyond its powers. Here a second contradiction came to matter for the work of civil servants, namely the lack of compatibility between the scale of emission reduction ambitions on the one hand, and the available actions on the other.

In support of the climate plan, the agency ordered a technical note on the development of emission scenarios for the city (Korsbakken *et al.* 2020). The report estimated the effects in emission reductions from different packages of mitigation measures, from a business-as-usual pathway to a radical pathway with the aim of mapping the necessary measures required to achieve the city's emission reduction goal. As explained by one of the consultants working on the report: "that's the big issue here: that municipalities like Bergen don't have either the mandates or the resources to actually achieve a pathway like that" (Interview # 5). As noted by one of the civil servants working on the new strategy, this was a matter of broadening the scope of the strategy document itself:

Usually when a municipality makes a strategy, it is for the work that the municipality can do, and has a say over. But for this climate strategy, we looked at what has to happen for the city to reach those goals, in 2030 and 2050 ... and the goals are so much more than what the municipality can do, within its own organization, and within its means. So that means that the strategy is not telling what a municipality shall do, it is telling what has to happen, and that is a completely different thing. (Interview #1)

If the climate agency and, by implication, the municipality are setting goals that are beyond its reach, how is the strategy meant to specify the necessary actions needed within each of its priority areas, or each sector? This contradiction translated in the work of planners as a necessity to balance, on the one hand, the need to be in control and specific as to what requires change in each sector with, on the other, the need to be broad and ambitious in order to extend the importance of climate within the municipality. Navigating this contradiction was not a matter of addressing one or the other, as if those were opposite to each other. Instead, for the civil servants interviewed, the two are, in fact, complementary, as having an overarching and broad strategy meant that it could more easily accommodate more fine-grained actions within it. As explained by an interviewee, "in this strategy we have made it in a way that, overall, there will be space for new elements to be included, so we try to not include things too specifically, but still remain broad in our ambition" (Interviewee #1). For the

interviewees, this provided some flexibility to extend the scope of measures in the future, thus keeping the possibility of available actions open.

We find, therefore, that this contradiction also did important organizational work. The high ambitions were not paralysing for the work of civil servants. Instead, negotiation was generative in the sense that it allowed the Climate Agency to take a broad strategic approach to the range of available actions. Implicitly, it allowed the inclusion of areas of strategic importance that were also, in themselves, in contradiction to other strategic documents. For example, the value of preserving forests and marshes for the city's climate goals (included in priority area #8 of the climate strategy) was seen to come into conflict with the city's goal to expand its urban infrastructure, present in the city development plan. However, working through this helped the climate agency to expand the range of available actions, but also to identify areas that would require further policy focus.

5.4. Contradictions in mobilising actors

The new climate strategy document outlines how the work of reducing climate emissions requires work across municipal silos, situating climate work as deeply interlinked with issues of planning, biodiversity, transport and local adaptation. As such, the making of the strategy required making the work of the climate agency visible to other departments of the municipality and relied on the mobilisation of other actors in making the climate plan. The plan relates specifically to other municipal plans and processes that may have an impact on, or will be impacted by, the city's climate work: the municipality's development plan, its cycling, pedestrian or green area strategies as well as the city's work on blue and green infrastructure. Contradictory goals and targets emerged between the Climate Agency's work on climate change, and the goals of other municipal departments. How can competing objectives between these plans be dealt with? And which entity oversees actions towards these goals?

This contradiction required the Climate Agency to marshal these entities, other municipal organisations, but also businesses and civil society, into the work and goals of the climate agency. In the process of making the plan, the civil servants used different strategies to bring other actors along.

The development of the strategy was as much a matter of articulating and creating the plan, as it was a matter of making that organisational work visible to others within the municipality. Building on shortcomings from the previous climate plan, this planner explains: "it's important for the work that we are doing, and for what we want to achieve, to have one person from every department represented on the city council to join our group [...] We tried to get these people to participate, to validate the things that we wrote into the plan, and to support it as well" (Interview #1). Enrolling actors into the work of the climate agency was thus a prime motivator to engage with other actors. The making of the new climate strategy also included a number of public engagement events: discussions with primary schools around Bergen, public presentations of the strategy's main goals, a public hearing and a process of public input (*gjes-tebud*) which invited citizens to formulate feedback to the document.

Together, these aimed at receiving feedback and ideas on the climate plan. While the intention of these processes was to influence the strategy process both through open events and through dialogue in smaller groups, these notably also allowed the

climate agency to communicate the intention and work that it is aiming to do. Formulating its broad vision as a story, this project manager explains:

So there's a lot of work to be done and I think that we still have the opportunity to get others on board. [...] We really need to create that story, about the plan and strategy, you know. To make everyone understand why it is so important that all these four goals are in it. (Interview #7)

Adding to this, the content and general aesthetics of the plan were also employed to keep the work of the climate agency relevant. Indeed, visually, the new plan offers a departure from traditional policy documents: it is less of an administrative document, with technical details only relevant to experts, than a matter of communicating the ambition and work of the agency. A mixture of designed layout, supportive imagery and sketched images offer an appealing outlook on what the required climate transformation might look like. The images depict green spaces, low-carbon forms of transportation, people gardening or future urban projects.

One of the civil servants interviewed was aware of the power that resided in this aesthetisation. As explained by a senior civil servant: "it's not a policy document, it's a communication document, and we use it as such" (Interview #10). Together, these various elements provide an enticing story meant to depict a positive vision of what a fossil-free Bergen might look like in the future.

Arguably, these elements were used as a means to mobilise a number of people into the work of the climate agency. In our view, these had a purposive role: they aimed at maintaining the relevance of the work of the climate agency. As explained by a civil servant:

we do not only want to make a plan, but also the structures in the municipality for cooperation internally in the municipality, but also externally. So these forums that we have built up, we want them to continue, in one form or another, after the strategy is finished. This is so that things can evolve, when we will need new measures to reach the goals, so that we can include people as we go along. (Interview #1)

Within the climate agency, the making of the strategy document was depicted as a means, a communication tool to reach out to other actors, and to make the work of the agency known. More than that, the civil servants interviewed all stressed that given the ambition of the city and its 2030 goals, the strategy had to be more than a planning document; it had to depict a positive version of the future for all actors involved.

Related to this is the concern by members of the agency that the creation of these channels also figured as a means to identify and address future conflicts that the plan would generate. A number of civil servants related to debate articles published in the local press that criticised the city's approach to planning and access inequalities that its car-policy had created (Bergens Tidende 2022). Furthermore, the last city election saw a surge in populist politics linked to an increase in road toll prices that had long term effects on the city's engagement with climate issues (see Wanvik and Haarstad 2021). As such, one interviewee explained that:

we do not want to have another road-toll protest. So we think that it this is very important, that people participate in reaching the [climate] goals. If they feel that these are their own goals, then people will be more willing to reach them. It is more of making a "we", than making a "we and them". (Interview #1).

Table 2. Summary of contradictions and the accomplishments of organisational work to overcome these contradictions.

Analytical "moment"	Analytical focus	Key contradiction	Organisational work accomplished
Mobilisation of knowledge for the Knowledge base (Kunnskapsgrunnlag)	How the Knowledge base shows the variety of knowledges that come together to make climate, and the city visible.	Contradictions emerged from bringing various knowledges together. It was assumed that bringing them together is not creating tensions, and that they are compatible. Contradictions were used to display the breadth of knowledges and work required to reduce emissions.	Legitimising the central goal of carbon emission reductions
Matching goals with actions	How strategic thinking is articulated (through interventions, strategy, vision), and what work does the strategy prepare for.	Contradictions appeared between the ambition of the plan, and the interventions necessary to achieve it. The strategy paints a picture of precision and control through the identification of priority areas to reduce emissions. Contradiction allowed areas requiring further policy focus to be highlighted.	Expanding the range of available actions
Mobilising actors	How consensus is built (through the communication of the plan itself, and the place given to "the public" in its articulation) through novel communication channels and spaces, and getting feedback and ideas from the working groups.	Contradictions emerged between the Climate Agency's work on climate change, and the goals of other municipal departments. Focusing on contradictory city goals allowed mobilisation of other municipal actors in the work of the agency.	Signalling the climate strategy to different municipal entities and stakeholder groups

Therefore, overcoming the contradiction between conflicting actors' interests accomplished critical organisational work to signal the work and goals of the climate strategy to other municipal entities. Routinely interacting with other actors within the organisation allowed climate to be embedded into the day-to-day routines of other organisational participants who were not directly working with climate-related planning. Without creating additional bureaucratic structures, these routine interactions offered novel communication channels within and outside the municipality; and mobilized proactively to overcome resistance and challenges to possible future climate actions (Table 2).

6. Concluding remarks

Scholarship on climate governance has typically focused on highly visible forms of local climate action or exogenous forces. In this paper, we consider instead the everyday work of civil servants in advancing local climate work. Through special attention to how contradictions were managed and employed in the process of making a new climate strategy, we were able to explore the strategic value these offer in advancing the organisational work of the Climate Agency in Bergen, Norway. We highlight three strategic ways in which contradictions allowed local climate work to be advanced: by legitimising the goal of carbon emission reductions, by expanding the range of available actions, and by signalling the work of the climate strategy to other municipal actors. Together, the organisational work accomplished with these contradictions was instrumental in advancing a more ambitious local climate agenda, and allowed the collective agency mobilised in anchoring that work within a municipal organisation to be captured.

By uncovering these pragmatic efforts, we seek to provide a deeper understanding of the institutional work that urban climate action and policy integration entails. While the literature stresses the importance of policy design and institutional capacities, we show how the agency mobilised by civil servants played a significant role in strategically advancing a more ambitious climate agenda for the city of Bergen. Critically, by foregrounding the work involved in local climate governance, we show the messy nature of local climate work. From a research perspective, this implies giving less attention to successful innovations, and ambitious institutional actors, but rather focus on how climate is “muddle through” (Nagorny-Koring and Nocht 2018) within municipal activities, considering the everyday politics of learning, collaboration or the operationalisation of low-carbon interventions.

A tension remains, however. While top-down managerial approaches are needed to guide this work, these should be balanced with the need to facilitate open-ended forms of experimentation in bureaucratic practices. Applying a practice lens to further assess this work would, however, require careful methodological and analytical tools. While capturing the diverse range of strategies that organisational actors deploy in their work is essential, some types of organisational work might, in fact, be difficult to capture. For example, researching ambitious climate work through advocacy or networking work might, therefore, be more tangible analytically than, for example, changing normative associations between sets of practices, or the construction of novel ones. This calls for a stronger engagement between practice scholars and those involved in understanding urban planning processes. In other words, this implies taking the complexity of planning seriously and approaching contradictions as a co-evolving space for

agonistic and relational creative forces (Legacy *et al.* 2019). Regardless of how demanding these tasks might be analytically, these are necessary in order to capture the interplay between practitioners and broader policy processes, and the purposive interventions that can emerge from this space.

Disclosure statement

The authors report there are no competing interests to declare.

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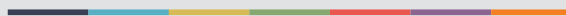
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