Article

The state of municipal energy transitions: Multi-scalar constraints and enablers of Europe's post-carbon energy ambitions

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Abstract

There is increasing enthusiasm at urban and municipal scales for leading sustainability transitions, amid higher level endorsement and even expectation of such leadership. Yet this downscaling of responsibility for transition requires a greater critical focus. It raises questions of how evenly spread the capacity to lead on this is, and how it relates to the complex and differentiated multi-scalar governance structures and political landscapes within which municipal actors are situated. This article draws upon evidence from a mixed methods comparative and multi-scalar analysis across Europe exploring the different pressures and potential that exist for municipalities. Our central aim is to critically interrogate what municipalities are doing to achieve a post-carbon energy transition beyond lofty aspirations. Departing from the tendency to focus on paradigmatic success stories, our research on the different conditions affecting municipalities across the continent suggests that the focus so far on case studies and techno-social solutions is insufficient for considering the broader geographical patterns and multi-scalar tensions of transition. Our findings suggest that while municipalities are alive to the opportunities to lead on sustainability transitions, we need a clearer understanding of the ways that policy and politics at national and international scales shape political capacities for action. There are clear limits to independent municipal action, particularly without more supportive interventions at higher scales. The increased urgency for sustainability transitions requires far more multi-scalar and trans-local coordination than that exists at present, although the building blocks of such work may be beginning to emerge.

Keywords

Energy transition, Europe, multi-scalar governance, municipal energy, politics of scale

Introduction

There is increasing enthusiasm at urban and municipal scales for leading sustainability transitions, amid higher level endorsement and even expectation of such leadership (Angelo and Wachsmuth, 2020; Bulkeley and Betsill, 2013; Bulkeley and Castán Broto, 2013; C40 Cities, 2016). Yet this downscaling of responsibility for transition requires a critical focus, which we turn to in this article. It raises questions of how evenly spread the capacity to lead on this is and how municipal capacity interacts with the

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complex and differentiated multi-scalar governance structures and political landscapes within which municipal actors are situated. The municipal level has emerged as a key player in sustainability impacts in the context of slow progress at the national scale (Emelianoff, 2014), and work by international networks such as C40 Cities can be seen as an attempt to reterritorialise decarbonisation sub-nationally at the city level (Bridge et al., 2013). Thus, narratives around the power of municipalities to address climate change, especially in the grey literature, represent a political contention as much as a practical description.

Cities and municipalities are situated relationally within administrative systems and nested scales of governance actors, particularly in relation to their energy systems (Bulkeley and Castán Broto, 2013; Wurzel et al., 2019), and not always positioned in a way that facilitates change. The emerging multi-scalar dynamic is one where municipalities are pressured from above by national governments to produce the carbon emission reductions that have been promised internationally, while also responding to a political opportunity to take some control over localised energy processes and being lobbied by grassroots movements and non-governmental organisations (NGOs). As such, energy transition is a contested, multi-scalar process (Paul, 2018).

Thus, our aim here is to critically interrogate European municipal efforts towards sustainable energy transitions within multi-scalar governance frameworks, as a means of illustrating the unevenness and the politics within this sustainability conjuncture. In referring here to municipal energy transitions, we refer to a range of activities carried out by sub-national authorities to reduce emissions and move away from carbon-intensity in the field of energy. This is a broad territory and encompasses a range of actions including energy efficiency, public building retrofits, transport solutions and municipal renewables. Our findings here are data-led and based upon what is happening on the ground, focusing on what municipalities themselves were prioritising in their actions, which tended to be around energy efficiency and renewable energy initiatives, with transport initiatives less in evidence.

As an emerging situation, Bridge et al. (2013) noted, 'a range of quite different geographical futures are currently possible' (p. 331) as a result of the sustainability shifts that are now widely accepted in policy circles. Yet those futures remain constrained by history, current capacity and available resources. Pathways to low-carbon futures are highly politicised, and the ability of advocates to navigate and adapt to the challenges that arise in the promotion of key technologies has been identified as important in legitimating certain pathways over others (MacKinnon et al., 2022). This article argues that in making sense of the unevenness that becomes evident in municipal capacities for transition, there is a need for critical awareness of the nested multi-scalar governance dynamics shaping the municipal level, building on recent calls to extend a more relational understanding of sustainability transformations emerging between places and across scales (Grandin and Haarstad, 2021).

The spatial politics of transition

The increasing emphasis on the sub-national level for sustainability transitions reveals a distinct spatial politics. A shift in the narrative around cities themselves from environmental problems to environmental solutions (Angelo and Wachsmuth, 2020) parallels a broader shift in the governance of sustainability in which a focus on top-down target setting in the Kyoto agreements in 1997 has been replaced by a more diffuse, multi-level emissions reduction programme in the Paris Agreement in 2015, with voluntary emissions targets through Nationally Determined Contributions (Wurzel et al., 2019). This is seen as a cheaper route to transition (Tingey and Webb, 2020), although it does appear to push the responsibility for meeting the climate challenge to often under-resourced local authorities, after a decade of austere macro-economic policies across Europe in particular (Standring and Davies, 2020). This set of dynamics raises questions regarding how supported and capable municipalities are of meeting this responsibility. Local authorities demonstrate enthusiasm for rising to the occasion with many examples of sustainable transitions, celebrated in schemes such as the

European Green Capital or used in the grey literature as models for replication. This would appear to be widespread: taking the Covenant of Mayors as a partial and incomplete picture, over 10,000 local governments had submitted action plans by April 2021 to address their carbon emissions.

In the wider transitions literature, there is recognition that the local scale is a key site for potentially system-changing innovations (e.g. Geels, 2004). But, while it is recognised as a notable space for experimentation (Bulkeley et al., 2019), there is limited recognition that the local is conditioned by its position within a broader landscape of power relations that have developed in historically and geographically contingent ways. While what is known as the multi-level perspective does recognise the policy regimes and broader landscapes within which innovations come to take their place, it has been critiqued for its limited attention to the complexities of space and scale (Bulkeley et al., 2014; Geels, 2019). In this, the multi-level perspective is a 'system-building' theory (Cowell et al., 2017; Grandin and Haarstad, 2021), which succeeds principally at describing conditions for the adoption of novel technologies. But it is important to take a broader horizon to explore more fully the spatial dynamics of transitions. This involves undertaking a comparative perspective to understand how spatially diverse trajectories shape municipal transitions, growing from alignments across and between multiple levels of governance.

There is therefore a growing recognition of the need to explore different pathways and influences in transitions. MacKinnon et al.'s (2019) analysis of offshore wind power across Germany, Norway and the United Kingdom notes the varied successes of local and regional actors in repositioning their inherited assets and infrastructures within broader geographical, economic, political and technical networks. Equally, De Laurentis (2020) notes the complex interrelationship between regional and national levels in developing renewable energy pathways. But rarely are such multi-scalar relationships considered through more extensive research beyond individual or limited comparative cases and this warrants further investigation (Hoicka et al., 2021). Furthermore, the transitions literature most often considers a socio-technical regime as a bounded entity located at a national scale, but this vision of the landscape of transition is limited (Bulkeley et al., 2014; Späth and Rohracher, 2014). A more relational understanding of governance levels as co-constructed and interdependent (Massey, 2005) would better describe the multi-directional pressures in which transition occurs (Grandin and Haarstad, 2021); and the importance of sectoral as well as regional characteristics has been highlighted (Nilsen and Njøs, 2022). While the national scale remains critical in shaping energy transitions, it needs to be situated within a multi-scalar governance framework. As Grandin and Haarstadt (2021) put it: 'we need a theory of transformation that is more attuned to the relational, networked and scalar nature of contemporary processes of social change' (p. 209).

In contributing to such a perspective, our innovation here is to attend to what we refer to as the multi-scalar dynamics of transition in a broad European comparison. Following Grandin and Haarstadt (2021, p. 304), we take localities as 'arenas for proactive and strategic agency' and uncover the different dynamics that come to bear on the 'stubbornly local affairs' of sustainability transformation. Working comparatively across Europe to highlight constraints and enabling conditions for municipal action towards decarbonisation, we approach municipal action for energy transition as embedded within relations of diffuse and relational multi-level governance (Bridge et al., 2013; Bridge and Gailing, 2020). While critiques of this approach have pointed to an array of actors outside of traditional governance structures, such as NGOs and citizen cooperatives (Aylett, 2013), and it is important to recognise the agency that exists beyond official structures, there is a need to remain attentive to the structures of governance within which local and regional actors are situated (De Laurentis, 2020). The national level is important, yet it must be considered not as a bounded and stable policy regime but as a contested and relational level within a broader, complicated multi-scalar system (Brenner, 1999, 2004). Thus, we argue that attention to the spatial and scalar dynamics of governance is necessary to understand the patterns of progress at a municipal level as they intersect with international agenda setting, municipal capacity and political tensions across different scales.

Methods

In this article, we use a multi-method approach drawn from a pan-European mapping analysis of the current state of municipal energy transition, undertaken between August 2018 and April 2020. The research behind the findings reported here was part of an European Union (EU) Horizon coordination and support action to investigate and support municipal initiatives towards energy transition. As such, we bring together a corpus of research that involved a preliminary online survey of 96 municipalities, 30 qualitative telephone interviews with municipal officials responsible for energy transition and five in-person site visits to municipalities in Western and Eastern Europe that involved a further 19 interviews, 2 focus groups and observation of transition projects with officials, consultants and municipal politicians. We also conducted a review of the grey literature and looked at secondary data sources to corroborate our findings.

The aims of this research were to explore the extent of municipal action to address energy transition, and to ascertain key barriers and opportunities to localised action to address climate change in this area. As an open and responsive online exercise, the preliminary survey does not contain data that are statistically significant or proportionately representative; neither of course do the subsequent qualitative phases. However, they are extensive in capturing a diverse range of geographical and social contexts, with a project remit to identify at least 30 per cent of participants from Central and Eastern Europe for subsequent peer-to-peer learning processes.[1] Municipalities from 25 countries took part in the survey, with responses from all the continent's macro-regions (i.e. western, eastern and southern Europe, the Nordics and Baltic states).

As such, the research undertaken here is to our knowledge the first attempt to gauge and compare performance of, and obstacles to, municipalities across the continent in pursuing an energy transition away from fossil fuels. Survey and subsequent interview respondents were primarily those working within municipal administrations to initiate change at the policy level. As such, their level of technical capacity in relation to energy systems varied greatly.

Respondents were invited to the survey through the networks of our NGO research partners, primarily the 1000 plus Energy Cities network but also through the Transnational Institute, Carbon Coop, the Institute for Political Ecology and Platform London, and through social media campaigns. Thus, the municipalities involved were, by definition, those actively seeking to address energy transition, but with differences in both capacity and in levels of progress, from having advanced strategies and perspectives to more modest and initial plans. The survey was available in French, German, Spanish and English and was a preliminary assessment of the work that municipalities were doing towards energy transition while gathering data on perceptions of the barriers and opportunities encountered. Data were analysed in terms of the kinds of initiatives municipalities were taking, the extent of municipalities' progress in developing policies, particularly around generating renewable energy and improving energy efficiency, The survey also assessed common obstacles and blockages, key motivations and the extent of citizen participation in municipal initiatives. Overall, we were able to assess the relative positioning of different municipalities as a prelude to the qualitative research stages.

The interviews and site visits created space to expand on the results of the survey. Sites were selected for contrast in governance structure, size, power and in their relationship to carbon industries and transition. Thus, we visited two German sites of varying capacity: Hamburg, a large high-profile city state that has been heavily dependent on coal and gas, and one smaller, more rural site, Ettlingen, that has still taken great strides towards an integrated renewable capacity. We visited Ghent, a steel-works city, and Ljubljana, the crossroads of Europe and the only Eastern European winner of European Green Capital. More recently, we have explored Aberdeen, self-proclaimed 'oil capital of Europe'. More complementary visits were planned, including to eastern and southern Europe but had to be cancelled resulting from Covid-19 travel restrictions. We were concerned with site visits to explore the tensions within putative successes, and to think with our interlocutors about the challenges, politics and potential of energy transition. As such, we spoke to not only

those making policy shifts, but to politicians, third sector colleagues and business leaders. The qualitative data were analysed thematically, with attention to the narratives around obstacles and barriers that deepened our understanding from the survey.

Uneven European municipal action

Our survey was suggestive of a pattern of uneven progress across Europe, with municipalities in Northern and Western Europe having gone furthest in decarbonising energy systems than those in the south and east (for fuller discussion see Cumbers and Traill, 2021). In our survey, respondents noted a range of constraints on their action, but the major one apparent from the data was finance. This is perhaps unsurprising given the scale of infrastructural change required; yet what our interviews and study visits suggest is that it is not merely that they do not have the capital to invest themselves, but that the process of accessing funds often requires the navigation of multiple geographical scales. Nevertheless, the majority of surveyed municipalities were engaged in local transition: whether that is at the level of street lighting retrofits or more ambitious projects involving municipality-owned renewable energy or facilitating energy cooperatives. All but eight of the 96 municipalities surveyed were generating some renewable energy, with solar photovoltaics (PV) the most popular means.

In what follows, we explore the key themes that emerge from attending to the differences within these data, particularly in considering what distinguishes putative leaders against followers in this dynamic. As such our approach here is comparative and illustrative. We proceed first to consider municipalities that are highly enabled to consider how such a dynamic is produced across scales. Then we consider the inverse case, where municipalities are less supported at a national scale and instead exposed to international marketised dynamics, first through considering the effects of limited national support, then latterly considering how the hegemonic neoliberal market narrative that shapes EU policy exacerbates these conditions. We latterly turn to how municipal actors build networks across national and international scales to increase their capacity to act. In this way, this article contributes a comparative insight into the relational production of difference between municipalities across scales.

Enabling conditions across scales

Putative 'leading' municipalities within climate action must be understood in the context of their multi-scalar relations. The Nordic countries are often highlighted as exemplars, and indeed have made the most extensive moves towards decarbonising their energy systems, with all four surpassing their 2020 renewables targets in 2019 (Eurostat, 2021). This can lead to suggestions that they are models for others to follow (e.g. Sovacool, 2017). Yet as one Irish respondent to our research noted,

> it's very hard to directly replicate whatever someone else has done . . . the Scandinavians are always the guys that everyone points to them and says, 'Oh, look at them' . . . but you can't go in in a time machine and go back to the 1970s. You know, they've had 40 years to get where they are now.

Comparative work supports our respondent's views on this: comparing Sweden and France suggests that the latter has more challenges in terms of transforming its energy system, particularly due to investment predominantly in nuclear power in response to the oil crisis and the promotion of electricity consumption in domestic heating, demonstrating the benefits of Sweden's post-1973 diversification into district heating and biomass and more broadly of taking a longer term perspective on energy policy (Millot et al., 2020).

While the Nordic countries have been characterised by a relatively strong and early political consensus on shifting towards renewables, something backed up by our interviews, the particular spatial and temporal circumstances for this, after the 1970s oil crisis to diversify from fossil fuels, is not so easy to replicate elsewhere in the current period. The transition context also varies between the Nordic countries. In Denmark, for example, dependency on imported oil for domestic energy consumption led to debates in the 1970s about alternatives and a grassroots mobilisation against nuclear producing a

massive policy shift towards renewables (Cumbers, 2017). Norway and Sweden have vast natural sources of hydro-electric power, while Finland has benefitted from using its massive forest resources to become Europe's leading biomass producer. Norway and to lesser extent Denmark have both benefitted from selling their own fossil fuels to the rest of Europe to generate revenues that can be reinvested to meet their transition targets.

Nevertheless, Nordic municipalities are often positioned as exemplars for others to follow. Växjö in Sweden, for example, is a pioneer city in transitioning to bio-energy (Emelianoff, 2014) having shifted their district heating from oil to biomass from the surrounding forests. Växjö benefit in part from the highly decentralised Swedish system of political governance, where they have access to a range of financial mechanisms, including public bonds, to facilitate their work. As an interviewee put it, 'there is no problem for a Swedish municipality to get a loan and often there are so-called green loans because the municipalities in Sweden do have a lot of credibility'. Compared to the municipal survey respondents highlighting finances as a barrier, this easy access to loans is an enviable position to be in. As such, successful Nordic municipalities can be a difficult example for non-Nordic municipalities to follow, given the nature of contextually specific transitions.

Germany offers another example of a country often touted as a space of inspiration and success, with its well-known 'Energiewende' policy which, while often translated as the 'energy transition', encompasses a much longer historical social struggle over energy within Germany society that, although supported by the state, is also a product of grassroots mobilisation and contestation (Paul, 2018). Municipal action is on the surface particularly notable in Germany, for example, an assessment of global remunicipalisations estimated that 86.6 per cent (305 out of 352) of European remunicipalisations were in Germany (Kishimoto et al., 2020). Yet such action is backed by a top-down push for energy sovereignty and transition, and permissive loan structures (Beveridge and Kern, 2013). There may be a growing number of what are often described as 'niche' innovations, such as regional energy networks, cooperatives and citizen involvement in new generation (Wagner and Berlo, 2015) but the bigger picture is also often more problematic. Active pushback emerged, including from energy giant Vattenfall, over the vote to remunicipalise Berlin's energy network, and difficult questions emerged too around balancing jobs in former lignite regions against ambitious decarbonisation strategies (Moss et al., 2015). Both Hamburg and Berlin's energy remunicipalisations were initially opposed by both energy-based trade unions and the dominant social democrats because of their links with powerful vested carbon-based interests like Vattenfall (Cumbers and Becker, 2018). Continued conflict over energy transition is a reminder of how political implementation of transition continues to be contested, despite apparent national consensus (Beveridge and Kern, 2013). As Paul (2018) notes, the energy transition in Germany is not just an eco-technical problem, but a historical, socio-political struggle. As such, successes can be seen to emerge from a combination of local agency and mobilisation, the effective deployment of local power alongside supportive national scales creating fertile conditions for municipal success.

Exposure to market logics

Nevertheless, while a supportive national context can facilitate transition, our data also suggests the contrary to be true. Finance and politics are particularly implicated in this. This reflects the scale of the challenge, but also ongoing austerity which has led some to argue for a de-prioritisation of transition in shrinking budgets and reduced investment in sustainability following the financial crash (Campiglio et al., 2017; Geels, 2013). Certainly, as a respondent in Greece noted (below), economic recovery is prioritised over energy transition.

A lack of a national-level funding or subsidy, or the capacity to independently raise funds, possible in highly decentralised states such as Sweden and Germany, can limit progress. The United Kingdom is a prime example of this kind of unsupportive context, where the logics of austerity have run deep and cut-backs at a local authority level; in 2020, it was reported that eight in 10 local authorities were in

danger of bankruptcy (Butler, 2020). Despite the precarity of local authority finances in the United Kingdom, the Nottingham City Council set up a not-for-profit municipal energy company, Robin Hood Energy (RHE), in 2015 in order to address energy poverty. Although RHE reached a peak of 130,000 and created over 200 living wage jobs, in 2020, the company was sold at a loss of around £38 million, with auditors identifying issues with debt collection, regulatory changes and wholesale energy price fluctuation (Grant Thornton LLP, 2020). This follows the failure of the municipally owned Bristol Energy, and Scottish Government backed Our Power, run by a consortium of municipal governments and social housing agencies. The common denominator to all three cases was a lack of capacity within local authorities to sustain themselves financially within a highly competitive energy market with fluctuating prices, dominated by an oligopoly of the big six private energy utilities. In this austere and competitive context, local municipal authorities are unwilling to take financial risks and lack support from the central state to do so. A further demonstration of the impact of an unsupportive governance context is given after the subsidies for renewable energy projects were cut in 2015, which all but stalled renewables development, outside of large corporate-driven offshore wind projects, especially at a community level (Braunholt-Speight et al., 2018). Data from BloombergNEF investment tracking suggest that after the removal of the subsidy, the overall number of renewable energy projects across the United Kingdom fell by around half (Vaughan, 2018). Indecision and policy uncertainty at the national level in the United Kingdom may have created its own costs for sustainability transition. By comparison, research on the German Energiewende suggests that national policy stability, and the role of patient capital from the state development bank, the KfW, is crucial for supporting investment into clean energy generation and distribution (Cheung et al., 2019, Marois, 2021).

Similarly, a lack of funds at a national level across Southern Europe limits what possibilities are open to municipalities who are looking to put into action their transition plans. Without the incubation effect of national support – financial but also in terms of legislative support – municipalities are exposed to market forces with implications for the depth and extent of their capacity to transition. An example from Greece stands to illustrate this point. Greece was badly affected by the economic crisis that began in the late 2000s, and Komotini is also one of the poorest regions of both the country and the EU. With the focus on recovering from the impacts of the global financial downturn, a respondent in Komotini suggested that 'energy transition policies have been left behind'. While they created a plan in 2014, they were unable to act on it, saying we 'do not have the means to implement it'. It was also limited in its aims, focusing on passive measures such as lighting retrofit rather than energy reduction or indeed production. Energy is primarily supplied by large, national publicly controlled companies and coal is a major fuel source in Greece (OECD/IEA, 2017). The terms of the Greek economic adjustment programme with the EU, the International Monetary Fund (IMF) and the European Central Bank (ECB in 2010 insisted on privatisation and increasing competition within the energy sector, although interviews in 2018 highlighted the continued dominance of majority state-controlled energy bodies. While legislation has been passed to introduce energy markets and competition within the Greek energy system, it is still characterised by 'a high degree of concentration in terms of supply and significant barriers to the access and operation of private enterprises' (Vlados et al., 2021: 122). Aims to transition towards primarily renewables in electricity by 2030 and move away from highly polluting lignite are slowed by the legislative path to reducing the predominance of the lignite-dependent state-owned energy company.

In this highly constrained national context, with a slowly liberalising energy market dominated by highly polluting state monopoly energy, Komotini were limited in their capacity to act; lightbulb retrofits was the terrain on which the municipality could take concrete action towards energy transition, taking 'passive' measures and small-scale interventions such as encouraging rooftop photovoltaics. In 2017, however, a shift in national legislation opened up the possibility for municipalities to engage in public–private partnerships (PPPs), setting off an interest in shifting towards local renewable energy production –

if they can source the funds from a European level, since they are unavailable at a national level.

As such, constellations of national-level policy and politics open up opportunity structures (Cowell et al., 2017; Kitschelt, 1986), spaces for action towards sustainable municipal energy systems. Yet it is not merely the national level that constrains action towards sustainability, but broader patterns of supernational governance. The EU could be in a position to support municipal action, and in the case of Komotini, the push to increase competition within the energy sector in Greece would seem to have opened up space for the municipality to take a greater role in energy production through PPPs. However, because they have such a strong market-led approach, this can close down the exploration of alternatives and often benefit incumbent interests. Our respondent in Komotini mentioned the European Investment Bank (EIB) and European Regional Development Funds (ERDF) as possible sources of investment for their planned production facilities, the latter available due to being one of Europe's poorest regions. Other municipalities mentioned Cohesion Funds, European-level monies available to address uneven development across the bloc, as a source of capital to fund transition. Without national-level financial support (and even with it), municipalities often have to seek supranational-level funding but this itself comes with a particular ideological framing that pushes municipalities towards market-based solutions.

Municipal action and European transition mechanisms

That municipalities utilise supranational funding to circumvent obstructive national-level governments is demonstrative of the multi-scalar dynamics and strategies at play across Europe. Where the national-level state does not enable municipal development and innovation, municipalities are often left seeking funding and support directly from the EU. Although the EU has a strong background of recognising the urgency of tackling climate change and indeed is highly aware of the regional disparities that exist across the continent (exemplified perhaps in the Cohesion Funds), it also holds what Energy Cities

(2017: 8) call their market-centric 'normative position'. Germane here is that EIB-driven funding pots insist on municipalities following specific outcome paths, such as utilising Energy Service Companies (ESCOs) and PPPs. For the most part, EU funding is available for project development support – rather than for directly funding transition, which is assumed to be about drawing in private sector investment.

Rijeka, a major seaport in Croatia, offers an example of the ramifications of this position. The city initially had funding to develop energy efficiency retrofit work as part of a complex financing commitment under their 2020–2022 Efficiency Action Plan that combined city funds, investments from city-owned energy companies, national-level funds for environmental protection and energy efficiency and EU structural funds. This patchwork of piecing together different funding sources is common in municipalities attempting to deliver on their climate change obligations. Indeed, large energy retrofit funds such as European Local ENergy Assistance (ELENA) will not cover full costs of a project, thus funding mosaics are expected. What Rijeka found, however, was that after an initial phase of funding where the EU funds covered 85 per cent of the costs, during a second phase, the co-funding from the EU dropped to 35 per cent, with the assumption that having developed the 'documentation', or project planning elements, that private finance would step in to provide the rest. An interviewee who works with the Mayor in Rijeka noted that this drop in co-financing slowed the second phase of work, noting,

> These are not small investments. They range from €500k up to €2 million. Now, they did provide certain credit lines . . . but that is again some kind of loan financing, which in the end has to be repaid . . . [the work] will continue, no question, but I don't know whether with the same intensity that was there initially.

The respondent also suggested that the assumed private–public model was of limited use in Rijeka because the private company usually makes profit from the savings made in reduced energy spend – but in the city, 'our climate is not the type where very much energy is spent on heating and cooling'. Thus, financial models are problematically assumed to be

translatable across different spatial and climatic contexts. As the Rijeka example suggests this does not always function, and may well be slowing down the roll out of energy transition work. This indicates a lack of spatial sensitivity in the financial and transition models promoted by the EU, and a flawed logic of assumed transferability.

Another example from Slovenia illuminates the failures of higher level abstract thinking about the need for markets and competition in tendering. Similar to the Croatian example, EU support is most readily available for funding the municipal transition. Indeed, Ljubljana is a celebrated example of an Eastern European municipality that developed a number of retrofit projects using funding from the ELENA project, via the EIB. As part of this process, Ljubljana was expected to contract Energy Service Companies (or ESCOs) using competitive tenders. However, as one Slovenian respondent noted in explaining his lengthy flow chart of the process for designing, planning and implementing the transition process, while they occasionally work with a small ESCO, 80%–90% of the work done with ESCOs is done with a company called Petrol Group. Petrol's website boasts they are 'not only the largest Slovenian energy company, but also the largest Slovenian importer, the largest Slovenian company in terms of revenues, and one of the largest Slovenian retail companies'. As one respondent put it, having in effect only one ESCO in the country means they are often in a position where they are forced to 'take it or leave it' because of 'under development in the ESCO market'. Yet, between the austerity rules coming from the EU restricting municipal borrowing and the ESCO model, the municipalities essentially found themselves paying ESCOs rather than loans, which kept the debt off the municipal books. This example demonstrates not only the failed assumptions of competitive tendering for ESCOs in small national markets, but the complex strategic work required to navigate the different scales of austerity and energy services rules.

Thus, across Europe, while there are supranational opportunities for funding, they come with assumptions about the correct means of approaching the subject and often context-blind principles for implementing them. The overarching ideological position is market-centric. Although there is recent recognition of the need for citizen and community participation in transition, alongside the protection of prosumption, this still steers action away from alternatives, practically and politically. This returns then to the issue of whether private investment will pave the way to sustainable municipalities, given the generally risk-adverse investments to date of private capital (versus state investments) (Mazzucato and Semieniuk, 2018).

Networked action, localised tactics

A more relational understanding of municipal energy governance also has implications for interpreting how municipal actors construct networks of political support which scale upwards and outwards from the local level to develop and sustain their transition goals and initiatives. While there are clear limits to the potential of localised action, the municipal moment should be situated as one of political contention, as a response to national-level blockages (Emelianoff, 2014) and as a shifting terrain characterised by relationships between public and private actors and with relative degrees of horizontality (Bulkeley and Newell, 2015; Nielsen and Papin, 2021). Yet, networks are seen by municipalities in our survey as a tactical route to sustainability, a way to connect and coordinate action, something reflected in their use for information sharing and framing strategies.

Municipalities in our survey were using networks for a range of interlocking reasons and purposes. As Emelianoff (2014) put it: networks offer 'reassurance for local actors in the face of the opposition and the obstacles they meet' (p. 1379). Going further here, we would argue that municipal actors are developing their own scalar strategies or what Kevin Cox has termed 'spaces of engagement' beyond their local jurisdiction to strengthen their capacities and spheres of action (Cox, 1998; MacKinnon, 2010); indeed, this reflects the sense that transnational networks of municipalities are 'platforms' for knowledge sharing (Busch, 2015) and the successes of networks in 'strengthen[ing] learning, socialization

and enforcement pathways' within European governance (Andonova and Tuta, 2014: 785).

Thus, municipalities argued that engaging in networks could provide strategic pathways to information, influence and inspiration. To this end, municipalities reported being part of a range of networks at different scales, speaking to the sense from Kern (2019) that a certain proliferation of networks results from attempts to upscale climate action through multi-scalar governance formations like transnational municipal networks. Our research respondents named a variety of well-known networks including Fearless Cities and Energy Cities; but also less well-known regional networks. In Bulgaria, the municipality of Dobrich on the Black Sea coast has been involved in European funded projects developing the EcoEnergy network for coordinating municipal energy efficiency in the region; similar examples exist formally and informally across Europe. Cross-national collaborations exist too, with participants in the research citing the ability to build an evidence base for transition as a key benefit of involvement.

As such, we need to understand trans-local municipal networks as spaces of tactical municipal action and routes for shaping recalcitrant national levels of governance, although some undoubtedly are more or less effective than others (see e.g. Fenton, 2017 on the limited success of the World Port Cities Initiative). Yet while such networks are suggested in the grey literature as pathways to influence (and we cannot ignore the probable tendency to overinflate the political relevance of these networks from their members), they are also, from the perspective of municipal actors, principally spaces for developing the tactics within the game. Thus, they can be spaces to develop discursive tools to pressurise and lobby national political elites. A respondent from a UK municipality said, with reference to making transition arguments on the basis of health and wellbeing benefits, that there are 'evidence barriers, methodology barriers to what's acceptable evidence' and noted that networks were a pathway to learning how to frame complex schemes in such a way as to get funding and support.

To this end, sub-national regional knowledge sharing among networked municipalities can have positive concrete impacts. To give a brief example, in Slovenia, the successes of Ljubljana in accessing European-level funds translated into support for smaller municipalities within the country to band together and use the expertise from Ljubljana to apply themselves. Thus, local collective learning processes (Lawson and Lorenz, 1999) around the complicated mechanisms and financial models that were initially opaque to the energy officials within the Ljubljana municipality itself could be used to support other municipalities within the country to access European-level funds. Thus, municipalities reported using networks to learn how to frame their projects and attract funding.

This suggests that we should see international collaborations of cities and municipalities as a tactical engagement. Literature on different municipal climate networks has highlighted a number of axes of difference, including how horizontal or inclusive they might be (Bulkeley and Newell, 2015). Research on so-called 'new' transnational networks emphasises a move towards closed, exclusive groupings and greater coerced target meeting, against a more egalitarian, horizontal historical position (Nielsen and Papin, 2021). Yet almost regardless of the apparent differences between local Slovenian networks and pan-European commitments, the value for local actors appears from this survey to reflect mostly their power as translators and connectors across boundaries, and as a source of both inspiration and tactical material for building the case for transition. This reflects a narrower range of roles than that has been posited elsewhere (e.g. Busch, 2015), and may require further exploration to uncover why such limited results are suggested when the perspective taken is that of the municipal respondent to a survey.

Conclusion

Our research suggests the need to think more critically about the current enthusiasm for municipal low-carbon transition. The potential for municipal climate agency is unevenly distributed across Europe. Yet, novel spatial and scalar strategies are emerging at the local level, including trans-local initiatives that demonstrate the capacity to act despite a wider and growing concern about the downscaling

of responsibility for carbon reduction. Nevertheless, it is necessary to recognise the need for collaboration across levels to build shared capacity.

In order to succeed, municipalities need support, not just in word but in deed, from national and international governance actors. Municipal networks aim to apply some pressure upwards, but more celebratory narratives from such networks are as much political claims as evidenced outcomes. Municipalities need finance, coordination and political intervention to implement transition strategies, but also autonomy to develop bespoke local pathways rather than an imposed market-driven script from above. As is evidenced above, the assumptions of a model that relies on abstract thinking about the availability of private capital to finance major carbon reduction projects can fail to match the actually existing conditions facing municipalities on the ground and their relative positioning within broader multi-scalar governance frameworks.

Without sustained and stable political and financial support, municipalities are less able to develop novel forms of ownership or to invest fully in a sustainability transition, and are instead left with low-hanging fruit such as lighting retrofit and without the capital or political support to establish new structures and organisations. While innovations around cooperatives and energy communities around renewables and smart cities do happen outside of the 'core' of EU lower emission countries (Morales-Lage et al., 2019), they often rely on less stable forms of finance (e.g. crowdfunding for citizen investment, as Litomerice in Croatia have used) and the limited interventions of private capital (Mazzucato and Semieniuk, 2018). It is notable again that the role of the state is often limited in these cases to pump priming for future private capital investment by neoliberal design, with questionable consequences.

Thus, we have argued that there is a need to understand municipal action for energy transition in its historical, geographical and political contexts. Our analysis illuminates energy transition as more than a techno-social project, as an important terrain of contestation across scales, and one replete with issues around power, ideology and uneven access to resources. The emergence of municipal action should be seen in part as a vanguardist action pushing the narrative of transition – but it cannot stand alone as a panacea.

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Note

1. This was achieved. The 30 interviewed respondents were selected on the basis of gaining a cross-section of leading, following and aspirational municipal cases regarding energy transition plus a geographical diversity, alongside willingness to take part, with the following breakdown: Austria (1); Bosnia (1); Bulgaria (2); Croatia (2); Cyprus (1); Czechia (1); Denmark (1); Finland (1); France (1); Germany (2); Greece (1); Ireland (1); Italy (1); Netherlands (2); Portugal (1); Romania (1); Serbia (1); Spain (4); Sweden (1); United Kingdom (4).

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