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Leadership and lesson-drawing in the European Union's multilevel climate governance system

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ABSTRACT

The important role that climate leaders and leadership play at different levels of the European Union (EU) multilevel governance system is exemplified. Initially, climate leader states set the pace with ambitious policy measures that were adopted largely on an ad hoc basis. Since the mid-1980s, the EU has developed a multilevel climate governance system that has facilitated leadership and lesson-drawing at all governance levels including the local level. The EU has become a global climate policy leader by example although it had been set up as a 'leaderless Europe'. The resulting 'leadership without leader' paradox cannot be sufficiently explained merely by reference to top-level EU climate policies. Local-level climate innovations and lesson-drawing have increasingly been encouraged by the EU's multilevel climate governance system which has become more polycentric. The recognition of economic co-benefits of climate policy measures has helped to further the EU's climate leadership role.

KEYWORDS European Union; cities; villages; multilevel climate governance; lesson-drawing; leaderless leadership paradox

Introduction

Leadership and lesson-drawing by followers has a long history in environmental policy.[1] It has become particularly important for European Union (EU) climate policy (e.g. Jänicke 2005, 2017b, Oberthür and Kelly 2008, Wurzel *et al.* 2017). Environmental leaders are actors such as national governments that are first in finding solutions for environmental problems (Andersen and Liefferink 1997). If leaders attract followers due to lesson-drawing (Rose 1993), then they become *leaders by example* (Liefferink and Wurzel 2017, Wurzel *et al.* 2017).[2] According to Rose (1993) *lesson-drawing* takes place when an effective policy solution is transferred from one place to another. Therefore, *lesson-drawing* requires followers who emulate an innovative solution (or at least significant elements of it) used elsewhere.

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Lesson-drawing may offer followers a shortcut to innovative solutions and/or reduce their domestic 'learning costs'.

The academic literature has identified additional factors which may act as drivers explaining why states or substate actors adopt the same or similar policies, programmes and instruments (e.g. Jordan *et al.* 2003, 2013). First, policy *convergence* occurs when similar states or substate actors adopt the same or similar policy solution independently from each other. This is most likely to occur when similar types of actors face the same or similar problems. Second, transnational networks, which can be widely found within the EU, may facilitate the transfer of environmental innovation. Third, cooperation and/or competition between states or substate actors can lead to the adoption of similar innovations. Radaelli (2000, p. 26) has called the EU's competitive single European market (SEM) a 'massive transfer platform' for shifting policies, programmes or instruments between member states.

Largely due to space constraints, we focus primarily on *lesson-drawing* from climate leaders (rather than also on policy convergence and/or regulatory competition) which, we argue, is of central importance for EU climate governance. We try to identify and explain cases of best practice within the EU multilevel climate governance system that has developed increasingly more advanced opportunity structures for lesson-drawing at different climate governance levels. We distinguish between the following four *types* of leadership: *structural* leadership which relates mainly to economic power; *entrepreneurial* leadership which relies heavily on diplomatic, negotiating and bargaining skills; *cognitive* leadership which depends primarily on knowledge and expertise; and *exemplary* leadership which occurs when actors intentionally or unintentionally set an example for others (cf. Liefferink and Wurzel 2017, Wurzel *et al.* 2017). We further assess whether EU climate governance exhibits mainly a *transformative* or a *transactional* (i.e. incremental) leadership *style* (Liefferink and Wurzel 2017, see also Wurzel *et al.* 2019, this volume).

Although Hayward (2008) has characterised the EU as a 'leaderless Europe', it has frequently offered exemplary global climate leadership (Schreurs and Tiberghien 2007, Oberthür and Kelly 2008, Jordan *et al.* 2012, Wurzel *et al.* 2017). The resulting 'leaderless leader' paradox in climate governance, therefore, needs explaining. We argue that merely focusing on top-level governance decisions and legally binding laws, which have a *direct* effect on member states, cannot explain sufficiently climate governance innovations within the EU's multilevel climate governance system. Instead, *indirect* effects may also play an important role and help to explain why the EU's overall climate governance performance is often better than what the top level of the EU climate governance system has decided (e.g. Schreurs and Tiberghien 2007).

The role of national leaders and early followers

National leaders have played an influential role even before the EU adopted a common environmental policy in the early 1970s (e.g. Rehbinder and Stewart 1985) and a common climate policy in the early 1990s (e.g. Jordan *et al.* 2012). In the late 2010s, national climate leaders still acted as major drivers of the EU's climate leadership (Oberthür and Kelly 2008, Wurzel *et al.* 2017). However, as the EU multilevel climate governance system has matured over the years, it has arguably become more 'polycentric' (Ostrom 2010, 2014). The growing polycentric features of the EU's governance system have provided the subnational level with new roles and functions in climate governance innovation (CoR 2014, Ostrom 2014). While there is a well-established literature on the Europeanisation of member states' environmental policies (e.g. Hèritier *et al.* 1996, Jordan and Liefferink 2004), scholars have paid much less attention to the less tangible impact of the EU's multilevel climate governance system on cities and regions, although there are important exceptions (e.g. Kern and Bulkeley 2009, Bendlin *et al.* 2016, see also Kern 2019, Wurzel *et al.* 2019, both this volume).

In the early 1970s, Sweden and the United States acted as early environmental leaders with Japan and Germany as the main early followers. Environmental leaders were able to use events such as mass demonstrations against air pollution in the United States, massive public pressure caused by environmental lawsuits in Japan (e.g. minamata, itai-itai and yokkaichi asthma) as windows of opportunity for (environmental) policy change as well as changes in government which occurred, for example, when a reform-minded Social Democratic-Liberal (Social Democratic Party (SPD) – Free Democratic Party (FDP)) coalition came into government in Germany in 1969 (Jänicke and Weidner 1997). Sweden, the United States, Japan and Germany as well as Denmark also introduced the largest number of environmental policy innovations (e.g. new institutions and laws) between 1970 and 1985 (Jänicke 2005). Initially, there was a strong international demonstration effect by the United States regarding new institutions and laws. For example, other states examined closely the Environmental Protection Agency (EPA) and early US air and water pollution laws, adopting similar laws at a later stage (Wurzel 2002, pp. 244–5).

National climate leaders

In the late 1980s, global *climate* governance started with initiatives from national leaders whose policy innovations greatly facilitated the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) at the 1992 UN Rio conference. National European climate policy leaders,

which we will assess briefly in this section, have been selected according to the ambition of their Kyoto Protocol targets for 2008/2012, the ambition of their targets for 2020/2025, their greenhouse gas emission (GHGE) reductions between 1990 and 2015 and the persistence of their leadership over a long period of time.

Denmark, Germany, Sweden and the United Kingdom fulfil all four criteria. The climate policies of these four countries were conceived already in the late 1980s/early 1990s. Their Kyoto Protocol targets for 1990–2008/2012 were the most ambitious with the exception of Sweden, which had already undertaken early actions to cut GHGE. Under the EU's so-called burden sharing agreement, which divided up the EU's GHGE reduction target (−8%) into differentiated national targets, both Germany and Denmark accepted reduction targets of −21% and the United Kingdom −12.5% (e.g. Wurzel *et al.* 2017).

These four member states also adopted relatively ambitious long-term national GHGE reductions targets. The United Kingdom set itself a national GHGE reduction target of −50% by 2025 while Denmark, Germany and Sweden each accepted reduction targets of −40% by 2020. The climate policies of these four countries have long been exceptional, and their GHGE reductions were the most ambitious of all Western European countries between 1990 and 2015. The United Kingdom and Germany alone accounted for 47.9% of the EU's total net decrease in GHGE between 1990 and 2015 (EEA 2017). The Netherlands was also an early leader, which already adopted a climate policy chapter in its influential 1989 National Environmental Policy Plan (NEPP). In 1989, the Netherlands introduced feed-in tariffs before Germany (1990), and Denmark (1993) followed the Dutch lead (Jacobs 2012). Due to space constraints, we focus here on Denmark, Germany and the United Kingdom.

Dimensions of climate leadership

Germany

Germany developed into a climate leader already in the mid-1980s, since when it has persistently acted as a climate leader, although Germany has struggled to comply with its ambitious 2020 GHGE reduction target (see below). Germany provided all main leadership types identified by Liefferink and Wurzel (2017) – structural, entrepreneurial, cognitive and exemplary (Jänicke 2017b). In 1986, the (West) German government started to adopt its first climate policy measures following an initiative by the federal Upper House *(Bundesrat)*. In 1987 – a year of federal elections that resulted in increased votes for the Green Party – the national parliament (*Bundestag*) set up an Enquete Commission on Preventive Measures to Protect the Earth's Atmosphere, while the government adopted a CO_2 Reduction

Programme with cross-party support in 1990. The 1990 Commission report offered a broad overview of the findings from climate change research while proposing ambitious GHGE reduction targets not only for Germany but also for the EU (Deutscher Bundestag 1990). The report thus offered cognitive climate leadership while demanding exemplary leadership from the German government and the EU.

The first Conference of the Parties (COP1) to the UNFCCC took place in Berlin in 1995. The German government under Chancellor Helmut Kohl (Christian Democratic Union (CDU)) offered significant entrepreneurial leadership while presenting an ambitious German GHGE reduction target of −25% by 2005, thus also offering exemplary leadership. Germany was an active player at all COPs which followed, while also pushing climate issues at G7 and G20 meetings and on the EU level especially when holding the rotating presidency in these international settings (Wurzel 2010). Further examples of exemplary leadership include the rapid uptake of 'clean power' in the form of renewable energy, significant CO_2 emission reductions and economically successful climate policies. Importantly, cooperatives and local communities have played a strong role for many German climate innovations. Germany developed a lead market for wind and photovoltaic (PV). This matters in terms of structural leadership because Germany, as the largest economy in the EU, was thus able to exert competitive pressure within the SEM and on the global market for clean energy technologies, although with less success in recent years. By 2013, Germany had 17% of the global clean energy market (Jänicke 2017a). However, like all environmental/climate leaders, Germany also has its blind spots, as we can see, for example, from its continued reliance on coal-fired power stations and the German automobile industry's relatively poor fuel efficiency record. This was the main reason for the German government's opposition to the EU Commission's 2014 proposal for more ambitious CO_2 emission standards.

The United Kingdom

The United Kingdom has adopted a leadership role in climate policy since the early 1990s (Rayner and Jordan 2017). Prime Minister Margaret Thatcher's decision to drastically reduce energy generation from coal-fired power stations while expanding the use of gas occurred primarily for cost and political reasons (to curb the influence of the miners' union) rather than environmental reasons. As Rayner and Jordan (2017, p. 175) have pointed out, 'the ensuing "dash for gas" had the completely unintended effect of lowering the UK's emissions throughout the 1990s', paving the way for the United Kingdom's climate leadership. In 1990, the United Kingdom introduced the Non-Fossil Fuel Obligation. The Fuel Duty Escalator (1993) and the Climate Change Levy (1999) followed. In 2002, the United Kingdom exhibited exemplary leadership by adopting a national emission

trading scheme (ETS) in order to gain early practical experience and influence the rules of the EU ETS, which became operational in 2005. The United Kingdom has also been a local-level climate leader as a large number of its cities have adopted climate change mitigation and/or adaptation plans (Kern and Bulkeley 2009).

The United Kingdom showed exemplary leadership by adopting the most ambitious non-binding, national long-term GHGE reduction targets of all EU member states. Between 1990 and 2015, the United Kingdom had already achieved a 36.6% reduction of GHGE (EEA 2017), and in 2008, it introduced the world's first Climate Change Act, which stipulated a binding GHGE reduction target of −80% by 2050.

The United Kingdom's 2002 Energy Efficiency Commitment was an important innovation in Europe. Under successive Labour governments (1997–2010), climate policy was of central importance. Especially after 2005, Prime Minister Tony Blair conceived climate policy as a *business opportunity*, which could turn the United Kingdom into a successful exporter of low-carbon technologies. Under a Conservative-Liberal Democrat coalition government (2010–2015), there was initially a strong degree of continuity in terms of the United Kingdom's EU and global climate leadership, but this has since come 'under threat' (Rayner and Jordan 2017, p. 177). For example, the fuel duty escalator was scrapped in 2011. The United Kingdom's decision to leave the EU – Brexit – in 2019 has created further uncertainty.

Denmark

Denmark has been called the 'motherland' of the clean energy transformation (Meyer and Koefoed 2003). The Danes have already introduced regular energy plans supporting renewable energy and energy efficiency since 1976. Denmark adopted a CO_2 tax in 1992 at time when the United Kingdom vetoed the European Commission's proposal for an EU-wide CO_2/energy tax on sovereignty grounds. While the United Kingdom established the world's first ETS for the six main GHGE in 2002 (see above), Denmark had already adopted a domestic ETS in 1999, although the Danish scheme covered only CO_2 emissions from power stations (Wurzel *et al.* 2013, p. 158). Further evidence for Danish exemplary leadership is the fact that Denmark reduced its GHGE by 31.3% between 1990 and 2015 (EEA 2017). In 2016, 56% of the Danish electricity supply came from renewables. Denmark has the highest share (about 50%) in Europe of combined heat and power production (CHP). Cooperatives and local communities have played a strong role in Denmark's clean energy transition. Together with Germany, Denmark also has the highest share of wind power investment from local cooperatives (Bouwens *et al.* 2016) and was the first country to create a lead market for wind power, thus showing structural leadership.

Already in 2003, Denmark was an early, successful exporter of clean energy technology, which amounted to approximately €4 billion (Hvelplund 2005).

EU multilevel climate governance

The adoption of national climate policy innovations has often constituted the first step in a Europeanisation process that has involved the diffusion of innovations across member states including the subnational level. Examples include the German renewable energy law (*Erneuerbare Energien Gesetz* (EEG)), the United Kingdom's ETS and Denmark's energy-efficiency labels. Such diffusions of climate policy innovations have often taken the form of 'negotiated transfer' (Bulmer and Padgett 2005), which has usually resulted in modifications of the leader's original innovation when it was adopted and implemented by followers. The EU may have influenced even the original national climate innovation by the leader as we can see, for example, in the German EEG which had to be modified following concerns of the Commission about the incompatibility of the draft German EEG with EU competition law.

Since the early 1990s, the EU Commission has tried to directly facilitate subnational climate innovations within the EU's multilevel climate governance system. Initially, the EU established direct links between the EU Commission and local governance actors in regional policy (Marks 1993). As we argue below, climate policy innovation and its diffusion have become a more general phenomenon because the EU has developed 'systemic' opportunity structures for it. An important EU climate change initiative directed at the city level is the Covenant of Mayors, which the EU Commission launched in 2008 (Domorenok forthcoming). It was extended to the global level in 2015. The Covenant, which receives significant EU funding, contains a benchmark of excellence, which supports both exemplary leadership and lesson-drawing. Such institutional arrangements have arguably helped to create a framework for interactive learning at different levels of the multilevel EU climate governance system (Bulkeley and Betsill 2005, see also Kern 2019, this volume).

Subnational leadership

In the EU's multilevel climate governance system, climate-related policy innovation and investment at the local governance level is becoming increasingly important (Jänicke and Quitzow 2017, see also Kern 2019, Wurzel *et al.* 2019, both this volume). In this section, we, therefore, assess the role of subnational climate leadership.

Germany

Germany has a federal political system in which the states (*Länder*) have frequently offered climate leadership. Progressive German states often influenced both their local communities and the national level, for example, via the Bundesrat. In 1985, Hesse became the first German state with an Environment Minister from the Green Party; Hesse's Environment Minister, Joschka Fischer, encouraged his ministry to become an influential player for the provision of knowledge on the national energy transition (*Energiewende*) in Germany (Krause *et al.* 1980). In other words, under Fischer's structural leadership, the Hesse Environmental Ministry tried to provide cognitive and exemplary leadership. Subsequent conservative state governments in Hesse put the brake on the rapid expansion of renewable energy. However, the 2012 Hesse Energy Future Law introduced the goal of supplying 100% power and heat from renewables by 2050. Between 1995 and 2013, Hesse achieved GHGE reduction of 24% (HMWEVL 2015). The renewable energy sector generated more than 20,000 jobs by 2013. While Hesse has tried to resume the former *Energiewende* approach under a 'Black-Green' (CDU-Greens) coalition government, elected in 2014, its capital, Frankfurt am Main, has long had a strong 'green' tradition.

Another important German state with innovative climate policies is Baden-Württemberg, which has offered a conservative variant of ecological modernisation since the 1990s. Cities in Baden-Württemberg such as Freiburg and Heidelberg have acted as exemplary climate leaders, which have had a strong innovative influence in Germany and beyond. After the 2011 Fukushima nuclear catastrophe, Baden-Württemberg elected the first Green Prime Minister (*Ministerpräsidenten*) of a German state. Around that time, the Green Party became a coalition partner in the majority of German state governments, which significantly increased its influence in the federal Upper House (*Bundesrat*). Baden-Württemberg introduced an ambitious Act Governing the Mitigation of Climate Change in 2013. In 2016, the Green Prime Minister was re-elected, although this time a 'Green-Black' (Greens-CDU) coalition government succeeded the 'Green-Red' (Greens-SPD) coalition (Jänicke 2017b).

Freiburg is a climate leader because it was one of the first cities in Germany to adopt an energy transition (*Energiewende*). Freiburg regards itself as a prominent example for the climate-friendly transformation of a city (Haag and Köhler 2012). Already in 1986 – the year of the Chernobyl nuclear accident – Freiburg adopted an Energy Supply Concept that demanded the phasing-out of nuclear energy and a significant reduction of CO_2 emissions. In 1996, Freiburg set itself a CO_2 reduction target of 25% by 2010. There is also a strong focus on energy efficiency in all sectors of the city with a steady reduction of final energy consumption. In 2000, work started on Freiburg's car-free Vauban settlement, which features 59 so-

called plus-energy buildings and one plus-energy office building. The city has built Vauban as a model district for sustainable living (Müller 2014).

In Bavaria, *Munich* plans to reduce its CO_2 emissions by 50% of 1990 levels by 2030 (Heinelt and Lamping 2015). Munich has a broad spectrum of ambitious mitigation and adaptation activities including a programme for energy-efficient building envelopes and heating renovation, an energy-efficiency of trade initiative, an Eco-Profit programme and a climate-related city map (Covenant of Mayors 2017). Munich is a relatively large and prosperous city with a wide hinterland that has offered not only exemplary but also structural leadership for the surrounding region.

Climate leader villages also play an important role in Germany. Examples include the pioneer villages of Wildpoldsried and Großbardorf in Bavaria and the 'bio-energy village' Jühnde in Lower Saxony. Such villages are leaders because they try to attract followers (see Liefferink and Wurzel 2017) by influencing a broad movement, namely the so-called 100% Renewable-Energy Regions in Germany which collectively represented about 25 million inhabitants (i.e. more than one-quarter of the total population in Germany) in 2014. These villages adopt bottom-up exemplary leadership while experimenting with novel, innovative solutions and expert training (cognitive leadership) and networking (entrepreneurial leadership) which both the German government and EU have supported financially. At first sight, this seems in line with polycentric governance concepts (Ostrom 2010, 2014), which consider bottom-up self-governing initiatives to be more effective than top-down government approaches. However, many of these local climate innovations would not have succeeded without significant funding from 'higher governance' levels (the German federal government and/or the EU).

Because the highly ambitious plans of such villages may lead to their complete reconstruction, we can identify a transformational leadership style. For example, the village of Wildpoldsried, which received the European Energy Award in 2010 and 2014, has a broad spectrum of innovative activities including ambitious renewables and energy saving goals as well as the leasing of e-mobiles. Wildpoldsried's electric power supply from wind, biogas and PV amounted to 688% of the village's own electricity demand in 2016. Wildpoldsried, which started its ambitious climate and environmental policy process in 1997, created at least 140 jobs due to such climate policy–related activities (Wildpoldsried 2017).

The bio-energy village Jühnde in Lower Saxony is a leader in decentralised clean energy supply based on a cooperative model. It provides electricity and heat from bio-energy. Clean power supply exceeds local demand by about 200%. E-mobility is part of the project. Jühnde is also a member of a number of international networks that actively support the visibility of its case. According to Niemann (2015), this 'bio-energy village' has at least 120 followers who have tried to draw lessons from Jühnde.

The United Kingdom

Climate leader regions include Scotland, which has a 100% renewable power target by 2020 and thus acts as an exemplary climate leader within the United Kingdom and beyond. The goal of full decarbonisation of the power sector has been set for 2032. The installed capacity of renewable electricity increased from 2673 MW to 7756 GW between 2007 and 2015, while the share of renewables in power generation amounted to 59% in 2015. This sector created 21,000 jobs (Scottish Renewables 2017).

Climate leader cities include London, which has ambitions to become 'a world leader in tackling climate change' (Greater London Authority 2016). In 2007, the Mayor launched the first Climate Change Plan for London (Greater London Authority 2007). London has set a CO_2 emission reduction target of 60% by 2025 (compared to 1990). The target requires an investment of 40 billion pounds, for example, for urban greening and climate roofing of buildings. London (together with Bogota) created a network of 26 cities which have all signed the C40 Clean Bus Declaration that aims at a 25% share of clean busses by 2020. As London is by far the United Kingdom's largest city, its exemplary and structural leadership potential is considerable, for other UK cities as well as its immediate surrounding regions.

Manchester, which has a CO_2 reduction target that surpasses the national target (Covenant of Mayors for Climate and Energy 2017), has focused strongly on climate protection in its industrial policy. Its low-carbon economic growth sector amounts to a market value of about 4.2 billion pounds and employs over 34,000 people. In 2009, the city region became the first Low-Carbon Economic Area for the built environment, thus showing exemplary and structural leadership (Thorpe 2012).

Climate leader villages in the United Kingdom include Ashton Hayes (1000 inhabitants), which reduced its CO_2 emissions by 24% within 10 years and aims to become carbon neutral. Measures that these villages have taken include the installation of renewable power (mainly PV), improved energy efficiency of buildings and clean energy heating. Schlossberg (2016) has reported lesson-drawing from climate activities in Ashton Hayes by local communities in other countries. The Cornish village of Delabole installed the first commercial wind farm inspired by Danish examples in 1991. Since 2002, Delabole's wind farm has paid about 10,000 pounds sterling annually to the village (Guardian 2017).

Denmark

Copenhagen's 2025 Climate Plan has the objective of turning the city into the world's first carbon neutral capital by 2025. The plan also aims to generate 'employment and green growth' (City of Copenhagen 2012).

Between 2005 and 2011, the city had already reduced its CO_2 emissions by 21%. Aarhus also aims to become carbon neutral, although not until 2030 and since 2008 has adopted several climate action plans (Aarhus Kommune 2017). Thus, comparatively, Copenhagen has shown a higher degree of exemplary leadership.

Denmark has linked its climate and energy strategy strongly to a process of decentralisation for both energy generation and ownership. From the inception of this strategy, local-level actors have played an important role. Already by 1992, these actors installed more than 3000 wind turbines owned by cooperatives (Reiche 2005). Citizen cooperatives have remained important players (Jänicke and Quitzow 2017). The small island of Samsoe (4000 inhabitants), a well-known clean energy leader with strong international connections, within 10 years achieved an energy surplus based on renewable energy (Lewis 2017).

Explaining the 'leaderless leader' paradox in EU climate governance

Most observers have argued that the EU is a global climate governance leader (e.g. Schreurs and Tiberghien 2007, Oberthür and Kelly 2008, Jordan *et al.* 2010, Wurzel *et al.* 2017) whose 'climate policy activities have enormous relevance well beyond European borders' (Rayner and Jordan 2013, p. 1). The EU is most of all an exemplary leader that surpasses other regions regarding GHGE reductions and has established a high level of new renewable power capacity. Between 1990 and 2016, the EU achieved a 22.6% reduction of GHGE (EEA 2017). Renewable energy accounted for 86% of the new power capacity added in the EU in 2016, compared with 57% in 2008 (REN21 2017, p. 34). We cannot sufficiently explain this type of exemplary leadership merely by top-level EU climate policy measures and decisions. The EU ETS, which is the EU's core climate policy instrument (Eikeland and Skjaerseth 2019), has remained largely ineffective (Jänicke and Quitzow 2017). In 2017, the EU ETS's carbon price was about €5/ton of carbon and thus had little effect on corporate actors' decisions. The EU was also not relying on strong, harmonised instruments to stimulate green electricity (Jacobs 2012). Moreover, financial support for renewable energy has diminished significantly in most member states and at the EU level in recent years.

Scholars have identified a 'leaderless leader' paradox whereby 'the EU seeks to lead by example but is itself a relatively leaderless system of governance' (Jordan *et al.* 2012, p. 6). This helps to explain the discrepancy between top-down EU climate policy measures, which are relatively modest, and the actual achievements as regards the reduction of GHGE and the increase in renewable power capacity. Schreurs and Tiberghien (2007, p. 22)

have tried to resolve the leaderless leader paradox by arguing that 'EU leadership in climate policy is the result of the dynamic process of competitive multi-level reinforcement among different political poles within a context of decentralised governance'. Multilevel reinforcement, especially between the member state and EU levels of governance constitutes an important explanatory factor for the EU's relatively ambitious climate policies. However, in recent years, the EU's multilevel system has also developed a strong subnational governance dimension, which has remained under-researched.

Within the complex EU climate governance system, a relatively wide range of actors are involved in 'baton passing' at different governance levels (Schreurs and Tiberghien 2007, p. 24). Scholars have paid significant attention to how the climate leaders among the EU's member states (such as Denmark, Germany and the United Kingdom) and EU institutional actors (e.g. the European Parliament (EP) and Commission) have tried to influence climate governance at the EU and member states levels (Schreurs and Tiberghien 2007, Oberthür and Kelly 2008, Jordan *et al.* 2010, Wurzel *et al.* 2017, Matschoss and Repo 2018). Although there is a growing literature on the role of cities and city networks (Kern and Bulkeley 2009, Betsill and Bulkeley 2013, Eckersley 2018), scholars know relatively little about how subnational (and societal) actors are both affected by and affect the EU's multilevel climate governance system.

There are at least four main reasons for the emerging interest in subnational climate governance innovations within the EU multilevel climate governance system. First, cities are both major greenhouse gas (GHG) emitters *and* laboratories for innovative climate governance measures, some of which could be scaled-up to 'higher' levels of governance (Betsill and Bulkeley 2013, see also Wurzel *et al.* 2019, this volume). Second, especially since the 2008 financial crisis, the EU Commission has pushed its 'better regulation' agenda of adopting top-down direct regulation only when necessary, which is broadly in line with the principle of subsidiarity already adopted in the 1993 Maastricht Treaty. Third, the international multilevel climate governance system has become more polycentric with the 2015 Paris Agreement (Wurzel *et al.* 2017, Oberthür 2018). Fourth, as already discussed above, the EU multilevel climate governance system has also increasingly exhibited polycentric features such as EU support for city networks and the Covenant of Mayors.

We could characterise the EU's polycentric climate governance features (Ostrom 2010, 2014) as a 'multi-impulse mechanism' (Klemmer *et al.* 1999, Jänicke 2017a).[3] The multi-impulse mechanism concept focuses on the governance *effects* (i.e. not the structure) of the polycentric features of MLG systems such as the EU. 'Impulse' in this context essentially means an external stimulus or *impetus to learn*. Lesson-drawing from leaders in

this multi-impulse system often takes place within transnational networks. It can be the result of cooperation as well as competition. It is achievable by vertical up-scaling from best practice at lower levels or top-down climate policy decisions and policies. In other words, it should be possible to observe all of the above-mentioned four main driving factors – lesson-drawing, convergence, transnational networks and competition – for climate innovation within the EU multilevel climate governance system. Here, we have focused primarily on lesson-drawing which, under certain circumstances, can develop into *a dynamic system of interactive learning* within the EU multilevel climate governance system.

In contrast to many polycentric climate governance approaches (e.g. Ostrom 2014), we argue that top-level policy decisions and the EU's institutional 'infrastructure' strongly influence climate leadership dynamics and lesson-drawing within the EU multilevel climate governance system, encouraging climate innovation at different governance levels. A system of multilevel interactive learning has emerged which is neither leaderless nor merely the result of bottom-up processes. Of central importance for the learning process is the recognition that economic co-benefits (e.g. employment, innovation and productivity) can result from climate governance measures (Mayrhofer and Gupta 2016). All levels of the EU's multilevel climate governance system have learned lessons about economic co-benefits of climate governance measures (Jänicke and Quitzow 2017). It is due to the economic co-benefits of EU climate governance measures that veto players (Tsebelis 2002) and 'joint decision traps' (Scharpf 1988) have not prevented the EU from acting as a climate leader (Oberthür and Kelly 2008, Wurzel *et al.* 2017). EU climate policy as a 'business case' has become a success story overall. However, especially the Visegrad countries (Hungary, Poland, Czech Republic and Slovakia) have remained sceptical about the move towards a low-carbon economy (Skjaerseth 2018) and the concept of ecological modernisation, which assumes that ambitious environmental measures are beneficial for both the environment and economy.

While the integration of general environmental requirements into other policy areas – often referred to as environmental policy integration (EPI) – has made little progress on the EU level (Jordan and Lenschow 2008), the EU seems to have achieved a better record with regard to the integration of climate policy concerns into non-climate policy areas such as regional policy and budgetary policy. This is not to argue that climate policy integration (CPI) has been successfully achieved for all EU policies. There are EU policies (e.g. transport and agriculture) for which little, if any, meaningful CPI has occurred up to now (Jordan *et al.* 2012, p. 58, Dupont and Oberthür 2015).

EU support for multilevel climate governance

The EU, and in particular the European Commission, have actively advanced initiatives (e.g. the Covenant of Mayors) and mechanisms (e.g. regional policy funding) to mobilise local governance actors with the aim of enabling them to develop and showcase their climate governance innovations. Non-EU states such as the United States, China and India also have a MLG approach to climate protection (Wurzel *et al.* 2017). However, the architecture of the EU's multilevel climate governance system is comparatively more advanced, particularly because EU institutional arrangements and financial mechanisms support lower climate governance levels (Jänicke and Quitzow 2017).

The EU's first institutionalised MLG innovations, which directly targeted the subnational level, occurred in regional policy (Marks 1993). These MLG regional policy initiatives, which predate EU climate policy, required time before effective institutional arrangements for lesson-drawing from subnational leaders could be set up (Marks and Hooghe 2004). The EU's regional policy contains a strong financial commitment for the shift towards a low-carbon economy. A total of 172 regions accounting for 80% of the EU regions participated in the Smart Specialisation Platform on Energy. The platform helps regions to share their expertise on sustainable energy investments and especially on the deployment of innovative low-carbon technologies (CEU 2015). Although the Committee of the Regions (CoR) has few formal powers, it became an important institution for the exchange of ideas and practical experience gained with climate innovation at the regional and local governance levels. In 2014, the Committee published a Charter for Multilevel Governance (MLG) in Europe (CoR 2014).

Even more important was the support for cities from funding mechanisms such as the European Structural and Investment Funds (ESIF) and the incentives offered by the European Green Capital Awards. While such mechanisms indirectly support climate mitigation activities, the Covenant of Mayors has been explicitly linked to the EU's 2008 climate and energy package (Bendlin *et al.* 2016). The Commission launched the Covenant of Mayors, which was integrated into the Covenant of Mayors for Climate and Energy in 2015, to facilitate local climate innovations. With its benchmark of excellence, the Covenant of Mayors provided a significant institutional stimulus for local exemplary climate leadership and lesson-drawing. By 2017, it had attracted 7675 signatories from local communities (including some non-EU cities), representing 241 million inhabitants. In total, 5992 of these local communities and cities have Action Plans with 2020 targets, although there is a new objective of achieving at least 40% GHGE reductions by 2030 (Covenant of Mayors for Climate and Energy 2017). The average targets of these Actions Plans, which amount to −27% of CO_2

emissions, surpass the EU's collective GHGE reduction targets for 2020 (Covenant of Mayors, 2017). Importantly, the EU has linked the Covenant of Mayors for Climate and Energy (together with the Compact of Mayors) to the global level with the adoption of the Global Covenant of Mayors for Climate and Energy (2018) in which9149 cities representing 781 million people worldwide participate. The EU's exemplary leadership has, therefore, attracted followers at the local governance level also in other parts of the world.

The EU has extended its multilevel climate governance system through the Covenant of Mayors by broadening it to the village level which has become important because renewable energy investment often takes place in rural areas, most of which also provide the necessary sinks (e.g. forests) for 'negative emissions'. The EU Commission has started a pilot project on smart 'eco-social villages', which uses best practice for a more general approach to rural development (CEU 2017).

Another actor that has strengthened the EU multilevel climate governance system has been the European Investment Bank (EIB), which has used financial instruments to offer 25% of its credits for climate related investment (EIB 2017). Since the early 2010s, the EU must spend 20% of its budget on climate-related measures. In 2016, Commission President Juncker announced in his 'State of the Union' address that, under the European Fund for Strategic Investment (EFSI), 40% of large infrastructure and innovation projects have to contribute to climate action, although observers later criticised some of the investment for including fossil-fuel projects (ENDS Europe 2017).

The EU's attempt to move towards an *Energy Union* is another institutional mechanism, although progress has been slow and patchy. The EU initially introduced Energy Union without explicit climate policy considerations but eventually rectified this, for instance, by making 'efficiency first' an important goal (Verhaar and Frassoni 2017). Moreover, the importance of subnational and societal actors has been recognised in the European Commission's 2016 Communication Accelerating Clean Energy Innovation, which stated that 'the transition to a low-carbon, energy-efficient and climate-resilient economy, will require a more decentralised, open system with involvement of society' (CEU 2016, p. 4).

In short, the EU has initiated and/or supported a large number of subnational climate governance initiatives, which have made the EU climate governance system arguably more polycentric. However, many decisions on funding and GHGE reduction targets, which have an indirect effect on subnational climate governance innovations, are taken at the top level of the EU climate governance system. Therefore, the EU can offer exemplary climate leadership even without direct interference at the local level.

Based on the evaluation of 262 EU climate policies, Berkhout and colleagues (2010, p. 137) have concluded that 'climate policy is deeply multi-level, but with a trend towards harmonisation at the EU level'. Jörgens and Solorio (2017) have referred to it as bottom-up Europeanisation, which they distinguish from both top-down Europeanisation and horizontal Europeanisation (see also Jordan and Liefferink 2004). Horizontal Europeanisation refers not only 'to the direct diffusion or transfer of policies from one EU member state to another' (Jörgens and Solorio 2017, p. 11). Instead, horizontal Europeanisation in the form of broad lesson-drawing from best practice takes place at all levels of the EU's multilevel climate governance system, including the provincial level and the local level (Kern and Bulkeley 2009, Jänicke and Quitzow 2017, see also Kern 2019, Wurzel *et al.* 2019, this volume).

Conclusion

National leaders have long played an important role in developing EU environmental policy in general (e.g. Andersen and Liefferink 1997) and climate policy in particular (e.g. Oberthür and Kelly 2008, Jordan *et al.* 2012, Wurzel *et al.* 2017). The opening up of windows of opportunity unrelated to climate governance has sometimes enabled their leadership. For example, Germany's climate policy benefitted significantly from 'wall fall profits' and the United Kingdom from its 'dash for gas'. Especially since the early 1990s, the EU system of multilevel climate governance incrementally developed *systemic* opportunity structures that have encouraged climate leadership and lesson-drawing at different governance levels, including the regional and city levels. Economic co-benefits resulting from climate mitigation measures have provided attractive economic exemplary leadership examples from which other actors have drawn lessons.

The literature has identified a 'leaderless leader' paradox according to which the EU has become a leader in global climate governance (e.g. Oberthür and Kelly 2008, Wurzel *et al.* 2017) although it is itself a relatively leaderless system. We cannot sufficiently explain the EU's global exemplary leadership merely by its top-level climate policy. We have argued that the following two main factors can best explain the 'leaderless leader' paradox: the use and purposeful extension of the EU multilevel climate governance system into a system which encourages interactive climate policy learning at all climate governance levels including the subnational level and the recognition of the economic co-benefits of climate governance measures and the integration of climate policy objectives into non-climate policies such as budgetary policy.

More research is necessary to improve our understanding of the exact impact that the EU multilevel climate governance system has on subnational climate governance. The role of peer-to-peer learning at different governance levels (in particular at the regional and/or local governance levels) remains under-researched. The interactions between different climate governance levels also require urgently additional scholarly attention. Moreover, there is a lack of research into climate policy failures, especially at the subnational climate governance level of the EU multilevel climate governance system. While there is a growing literature on relatively affluent climate leader cities (e.g. Kern and Bulkeley 2009, Kern 2019, this volume) relatively little is known about climate innovations in deprived, structurally disadvantaged cities (see however Jonas *et al.* 2017, Wurzel *et al.* 2019, this volume) and how such cities can affect the EU's multilevel climate governance system and vice versa.

Notes

1. *Leadership by example* has a long tradition in European history. For example, French absolutism's power structure, economic system, architecture and even its preferred products have been imitated by other European countries.
2. Liefferink and Wurzel (2017) and Wurzel *et al.* (2017) have argued that leaders actively seek to attract followers while this is not normally the case for pioneers. Here, we focus primarily on leaders.
3. Klemmer *et al.* (1999) first used the term 'multi-impulse-hypothesis' for environmental innovations that are not caused by one specific policy instrument but by the interactions of different societal factors.

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