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**Whose energy transition is it, anyway? Organization and ownership of the  
*Energiewende* in villages, cities and regions**

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## **Abstract**

As one of the most ambitious national energy transition initiatives worldwide, the German *Energiewende* is attracting a huge amount of attention globally in both policy and research circles. The paper explores the implementation of Germany's energy transition through the lens of organization and ownership in urban and regional contexts. Following a summary of the principal institutional challenges of the *Energiewende* at local and regional levels the paper develops a novel way of conceptualizing the institutional to urban and regional energy transitions in terms of agency and power, ideas and discourse, and commons and ownership. This analytical heuristic is applied to a two-tier empirical study of the Berlin-Brandenburg region. The first tier involves a survey of the organizational landscape of energy infrastructures and services in cities, towns and villages in Brandenburg. The second tier comprises a case study of current, competing initiatives for (re-)gaining ownership of the power grid and utility in Berlin. The paper draws conclusions on the diverse and dynamic organizational responses to the *Energiewende* at the local level, what these tell us about urban and regional energy governance and how they are inspired by – or in opposition to – new forms of collective ownership resonant of recent debates on reclaiming the commons. It concludes with observations on how relational approaches to institutional research and the notion of the commons can guide and inspire future research on socio-technical transitions in general, and urban energy transitions in particular.

**Key-words:** Local energy transitions; Germany; Berlin-Brandenburg; organization; ownership; commons

## Introduction

As one of the most ambitious national energy transition initiatives worldwide, the German *Energiewende* is attracting a huge amount of attention globally in both policy and research circles. Opinions from in- and outside Germany range from admiration to admonition, with benevolent observers hailing the *Energiewende* as a model for emulation elsewhere and critics dismissing it as a policy driven more by desire than rational logic (see Gawel et al. 2013). There is clearly an urgent need to provide grounded insight into how Germany's own energy transition, framed by the nuclear exit strategy, is playing out in practice. Given that the shift from nuclear to renewable energy sources in Germany is hugely dependent on local and regional initiatives and organizations to deliver, a strong case can be made for targeting these spatial levels when investigating the changes set in motion by the policy shift.

The following paper explores the implementation of Germany's *Energiewende* through the lens of organization and ownership in urban and regional contexts. The rationale for this particular focus is that the current transition from nuclear to renewable energy provision is neither a simple case of rolling-out a national policy at sub-national levels, nor is it restricted to a few pioneering, model cities. What makes the *Energiewende* special from an urban/regional studies perspective is that it is affecting villages, cities and regions across the whole country and that these communities are responding to the challenge in very different ways. These responses are not simply of a technical nature, but reflect intense debates about how each locality stands to benefit or lose out from the *Energiewende* and how it can intervene to advance its own – and broader, collective – interests.

These debates find expression in the emergence of new organizations – and the reconfiguration of existing ones – at local and regional level to promote renewable energies, but also to strengthen local control over energy policy. Prominent examples include energy cooperatives (around windfarms, solar parks etc.), so-called bio-energy villages and regions (aspiring to

100% reliance on renewables) and initiatives to re-municipalize energy utilities and/or electricity networks (George 2012; Libbe et al. 2011; Matecki and Schulten 2013). As yet, no systematic survey has been conducted on these organizations. Consequently, we know very little about their numbers, membership and ownership, spatial distribution, particular purposes or socio-technical configuration, let alone what impact they are having on the *Energiewende*. The first aim of this paper is, therefore, to document and explain shifts in the organization of energy infrastructures and services at the local and regional level in response to the *Energiewende*. Here we seek to answer the questions: What kinds of organizations are emerging in response to the *Energiewende* and what effects are they having on the spatial organization and governance of energy in Germany?

The issue of ownership – in both a narrow economic and broader emotive sense – appears a critical factor behind these organizations. On the one hand is the overt issue of who owns them financially or controls them politically. On the other is the covert issue of who identifies with them and why, who supports or opposes them, how inclusive they are and how they reflect or affect power relations in a locality or region. The second aim of the paper is, therefore, to explore the multiple notions and forms of ownership connected with this process of institutional change and what these can mean for urban and regional energy governance. We are interested in exploring what arguments are instrumental behind the emergent energy organizations, how far these address collective interests of a community and what impact they may have on local/regional power configurations.

Conceptually, the study seeks to contribute to a more nuanced understanding of urban/regional energy transitions as processes of institutional change. Institutional change is understood here not in the limited sense of a shift in policy regime from state-centred to liberalized, or from privately-owned to municipally-run utilities, but in a more wide-ranging and relational sense. The paper draws on recent literature on the relationship between institutions, technologies and

actors, on the power of ideas and discourse in institutional adaptation and on collective forms of governing urban and energy commons in order to interpret the above issues of organization and ownership. The third aim of the paper is to draw conclusions from the empirical findings on the governance of urban and regional energy transitions, using the above debates for conceptual guidance.

Empirically, the paper develops its argument around a two-tier empirical study of the Berlin-Brandenburg region. The first tier involves a survey of the organizational landscape of energy infrastructures and services in cities, towns and villages in Brandenburg conducted in 2011-2012 (Becker et al. 2012). The purpose of this step is to provide an overview of the variety of organizational forms currently existing across the region, explaining what kinds of organizations exist where, why and for whom. The second tier involves a case study of current, competing initiatives for (re-)gaining ownership of the power grid and utility in Berlin. This more in-depth study, based on document analysis and expert interviews, addresses the ideas and arguments, rather than the structures, behind the organizational innovations. Berlin and Brandenburg are two separate *Länder* (federal states) within the German political system and thus share the same administrative status and degree of formal autonomy. Within the federal system in Germany, the *Länder* play an important role in implementing the *Energiewende*, for instance with their own energy-related legislation and strategies.

The paper begins by setting out briefly the institutional challenges of the *Energiewende* at local and regional levels. It then develops a way of conceptualizing the institutional to urban and regional energy transitions, drawing on literatures on institutional change and the commons. There follow the two empirical sections on the shifting organizational landscape of energy in the state of Brandenburg and the case study of issues of ownership relating to energy systems in Berlin. The concluding section summarizes the main empirical findings and interprets them

through the conceptual lens of institutional change, highlighting promising areas for future research.

### **The institutional challenge of the German *Energiewende***

Since the German government's spectacular U-turn on its nuclear policy following the Fukushima disaster in 2011, the term *Energiewende* has become shorthand for Germany's strategy to phase out nuclear power and shift electricity and heat generation from fossil to renewable sources whilst maintaining economic growth. According to the ambitious timeline, the last nuclear reactor will be shut down by 2022 and, by 2050, renewables will provide 60% of Germany's gross final energy (Federal Ministry of the Environment 2011). The enormity of this task is not lost on the government, with the former Federal Environment Minister Peter Altmaier claiming the *Energiewende* is Germany's greatest political and economic challenge since post-war reconstruction (cited in Beveridge and Kern 2013, p. 4). Nor has it escaped the attention of critics, who have lampooned the excessive speed, state interventionism and cost of the *Energiewende*, accusing Germany of "exceptionalism" in its energy policy (e.g. Jahn and Korolczuk 2012; see rebuttals in Gawel et al. 2013). Germany's post-Fukushima energy policy may be bold, but it is neither unique nor unprecedented (Gawel et al. 2013; Beveridge and Kern 2013). It is worth noting that the term *Energiewende* was actually coined in 1980 by environmental think-tanks to envisage "growth and prosperity without oil and uranium" (Krause et al. 1980). Since then, there have been several policy initiatives towards renewables and away from fossil and nuclear power in Germany, most notably the Renewable Energy Sources Act (EEG) of March 2000 and legislation for the first nuclear phase-out in 2001. The policy of feed-in tariffs for renewables, enshrined in the EEG, has been emulated and adapted in over 40 countries (Beveridge and Kern 2013, p. 5).

The current *Energiewende*, as a process of structural and societal transition, poses a number of institutional challenges (Gailing et al. 2013). These include the reconfiguration of the national grid to accommodate multiple sources of electricity from small-scale generating units, the challenge posed to the ‘big four’ energy utilities (RWE, E.ON, Vattenfall and EnBW) by small businesses, cooperatives and municipal utilities generating electricity from renewable sources and the role of the state in supporting and coordinating the *Energiewende*. From a local or regional perspective, the principal challenge lies in finding ways of responding to federal and state policies which reflect the socio-spatial contexts and political-economic interests of local action. Many local authorities are seizing the opportunity of the new policy environment to advance their own energy transition, for instance providing their own ‘green’ electricity from renewable sources or using their regulatory powers to impose higher energy standards (Bulkeley and Kern 2006). Municipal authorities are, however, not the only significant actors at the local level. What makes the current *Energiewende* so intriguing, but challenging, is the way it is enrolling new actors and places in local and regional energy provision and use. The policy targets and incentives introduced by the federal government are stimulating a massive growth in wind-power, solar-power and biogas plants, which are located primarily in rural areas. This is giving rise to a growing number of energy strategies of villages and regions, rather than just model cities as in the past. It is also creating a highly diverse actor landscape, ranging from farmers supplying biomass or sites for wind farms, private investors looking for safe, ‘green’ portfolios, ‘prosumers’ operating their own solar or CHP systems to cooperatives of residents interested in drawing local benefit from the *Energiewende*. Given the high degree of dynamism and uncertainty surrounding the *Energiewende* it is impossible to predict how the institutional geography of energy in Germany will look in the future. A more fruitful exercise is to study the ongoing process of institutional change in German villages, towns and regions. Before we do so, we need to consider appropriate ways of researching the institutional in urban and regional energy transitions.



### **Conceptualizing the institutional in urban and regional energy transitions**

“Social and political institutions tend to be taken for granted in studies focused on the development of technological networks in developed countries during stable policy phases” (Coutard et al. 2005, p. 11).

Institutions are ubiquitous but elusive features of research on socio-technical systems. Whilst few scholars dispute the importance of institutions to socio-technical systems, fewer still seek to explain what this role is in a differentiated, reflective and systematic manner. For all the references made to institutional contexts, incentives and constraints, there exists no coherent body of work which focuses specifically on the institutional in socio-technical transitions.

What does exist is a disparate and broad literature which addresses the institutional arrangements of socio-technical systems from diverse vantage points. For historians of technology institutions are critical components of the path dependency of socio-technical systems, reinforcing dominant models of service provision and use (Hughes 1983; Melosi 2000). Path dependency is strong, this literature argues, where there is a powerful match between technologies and institutional arrangements. For observers of contemporary socio-technical transitions, conversely, interest in institutional change is generally targeted at shifts in the political economy towards liberalization and privatization (Summerton 1994; Graham and Marvin 2001). Here the prime motive is to ascertain how shifts in regulatory frameworks can induce changes to the way utility services are organized and how these changes can undermine the public service functions of these systems. Political scientists have highlighted the interdependence between the organization of infrastructure systems and the dominant mode of governance of a particular society (Mayntz 1993). Researchers of sustainability transitions refer to institutions as either part of the ‘regimes’ or the ‘landscape’ of socio-technical systems within the multi-level perspective (Geels 2002). Here, institutions are often treated as context

factors with the ability to shape the probability and outcomes of certain transition pathways (Geels and Schot 2007) or to enable strategic niche management (Kemp et al. 1998). Recent research under the headline “Bringing technology back in” is arguing how the characteristics of specific technologies frame the institutional options for regulating them (Dolata and Werle 2007; Voß and Bauknecht 2007). To summarize, scholarship on socio-technical transitions presents not only a wide difference of opinion but also considerable uncertainty as to what institutions are, how they work and how they influence – and are influenced by – technology, actors and the city.

It is beyond the scope of this paper to develop, in response to this heterogeneity, a systematic framework for conceptualizing institutional dimensions of socio-technical transitions. The more modest task here is to explore ways of treating institutions not as a backdrop, but rather as a constitutive component of socio-technical systems and their adaptation. To this end, the paper draws on relational approaches to institutions in accordance with three strands of institutionalist literature. Firstly, it conceives of institutions not simply as regulatory arrangements, but as an intricate interplay of multiple formal and informal rule systems, ranging from codified laws or contracts to social norms and routine practices (North 1990). Secondly, the paper views institutions as both medium and product of socio-technical change, considering not only how institutions (and institutional change) shape the trajectory of socio-technical systems, but also how new technologies often require modified institutional arrangements (Dolata and Werle 2007). Thirdly, the paper follows Rohracher in targeting the open-ended and dynamic relationship between actors, institutions and technologies as critical to explaining the obduracy and adaptability of socio-technical systems (2002).

Whilst this relational and dynamic understanding of institutions helps to broaden perspectives and create openings for fruitful interaction with relational approaches to the study of socio-technical and/or urban transitions, it remains too abstract as guidance for our empirical research.

In order to address our specific interest in shifting modes of organization and notions of ownership in the energy sector we develop three core issues underpinning institutional change used as an analytical heuristic: firstly, agency and power, secondly, ideas and discourse and, thirdly, commons and ownership.

### *Agency and power*

Institutions constrain and enable contexts for human interaction, but they are at the same time “created, maintained and changed through action” (Barley and Tolbert 1997, p. 112). Institutional change, from this perspective, is not simply a product of design, but emerges from the “relationship between actors and the context in which they find themselves, between institutional ‘architects’, institutionalized subjects and institutional environments” (Hay and Wincott 1998, p. 955). Some actors act strategically, seeking to influence an institutional setting in their favour (Jessop 2001, p. 1225). The ability to do so is unevenly distributed between actors. Influencing institutional arrangements thus becomes an issue of power, or – in Hay’s words – “about the capacity of actors to define the parameters of what is socially, politically and economically possible for others” (1997, p. 50). This attention to agency and power (“context shaping”) in analyzing processes of institutional change is a fruitful approach for exploring how socio-technical transition processes are political endeavours that create both winners and losers (Lawhon and Murphy 2012).

### *Ideas and discourse*

Whilst institutional change is precipitated by agency and influenced by social power relations, the aims and content of attempts to change institutions are driven by ideas. The importance of ideas to institutional change has gained recent popularity with the work of discursive institutionalists. Vivien Schmidt criticizes traditional institutionalism for reducing the causes of institutional change to external contextual factors, thereby merely describing, rather than

explaining, these processes (Schmidt 2011, p. 50, see also Hay 2006). The critical factor, in her view, is “how ideas are generated among policy actors and diffused to the public by political actors through discourse” (ibid., p. 55). Her concept of discursive institutionalism encompasses different abilities of actors to first develop new ideas in their consciousness (“background ideational abilities”) and then promote them to a wider public (“foreground discursive abilities”) (Schmidt 2008, p. 314). The struggle to change an institutional arrangement, thus, becomes a “battle of ideas” (ibid., p. 305) fought by individual and collective actors.

### *Commons and ownership*

Ideas, discourses and institutional change are materialized in various forms of ownership. Current debates on ownership are shifting from a simple “private vs. state ownership” dichotomy to accommodate more differentiated and collective forms of ownership. One of the most prominent frames of reference is the concept of commons, understood as “non-commodified space” or resources (Harvey 2012, p. 70). Commons research has a long pedigree along three basic strands (Moss et al. 2013, p. 3ff.): firstly, neoclassical economists classifying goods as private or public according to their excludability and rivalry (Olson 1965), secondly, the work of institutional economists on forms of collective management of local natural resources (Ostrom 1990) and, thirdly, recent scholarship on commons as a way of thinking about new, post-capitalist forms of ownership (Hardt and Negri 2009, Harvey 2012). The idea of commons implies that questions of ownership go beyond property and individualized legal entitlement. This broader understanding of ownership draws on debates in philosophy (Christman 1994), organizational sociology (Katz and Kahn 1978), management studies (Avey et al. 2009) and development aid (Boughton 2003). Andrew Cumbers (2012) has advocated the notion of “public ownership” in human geography, illustrating its value in interpreting re-municipalization initiatives in many sectors and cities across the world today. As Cumbers argues, the debates on re-municipalization often reach far beyond questions of legal and

material ownership to include issues of local community control, distributional justice, environmental sustainability and justice and enhanced participation – collectively termed ideational ownership (ibid., p. 165).

### **The shifting organizational landscape of energy in Brandenburg**

Turning to our first empirical case of institutional change at the urban and regional level, we explore the shifting organizational landscape of energy in the state (*Land*) of Brandenburg. Through the lens of the first analytical frame – agency and power – we shed light on how the *Energiewende* is taking shape institutionally and how this reflects shifts in power relations between incumbent and emergent actors. The political project of the *Energiewende* is particularly poignant for Brandenburg. On the one hand, the state has a long history as an “energy region”, delivering lignite from its vast open-cast mines to large-scale, coal-fired power stations and thereby emitting more CO<sub>2</sub> from electricity generation than any other German state. On the other hand, Brandenburg is a pioneer in the use of renewable energy sources, with some of the highest concentrations of wind farms and biogas plants in the country (Dieckmann et al. 2012, p. 87). The responses of key actors to the *Energiewende* reflect this dichotomy and illustrate the contested and disparate nature of energy policy implementation at state, regional and local scales. These key actors of Brandenburg’s energy transition, addressed below, are: the state government, regional planning agencies, local authorities, the regional power utilities and civil society groups promoting or opposing renewable energy systems.

At the state level, the Brandenburg government’s response is encapsulated in its Energy Strategy 2030, published in 2012 (MWE 2012). This strategy document attempts to straddle the two disparate pillars of state energy policy. Whilst setting targets for energy provision from renewable sources which exceed even those of the federal government, the Energy Strategy 2030 at the same time relies on traditional lignite mining for the foreseeable future to retain

jobs in the structurally weak Lusatia region. State policy is to implement this strategy with the help of subordinate energy strategies at regional and local levels, which are to provide the necessary detail and context-sensitivity. Thus, at the regional level, the planning authorities have been commissioned to produce regional energy strategies, compiling data, devising scenarios and developing guidance for each planning region's future energy use and supply. Similarly, at the local level, some 25 municipal energy strategies have been devised to date, most of them with state support.

What appears at first glance a neat process of policy roll-out from state to local level is in practice proving to be a highly contested and complex terrain populated by multiple actors and divergent interests. Brandenburg's own *Energiewende*, as a political project, is encountering considerable opposition but also generating new organizational forms both in favour and against the policy shift from fossil to renewable fuels. Conflicts over state energy policy are not new to Brandenburg, but the *Energiewende* has introduced, alongside long-standing opposition to lignite mining, new conflicts over renewable energy.

Regarding fossil energy, the policy to retain lignite mining has enlivened the numerous local protests against the "relocation" of existing villages to make room for new open-cast pits as well as the annual "energy and climate" protest camp. These protestors face campaigns in favour of lignite mining driven not only by the incumbent power utility Vattenfall but also by the influential mining and energy trade union IG BCE. Opinions over the future of lignite mining differ even within the state government, with the Left Party generally opposing additional lignite mining sites in the interest of protecting the climate and local communities and the Social Democratic Party advocating them in order to protect jobs and a major industry in the region.

In promoting electricity generation from renewables the two governing parties are in agreement. The opposition here comes, rather, from local residents objecting to the location of wind parks, biogas plants, solar farms and industrial-style biomass production in their community. Their

protests are primarily against the negative impact of these energy technologies on the landscape and the emissions (e.g. noise) they cause. More deep-rooted factors – notably frustration at external investors making money from interventions in the local landscape – lend these protests particular ferocity. As these protests become more widespread and professional, they are altering the organizational landscape of energy provision in the state. Today, there exist over 50 citizen’s initiatives against the construction of new wind farms in Brandenburg alone. Local citizens are not only involved in protests but also in the establishment of energy cooperatives and other local initiatives for renewable energy plants. In contrast to other German regions, though, energy cooperatives are less developed in Brandenburg, possibly because of significantly lower incomes and savings. Overall, therefore, civil society appears to be an ambivalent actor in Brandenburg, with protests against renewables (as well as lignite mining) generally stronger than pro-active initiatives in support of local energy transitions.

Against this background of two deep cleavages in the organizational landscape of Brandenburg’s energy systems, local energy utilities strive to position themselves and benefit from the shifting regulatory framework. Interestingly, these municipal utilities can be found not just in the cities, but in all parts of Brandenburg, including small- and medium-sized towns in structurally weak, peripheral areas (see Figure 1). This can be attributed to an earlier wave of re-municipalization of energy utilities in Eastern Germany following reunification in 1990, as affirmed by the Constitutional Court in 1992 (Becker 2011, p. 83). When Germany’s electricity market was liberalized in the late 1990s it was widely anticipated that local energy providers would be the first victims of increased market pressure (Bontrup and Marquardt 2010). However, 27 local energy utilities still exist in Brandenburg today. Many of these utilities have proved effective in retaining and gaining customers by appealing to local or regional identity, branding their electricity as “Spreewaldstrom” or “Ruppinstrom”. Nevertheless, major national and European energy companies have a financial share in two thirds of Brandenburg’s local energy utilities (see Figure 1). The presence of large private operators is even more evident in

the operation of the electricity grid, with E.ON edis, Vattenfall, RWE and its subsidiary enviaM responsible for nearly all regional power networks in Brandenburg. The ownership structure of energy provision is thus highly diverse, involving the complex interplay of actors operating on multiple scales.

*[Insert Figure 1 about here]*

The positive experience with municipal provision and the general momentum of the *Energiewende* is, however, lending weight to attempts to re-municipalize energy utilities in various cities and towns across Brandenburg and beyond (Matecki and Schulten 2013). These efforts to re-municipalize energy utilities are expressions of how this organizational landscape of energy provision is not only complex, but also highly dynamic. Re-municipalization can take different forms, ranging from municipalities regaining full material ownership to diverse hybrids of public and private (on these different types, see Bauer 2012, p. 237f.). In Brandenburg there have been, to date, seven successful initiatives at re-municipalizing energy utilities since 2011 (Becker et al. 2012, p. 26). There are currently five more initiatives in the pipeline and a number have also failed. While a trend towards re-municipalization is clearly visible in Brandenburg, it is difficult to generalize on the circumstances of such endeavours. Echoing the organizational diversity already observed, every re-municipalization project is different, being embedded in very specific local politics. While the arguments surrounding local re-municipalization discourses are often the same – on the one hand greater municipal leverage over the energy transition and a local source of revenue, on the other the financial risk and technical issues – the alignment of actors to these arguments differs from case to case. We observe conservatives pushing for re-municipalization in one town and Green Party members



strongly opposing it in another. It is these local actor and power constellations that determine whether a re-municipalization initiative will succeed and which type will be chosen.

Our exploration into Brandenburg's shifting organizational landscape of energy provision was focused on agency and power as factors of institutional change. We have shown how the institutional frameworks and incentives designed by both federal and state governments are, to be effective, highly dependent on the willingness and ability of key actors to support the region's energy transition. Powerful players, such as the energy utility Vattenfall and the mining union, are fighting hard to retain the status quo. At the same time, however, the *Energiewende* is creating opportunities for less influential actors to shape the energy trajectory of the region, notably local authorities and local residents. The emergence of new municipal utilities, protest groups and energy cooperatives are organizational manifestations of a modest, but distinct, shift in power relations in the region's energy landscape. In the following section we turn to the question of how new organizations and forms of ownership are underpinned by ideas and arguments. To do this, we conduct a more in-depth analysis of attempts to re-municipalize Berlin's energy system.

### **Towards urban energy commons? Re-municipalizing Berlin's energy system**

Berlin lends itself to a study of competing notions and forms of ownership of energy provision for several reasons (on the following, Monstadt 2004). Firstly, it has a long – if chequered – history of ecological modernization in the energy sector, spawning innovative policies and practices targeting energy saving in the housing stock and small-scale combined heat and power generation. In the early 1990s new organizational structures were created, such as the Berlin Energy Agency and the Energy Coordinating Unit within the Senate Department for Urban Development and the Environment, which provided important groundwork for today's energy

transition in the city. Secondly, the city's power utility Bewag, a flagship of municipal prowess in the past, was fully privatized in 1997 and is today owned by Vattenfall. Thirdly, and most significantly, Berlin has recently become a major experimentation ground for political initiatives to transcend traditional modes of public or private ownership and create a commons-based urban electricity system. Whilst the *Energiewende* and debates over Berlin's own contribution have lent argumentative purchase to these initiatives, it is the expiry of the concession contract for the city's electricity grid – comprising 35,000 km of power lines – at the end of 2014 and the bidding process for possible alternatives to the incumbent, Vattenfall, which has triggered the debate (Libbe et al. 2011; Grefe 2013). This window of opportunity is stimulating ideas not simply about the city-state buying back the local power utility and making it more amenable to the policy targets of Germany's *Energiewende* but also about how to make a local energy system more democratic and socially equitable, as well as environmentally sustainable. As this section demonstrates, these debates are airing new notions of energy ownership and commons driven and discursively advanced not by state actors, but through the purposeful agency of powerful social movements. The principal actors to this story are: a roundtable organisation campaigning for the re-municipalization of Berlin's power utility, an energy cooperative, the incumbent utility Vattenfall, the city-state government and its coalition parties.

The campaign to pressurize the city government to regain control of the power grid and create a municipal power utility began in 2010 as a small group of activists from the Berlin branch of the anti-globalization movement attac, the nationwide initiative *Bürgerbegehren Klimaschutz* (Petition for Climate Protection) and the small NGO PowerShift. In the summer of 2011 the *Berliner Energietisch* (Berlin Energy Roundtable) was founded as an organizational platform for common agency supportive of the idea. It grew considerably, numbering around 40 groups, including environmental NGOs and tenants associations. The initial group set out its aims in an

initial concept for a municipal power utility, calling for an “ecological orientation” to this utility, a “social arrangement” for pricing to avoid energy poverty and a “democratic constitution” enabling the direct involvement of citizens in decision-making (Attac et al. 2011). These ideas were refined in a draft law which incorporated a number of stipulations for embedding a strong participatory approach into the organizational structure of a *Bürgerstadtwerk* (Citizens’ Power Utility) which are novel to re-municipalization debates in Germany. These include public meetings on a borough level, an extended advisory board with directly elected citizen representatives and core documents being made publicly accessible (Berliner Energietisch 2012). In the face of considerable opposition from the incumbent network operator Vattenfall and reluctance by the city government to embrace such radical proposals, the Energy Roundtable successfully launched a petition to force a referendum on the issue. In the referendum, held on 3 November 2013, over 600,000 people voted in favour of the bill, representing 83% of the votes cast. However, this figure fell 21,000 votes short of the necessary quorum of all eligible voters and the referendum therefore narrowly failed (Landeswahlleiterin Berlin 2013).

The Roundtable is not the only organization pushing for more citizen involvement and a greener profile in Berlin’s energy utilities. An urban energy cooperative called *Bürger Energie Berlin* (Citizen Energy Berlin – BEB) also aims to supply Berlin with energy entirely from renewable sources, and wants to buy up the city’s electricity system too. Membership requires signing up to a minimum of five shares in the cooperative, at 100 Euros each. By February 2014, the cooperative had around 2,000 members with a total capital of some 9 million Euros (Bürger Energie Berlin 2014). BEB promises to introduce more small-scale forms of energy supply and to invest the financial returns in new solar and co-generation plants (Grefe 2013). As they have not yet acquired the necessary technical expertise to run the grid, BEB is cooperating with another municipal energy supplier from South-Western Germany (Puschner 2013). In effect,

Citizen Energy Berlin and the Berlin Energy Roundtable are competing both for citizen support and the grid concession while at the same time representing two modes of agency for an alternative future to the city's energy system.

The success in enrolling such a large number of people both behind the referendum campaign and in support of the energy cooperative is an expression not only of how power can be generated by association (Allen 2003, p. 123), but also of a significant broadening of ownership notions that can best be subsumed under the concept of 'commoning' (De Angelis 2003, Harvey 2012). Both initiatives question private modes of infrastructure provision and the commodification of infrastructure and electricity. Both embody a desire to entertain more active and continuous forms of participation and to broaden a hitherto technological realm to wider societal aspirations in terms of environmental and social justice. There are significant differences between the two approaches: in the Roundtable's model the local state remains the owner of the utility operating the power grid and the recipient of the revenues, whilst in the cooperative model citizen ownership and financial benefits are only open to those who can afford membership. Nevertheless, the inclusion of citizens either as members or as directly elected representatives in decision-making and monitoring processes marks a radical innovation in the discussion on how to organize urban infrastructures.

How are other key actors reacting to these ideas and what do their responses tell us about their own notions of ownership for Berlin's energy system? Whilst the other companies competing for the Berlin grid concession after 2014<sup>1</sup> have not yet made their appearance in the public

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<sup>1</sup> These are the German energy suppliers enviaM and Thüga, the Dutch company Alliander and the Chinese state trust "State Grid Corporation of China".

debate, the incumbent concessionary Vattenfall has launched an intense campaign against re-municipalization of any kind. Under the heading “Security via Competence” the company appeals to a pragmatic understanding of energy provision that rejects any realm for the political.

On huge billboards the company declares:

“A 35,000 km electricity network. Good for you that you don't have to be bothered by such details. The electricity network of our operator is one of the world's safest and most advanced. Every year 240 million Euros are spent on its extension and maintenance. If this had to be financed from Berlin's budget into the bargain there would be no money left for other projects” (Vattenfall GmbH 2013; translation by the authors).

In line with these arguments, the head of Vattenfall's German management board argues that there are no shining examples for democratic, ecological and social energy suppliers elsewhere (Rendez 2013).

While Vattenfall's employees and the public services trade union are concerned that re-municipalization might worsen terms of employment and therefore insist that, if introduced, it should not be at the expense of employees or Berlin residents (Bezirksvorstand ver.di Berlin 2012), the more conservative energy and mining union IG BCE rejects the proposal outright. The latter became a member of a “fact alliance” formed to lobby against re-municipalization together with local business organizations and to counter the joint efforts of the social movements' coalition. The business community has been critical of re-municipalization from the beginning. The Berlin Chambers of Industry and Crafts argue that re-municipalization would neither improve competition in the city's electricity market nor generate greater public revenue with which to promote the city's energy transition (IHK and HWK Berlin 2011). Echoing Vattenfall, they insist that “technical and financial issues be put at the centre of the discussion” (ibid., p. 2). Their strategy is to frame the public discourse in terms of the relative cost-efficiency of municipal or private power utilities, the costs of buying up the power grid,

the technological expertise required to run it, the legal obstacles to citizen participation and the consequences of re-municipalization for employees. This agenda, reflective of neo-liberal discourses on urban and infrastructure development in general, has sought to outmanoeuvre and belittle the commons-oriented arguments put forward by the Roundtable and BEB.

Confronted with the sudden politicization of energy provision initiated by social movement activism and a heated public debate, the city government responded initially with accommodating statements and modest reform proposals but subsequently with a straight rejection of the Roundtable's draft law. This is partly due to an argumentative split within the governing coalition of Social Democrats (SPD) and Christian Democrats (CDU) that mirrors the competing discourses described above. Whilst the Senator for Urban Development and the Environment, Michael Müller (SPD), argues that "only with municipal electricity and gas can the city influence prices and climate policy" (Müller 2013), the CDU's two successive Senators for the Economy, Sibylle von Obernitz and Cornelia Yzer, follow the business community's opposition to any re-municipalization. A common position was only achieved when the referendum was imminent. In an official statement in parliament the Senate argued against key points of the draft law (Berliner Senat 2012) and recommended a "no" vote in the referendum (Zawatka-Gerlach 2013). The main criticisms related to the high financial cost, the questionable influence over energy policy to be gained by owning the grid and concerns over competition legislation, echoing the discourse of Vattenfall and the business community. The Senate's statement also rejected social pricing schemes for "overburdening the financial capacity of a municipal energy supplier" and the direct election of representatives as "inadequately intricate" (Berliner Senat 2012). Interestingly, the core question of whether there should be a municipal grid operator and power supplier was not addressed in this statement. To pre-empt the referendum the Senate rushed a law through parliament that foresees the creation of a (modest)

municipal energy supplier but which addressed neither the concession nor citizen participation (Beikler and Gennies 2013).

The developments in Berlin provide an interesting account of the interplay between the ideas of energy commons that go beyond traditional conceptualizations of ownership and issues of agency and power. A coalition of social movements was able to induce a public debate on alternative organizational forms of grid ownership in particular and energy provision in general. The two initiatives Berlin Energy Roundtable and Citizen Energy Berlin both advocate non-private forms of ownership, whether state or cooperative. Additionally, the various ideas and mechanisms of direct citizen participation proposed point towards a broad understanding of ownership involving notions of belonging and active commoning. On the other hand, their arguments could only initiate a public debate by addressing traditional understandings of ownership; that is, the advantages and disadvantages of public or collective ownership in an economic sense. The local state and business community, forced into a position of reaction, proved narrowly successful in warding off the draft law of the referendum and the radical proposals it entailed. However, it remains to be seen whether this proves a pyrrhic victory in the longer term, if – as expected – the debate on the future ownership and organization of Berlin's energy system continues unabated and continues to create openings for new ideas, actor constellations and power relations. The Berlin case illustrates the benefits of a relational institutionalist perspective by revealing how ideas and discourse around new, broader notions of ownership can – through coordinated and strategic agency – challenge existing power configurations of energy provision.

## Conclusion

This paper has set out to explain some key institutional challenges of the German *Energiewende* in villages, towns and regions through the lens of shifts in organization and ownership. These two issues were selected not only to draw attention to the institutional dimensions of urban energy transitions often neglected or glossed over in the literature, but also to illustrate the wide range of models and the intensity of debate surrounding the future organization of local energy provision in Germany. The *Energiewende* is very much an ongoing transition of uncertain outcome and the prospects for many of the initiatives described here – from the ‘energy villages’ in Brandenburg to re-municipalization plans in Berlin – are difficult to assess. Consequently, the purpose of this paper has been to reflect on the current status of institutional change at the local and regional level and the actors and ideas which are driving (or resisting) these changes.

In response to the first aim of the paper – to document and explain shifts in the organizational landscape of energy provision – we found that the *Energiewende* in Brandenburg is not being implemented along a simple pattern of policy roll-out from state to local levels, but is inspiring a wide range of actors to explore ways of deriving benefit, or avoiding harm, from the policy initiative. To this end some new actors of energy provision, such as local residents and farmers, are creating energy cooperatives or model communities as organizational responses. These initiatives are often very place-specific, reflecting the particular political, structural or socio-economic conditions of a locality. Other, traditional energy actors, such as the major power utilities and local authorities, are developing or reinforcing alliances to protect their interests within existing organizational structures. This is reflected in the patchwork ownership of municipal power utilities in Brandenburg and initiatives to re-municipalize some of these. Our analytical focus on issues of agency and power revealed how vested interests in lignite mining for electricity generation are making the *Energiewende* in Brandenburg a highly divisive issue. Together with the growing opposition to renewables from local residents and low income levels



in structurally weak areas, these interests are limiting the scope for more locally-based organizations, such as energy cooperatives, ‘energy villages’ and re-municipalized utilities.

The paper’s second aim was to explore the ideas and arguments behind debates on organizational change to urban energy systems, selecting as an exemplar current initiatives to promote novel modes of collective ownership of Berlin’s electricity utility and grid. Our findings reveal the debate on re-municipalization in Berlin today to be far removed from the narrow, bipolar argument about the relative merits of private and public ownership which characterized the privatization wave there in the 1990s. The frame of the discourse has extended substantially to include issues of participatory democracy, environmental sustainability, social equity and citizen shareholding. Implicitly or explicitly (“reclaiming power”), these demands are buying in to a new imaginary of urban energy commons in which the power of the existing ‘electrocracy’ is challenged by collective ownership in public or cooperative form. Opponents of re-municipalization – notably the incumbent concessionary Vattenfall, but also the business community and the Christian Democrats – have responded by framing the debate in terms of financial and technical risk. This attempt to de-politicize the debate proved temporarily successful in narrowly defeating a referendum on the issue but the forthcoming decision over the concession for the power grid is likely to reinvigorate the dispute.

Finally, we reflect on the value of using our relational institutionalist perspective on urban and regional energy transitions, with its focus on the triad of agency and power, ideas and discourse and commons and ownership. The principal observation is that a more conventional institutionalist analysis, addressing the design and impact of formal institutions, would have been poorly suited to analyse how the *Energiewende* is stimulating institutional change in practice. Although today’s *Energiewende* is a product of a federal government policy shift in 2011, the process of implementation observed here is proving far from linear. The *Energiewende* in Brandenburg and Berlin is a mixture of top-down policy and bottom-up

initiatives, is generating heterogeneous actor constellations and organizational landscapes and is highly contested. Capturing these phenomena requires sensitivity to the role of agency, power and ideas and the ways these are discursively framed. What counts – the Berlin case tells us – is not just how an institutional arrangement is designed or an organizational entity is structured, but also how it is interpreted, adapted and presented by actors. This was particularly apparent with the powerful imagery of regaining control of energy to serve multiple collective interests in the city. Applying a ‘commons’ perspective – specifically as a new way of imagining and organizing urban or regional energy transitions – would appear to hold potential for broadening our understanding of collective ownership and ways of analysing it. Relational institutionalist approaches could, therefore, prove a valuable addition to studies of socio-technical and urban transitions and a fruitful field for future research in and beyond the energy sector.

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### **References**

Allen, J., 2003. *Lost Geographies of Power*. Malden et al.: Blackwell.

attac Berlin, Bürgerbegehren Klimaschutz, PowerShift, 2011. *Neue Energie für Berlin. Netze in Bürgerhand* [online]. Berlin, Bürgerbegehren Klimaschutz [online]. Available from:

<http://www.buerger-begehren-klimaschutz.de/images/stories/Broschre-NeueEnergie-NetzeInBrgerhandBerlin-2Aufl-7-2011.pdf> [Accessed 8 October 2013].

- Avey, J. B., *et al.*, 2009. Psychological Ownership: Theoretical Extensions, Measurement and Relation to Work Outcomes. *Journal of Organizational Behavior*, 30 (2), 173–191.
- Barley, S.R. and Tolbert, P.S., 1997. Institutionalization and Structuration. Studying the Links between Action and Institution. *Organization Studies*, 18 (1), 93–117.
- Bauer, H., 2012. Zukunftsthema "Rekommunalisierung". *Die Öffentliche Verwaltung*, 65(9), 329–338.
- Becker, P., 2011. *Aufstieg und Krise der deutschen Stromkonzerne*. Bochum: Ponte Press.
- Becker, S., Gailing, L., and Naumann, M., 2012. *Neue Energielandschaften – Neue Akteurslandschaften. Eine Bestandsaufnahme im Land Brandenburg*. Berlin: Rosa-Luxemburg-Stiftung.
- Beikler, S. and Gennies, S., 2013. Senat gründet Stadtwerk kurz vor Volksentscheid. *Der Tagesspiegel*, 23 October, Available from: <http://www.tagesspiegel.de/berlin/stromversorgung-in-berlin-senat-gruendet-stadtwerk-kurz-vor-volksentscheid/8970414.html> [Accessed 24 October 2013].
- Berliner Energietisch, 2012. *Entwurf eines Gesetzes für die demokratische, ökologische und soziale Energieversorgung in Berlin* [online]. Available from: <http://berliner-energietisch.net/images/gesetzentwurf%20und%20begrundung.pdf> [Accessed 8 October 2013].
- Berliner Senat, 2012. *Stellungnahme des Berliner Senats zu dem Volksbegehren "Neue Energie für Berlin – demokratisch, ökologisch, sozial"*. Berlin: Abgeordnetenhaus Berlin.
- Beveridge, R. and Kristine K., 2013. The Energiewende in Germany: Background, Developments and Future Challenges. *Renewable Energy Law and Policy Review*, 1, 3–12.
- Bezirksvorstand ver.di Berlin, 2012. *Aktualisierte Position zum Thema Rekommunalisierung* [online]. Available from: <https://berlin.verdi.de/positionen/rekommunalisierung> [Accessed 8 October 2013].
- Bontrup, H.-J. and Marquardt, R.-M., 2010. *Kritisches Handbuch der deutschen Elektrizitätswirtschaft*. Berlin: Edition Sigma.

- Boughton, J., 2003. *Who's in Charge? Ownership and Conditionality in IMF-Supported Programs*. Washington: International Monetary Fund.
- Bulkeley, H. and Kern, K., 2006. Local Government and the Governing of Climate Change in Germany and the UK. *Urban Studies*, 43 (12), 2237–2259.
- Bürger Energie Berlin, 2014. *Fragen und Antworten* [online]. Available from: <http://www.buerger-energie-berlin.de/faq> [Accessed 19 March 2014].
- Christman, J., 1994. *The Myth of Property: Toward an Egalitarian Theory of Ownership*. Oxford: Oxford University Press.
- Coutard, O., Hanley, R.E., and Zimmermann, R., 2005. Network Systems Revisited: The Confounding Nature of Universal Systems. In: O. Coutard, O., R.R. Hanley, and R. Zimmermann, , eds. *Sustaining Urban Networks. The Social Diffusion of Large Technical Systems*. Abingdon: Routledge, 1–12.
- Cumbers, A., 2012. *Reclaiming Public Ownership. Making Space for Economic Democracy*. London: Zed Books.
- De Angelis, M., 2003. Reflections on Alternatives, Commons and Communities. *The Commoner*, 6, 1–14.
- Dieckmann, J., et al., 2012. *Vergleich der Bundesländer: Analyse der Erfolgsfaktoren für den Ausbau der Erneuerbaren Energien 2012. Indikatoren und Ranking*. Berlin: Deutsches Institut für Wirtschaftsforschung.
- Dolata, U. and Werle, R., 2007. “Bringing technology back in”: Technik als Einflussfaktor sozioökonomischen und institutionellen Wandels. In: U. Dolata and R. Werle, eds. *Gesellschaft und die Macht der Technik. Sozioökonomischer und institutioneller Wandel durch Technisierung*. Frankfurt am Main/New York: Campus, 15–43.
- Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, 2011. *The Federal Government's energy concept of 2010 and the transformation of the energy system of 2011*. Bonn: Federal Ministry of the Environment, Nature Conservation and Nuclear Safety.

- Gailing, L., et al., 2013. *Die räumliche Gestaltung der Energiewende zwischen Zentralität und Dezentralität. Explorative Anwendung einer Forschungsheuristik*. Erkner: Leibniz Institute for Regional Development and Structural Planning.
- Gawel, E., Strunz, S., and Lehmann, P., 2013. Germany's energy transition under attack. Is there an inscrutable Sonderweg? *Nature and Culture*, 8 (2), 121–133.
- Geels, F.W., 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, 31 (8-9), 1257–1274.
- Geels, F.W. and Schot, J., 2007. Typology of sociotechnical transition pathways. *Research Policy*, 36 (3), 399–417.
- George, W., 2012. Vorteile von Genossenschaftslösungen in der Energiewende. *Informationen zur Raumentwicklung*, 9/10, 503–514.
- Graham, S. and Marvin, S., 2001. *Splintering Urbanism. Networked Infrastructures, Technological Mobilities and the Urban Condition*. London/New York: Routledge.
- Grefe, C., 2013. Berlins Stromrebellin. *Die Zeit*, 29 May, p. 24.
- Hardt, M. and Negri, A., 2009. *Commonwealth*. Cambridge: Belknap Press.
- Harvey, D., 2012. *Rebel Cities: From the Right to the City to the Urban Revolution*. London: Verso.
- Hay, C., 1997. State of the Art: Divided by a Common Language: Political Theory and the Concept of Power. *Politics*, 17 (1), 45–52.
- Hay, C., 2006. Constructivist Institutionalism. In: R.A.W. Rhodes, S. Binder and B.A. Rockman, eds. *The Oxford Handbook of Political Institutions*. Oxford: Oxford University Press, 56–74.
- Hay, C. and Wincott, D., 1998. Structure, Agency and Historical Institutionalism. *Political Studies*, 46 (5), 951–957.
- Hughes, T.P., 1983. *Networks of Power. Electrification in Western Society, 1880-1930*. Baltimore/London: The John Hopkins University Press.

- IHK and HWK Berlin – Industrie- und Handelskammer and Handwerkskammer Berlin , 2011. *Garantie für Klimaschutz und sinkende Preise? Die Rekommunalisierung der Energieversorgung in Berlin im Faktencheck*. Berlin [online]. Berlin, IHK and HWK. Available from: [http://www.ihk-berlin.de/linkableblob/1268330/12./data/Faktencheck\\_Rekommunalisierung-data.pdf](http://www.ihk-berlin.de/linkableblob/1268330/12./data/Faktencheck_Rekommunalisierung-data.pdf) [Accessed 8 October 2013].
- Jahn, D. and Korolczuk, S., 2012. German exceptionalism: the end of nuclear energy in Germany! *Environmental Politics*, 21 (1), 159–164.
- Jessop, B., 2001. Institutional re(turns) and the strategic-relational approach. *Environment and Planning A*, 33 (7), 1213–1235.
- Katz, D. and Kahn, R. L., 1978. *The Social Psychology of Organizations (2nd ed.)*. New York: Wiley.
- Kemp, R., Schot, J., and Hoogma, R., 1998. Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management. *Technology Analysis and Strategic Management*, 10 (2), 175–196.
- Krause, F.; Bossel, H., and Müller-Reißmann, K.-F., 1980. *Energiewende: Wachstum und Wohlstand ohne Erdöl und Uran*. Frankfurt am Main: Fischer.
- Landeswahlleiterin Berlin, 2013. Volksentscheid „Neue Energie“ am 3. November 2013. Ergebnis des Volksentscheids [online]. Available from: [https://www.wahlen-berlin.de/Abstimmungen/VE2013\\_NEnergie/Ergebnisprozent.asp?sel1=6052&sel2=0798](https://www.wahlen-berlin.de/Abstimmungen/VE2013_NEnergie/Ergebnisprozent.asp?sel1=6052&sel2=0798) [Accessed 4 November 2013].
- Lawhon, M. and Murphy, J.T., 2012. Socio-technical regimes and sustainability transitions: Insights from political ecology. *Progress in Human Geography*, 36 (3), 354–378.
- Libbe, J., Hanke, S., and Verbücheln, M., 2011. *Rekommunalisierung – Eine Bestandsaufnahme*. Berlin: Deutsches Institut für Urbanistik.

- Matecki, C. and Schulten, T., 2013. *Zurück zur öffentlichen Hand? Chancen und Erfahrungen der Rekommunalisierung*. Hamburg: VSA.
- Mayntz, R., 1993. Grosse technische Systeme und ihre gesellschaftstheoretische Bedeutung. *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 45 (1), 97–108.
- Melosi, M., 2000. *The Sanitary City. Urban Infrastructure in America from Colonial Times to the Present*. Baltimore/London: The John Hopkins University Press.
- Monstadt, J., 2004. *Die Modernisierung der Stromversorgung. Regionale Energie- und Klimapolitik im Liberalisierungs- und Privatisierungsprozess*. Wiesbaden: VS.
- Moss, T., et al., 2013. *Energie als Gemeinschaftsgut? Anregungen für die raumwissenschaftliche Energieforschung*. Erkner: Leibniz Institute for Regional Development and Structural Planning.
- Müller, M., 2013. Kommunale Energieversorgung. Berlin braucht ein Stadtwerk. *Der Tagesspiegel*, 10 June, Available from: <http://www.taz.de/!115346/> [Accessed 12 June 2013].
- MWE – Ministerium für Wirtschaft und Europaangelegenheiten des Landes Brandenburg, 2012. *Energiestrategie 2030*. Potsdam: Ministerium für Wirtschaft und Europaangelegenheiten des Landes Brandenburg.
- North, D.C., 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Olson, M., 1965. *The Logic of Collective Action. Public Goods and the Theory of Groups*. Cambridge: Harvard University Press.
- Ostrom, E., 1990. *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Puschner, S., 2013. Da hat's gefunkt. Im Kampf um das Stromnetz holt die Genossenschaft Bürgerenergie die Stadtwerke Schwäbisch Hall ins Boot. *die tageszeitung*, 23 April, Available from: <http://www.taz.de/!115346/> [Accessed 2 August 2013].

- Rendez, H., 2013. Kompetenz ist keine Eigentumsfrage. *neues deutschland*, 6 April, Available from: <http://www.neues-deutschland.de/artikel/817828.kompetenz-ist-keine-eigentumsfrage.html> [Accessed 2 August 2013].
- Rohracher, H., 2002. Managing the Technological Transition to Sustainable Construction of Buildings: A Socio-Technical Perspective. In: A. Jamison and H. Rohracher, eds. *Technology Studies and Sustainable Development*. München/Wien: Profil, 319–342.
- Schmidt, V.A., 2008. Discursive Institutionalism. The Explanatory Power of Ideas and Discourse. *Annual Review of Political Sciences*, 11 (1), 303–326.
- Schmidt, V.A., 2011. Reconciling Ideas and Institutions Through Discursive Institutionalism. In: D. Béland and R.H. Cox, eds. *Ideas and Politics in Social Science Research*. Oxford/England/New York: Oxford University Press, 47–64.
- Summerton, J., 1994. Introductory Essay: The systems Approach to Technological Change. In: J. Summerton, ed. *Changing Large Technical Systems*. Colorado: Westview Press, 1–21.
- Vattenfall GmbH, 2013. *Mediakampagne* [online]. Berlin, Vattenfall. Available from: <http://www.vattenfall.de/de/berliner-energiewende/mediakampagne-berlin.htm> [Accessed 8 October 2013].
- Voß, J.-P. and Bauknecht, D., 2007. Der Einfluss von Technik auf Governance-Innovationen: Regulierung zur gemeinsamen Netznutzung in Infrastruktursystemen. In: U. Dolata and R. Werle, eds. *Gesellschaft und die Macht der Technik. Sozioökonomischer und institutioneller Wandel durch Technisierung*. Frankfurt am Main/New York: Campus, 109–131.
- Zawatka-Gerlach, U., 2013. Der SPD den Stecker gezogen: Die CDU setzt sich bei der Energiepolitik durch. *Der Tagesspiegel*, August 29 2013, Available from: <http://www.tagesspiegel.de/berlin/kommunale-energieversorgung-berlin-braucht-ein-stadtwerk/8326998.html> [Accessed 8 August 2013].



## **Figure caption**

Figure 1: Ownership structure of local energy utilities in Brandenburg (October 2013)

Source: Becker et al., 2012, updated