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*Creating Local Energy Economies:  
Lessons from Germany*

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## **About the Author**

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Caroline was awarded a Winston Churchill Memorial Trust Travel Fellowship in 2013, and has spoken and written widely on community and local energy, both within the UK and abroad.

## Author's Note

This essay is based on my Winston Churchill Memorial Trust travel fellowship to Germany during the months of July and August 2013. Over 100 British citizens are awarded WCMT fellowships to travel overseas every year, for the purposes of widening an individual's experience and enabling them to share their insights for the benefit of the UK.

The objectives of my travel fellowship were:

- To assess the possibility for community ownership of electricity distribution networks in the UK, and to propose alternative or incremental recommendations as to how such ownership can otherwise be achieved in the UK.
- To explore the potential models and partnerships between the energy distribution networks, utility groups, private developers and communities in order to open up the opportunity for ownership to the community, and to encourage such partnerships to take place.
- To complement and add value to existing domestic research through the research and experiences gleaned from overseas.
- To inform a wide range of key stakeholders – government, policy-makers, industry, private utility groups and developers, and communities themselves – of the opportunities for and barriers to enabling such ownership.

Germany is often highlighted as an economic and environmental leader, both in Europe and overseas, due to its diverse ownership profile, competitive markets and swift transition to renewable and distributed energy. Much of the innovation and leadership emerges from individuals and communities across the country, which we recognise as pioneers and from which we strive to learn. It is for these reasons that I nominated Germany as my fellowship destination: to identify the successes, glean a deeper account of the innovations and explore how we can cultivate such models here in the UK.

As such, it is not my intention in this essay to set out a broad and comprehensive study, but to succinctly and accessibly capture my experiences via qualitative methods and to provide a unique and helpful resource for those wishing to read and learn from a 'deeper' account. This is the abridged version of the full report, which includes more detailed case studies, and which is also publicly available.

I am hugely grateful to the Winston Churchill Memorial Trust, who supported my travel fellowship, to Co-operative Energy, for supporting the report's distribution, and to Caroline Macfarland and Professor John Milbank, without whom this opportunity would not have been possible. My travels around Germany took me from Middle Franconia to Berlin, on to Freiburg, then Kempten and finally, Munich. A special thank you to those who ensured that I was truly immersed in German culture and community, particularly Josef Göppel MdB and Eva Henze, who shared insights and experiences far beyond what I had ever expected when first embarking on this journey. Many communities, entrepreneurs, businesses and research institutes very kindly hosted me throughout my travels, and I am incredibly grateful for their time, hospitality and enthusiasm in supporting me and my work.

Finally, thank you to those who kindly reviewed and commented on the draft of this essay: Becky Willis; Ed Mayo; Alan Simpson; Eva Henze, Office of Josef Göppel MP; Dr Andreas Wieg, DGRV; Andreas Kraemer and Max Grünig, EcoLogic Institute; Kathrin Müller, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; Phillip Blond, Adam Wildman and Rosie Olliver, ResPublica. Any errors are my own.

# CONTENTS

INTRODUCTION .....	1
<i>SECTION 1: British and German Energy Markets</i> .....	3
<i>SECTION 2: Ownership and Governance of Local Energy Markets</i> .....	11
CONCLUSIONS AND RECOMMENDATIONS .....	16



# INTRODUCTION

Our energy market is at a turning point. Trust in suppliers is at an all-time low, wholesale trading is opaque, and a comprehensive strategy to combat fuel poverty and boost energy efficiency is missing. Rarely have we seen energy on the front pages of our newspapers for such an extended period of time, and rarely have the revolving issues resonated so deeply with the general public.

Everyone is calling for change, but we have so far been presented with tweaks rather than reforms, and disparate policy rather than a strategy. In order to transform the market, and to really appreciate energy for what it is – a public good – we need a much more ambitious and innovative response. This response must emerge from an understanding that markets are fundamentally embedded in the relationships between people, institutions and businesses, and are driven by the desire for our society and economy to flourish.

For the traditions underpinning the British Left, this appeals to the motivation to re-embed markets in social relations and enable access to a public good. For the British Right, this resonates with the Burkean tradition with its emphasis on participation in institutions, alongside the importance of competition, innovation, diversity and decentralisation. For Liberals, the crucial role of widespread ownership and local democracy, facilitated by intermediary associations, is key.

We need to appeal again to our roots and remind ourselves of the purpose that energy provision serves. In light of this we need to adjust our vision, present a strategy, and as new innovations, discoveries and technologies arise, discern how we can welcome them and take corresponding action.

How can we begin to do this? One way is to think analogously about what we want our energy market to look like and be. What incremental measures do we need to implement now that will take us closer toward the market we all need? For this, it is often helpful to learn from innovations overseas and apply the learning to the UK.

This is in part what inspired me to undertake a Winston Churchill Memorial Trust travel fellowship to Germany in August 2013, which forms the basis to this essay. I set out in particular to explore the innovative partnerships forged between communities, public and private organisations, which have enabled localities to take ownership of or participate in the governance of their local energy systems and utilities – a phenomenon that has grown significantly in recent years. By the end of 2012, 190 German communities had been successful in bidding to run their local electricity distribution grid, with at least nine of these being wholly community-owned ventures. Almost 900 local energy co-operatives are now established across the country, and this number is growing rapidly. And almost half of all electricity supply companies are owned by local government, communities and small businesses, with many increasingly competing privately-owned utilities out of the market.

These communities had a vision for their local energy market: a vision that saw the eradication of power sourced from nuclear and non-renewable sources, an end to fuel poverty, an end to waste, and a vision that saw their community flourish and grow. The desire to own and run local energy services is not a move toward re-nationalisation or even re-municipalisation, but toward a much more constructive, locally-governed infrastructure in which communities can ensure that their vision is realised. Many of these emerging community-owned grid operators and suppliers are not only offering cheaper tariffs than their competitors, but are seeking and fuelling the prosperity of their locality.

Our concentrated market economy and centralised model of power production and supply has so far precluded communities from applying such principles to our public utilities: The UK's distribution networks are operated by private companies alone, our larger six energy companies occupy almost 95% of the retail market, and communities own less than 1% of our renewable energy capacity.

But this 'German phenomenon' is not entirely alien to the UK. It is not far from the principles that have underpinned our desire to co-create, own and run our public services. Just as communities in the UK can now challenge and bid to run their public services, communities in Germany can challenge and bid to run their local supply companies and distribution grids. We are also seeing a rapid growth in community energy in the UK, and an ever-growing ambition from such groups to also supply the energy they produce.

As we seek the innovation and infrastructural framework needed to move from "the 'big 6' to the 'big 60,000'",<sup>1</sup> and facilitate a more competitive, diverse and innovative energy market, pioneering examples from overseas are needed. A substantial part of this essay therefore comprises a succinct and accessible qualitative account of my site visits and experiences in order to provide a unique and helpful resource for UK communities and policy makers to help them think analogously about the shape and constitution of our energy market. For those who wish to delve deeper, more detailed case studies can be found in the accompanying report, which is also publicly available.

I conclude this essay by drawing together some initial reflections on the application of these examples to the UK, and close with three brief recommendations for Government, communities and the energy industry that outline a new way forward. This essay maintains throughout that our policies are still oiling the cog wheels of an existing and failing centralised system, rather than implementing a new vision that has a much more transformative end goal in mind. Ironically, in an attempt to 'fix' the market for the benefit of consumers, we are re-enforcing a model that will always exclude them. We need to set ourselves on a path that recognises such participation as integral to the way in which our markets should work.

<sup>1</sup> Barker, G. (2013) "Move over Big 6, we need the Big 60,000: Why Conservatives are the natural partner of community energy" *bright blue* [Online]. Available at <http://brightblue.org.uk/index.php/team/executive-team/item/205-community-energy>. [Accessed 19 February 2014].

## SECTION 1:

# BRITISH AND GERMAN ENERGY MARKETS

In countries where markets, infrastructure and cultural context markedly differ from our own, we are often – and quite rightly – reluctant to directly transplant their innovations and policies to the UK. Germany is a case in point. We praise its strong local governance, diverse and healthy banking and financial services markets and decentralised energy systems, but recognise that such successes emerge from a long cultural and infrastructural history that has determined such outcomes to be the case – a history that is Germany's and not our own.

But this by no means implies that we have nothing to learn. To the contrary. In developing our own policies and initiatives, policy makers in the UK need to think both innovatively and analogously: how has Germany achieved the outcomes that we want to achieve? How can we begin to apply such innovations to our own infrastructural, political and cultural context? Thinking analogously will entail learning from leading examples and asking ourselves: how do we get there? It is in the 'getting there', in the practical outworking of ambition and innovation, that we identify the barriers and stoppages but also the additional opportunities unique to our situation and locale.

For such a process of discernment to take place, we must first understand where Germany and Britain's energy markets and cultural contexts compare and where they differ. Energy markets and their accompanying infrastructure are highly complex and intertwined systems, but for the purposes of this essay, I have boiled them down to four component parts: (1) generation; (2) transmission; (3) distribution; and (4) supply (retail). Briefly tracing the historical development and patterns of ownership across such components for both countries will provide vital context for what is to follow.

### **Historical and infrastructural context: British and German energy markets**

To understand how the UK's energy market developed up until the present day, we need to first journey back to the emergence of the modern welfare state. Post-1945 Britain invested heavily in the public sector and facilitated the nationalisation of certain services such as utilities and the provision of education and health care. Many services that had historically been under the auspices of local authorities or civic groups and networks, were now under the control of central government.

This included the generation and transmission of the country's electricity, which in 1957 was taken on in England and Wales by a single Generating Company – the Central Electricity Generating Board (CEGB). The CEGB in turn sold electricity to 12 regional Electricity Boards, which distributed and supplied electricity to consumers within their region. In contrast, prior to nationalisation in 1945, local

government agencies supplied about one third and two thirds respectively of the nation's gas and electricity consumption.<sup>2</sup> Over 300 companies were involved in electricity supply.<sup>3</sup>

This all changed in the 1980s and 1990s when consecutive Conservative governments introduced the concepts of liberalisation and privatisation into the energy market. Liberalisation, under which previously monopolised sectors of the industry were opened up to greater competition, began with the 1983 Energy Act and continued throughout that decade. Privatisation, whereby ownership of energy utilities was gradually transferred from the public to the private sector, was realised in the late 1980s and early 1990s. British Gas, the nationalised gas supply company, was privatised in 1986.

As a result, our energy retail market found itself in the hands of a few private suppliers, which gradually gave way to the larger six energy companies that occupy the majority of the market today. Our transmission grid is now run by a private company – National Grid plc – and our distribution networks are owned and operated by a further six businesses across 14 franchise areas.

In contrast to the UK, and other continental countries such as France and Italy, post-1945 West Germany was governed in its post-war reconstruction by a conservative-bourgeois coalition, which tended more toward privatisation than to nationalisation, and decentralisation rather than centralisation. These tendencies on the one hand invited new market entrants into previously state-owned assets and services, but on the other hand maintained the financial and constitutional strength of local government. Historically, Germany has defended against the centralisation of such powers, most notably so in the sixteenth century when Martin Luther and the Protestant movement rebelled against the centralised approach of the Catholic Church, which sought to consolidate the country's finances. Unlike other European countries, therefore, independent local governance was reinforced.

This more liberal and decentralised historical underpinning, matched with the modern market-driven approach of the post-war government, produced a duality of energy providers. The energy market became dominated by a number of major energy companies, owned by a spectrum of private investors. But concurrently, municipalities (local authorities) maintained their significant involvement in local energy provision, mostly through what is known as the traditional 'Stadtwerke' (multi-utility city works) model.

Whereas in the UK the supply of electricity was undertaken solely by private businesses, each catering for consumers across the country, the German Stadtwerke were restricted under the territoriality (Örtlichkeit) principle to cater only to those in their respective local areas. The Stadtwerke were also traditionally responsible for operating the local grid networks and distributing energy to local consumers, and therefore had a greater and more central role in the governance of their local energy market.

2 Byrne, T. (2000) *Local Government in Britain: Everyone's guide to how it all works*, London: Penguin.

3 Pond, R. (2006) *Liberalisation, privatisation and regulation in the UK electricity sector*, London: Working Lives Research Institute.



In contrast, the process of privatisation and nationalisation in the UK stripped away many of its local energy companies, and dis-embedded the local governance of electricity and gas. Whilst an evolving legal framework, developments to the grid and the changing role of external investors impacted on Germany's energy market, the municipal underpinnings prevented such abstractions and monopolies from taking place. At a distribution level, whereas the UK invited private companies to become the District Network Operators (DNOs) to the 14 distribution areas, Germany maintained its municipal model and many of its Stadtwerke. This has supported the conditions for what is now the 888 local grid operators (or District System Operators (DSOs)) across the country.

There are now also around 1420 Stadtwerke in operation, most of which are primarily involved in energy and water supply, sewage and waste management.<sup>4</sup> On the retail side, apart from the Stadtwerke and a few independent businesses, there are four major national suppliers in Germany (E.ON, RWE, EnBW and Vattenfall), which hold a 43.8% share of the energy retail market.<sup>5</sup> To draw a comparison to the UK, six national suppliers hold almost 93.5% of the domestic retail share.

**Table 1: Summary of direct comparisons (today's energy market)**

	UK	Germany
<p><b>Generation</b></p> <p><i>Ownership profile: private, community and publicly ('state') owned businesses (or mixed/ joint venture ownership).</i></p>	<p>77.9GW total installed capacity (electricity);<sup>6</sup> 19.4GW installed renewable capacity;<sup>7</sup> 58.9MW (around 0.3% of renewable capacity, 0.08% of total installed capacity) is community owned.<sup>8</sup></p>	<p>183.4GW installed capacity; 75.6GW installed renewable capacity;<sup>9</sup> 47% of which is owned by citizens (fully owned, part investment or individuals);<sup>10</sup> 14% industry; 13% investment funds/ banks; 5% 'big four' power providers.</p>

4 For more information, see: Verband kommunaler Unternehmen. Available at: <http://www.vku.de/en/ueber-uns.html>.

5 2010. Down from 48.2% in 2009. BDEW (2012) *Wettbewerb 2012: Wo steht der deutsche Energiemarkt?* p.36 Germany: BDEW Bundesverband der Energie- und Wasserwirtschaft e. V.

6 Ofgem (2013) Electricity Capacity Assessment Report, London: Ofgem. Available at: <https://www.ofgem.gov.uk/ofgem-publications/75232/electricity-capacity-assessment-report-2013.pdf>. [Accessed: 2 July 2014]

7 Department of Energy and Climate Change (2014) Energy Trends. Section 6: Renewables: Renewables electricity capacity and generation. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/295356/6\\_Renewables.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/295356/6_Renewables.pdf). [Accessed: 2 July 2014]

8 Harnmeijer, J., Parsons, M. and Julian, C. (2013) *The Community Renewables Economy: Starting up, scaling up and spinning out*, London: The ResPublica Trust.

9 Total net nominal capacity of generation facilities as of 16 October 2013. Bundesministerium für Wirtschaft und Energie (2013) "Zahlen und Fakten" Bundesministerium für Wirtschaft und Energie [Online]. Available at: <http://www.bmwi.de/DE/Themen/Energie/Stromversorgungssicherheit-und-Kraftwerke/zahlen-fakten.html>. [Accessed: 2 July 2014]

10 Leuphana Universität Lüneburg (2013) *Installierte Leistung Erneuerbarer Energien nach Eigentümergruppen in Deutschland 2012*. Available at: <http://energytransition.de/files/2013/10/ownership.png>. [Accessed: 2 July 2014]

<p><b>Transmission</b></p> <p><i>Ownership profile: 'Public' asset: natural monopoly. Operated by private companies. Must be 'neutral' and publicly accountable.</i></p>	<p><b>National Grid plc</b> is the electricity transmission system operator across England, Wales and Scotland; Northern Ireland Electricity, SP Transmission Limited (part of retailer Scottish Power), SHETL (part of retailer SSE) in Northern Ireland and Scotland.</p>	<p><b>Four Transmission System Operators (TSOs):</b> EnBW Transportnetze, Tennet TSO, Amprion, 50Hertz Transmission.</p>
<p><b>Distribution</b></p> <p><i>Ownership profile: 'Public' assets: natural monopolies. Must be 'neutral' and publicly accountable.</i></p>	<p>Fourteen <b>Distribution Network Operators (DNOs)</b> owned by six companies – all private companies (e.g. UK Power Networks, SSE Power Distribution).</p>	<p>98% of Germany's approx. 1.78 million km of electrical network is made up of these distribution grids.<sup>11</sup> <b>888 Distribution System Operators in total. 812 with fewer than 100,000 connected customers.</b><sup>12</sup> 90 co-operatives are involved in grid operation (e.g. EWS Schönau).</p>
<p><b>Supply (retail)</b></p> <p><i>Ownership profile: All private companies in the UK. A mixture of private, public and community ownership in Germany.</i></p>	<p>93.5% of the domestic retail market owned by six large suppliers.<sup>13</sup> There are about 25 active suppliers in the electricity and gas markets.<sup>14</sup></p>	<p><b>1100 electricity supply companies.</b><sup>15</sup> Average choice of 72 suppliers for household customers within each network.<sup>16</sup> Four largest suppliers occupy 43.8% of the retail market.<sup>17</sup> Stadtwerke and other independent suppliers occupy almost 50% of this market.</p>

11 Accenture (2013) *The evolution of the electrical grid industry in Germany by 2020: Executive summary*, London: Accenture.

12 Bundesnetzagentur and Bundeskartellamt (2014) *Monitoring report 2013*, Bonn: Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen.

13 Ofgem (2014) State of the Market Assessment, London: Ofgem. Available at: <https://www.ofgem.gov.uk/ofgem-publications/86804/assessmentdocumentpublished.pdf>. [Accessed: 2 July 2014]

14 Domestic. for gas and electricity. Ofgem (2014) All Electricity Licensees – Registered addresses. Available at: <https://www.ofgem.gov.uk/publications-and-updates/all-electricity-licensees-registered-addresses>. Ofgem (2014) All Gas Licensees - Registered addresses. Available at: <https://www.ofgem.gov.uk/ofgem-publications/83618/externalgaslist09072014.pdf> [Accessed: 2 July 2014]

15 BDEW (2012) *Wettbewerb 2012: Wo steht der deutsche Energiemarkt?* p.31, Germany: BDEW Bundesverband der Energie- und Wasserwirtschaft e. V.

16 Bundesnetzagentur and Bundeskartellamt (2014) *Monitoring report 2013* p.10, Bonn: Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen.

17 BDEW (2012) *Wettbewerb 2012: Wo steht der deutsche Energiemarkt?* p.36. Germany: BDEW Bundesverband der Energie- und Wasserwirtschaft e. V.

### Political and cultural context: the shift to renewables and citizen participation

At the heart of German communities – whether small rural villages or large urban cities – the aversion to nuclear power is strikingly evident. The desire to break free from all nuclear sources of energy was by far the greatest motivating factor for those who were engaged in some way in their local energy market. The impact of the 1986 nuclear fall-out in Chernobyl, present-day Ukraine, directly affected the lives of many German citizens. In the South-West, for example, dairy cows and fresh produce were deemed unsafe, which significantly damaged the businesses and livelihoods of farmers and their families. The impact was not just environmental, but personal.

Communities across the country suddenly wanted to know where their energy came from, and what they could do to stop their suppliers purchasing nuclear power. For most, the best solution was home grown. Just four years after the incident at Chernobyl in 1986, influential land owners in the south of Germany who had set up hydro-power dams successfully lobbied for a federal law to mandate power utility companies to buy renewable electricity from them at stable rates.<sup>18</sup> This made good business sense, but was ultimately passed by the federal state because there was a much broader motivation to prevent utility companies from purchasing nuclear power, or oil and gas from what were perceived as less reliable markets in Russia and the Middle East.

This feeling is clearly still evident today, and has been reinforced in the present generation by the Fukushima incident in 2011. Around Freiburg and the Baden-Württemberg region in particular, there are signs of ongoing ‘anti-nuclear’ campaigns – banners and stickers outside of houses, on people’s cars and publically-owned buildings. Farmers, businesses and families have retained both an institutional and familial memory of the damage caused by the fall-out, and are still haunted by its impact. The city itself now attracts leading academics and entrepreneurs from across the world to deliver high profile speeches on alternative sources of energy.

Crucially, the primary response from German communities has not been to lobby government for change, but to first and foremost make an immediate and tangible difference in their community. In Freiburg, the trophies of people’s successes are dotted all over the city. It is home to Aldi’s first roof-top solar panel: the supermarket caved under the pressure of local citizens who were urging all businesses to usher in the transition to renewable energy. A few people pointed out ‘their wind turbine’ on the horizon, in which they had financially invested a number of years ago. Such successes were communicated to me with such pride by the city’s residents – this was their energy transition and they were going to make it happen.

The drive to break away from nuclear power and non-renewable sources has been reflected at a national level via Germany’s ‘Energiewende’ (the energy turnaround or energy transition). Although currently spearheaded under the Christian Democratic Union and Social Democratic Party (CDU-SDP) coalition, it is a vision and strategy that is supported by all political parties. This level of consensus is almost unheard of in the UK.

18 Kraemer, R. A. (2012) “Germany, Fukushima and global nuclear governance”, *Global Perspectives* 2(4), p.146. Leeds : Global Teacher Project, Leeds Metropolitan University.

The shift in German power generation towards renewable energy sources was accelerated by the introduction of the German Power Feed-in Law (*Stromeinspeisegesetz*) in 1991, which has since become adopted by many other administrations, including the UK, and has acted as a key catalyst to what is now a global renewable industry. In 1999 and 2000, the Social Democratic and Green Party coalition government negotiated a phase-out of nuclear power with the industry and upgraded the Feed-in Law to become the Renewable Energy Act 2000 (*Erneuerbare-EnergienGesetz*, or EEG), which also gave renewable sources priority access to the grid.

In part due to the cultural, historical and political context, the first of the many beneficiaries were farmers, individuals and family-owned businesses, who were seeking both alternative and local sources of energy provision and new and emerging business opportunities. Harald Reinbold, a young farmer of Reinbold Bio-Energie in Freiamt, South-West Germany, told me that the price of meat was too variable to run a sustainable business based on livestock farming alone, particularly following the spread of BSE in the early 2000s. Producing renewable energy became a business opportunity: by investing in a market secured with a fixed price, and with the possibility of expanding this business to supply gas to the wider community, good prospects were in sight.

As such, the ownership profile of renewable generation plants is strikingly diverse. In 2012, private individuals owned 47% of total installed renewable capacity – 34GW in total. Of this 47%, 52% privately own their means of generation; for example, via a solar panel on their roof. 21% are ‘citizen holdings’, where a community owns the majority of the company; for example, a co-operative (these are also usually locally focused). And 27% are production plants that are open to investors anywhere, but in which citizens have a minority share; such as part crowd-funded initiatives. Numerous communities in Germany now produce far more power than they themselves demand. Freiamt, a collection of hamlets in South-West Germany, for example, generates 200% of what is consumed locally.<sup>19</sup>

The number of renewable energy co-operatives in Germany has also grown significantly in recent years. At the end of 2013, there were 888 registered renewable energy co-operatives in Germany.<sup>20</sup> 85% of energy co-operatives have been set up over the last five years alone, and since 2009 well over 100 new co-operatives have been founded each year. The members of the co-operatives – 90% of whom are individual citizens – have already invested around 1.2 billion euros in community energy generation projects.<sup>21</sup> The motivation of individuals, and of whole communities, to participate in the energy market has snowballed in recent years.

19 See full report for a detailed case study on Freiamt.

20 Holstenkamp L., Müller, J. R. (2013) *Zum Stand von Energiegenossenschaften in Deutschland: Ein statistischer Überblick zum 31.12.2012* Lüneburg : Leuphana University of Lüneburg.

21 The DGRV currently have 700 members. German Cooperative and Raiffeisen Confederation (2013) *Energy cooperatives: Findings of survey conducted by the DGRV and its member associations* p.5. Berlin: DGRV; Ein gewin für alle “Bundesgeschäftsstelle Energiegenossenschaften” *Genossenschaften in Deutschland* [Online]. Available at: <http://www.genossenschaften.de/bundesgeschftsstelle-energiegenossenschaften>. [Accessed: 19 February 2014]

Fig 1: Installed power from renewable energy sources by owner groups in Germany in 2012

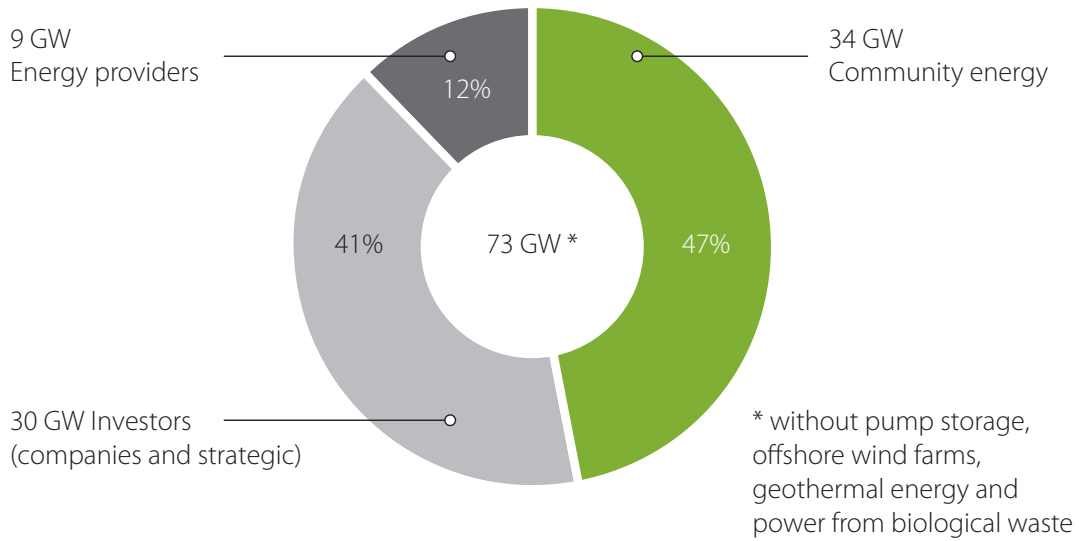


Fig 2: Installed power from community energy sources by owner groups in Germany in 2012

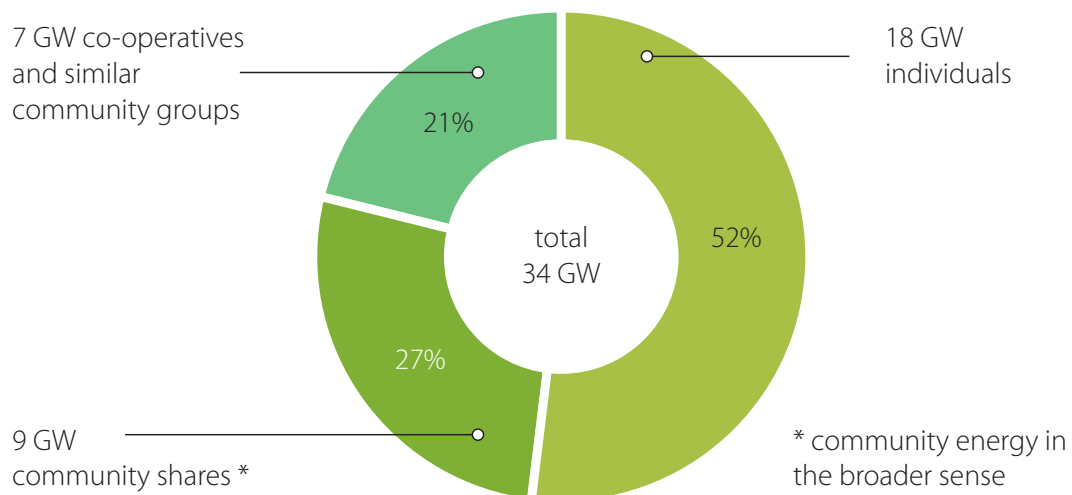
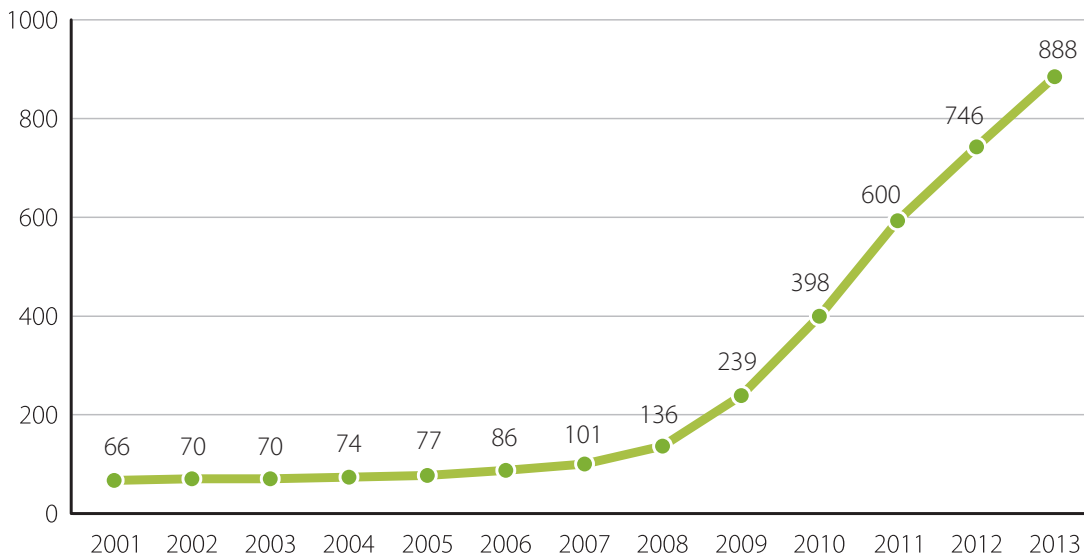


Fig 3: Development of energy co-operatives in Germany



Number of registered energy co-operatives since 2001 (accumulated).<sup>22</sup>

In stark contrast, community-owned energy amounts to just 0.4% of installed renewable capacity in the UK, but this is growing and picking up pace. In the UK, as of August 2013, there had been over 40 share offers raising £17 million from nearly 10,000 investors.<sup>23</sup> Although the cultural, social and infrastructural context set out above has enabled such community-owned projects in Germany to accelerate at a much greater rate, communities across the UK are already taking a lead in social innovation in the production of power and have the ambition to do own, run and operate much more.<sup>24</sup>

<sup>22</sup> Die Agentur für Erneuerbare Energien e.V. (2014) *Entwicklung von energiegenossenschaften in Deutschland* Stand: Klaus Novy Institut. Available at: [http://www.energieagentur.nrw.de/\\_images/editor/ea/diagramm1.jpg](http://www.energieagentur.nrw.de/_images/editor/ea/diagramm1.jpg).

<sup>23</sup> Capener, P. (2014) *Community renewable electricity generation: potential sector growth to 2020: Methodology, detailed assumptions and summary of results* London: Department of Energy and Climate Change.

<sup>24</sup> For more examples of where this has been the case, see: Julian, C. and Dobson, J. (2012) *Re-energising Our Communities: Transforming the energy market through local energy production* London: The ResPublica Trust; Harnmeijer, J., Parsons, M., Julian, C. (2013) *The Community Renewables Economy: Starting up, scaling up and spinning out* London: The ResPublica Trust; Willis, R. and Willis, J. (2012) *Co-operative renewable energy in the UK: A guide to this growing sector* London: Co-operatives UK.

## SECTION 2:

# OWNERSHIP AND GOVERNANCE OF LOCAL ENERGY MARKETS

Such diversity of ownership in Germany has not been without its battles and difficulties. Many communities and citizen-led organisations told me that they too were unsure as to whether their ambitions would work or gain the necessary funding and support, or indeed, whether their ideas would be possible at all. Demand for change, and for something to call their own, inspired social innovation and attracted a whole range of people with the necessary skills, expertise and financial capital to ensure that their ambitions were realised.

And such drive is not only still evident, but also growing. Germany is witnessing the beginnings of a renaissance in local and community ownership of public utilities and services. Driven by a distrust that businesses are truly acting for the public good, citizens have set out to challenge a whole range of contracts forged between their local state government and private companies. A 2011 KPMG survey found that around a third of cities, towns and districts were at some stage of talking about 'communalisation', or 'Rekommunalisierung', with most citing the maintenance of municipal influence in local services as the prime reason for this shift.<sup>25</sup>

It was in the same year that the citizens of Berlin demanded the publication of a contract previously unavailable to the public, outlining the terms of sale of the municipal water company to Veolia and RWE. In a referendum, almost 99% of Berlin citizens voted to publish the details of the contract; the first time a citizen's initiative in Berlin had passed. Another initiative has also since sought to counter the privatisation of the S-Bahn, the regional train company. It was clear from my conversations with residents and civil society groups in Berlin that such issues were still of heightened and ongoing concern.

Such protests have resulted in something much more radical within the context of Germany's energy market. There is an evident movement, not toward re-nationalisation or even re-municipalisation, but toward a much more constructive, locally-governed infrastructure in which communities can secure their participation and ensure transparency, efficiency and the betterment of their neighbourhoods. This is a movement that reaches far beyond the community ownership of generation and municipal governance of public services, toward a much more holistic and embedded approach to the very composition of the energy market.

<sup>25</sup> KPMG (2011) "Rekommunalisierung der Energieversorgung ist in jeder dritten Kommune ein Thema" KPMG [Online]. Available at: <http://www.kpmg.de/Presse/25729.htm>. [Accessed: 19 February 2014]

In addition to environmental concerns, a key motivating factor for many of these communities arises from a desire to uphold and support the local economy.<sup>26</sup> I spoke with individuals, community groups, academics and national research and representative bodies throughout my travels who raised concerns that many private companies were channelling their profits elsewhere – outside of the community or beyond Germany’s borders – rather than reinvesting in the places in which they operate. Such organisations, they argued, tend to operate in abstraction from communities, and do not work with their interests or needs at heart.

On the other hand, due to Germany’s strong municipal structure, there is recognition that local states can themselves form monopolies, and prevent the value generated from energy services from filtering down to the grassroots. In many ways, this can be more damaging to community interests than well-meaning investors. Many with whom I spoke felt that municipally-owned and run services were extremely slow and bureaucratic, which is not good for such a fast-moving sector, nor for the possibility of participatory and community governance.

For many, the logic is therefore as follows: if neither the state nor the private sector can be trusted with public utilities, community ownership and participatory governance must be the answer. Concerned that their utilities and grid operators are not delivering on support of renewable energy, energy efficiency and the local economy, many communities, families and small businesses in both rural and urban areas have taken action.

The full report sets out a range of case studies from rural, urban and regional communities - but here - I have highlighted the two key movements which are presently picking up pace: the community and local ownership of utilities and distribution grids, and the local trade of electricity. Beyond the community ownership of renewable generation projects, these are examples of where communities have come to own and govern local electricity systems – a much more holistic, local and personal approach to the governance and supply of energy.

### **Ownership and governance of distribution grids and utilities**

Germany’s energy market was subject to liberalisation in 1998 (Energy Industry Act), which removed the Stadtwerke’s territoriality principle and attracted a range of private investors and companies to run the country’s local and national energy systems. When the EU’s anti-trust law became effective in 2005,<sup>27</sup> many Stadtwerke and private utilities were required to ‘un-bundle’ their retail arm from their distribution arm: If a supplier provided for more than 100,000 people, it was legally obliged to create two separate legal entities or invite other operators or investors to take on one of the operations. Many municipally-run utilities saw this as an opportunity to invite an external private company in to run the

26 This is reflected in a recent DGRV survey of 213 energy co-operatives, which found ‘promotion of renewable energy’ and ‘promotion of regional value creation’ the highest motivating factors for the initial foundation of their business. German Cooperative and Raiffeisen Confederation (2013) *Energy cooperatives: Findings of survey conducted by the DGRV and its member associations*, Berlin: DGRV.

27 For further details, see: [http://www.bundesnetzagentur.de/cIn\\_1912/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen\\_Institutionen/EntflechtungKonzessionenArealnetze/Was\\_ist\\_Entflechtung/was\\_ist\\_entflechtung\\_node.html](http://www.bundesnetzagentur.de/cIn_1912/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/EntflechtungKonzessionenArealnetze/Was_ist_Entflechtung/was_ist_entflechtung_node.html)



local grid network and utility in order to make the necessary improvements to the local infrastructure and consumer-facing service that many municipalities felt unable to accomplish themselves, or to simply leverage in additional funding.

But in numerous cities and localities there was a strong reaction against this move. Keen to re-establish local governance of power distribution and supply, a growing number of communities have sought to win such contracts and services back. At the end of 2012, 190 communities had been successful in bidding to run their local grid (at least nine of these being co-operatives)<sup>28</sup> and 70 municipal utilities had been founded.<sup>29</sup> Cities such as Berlin and Hamburg had contracted out the operation of their local grid networks to private companies due to struggling municipal budgets, but have since sought to draw them back under local governance. The citizens of Hamburg have recently been successful in their bid, and Berlin only very narrowly missed the required quorum to enable theirs to be successful.

Other smaller communities have had the opportunity to go the extra mile, and take on not only the operation of their local grid network, but that of the entire local energy system. Because grid operators are prescribed by law to be independent from generation, they have in reality very little influence on local energy markets. German legislation, as in the UK, sets very narrow parameters for what a grid operator can and cannot do: they are forbidden, for example, from discriminating against any form of energy generation or actively promoting investments in particular technologies. But a utility or supply company can specifically set out to prioritise local and renewable generation, as well as develop new energy efficiency and demand reduction initiatives.

The ownership of a supply company has therefore often granted even greater influence to communities in the governance of their local energy market, which is why the communities of Feldheim and Schönau – both widely considered as pioneers – also set themselves up as a licenced supplier. Feldheim, a hamlet not too far from Berlin, was shocked to discover that the energy generated within the community was being sold to a supplier based elsewhere, and that Feldheim's supplier was instead selling gas and electricity to its residents that had in turn been purchased from afar. In response, the hamlet set up its own grid and supply company, independent from the established distribution networks and existing provider, in order to make local supply of local generation possible.

The community of Schönau was the first village (1997-1998) to bid against an existing private network operator to run the local grid and retail services themselves. They are now an established and successful co-operative that obtains its energy only from renewable sources and prioritises purchase agreements with local generators. Both of the suppliers that operate in Feldheim and Schönau are able to offer competitive tariffs to their customers and have significantly boosted both their local economies and local social capital.

28 German Cooperative and Raiffeisen Confederation (2013) *Energy cooperatives: Findings of survey conducted by the DGRV and its member associations* p.12., Berlin: DGRV.

29 Berlo, K. and Wagner, O. (2013) *Stadtwerke-Neugründungen und Rekommunalisierungen Energieversorgung in kommunaler Verantwortung Bewertung der 10 wichtigsten Ziele und deren Erreichbarkeit* p.1. Döppersberg: Umwelt.

Inspired by the growing number of success stories, many more communities are planning to do the same. This isn't a phenomenon unique to Germany. Australian communities are considering whether network operations are best served by local co-operatives, as are many in the US and across the rest of Europe.<sup>30</sup>

### Trading electricity locally

*“More and more people want to buy locally produced food  
and other items  
– this now also applies to electricity.”*

- Josef Göppel MdB

Innovation is also emerging through exciting developments to promote the local trade of power, and in setting the conditions for a whole range of organisations – from communities to industry – to meet their own demand.

A key driver for the ownership and operation of local distribution and supply for many communities is the desire to consume locally and consume what they produce. Aside from the sense of ownership and control that communities would gain from this, it also makes economic and infrastructural sense: why send your power half way across the country, when you could sell it to Andreas down the road? This has been reinforced for some who have started to earn more from directly selling their energy at a retail price than feeding into the grid. For others, means by which to keep value and trade local is key. Over half of all energy co-operatives in Germany are now interested in ways of marketing their energy directly in the region, and one in ten co-operatives are already doing so.<sup>31</sup> A similar ambition is emerging amongst community energy groups in the UK.

Establishing a private wire or network independent from the established grid, such as is the case in Feldheim, is one way to achieve this. There are private wires networks in the UK, but these tend to be in off grid situations or on industrial parks, and they are typical legacy arrangements. But this method has its limitations, both in terms of the radius of distribution (usually up to 5km) and in terms of cost, and it is clearly not desirable to duplicate the existing system. The other means by which such a model can be realised is through local trade. If communities, businesses and publically-owned generators sold their electricity to a local supplier, and in turn purchased their energy from the same local supplier, they would on paper (and in some cases physically) be consuming what they produce. This not only

30 Lacey, S. (2013) “Boulder votes to buy back the grid to accelerate renewables” *Renew Economy* [Online]. Available at: <http://reneweconomy.com.au/2013/boulder-votes-to-buy-back-the-grid-to-accelerate-renewables-16411>. [Accessed 19 February 2014].

31 German Cooperative and Raiffeisen Confederation (2013) *Energy cooperatives: Findings of survey conducted by the DGRV and its member associations* p.18., Berlin: DGRV.

meets the ambitions of numerous communities, but encourages a far more holistic, decentralised and participative model of production, distribution and supply.

I spent a few days visiting a number of communities in Franconia (Bavaria, Germany) with the Christian Social Union (CSU) MdB, Josef Göppel, who is seeking to promote exactly this model. We visited and spoke with a range of industries, businesses, communities and individuals, who were keen to support a system that would boost their local economy and ensure security and sustainability of local supply. Göppel sees the forthcoming transition from the European Energy Exchange – Germany’s electricity pool – to Direct Marketing – where generators are able to directly offer and sell their power on the open market<sup>32</sup> – as a huge opportunity to localise distribution and supply, and to lead on a bottom-up demand-led response to the growth of distributed and community-owned generation. He also sees this move as a fundamental and required shift to create the effective, efficient and sustainable market that Germany needs.

Göppel also sees the introduction of direct marketing as an opportunity for *regional* direct marketing – in other words, for local trade. Whereas regional marketing was previously restricted to limited direct cables (transporting energy via a short cable from a generator to a consumer), the anticipated legislation would enable local generators to sell directly to local suppliers, industries, businesses or households, bringing with it a range of economic and infrastructural benefits to the community. Prior to the EEG 2012, the feed-in tariff and surrounding legal framework encouraged renewable energy into the market through a central system, which saw most generators feed in to the European Exchange and via the four transmission operators, which manage this process.

Dr. Josef Pesch, who heads up an organisation that supports innovative renewable projects in Freiburg, argued that in order to truly usher in the energy transition and create a market that would benefit all, our approach to the governance and trade of energy must be underpinned by the principle of subsidiarity: “We need to take a ‘bottom up’ approach: if a community cannot meet its own demand, it must source additional supply from the next governing level. In some cases this will be the wider region, in others, from across the country, and perhaps others again, from Europe.”

This model has received further support quite recently in Middle Franconia, where communities are currently protesting against the development of an 800km power cable which would seek to transport electricity from wind turbines on the North Sea coast through to Bavaria. Aesthetically, these power cables are considered to be much more damaging to the landscape than wind turbines and other means of producing energy, which could just as easily meet local demand. Residents see this development as a threat not only to their environment, but to their local economy and local trade.

32 See full report for more information regarding Direct Marketing.

## CONCLUSIONS AND RECOMMENDATIONS

The cases outlined in the previous chapter are many of the pioneers. Even for Germany, whose market is already geared toward a much more holistic and decentralised system, these examples highlight communities, cities and regions that are going above and beyond the norm, establishing new innovative models of working that national and local government for the most part did not anticipate.

Much of the reluctance felt amongst policy makers in the UK in taking Germany as a 'blueprint' from which to work emerges from the clear differences between our markets and infrastructure; and not just for the energy sector, but between our banking and financial services sector, and industry too. We do not have over 1,000 local suppliers to work or engage with. Our distribution grids – now largely disconnected from local governance – are operated at a scale much larger than is possible for our communities to bid. And our infrastructure is now so centralised that achieving outcomes such as local participation in the governance of power seem too farfetched

But in many respects, the outcomes are not at all farfetched – the means by which we achieve them will just look different.

We need to think radically and innovatively about what we want our energy market to be and to look like. Policies and proposed market reforms are oiling the cog wheels of an existing and outdated centralised system, rather than implementing a new vision which has a much more transformative end goal in mind. Our system has developed to naturally exclude consumers from participating in the market. It has become abstracted from communities, local trade and local services. We now see very little of the supply chain in action, and we have become reduced to individuals who receive significant bills, and whose only power is to switch between a small selection of suppliers, none of whom can be considered local specialists. Ironically, in an attempt to 'fix' the market for the benefit of consumers, we are re-enforcing a model that will always exclude them.

The German model, and the innovation that has emerged from the country's regions and communities, reveals that it is possible to envisage something different. Beyond transparency, we can cultivate a trading system that also increases efficiency and generates local value by seeking to balance local demand and local supply, and incentivising local trade. Beyond supply-side competition, we can promote participatory governance and a diverse profile of ownership in local energy markets. In many ways, we are simply not being ambitious enough, and it is because of this lack of ambition that the market is failing consumers across the country.

We have in many respects made positive strides toward promoting decentralised and collaborate ways of working. The development and promotion of smart grids, innovations in district heating networks and 'in situ' combined heat and power, for example, to name but a few. The Low Carbon Network Fund, where electricity distributors are exploring how networks can facilitate the take up of low carbon and

energy-saving initiatives at a regional and local level, is another positive infrastructural move. Many local authorities are also already taking the lead in energy generation and re-distribution – capturing wasted heat, for example, and re-directing it to surrounding neighbourhoods. Communities, such as the Low Carbon Hub in Oxford, are working with a number of different local partners to reduce local consumption and to usher in community-owned and run projects to participate in such governance. Successful suppliers are emerging such as Co-operative Energy – which has recruited over two hundred thousand retail customers since it was launched in 2011. The Department for Energy and Climate Change (DECC) also produced a strategy for community energy in January 2014, and is increasingly supporting such projects across the UK.<sup>33</sup>

But these are initiatives and projects that are bubbling up at the side-lines, with many of the larger infrastructural projects open to large private companies only rather than to the locality, community or small businesses as well. The Community Energy Strategy also does not propose changes to the market to enable the support needed for such groups and generators to flourish. We need to take a much more holistic approach.

Below, I set out three brief recommendations as to how the British government can kick start an analogous framework that aims to encourage such an ambition and realise its vision.

### 1. Introduce a 'Help to Supply' scheme

The 'Local Energy' report, published by the Energy and Climate Change Select Committee (August 2013), and the DECC's Community Energy Strategy (January 2014), recognise that there is a growing appetite amongst communities, businesses and local authorities to not only produce, but *supply* their own power.

There are two means by which this can be realised. The first is via a private wire: setting up pipes or wires adjacent to the existing grid and directly channelling the electricity or heat to a neighbourhood or building in the near vicinity. The generator in this case can offer power to the consumer – whether it be its own business or a business or community next door – at a price much closer to the wholesale cost than if purchased through a licensed supplier.

The second is by setting up a licensed supply company. An organisation, such as a community-owned generation plant, civil society group or local authority, could establish a new business to act as its energy retail arm, and negotiate Power Purchase Agreements (PPAs) with the generation business and numerous other generators within its locality. The community, along with the business owners and any other partners, could then switch suppliers to the new supply business and technically (if not physically) consume what they produce and what is produced locally. This could in theory take place at a community, local authority or regional level. Or a group of local businesses could pool their resources to set up an independent supplier and offer supply services to themselves.

<sup>33</sup> DECC (2014) *Community Energy Strategy: Full Report*. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/275163/20140126Community\\_Energy\\_Strategy.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/275163/20140126Community_Energy_Strategy.pdf)

The former means is already taking place quite successfully across the UK, particularly with regards to heat and CHP, but the infrastructure and logistics regarding wiring and the distribution of electricity limits its application to supply within a small radius only. The latter means however - becoming a licensed supplier and participating in the public network - has far more potential, but is one in which we're grossly lagging behind. Promoting such a model would see many more communities, businesses and local authorities enter into supply-side services, introducing greater diversity and new 'bottom up' competition to our consolidated retail market.

This reflects the ambitions of Hamburg, Berlin, Feldheim and Schönau: to localise production, distribution and supply and to keep value local. As distribution network operators are prescribed by law to operate independently and without bias, a community or business – as many admitted in Germany – would have very little sway on the shape and composition of the local energy market. But as a supplier, they could set up certain criteria and only purchase, for example, from local renewable sources and/or prioritise purchase agreements with generators in the near vicinity first, much like Göppel's ideas for Middle Franconia and the practices of Schönau.

However, adopting the second approach and setting up as a licensed supplier is extremely difficult especially in the electricity market. It requires significant financial capital (estimated at between £0.5 – 1m), expertise and legal frameworks that have made it almost impossible for new suppliers to start-up in the UK. This is the case even if a given business is simply looking to transport their generated energy from one end of a road to another one of their buildings at the other. Ofgem's 'Licence Lite', which was introduced in 2009 to ease the process, has so far seen only one application progress. The Greater London Authority (GLA), the largest governing authority in the UK, has the facility, scale and financial backing to take advantage of this scheme, but many small businesses, institutions and civic groups do not. The GLA's application is still pending final approval, so we are yet to learn from their hopeful success.

A handful of the UK's smaller energy suppliers and energy services companies are currently scoping out how they might be able to assist communities, local authorities, housing associations and entrepreneurs to set themselves up as a licenced (and local) supplier. The Eden Project in Cornwall, for example, is currently working with an experienced third party to set up a social enterprise that will provide a platform for the development of multiple energy supply companies. Ovo Energy has recently launched its 'Ovo Communities' scheme, which will enable community groups to sell energy to local residents on a white label basis, generate their own power and invest in energy efficiency.<sup>34</sup> This is the first glimpse of a model that might begin cultivate the level of local governance and competition that we find in Germany.

In order to catalyse this process, we need a 'Help To Supply' scheme. Government, working with the Department for Energy and Climate Change and Ofgem, should set up a series of pilots to work with a range of partners – communities, generators, local authorities, housing associations, supermarkets, business hubs, Local Enterprise Partnerships – to help them establish a licensed supply company. This could be mediated through existing suppliers – as we are already beginning to see – and established energy services companies, which could set up a franchising model to further ease the process, and

34 <http://www.ovoenergy.com/communities/>

provide the back office support that many start-ups would need. Along the way, risks, costs and barriers should be noted and policies should be implemented as a result of this learning.

'Licence Lite' should be replaced by a range of new supply licences that take into account the potential diversity in scale, model and remit of the new licenced suppliers. For those with ambitions to supply and trade locally, a 'Licence Local' should be introduced, with set-up costs, legal frameworks, conditions and regulation proportional to their size. This way, we may fairly quickly move from the small pool suppliers we currently have to a much greater and more diverse range of new market entrants, provided supporting changes are made to market rules.

## **2. Create a pathway to local trading platforms**

The way in which we trade and purchase our energy is currently indifferent to location. Our centralised and nationalised trading model has led us to forget that it is in fact more socially, economically and environmentally valuable to respond to local demand via local supply. Our national suppliers are on the whole neutral as to where their consumers live and work, and indeed as to where they purchase their energy. They can establish Power Purchase Agreements with distributed and community-owned generators, but many of their customers will likely be based at the other end of the country. Locality and community rarely play a part.

This has cultivated a system that both lacks transparency and leaks local value. In many respects, there is an analogy between the lobby against vertical integration in the UK – where the retail arm is still connected to, and trades with, the generation business – and those in Feldheim and Berlin, who were deeply concerned as to where the local grid operator and supplier were purchasing their energy, and to whom and where such investments were being made. The response of these German communities was to bring governance and ownership back to their locale and into their hands, thereby achieving something much more radical than simply disclosure and transparency.

We need to encourage a paradigm shift away from the centralised and abstracted model and toward an energy market underpinned by the principle of subsidiarity, where responsibility and power is devolved to the lowest appropriate level. This is not to say that we must remove national governance or big business – such elements are integral to correct functioning of such markets – but rather that we expect and urge a more rooted and diverse profile of ownership and control. The German model, and its pioneering regions and communities, demonstrates that this is possible and beneficial. Leadership from Josef Göppel MdB and others shows that such ambitions can begin to be cultivated, implemented and achieved.

As a first step, Government should conduct a review to explore possible incentives to encourage the local trade of energy and new commercial opportunities for suppliers, communities and local authorities to play a central role in balancing local supply and local demand.<sup>35</sup> Such incentives and

35 There is a fantastic paper that explores this particular opportunity and its present barriers in greater depth: Ward, J. and Phillips, R. (2014) *The electricity demand-side and local energy: how does the electricity system treat 'local'?* London: Sustainability First.

opportunities would open up the possibility to create local energy exchanges and trading platforms, much like the plans for Middle Franconia via regional direct marketing. Some organisations and civil society groups are already working with retailers to ensure that they break down their energy source as a standard addition to their consumer's bills – individuals will soon know exactly what has been purchased and from where. Co-operative Energy launched a 'User Chooser' scheme in July 2014, which allows customers to control not only the generation type they prefer (i.e. hydro, solar or wind), but also the specific generation site to be utilised, enabling them to directly support community power in their locality. Such initiatives will encourage suppliers in particular to develop a much more holistic and locally embedded approach to their services and core business, and will cultivate outcomes that are truly directed by the public good.

### **3. Set up a Local Energy Infrastructure and Innovation Fund and pilot Local Energy Hubs**

Community bids to own and operate their local grid emerge from a desire to be key decision makers and participants in their local energy market. Beyond individual energy generation projects, communities were keen to take a much more holistic approach, and seek to govern demand-side issues as well as supply. They want to know, not only where their energy is coming from, but how they can match and scale up the right amount of generation to match local demand. Due to the differences in model and scale, the UK is not able to immediately go down the path of decentralised ownership of distribution networks, but there are ways in which many of the ambitions and outcomes driven by German communities can begin to be realised in our local energy infrastructure here in the UK.

In order for communities to participate in such governance, Government should introduce a Local Energy Infrastructure and Innovation Fund to support neighbourhood or community-level projects that seek to work with DNOs on demand-side and local balancing issues. This will enable communities and regions to manage and oversee where local generation can best meet local demand. At present, Ofgem offers funding through the LCNF, to encourage DNOs to explore how networks can facilitate the take up of low carbon and energy saving initiatives at a regional and local level. Access to this fund is currently targeted at larger companies and private operators. A framework needs to be put in place to encourage broader participation in such a scheme, specifically including community organisations.

Grant funding has been made available through the CARES scheme in Scotland for communities to investigate and develop projects that link local energy generation with local energy use, or projects that wish to develop innovative energy distribution and storage solutions. Nearly 20 projects have been supported to date, and the learning from them is creating new opportunities for community energy projects that would otherwise face high grid connection costs or lead-times. An example is the West Highland community of Applecross which is currently exploring how a private wire 'district heating' network can allow them to realise the full potential of their hydro scheme despite grid limitations and reduce the cost of energy for local households and businesses.

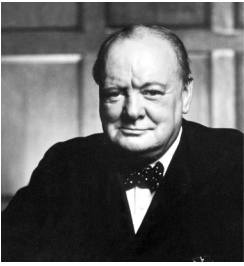


By working in partnership with DNOs and local communities, new opportunities for participation in network management are also emerging. At the request of local communities seeking to develop new renewable energy projects, for example, a DNO is installing network monitoring equipment that could form the basis of a smart grid. In another project, the scope for community generators to directly manage local energy demand as a way of increasing available network capacity is being explored.<sup>36</sup>

A similar initiative should be introduced in England and Wales, and accompanying Local Energy Hubs should be piloted in order to provide a platform for local innovation and investment in local energy infrastructure and markets. Start-up enterprises, SMEs and community groups should be welcomed to harness the hub to explore how they might collaborate and participate in local generation, distribution, supply and energy efficiency, in order to nudge a local and holistic way of working across energy infrastructure and supply chains. Looking further into the future, Government should review how the operation of distribution networks can become subject to greater competition and local governance.<sup>37</sup>

36 For more information, visit: <http://www.communityenergyscotland.org.uk/innovation.asp>

37 In this respect, there are some analogies with the removal of a local monopoly at the level of the 'local loop' in telecommunications. See, for example, Vaze, P. and Mayo E. (2009) *A New Energy Infrastructure*, Consumer Focus [Online]. Available at: <http://www.consumerfocus.org.uk/assets/1/files/2009/06/A-New-Energy-Infrastructure2.pdf>. [Accessed: 2 July 2014]



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