



Community Energy

White Paper April 2014

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Letter from the CEO

All industries evolve. If they don't, they die out or are supplanted by something different. Evolution can take many forms - value for money, customer service, product innovation, operational efficiency. But one way or another, change means survival and growth.

The evolution of our energy market is an interesting story. It started locally in 1881, with the world's first electricity supplier a community-based scheme powered by a water wheel on a nearby river. By 1915 there were 600 electricity suppliers across the UK, before nationalisation effectively reduced them to just one. Today, 25 years after privatisation we have six large, vertically integrated incumbents, controlling 95% of the market between them.

The story of today's market is now played out in the headlines every day: it is opaque and illiquid, with high barriers to entry and very little real competition. Prices have risen, and levels of trust have plummeted to the point where the vast majority of consumers have simply disengaged with the market altogether.

This is the opposite of evolution. It's a destructive status quo, fundamentally weighted against the customer. It's also the reason we set up OVO Energy five years ago – because we firmly believed we could do better. Our commitment to our customers has always been simpler, fairer, cheaper energy. Now we want to go further than that. We see an energy market on the cusp of a major step change and we don't intend to just shout about it from the side lines - we want to drive it.

The platform we are launching today is designed to trigger a seismic shift in the power balance between consumers and the energy companies who are supposed to serve them. At its heart is a move away from the centralised model back to a decentralised one; but we're talking about far more than just community energy generation. OVO Communities is an out of the box solution, enabling and supporting anyone who wants to cut out the middle man and become an energy services provider – from supply and generation, to smart technology and energy efficiency.

OVO will offer every local authority, housing association and community group access to our expertise, infrastructure, highly efficient systems and on-going support. We will provide the comprehensive toolkit and guidance to establish these community energy programmes across the country, so that communities can reap the benefits of cheaper prices, local generation, reduced usage and, crucially, greater trust that they are getting a fair deal. After nearly 100 years, we want to return power to the people.

One of the great myths of today's energy industry is that we need large, centralised energy suppliers, because energy is too complex, too high risk, for mere amateurs. Our experience over the last five years, (and we had very little when we started) has shown that it is perfectly possible to start from scratch and run a more efficient business, with happier customers and lower prices. We are now going to take what we've learned and use it to demystify the industry and level the playing field for good. Companies which rely on business models which harm their customers will not survive this evolution. But those which adapt, so that what is best for their customers is also best for their businesses, will thrive.

One energy company can't change the whole system, but together we can.

A handwritten signature in black ink, appearing to read 'S. Fitzpatrick', with a stylized, flowing script.

Stephen Fitzpatrick
Founder & Managing Director

Executive summary

With the publication of the government's Community Energy Strategy at the start of 2014, a spotlight was shone on an emerging corner of Britain's energy market. And yet community energy is not a new concept: It dates back to the very beginning of the electricity market. In 1881 the world's first electricity supplier was based in the town of Godalming in Surrey, and used locally produced electricity to power street lights and local businesses. During the next forty years the electricity supply industry blossomed, and by 1915 there were over 600 suppliers of electricity in the UK.

Over time governments increasingly intervened in the energy market, establishing nationwide electricity and gas grids, nationalising the industry and effectively reducing the 600 suppliers down to one. It was hoped that privatisation in the 1980s and 1990s would unleash a new wave of competition, but this did not happen. In April 2014 95% of homes received their energy from one of the six big energy companies that were borne out of privatisation.

Today the industry is struggling to deal with an environment of rising energy costs, increased reliance on energy imports and ambitious carbon reduction targets. At the same time new forces are supporting the development of a different energy ecosystem. The rise of distributed energy, the growing role for consumer behaviour in driving system efficiency, and the development of network economies all mean that local energy systems are becoming not only increasingly viable, but also increasingly the preferred choice for communities.

There are three reasons why communities are positioned to take a leadership role in this revolution: trust, local benefits and behavioural change. New research by OVO Energy shows that people are three times more likely to trust a community energy company to give them a fair deal than one of the existing big suppliers. Nearly half of everyone who stated a preference said that they'd prefer to buy their energy from a community energy company, even if the price and service was the same as they would receive from other suppliers.

When benefits accrue to local communities people become more engaged with energy, which in turn leads to more active decision-making – whether it is simply shopping around to get a better deal on their energy, or supporting investment in local energy projects. Communities are also uniquely placed to encourage positive changes in behaviour, such as adopting efficiency measures to keep energy bills low.

Today there are 5,000 community energy groups in the UK, although the impact these groups have had on the energy market is still small relative to countries such as Germany and Denmark. We can learn a lot from the rise of community energy in these markets, but we also need to develop models that are right for us. Community energy in the UK needs to be more than just a collection of one-off projects. It must help customers to use less and pay less, while benefitting from better service, greener energy and closer engagement with their local community.

It is with this in mind that OVO Energy is launching a platform for community energy. This will enable every community to supply their own energy, supported by the expertise, infrastructure and highly efficient systems developed by OVO. Our community partners will be able to build an energy ecosystem that – after nearly 100 years – returns power to the people.

Redefining energy



We are at a turning point in developing true community energy in the UK

Rt Hon Edward Davey MP, January 2014



In January 2014, the Department of Energy and Climate Change (DECC) published its first ever Community Energy Strategy for the UK. Up until this point community energy initiatives were present and growing in numbers across the country, but largely fell through the cracks of UK energy policy. Ranging from community investment in energy generation to collective action to reduce local energy tariffs, community energy activities refused to fit into the existing policy framework.

Government now recognises that community energy – with all its permutations – will be an integral part of the UK's energy future and as such must receive the right level of support in order to succeed.

At their core, all of these community energy schemes have one thing in common. They are about local action. They are about people taking back control of one of life's most essential commodities. Community energy is a movement towards decentralised energy generation, greater use of renewable energy, local energy networks and better energy efficiency.

Community energy schemes are about local action. They are about people taking back control of one of life's most essential commodities.

At OVO Energy, we believe that community energy systems have a central role to play in helping the UK to overcome these challenges. We also believe that existing community energy schemes need to go further in order to truly unlock their potential. To us, community energy is not just about numerous local energy initiatives in isolation; it is about the sum of the parts. And it is about making the benefits of these projects available to everyone in every community.

A history of the UK energy market

1881

The world's first public electricity supply company is created for **Godalming in Surrey**. Electricity was generated by a water wheel on the **River Weyand**. This was used to power street lighting and lights in local shops and businesses.

1882

Electric Lighting Act allowed individuals, companies or local authorities to establish their own electricity supply systems.

Emergence of distributed energy systems

1880s – 1920s

1948

UK electricity supply industry nationalised. All private and community-owned electricity generation and supply utilities were replaced with the **British Electricity Authority** (responsible for all electricity generation) and fifteen Area Electricity Boards (responsible for supplying customers).

Note: Even today, the **Big Six** energy companies reflect the shape of the **Area Boards**, whose regions they inherited at privatisation.

Centralisation and nationalisation

1920s – 1980s

1920

750,000 electricity customers

1926

Government created the **Central Electricity Board** to standardise electricity supply across the UK

1926-1938

The **CEB** brought together the various local electricity grids and established a nationwide 132,000 Volt, 50 Hertz network – the '**National Grid**'.

1938

9 million electricity customers.

1990 – 1999

Gradual introduction of supply competition. At the point of privatisation only the largest gas and electricity customers were able to choose their supplier. The thresholds for switching gas and electricity supplier were progressively lowered and competition expanded until in 1999 all types of gas and electricity customers were finally able to freely select their energy supplier.

Privatisation and competition

1980s – 1990s

1986 – 1995

Privatisation of the energy industry, starting with **The British Gas Corporation** in 1986. Electricity was privatised in 1989, when power generation was divided between **National Power**, **Powergen** and **Nuclear Electric**. The AEBs were renamed **Regional Electricity Companies (RECs)** and privatised in 1990.

National Grid was created as a standalone entity in 1990 but remained owned by the **RECs** until the company was floated in 1995.

1995 – 2002

Emergence of the '**Big Six**' vertically integrated energy companies.

2001 – 2004

Market reforms. In response to a perceived lack of price competition and few new entrants in energy supply, **Ofgem** introduced a set of reforms to the wholesale energy trading market in 2001, the '**New Energy Trading Arrangements**'. This was followed by the '**British Electricity Trading and Transmission Agreements**' in 2004, which created a single energy market covering the whole of the UK.

1990s – today

Consolidation and the re-emergence of distributed energy

1990s – today

Greater focus on energy efficiency and the environment. In 1994 the **Energy Saving Trust** and **Ofgem** introduced **Energy Efficiency Standards of Performance**, which required energy suppliers to support their customers with energy efficiency measures. This programme has evolved into what is now the **Energy Company Obligation**.

2007: EU set targets for a 20% reduction in CO₂ (versus 1990 levels) and 20% of energy to come from renewable sources by 2020.

2008: Climate Change Act, which committed the UK government to an 80% reduction in **CO₂** emissions by 2050

Today's challenges

The energy industry faces three major challenges: affordability, security of supply and carbon reduction. These priorities are increasingly urgent but they are also increasingly challenging. The financial implications alone are huge: It is estimated that over £110 billion of capital investment in energy infrastructure is required by 2020¹.

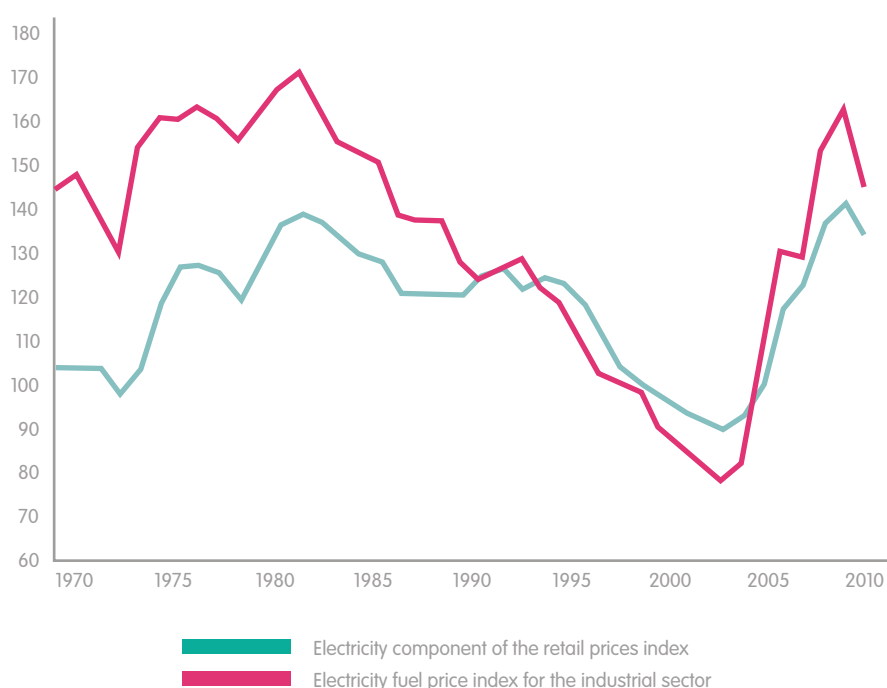
Affordability

The cost of energy has risen almost exponentially in the past ten years. The average UK household spend on energy bills has increased by more than 50%, which means that we are now spending an extra £400 a year on electricity and gas compared to 2002². Why did this happen?

Over the last decade increasing demand for energy from developing markets, in particular China, started to put pressure on international energy commodity prices – prices to which the UK was becoming increasingly exposed. The impact of rising global commodity prices reached a peak in 2008 when oil prices surpassed \$147 a barrel. This pushed up gas prices for UK consumers and, due to gas forming a large share of UK generating capacity, electricity prices also rose. By 2010 the number of households spending more than 10% of their annual income on energy had risen from 1.2 million to 4.6 million. 20 years of falling energy prices had been completely reversed in less than 5 years.

While gas prices have fallen over the last two years due to a combination of the economic slowdown and cheap shale gas in North America, the UK is now much more exposed to prices set in international energy markets than it was a decade ago.

UK Electricity Price Indexes (1970- 2010)



Security of Supply

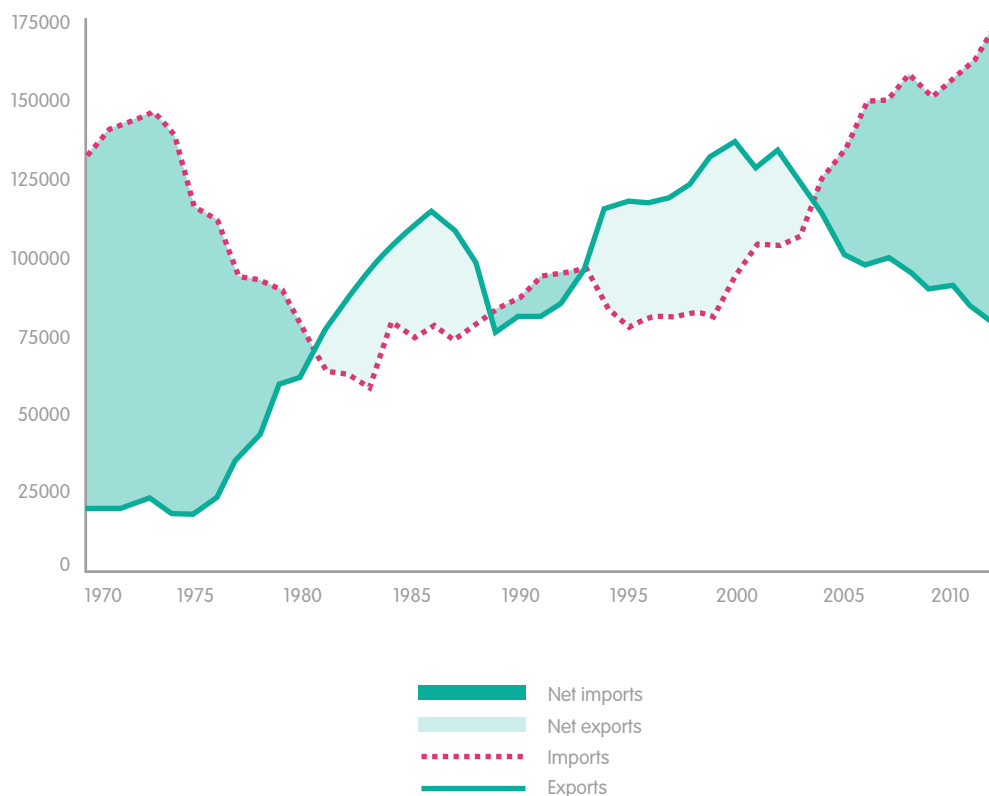
Before the 2000s, the UK had been a net exporter of energy for the majority of the previous two decades. But in 2003 this came to an end as supplies of North Sea oil and gas fell while UK demand was rising rapidly. In 2000 the UK *exported* energy equivalent to 20% of domestic consumption; in 2012 the UK *imported* energy equivalent to 43% of domestic consumption³. The country is now highly vulnerable to the availability and price of energy on international markets.

Our future electricity generation landscape will also change dramatically over the next 10 years. The majority of the UK's coal and oil-fired generation power stations are due to go offline in this period, partly because they have come of age, and partly because European environmental policy demands it. Many of the country's nuclear stations will also reach the end of their useful lives.

Building new coal-fired stations will make the UK's carbon reduction goals unattainable unless they are fitted with unproven carbon capture and storage (CCS) technology. New gas-fired stations will increase the country's dependence on imports from countries including Qatar, Nigeria and Yemen, and increase our exposure to volatility in international prices. New nuclear power plants may not be possible to build within the time available. Most other large scale generation technologies are either more expensive, less reliable, or a combination of both.

UK imports and exports of energy

thousand tonnes of oil equivalent



Carbon Reduction

The UN's most recent report on the state of climate change was published in April 2014⁴. It confirmed that greenhouse gas emissions have continued to rise despite our efforts to curb them, and stressed the importance of global action to avoid potentially serious changes to the climate.

To address this challenge, the UK has enshrined carbon reduction in law. By 2020, the UK needs to reduce its carbon emissions by at least 34% compared to our emissions in 1990. By 2027 we need to emit 50% less and by 2050 the UK needs to be almost completely decarbonised⁵. This suggests that electricity will need to be generated using a combination of renewables, nuclear power stations and fossil fuel power generators that have been fitted with CCS.⁶

One thing that no government can legislate for is public attitudes towards energy. A sustained reduction in the energy that we all consume could play just as big a role in reaching our carbon targets, replacing the UK's fossil fuelled power stations. One of the key recommendations in the UN report is that energy efficiency measures should play a role in curbing the rise in global temperatures on a par with that of decarbonisation of transport and electricity generation.



The future of energy

In addition to the challenges outlined above, we believe that three megatrends will shape the future of the UK energy market. These are the rise of distributed energy, the growing role for consumer behaviour in driving system efficiency, and the development of network economies.

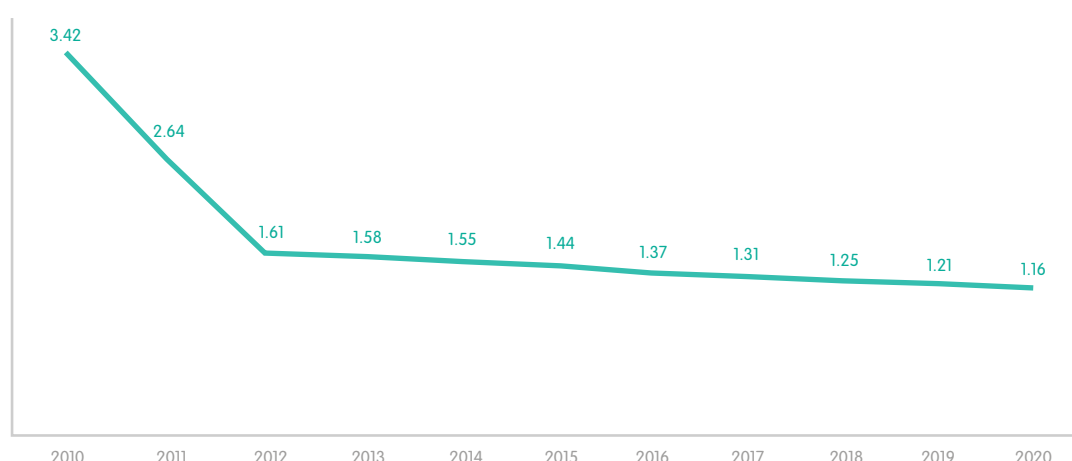
The rise of distributed energy

Distributed energy involves the production of energy – electricity and/or heat – at a local level. There are three principal forms of distributed energy:

- Domestic scale electricity generation – e.g. solar PV, small scale wind turbines
- Localised, low carbon heat – e.g. biomass boilers, electric-powered ground- and air-source heat pumps
- Community-scale combined heat and power – these are typically powered by gas or biomass, and can have higher efficiency than centralised gas power generation as they use the excess heat produced when generating electricity

The economics of distributed energy have improved markedly in the last few years. For example, the cost of a unit of electricity generated by solar PV fell by more than 50% between 2010 and 2013⁷ as new manufacturing facilities came online. Bloomberg New Energy Finance forecasts costs will have fallen another 28% by 2020. Wind is a more mature technology but nonetheless costs are also declining: between 2008 and 2012 the unit cost of electricity from onshore wind fell by 28%.⁸

Forecast costs for ground mounted PV projects, 2010-2020 (2013 \$/W)



Technologies that enable distributed energy, such as energy storage and data communications, are also becoming much cheaper. Lithium-Ion batteries of the kind used in electric vehicles dropped in price by 40% between 2010 and 2013⁹, while the cost to transmit a unit of data – essential for the functioning of distributed networks – fell by 77% between 2009 and 2012.¹⁰

As a result distributed energy is growing rapidly in many markets. It accounts for 47% of renewable power generation in Germany, and is forecast to nearly double by 2020.¹¹ In the UK the most popular distributed energy technologies are small scale wind and solar PV. Since 2005 over 20,000 small scale wind systems have been installed¹². Approximately 2.5GW of solar PV has

been installed and another 4GW of projects are at the pre-planning or planning stages¹³ – equal in potential output to Drax, Western Europe's largest power station.

Consumer behaviour and efficiency

In a centralised energy system the main driver for new investment – beyond the need to replace equipment that has come to the end of its useful life – is the need to cope with periods of peak demand. Peaks determine the need for new transmission and distribution lines and the associated infrastructure to manage these. According to the Chancellor of the Exchequer, reducing the need to add grid capacity to service peak loads could be worth up to £10 billion by 2050¹⁴.

As the amount of wind and solar PV generation grows, there will be an increased need to manage peak loads efficiently and thereby keep costs to the consumer as low as possible. The answer is to use a combination of technologies, such as energy storage, alongside changes in consumer behaviour. The advantage of using consumer behaviour is that it does not generally involve a large investment of capital. However it does have its own unique challenges: changing behaviour can be difficult, slow and uncomfortable for people.

An international study of 30 demand side response programmes¹⁵ found that consumers do change their behaviour in response to a combination of incentives and information, and the resulting reduction in peak demand can be as high as 38%. As would be expected the reduction was greatest when demand was managed automatically, for example using remote signals to trigger night storage heaters, but it was also significant when consumers were simply provided with better information on time-of-use prices and their energy consumption. Interestingly, consumer feedback was generally positive across all of the programmes studied.

In the UK more than 5 million people already have an incentive to shift their energy demand thanks to Economy 7 and Economy 10 meters. Customers with these meters pay lower rates for using power at off-peak times. Although these have been effective they are relatively rigid and often require consumers to manually adjust their usage patterns. In recent years some companies have come up with more innovative approaches to automating behavioural change, for example:

- Nest created a 'learning thermostat' that develops a unique heating and cooling programme for each home based on the preferences of the occupants. Each time the temperature is turned up or down Nest uses the information to refine its programme, getting smarter over time.
- Voltalis developed an automated system which reduces electricity consumption at times of peak demand. Based in France, where many homes are heating using primarily electricity, Voltalis combined small savings from many households to create larger reductions in energy demand. These blocks of energy saving were then sold back to the network operator.



Network economies

Prior to the advent of the internet, the global economy was dominated by businesses that developed and owned their own products and services. With advances in computing and communications a new structure is emerging: the network economy. In a network economy products and services are created through social networks operating across markets. Fragmented structures that were previously too complex to manage can now be operated effectively through a single portal.

Companies such as AirBnB, Uber and Zopa are good examples of business models made possible by network economies. AirBnB enables anyone with a room to rent to become a micro-hotel advertised to guests anywhere in the world. Uber allows drivers to offer taxi services using their own vehicles and at times that suit them; when demand exceeds supply fares go up, incentivising more drivers into working. Zopa provides a peer to peer service linking lenders and borrowers and since launching in 2005 has provided loans of more than £500m.

Network economies also have the potential to reshape the energy industry. By bringing together distributed generation, storage and demand and coordinating their operation, they can increase the efficiency of distributed assets and reduce the need for backup generation. In markets with a high penetration of distributed generation such as Germany, incumbent energy companies and new entrants alike are already experimenting with virtual power plants that bring together all of these elements. Over time this could lead to the emergence of 'energy clouds', where all the elements of distributed energy system are brought together on common platforms, leading to more efficient, more resilient and hence more financially sustainable energy networks.

Indeed, cloud computing may well become a necessity for the energy market of the future. A house with smart gas and electricity meters could collect more than 10 million readings per year, assuming data is collected 10 times per minute. If data is also being collected from a range of smart devices such as thermostats, hot water heaters, fridges, freezers and fire alarms, then there could be as much as 75 gigabytes of data produced every year. Simply storing this amount of data for a large number of homes would be an enormous challenge, let alone using the data to automatically adjust each device.

With advanced data analytics in place, communities will be able to operate as their own virtual power plants. They will no longer be on the receiving end of decisions made by government or large corporations; they will have the power to control their own energy system and set its parameters to serve their economic, social and environmental objectives.

From centralised to distributed to cloud: The evolution of the IT industry

The evolution of the information technology industry has followed a similar path to that of the energy industry, although it is already one step ahead. In the 1960s computing was all about mainframes, and one company – IBM – dominated with a 75% share of the global mainframe market. Following the launch of the IBM PC in 1981, distributed computing power rapidly overtook mainframes as the preferred computing platform of choice, and computer software became the dominant platform for innovation. In 1997 software and services overtook hardware as the largest source of revenue for IBM. In 2008 the company announced the beginning of the company's 'decade of smart', whereby it foresaw the convergence of physical and digital infrastructures across all industry sectors. This set the stage for the most recent step in IBM's evolution: the launch of cloud computing services to manage the exponential growth in data volumes. Using the cloud, IBM is able to offer flexible, scalable computing services to any organisation without the usual constraints of infrastructure and software installation.

A solution: Decentralisation

Many proposals for solving the challenges facing the energy industry focus on the role for large-scale carbon-free electricity. With sufficient scale, the reasoning goes, these could be cost-competitive with existing alternatives while significantly lowering CO₂ emissions from power generation. Furthermore, they would enable major reductions in CO₂ emissions from heating and transportation through the electrification of both sectors.

However, in parallel with this push for new forms of large-scale generation there are also many who believe that an important part of the solution will come from smaller scale activities. The Secretary of State for Trade and Industry captured this theme when he said in 2006 that he wanted to see microgeneration “become the iPod of the energy world”. In an attempt to unlock the perceived potential of local energy systems the government has experimented with several community-based schemes in recent years. One of these was the 2010 Low Carbon Communities Challenge (LCCC), which was launched with £10 million of government funding. The programme provided financial and advisory support to 22 test bed communities, with the objective to “fund, and learn from, community-scale approaches to the delivery of low carbon technologies and engagement activities”. Unfortunately a review of the LCCC scheme found “no evidence about the potential for replication” of the community scale solutions covered by the programme.¹⁶

In a 2012 report from the Institution of Engineering and Technology and the Parliamentary Group for Energy Studies, the authors summed up the challenges facing the UK energy market:

“Growing concerns about climate change, returning worries about energy system security, resilience and affordability, and scepticism about the vision and responsibility of key market players and their regulators (including in the financial sector) have increased pressure for significant change... [this means] changes not only in targets and technologies but also in institutions, incentives, behaviours and lifestyles. One of today’s key challenges is therefore the engagement of civil society. This means treating people not just as passive energy consumers whose energy-using behaviours and lifestyles need modifying. It also means regarding them as potential leaders and even entrepreneurs, who might drive toward a more sustainable low carbon energy system”¹⁷.

We wholeheartedly agree. If we are to solve the energy challenges of the future then people – and their communities – must play a much more central role in decision-making. We will also need to find solutions that are scalable and transferrable between communities, which to date have proved elusive. However, the rewards could be huge: If every UK household found a way to use just 10% less energy, we would collectively save the equivalent of the output of three large gas-fired power stations¹⁸, enough energy to power another 2.7 million homes, or £3 billion every year.

Why focus on communities?

As highlighted above, UK consumers need to become more engaged with energy if we are to address the challenges of affordability, energy security and carbon reduction. Distributed energy provides the necessary mechanisms to address these issues at a local level, but is not sufficient on its own. Communities need to be taking a leadership role for three important reasons:

- Trust
- Local benefits
- Behavioural change

37% of all respondents said that they'd prefer to buy their energy from a community energy company if the price and service was the same as they would receive from other suppliers

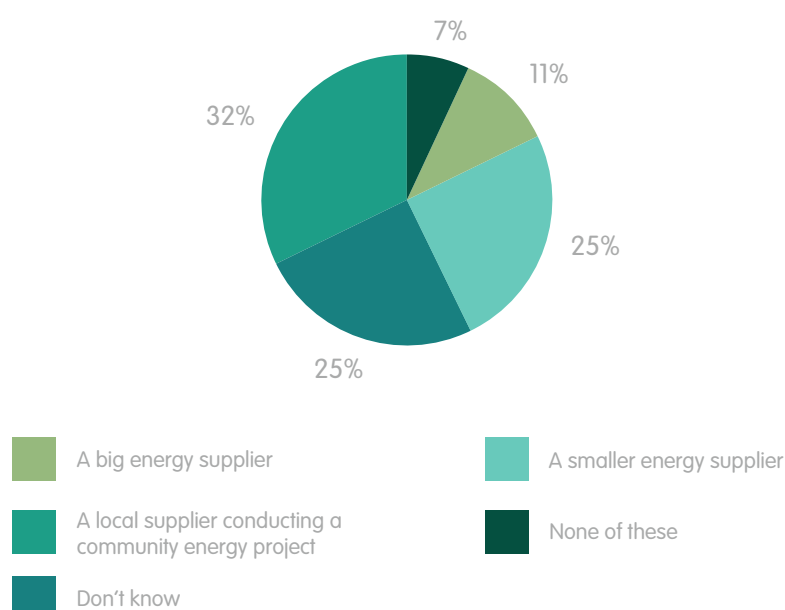
Trust

People trust their communities to give them a fair deal on energy. As many as 75% of all energy customers are on expensive variable rate energy tariffs¹⁹, despite the fact that they could save as much as £200 by switching to a fixed rate deal. So why don't people switch? They don't trust large energy companies, and even if they do switch they often need to keep switching to make sure they continue to get a good deal.

New research by YouGov for OVO Energy shows that consumers would trust a community energy provider more than traditional energy companies to give them a good deal on their energy bills²⁰:

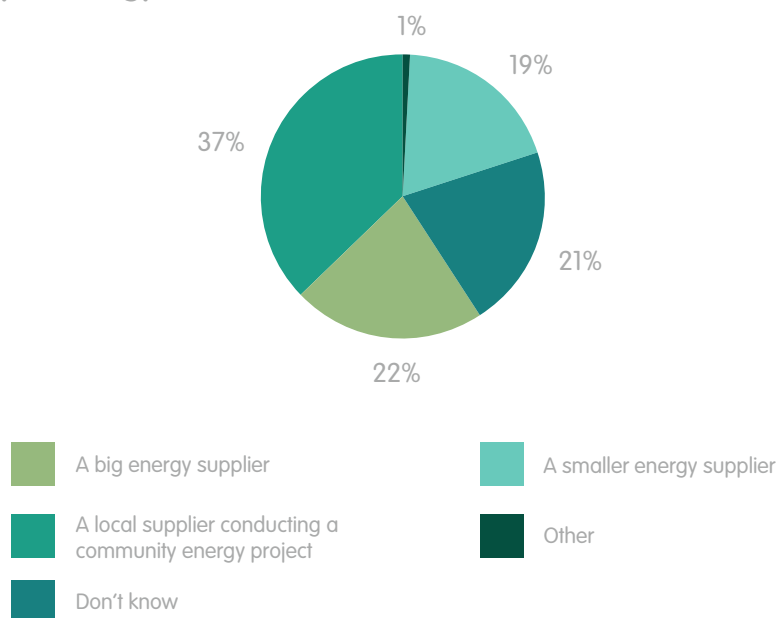
- 37% of all respondents said that they'd prefer to buy their energy from a community energy company if the price and service was the same as they would receive from other suppliers
- When asked to say who they felt would give them the fairest deal on their energy supply, nearly three times more people picked a community energy company with 32% saying they would give the best deal, than a big energy supplier with just 11%.

Which ONE, if any, of the following do you think would give you the fairest deal on energy bills?



Councils are particularly well placed when it comes to trust. A 2013 Ipsos Mori/ New Local Government Network survey found that 79% of the public trust councils to make decisions, while Local Government Association research shows that 70% of people are satisfied with services their council delivers²¹. Councils are also in a powerful position to incentivise the uptake of energy efficiency measures; YouGov research found that 75% of people would be willing to invest in energy efficiency measures if it meant a reduction in their council tax bill.

If the price and service was the same, which ONE, if any, of the following would you prefer to buy your energy from?



Local benefits

Community energy schemes are one of the most effective ways of getting people engaged with energy issues. Areas which have implemented community energy schemes have seen benefits including lower bills, new local jobs and a heightened sense of community. If people can see the immediate benefits of community energy then they will become more engaged with it; research has shown that 42% of people said that they would be interested in taking part in community energy projects if they could save money on their bills²². People are also more supportive of new infrastructure if they feel they have been engaged during the decision-making process²³.

Putting the energy ecosystem requirements in the hands of communities allows each community to design the right system to fit with their circumstances. It also ensures local people are better positioned to learn new skills from work experience or education programmes. For example:

- Lambeth Council has recently succeeded in creating a community-led renewable energy scheme addressing local fuel poverty,



The Isle of Gigha, situated off the West coast of Kintyre, Scotland

creating jobs and work experience opportunities.²⁴

- On the Isle of Gigha in Scotland, 65% of people surveyed said they would be less supportive of their local wind farm if it wasn't owned by the community²⁵.
- Abundance Generation recently raised a record £214,000 in four days from small investors for a new wind farm development.²⁶

Influencing behaviour

Community energy schemes play a key role in shaping society. They bring people together to improve their community²⁷, empowering them to take action on issues that matter to them – whether these are financial, educational or social. Communities are more effective at reaching the more vulnerable in society.²⁸ They are also better placed to understand the impact of local opinions towards energy sources, such as the debate around wind farms and fracking, meaning they can pave the way for positive change in a region.

Many nationwide initiatives have looked at how to reach out to the poorest people and provide them with energy efficient homes and access to affordable energy, but these initiatives have often struggled to overcome high levels of disengagement among the people they aim to help. Research has shown that top-down energy efficiency advice from government or large companies is often met with a mix of confusion and distrust, and many people find it difficult to relate to the information given.²⁹ However, through their local presence, expertise and representation, communities can encourage change far more successfully. Creating a community support network allows local people to learn from each other, for example in how to reduce their energy bills. Furthermore, creating a sense of local momentum encourages people to make choices that will be beneficial for them.

Communities are already proving that they are a highly effective channel for increasing individual engagement with energy. With the right support, they have the potential to be truly transformative.

Community energy today

An assessment carried out for the Department of Energy and Climate change found that over 5,000 community energy groups have been operating across the UK since 2008³⁰.

To date the majority of community energy schemes in the UK have focused on investment in renewable electricity generation, in particular onshore wind and solar PV³¹. 1% of the UK's renewable energy generation comes from community-owned schemes, although at the end of 2013 only 41 UK community energy projects were of a sufficient scale to have their own Power Purchase Agreement (PPA). The proportion of customers who currently buy energy produced by community energy projects is well below 0.1% of the population.

By some estimates community energy has the potential to supply more than 20% of the UK's renewable electricity by 2020³². While this would be a startling feat in just six years, it would still place the UK well behind Germany where community-owned generators make up over 40% of the country's total renewable generation capacity.

In addition to electricity generation community energy schemes have also begun to focus on new approaches to renewable heat, managing energy efficiency, purchasing energy and reducing energy demand. However, a comprehensive overview of the scale of these activities is not yet available at UK level.

While community energy groups come in many different shapes and sizes, many have a group of dedicated volunteers at their heart. These volunteers will need the support of local authorities, the third sector, industry partners and the government if community energy is to achieve its full potential. The third sector has been particularly active to date, through groups such as Regen SW and the Centre for Sustainable Energy.

The map below shows the location of all known community energy groups in the UK.

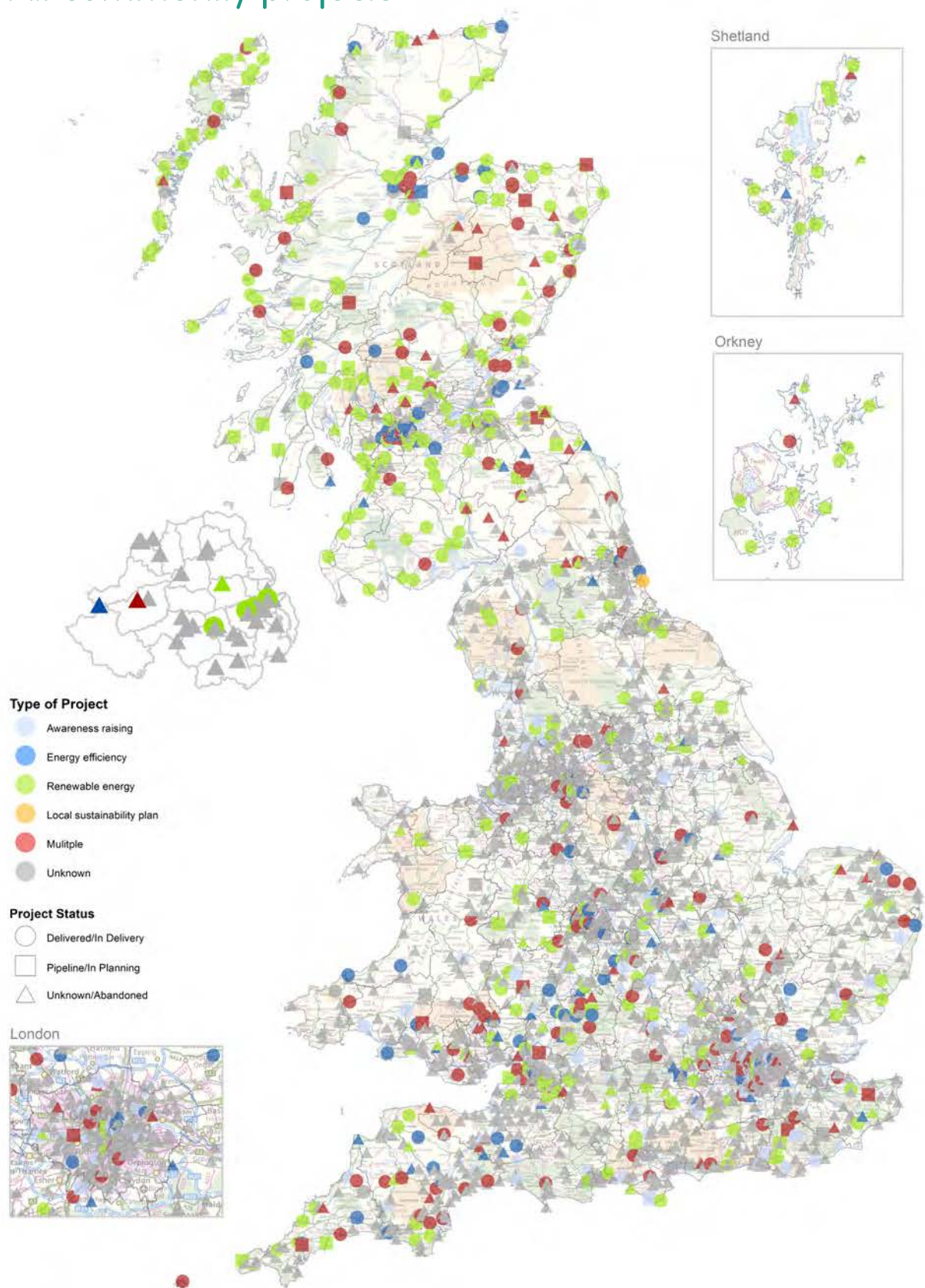
Did you know?

In Germany, community-owned generators make up over 40% of the country's total renewable generation capacity.

By comparison, only 1% of the UK's independent renewable power generation is community owned.

Community energy projects database

All community projects



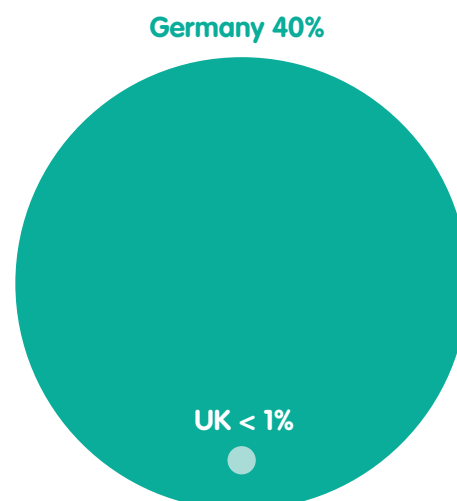
What can we learn from other countries?

Germany has arguably taken the community energy model further than any other European country. Almost 50% of Germany's 20 million households are supplied by local authorities and independent suppliers^{33, 34}. By comparison, independents account for less than 5% of the UK supply market. Communities own 40% of renewable energy in Germany compared to less than 1% in the UK.

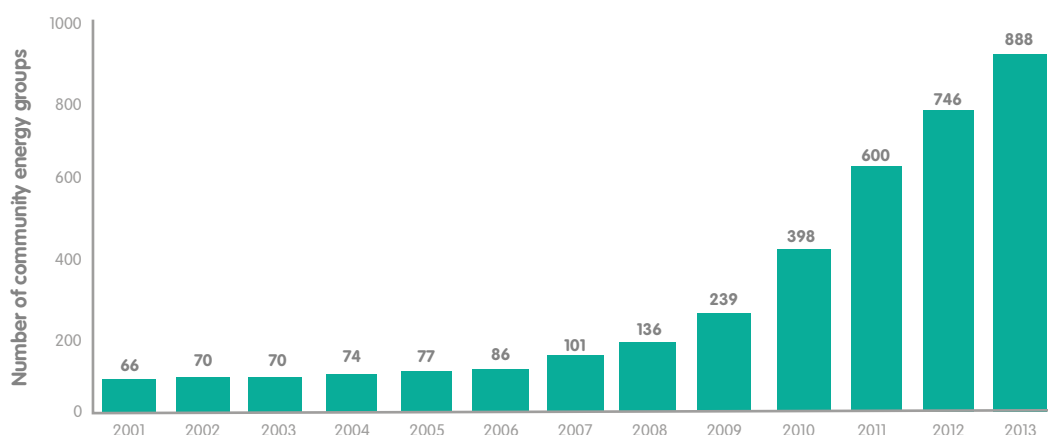
The majority of Germany's independent suppliers are known as Stadtwerke, of which there are over 1,000. These are local municipal suppliers who often also operate their own power generation. Although a phenomenon unfamiliar to the UK, it is one that has emerged out of a similar crisis of transparency, trust and of public good. Many of these Stadtwerke have been able to eradicate electricity sourced from non-renewable sources, reduce fuel poverty and provide local employment opportunities.

In addition, over 888 registered independent community cooperatives have been formed in Germany since the early 2000s, many which are located in Bavaria³⁵. These co-operatives have begun to work with local authorities and Stadtwerke to facilitate a move towards community ownership of local electricity grids. The vast majority of all renewable electricity generation is connected to the low-voltage distribution grid before it reaches the German equivalent of the National Grid. It is here where a remarkable structural change is taking place: 150 of these distribution grids have been "re-communalised" in the last 4 years.

Community ownership of renewable energy



The development of community energy groups in Germany



Did you know?

In 2013, over 100 wind turbine cooperatives had a combined ownership of three quarters of Denmark's wind farms.

Germany's Stadtwerke already own more than half of the distribution grids and are bidding for more. Local communities have seen an opportunity to strengthen their influence in the energy sector and increase their own revenues by bringing local grids under their own management. Local cooperatives also see grid ownership as a way to increase the focus on sourcing locally-produced renewable energy.

The success of the Stadtwerke and cooperatives in Germany is an example of how communities have taken control of their municipal electricity supply chain, from generation through to supply. They have reduced utility bills for their citizens whilst creating local employment opportunities and improving choice for consumers. Their local connection means that customers are far more satisfied with Stadtwerke and regional suppliers than they are with Germany's 'big 4' energy companies³⁶.

Community energy in Germany: Energienetz Hamburg eG

The shift towards decentralised energy in Germany is particularly visible in the city state of Hamburg.

Community energy cooperative Energienetz Hamburg eG was founded in 2010 based on a vision of a *"democratically controlled, fairly priced and renewable energy supply"* for Hamburg's residents. The group has since been campaigning for a Hamburg which encourages greater energy efficiency in the city, sells cheaper electricity directly to the community and decides for itself how much renewable capacity to connect to the local distribution grid³⁷.

The volunteers who founded Energienetz felt that the international corporations which supplied electricity to the city and managed Hamburg's energy distribution networks were profiteering from its residents and were making decisions about local energy matters behind closed doors.

After its inception, Energienetz's immediate target was the purchase of Hamburg's electricity distribution grid from Swedish energy giant Vattenfall. The group believed that the company's existing strategy did not place a strong enough focus on the connection of decentralised renewable generation. Energienetz felt that Vattenfall's interests were mainly driven by its shareholders and that the company therefore stood in the way of the community's best interests.

Energienetz began an ambitious campaign to recruit fellow 'Mitstreiter' – brothers in arms – in their fight for a 100% community-owned and run energy industry in Hamburg³⁸. Every member in the growing collective has some financial stake in the project, but the same voting rights independent of the size of their investment.

Three years of campaigning culminated in a public referendum in September 2013 in which 1.2 million Hamburg residents were asked to vote for or against investment in community owned

Did you know?

Hamburg Energie was founded by Hamburg City Council in 2009, and now supplies over 90,000 residents with 100% renewable energy from local generation – some of which it owns itself.

energy networks – and voted in favour³⁹. The city senate of Hamburg, supported by capital raised via the community energy cooperative, will now purchase the grid from Vattenfall and embark on a programme of local decision making.

The purchase of the local grid is just the first step in Energienetz's plan for a truly energy independent Hamburg. Its future plans include investment in distributed generation with energy storage to move Hamburg towards total independence from the national transmission grid – and away from any reliance fossil fuels.

Energienetz and Hamburg Energie firmly believe that 'Energieversorgung ist ein Grundrecht' – energy supply is a basic right – and their growing number of members are progressively reclaiming control of energy for the people of Hamburg.

Community Energy in Denmark: The Municipality of Thisted

Denmark is home to a broad-based community energy movement which builds on decades of local action in combating environmental issues. Community investment in wind farms has been a major focus since the turn of the century and today the majority of turbines in Denmark are either fully or partly-owned by communities and farmers⁴⁰. Another key element of Denmark's energy strategy has been the expansion of district heating schemes. More than 60% of the population is connected to a decentralised heat network, many of which are owned by local authorities and communities⁴¹.

The borough of Thisted in Northern Denmark is one of the trailblazers for this nationwide movement, so much so that the region officially calls itself Denmark's leading climate municipality⁴². Thisted's aim is to become fully carbon neutral by 2025. To this end, the local authority and community have invested heavily in local wind generation, and by 2012 over 250 wind turbines had been installed in the region. In addition, over 95% of all homes are connected to a district heating network which is largely fed by decentralised renewable energy generators using biomass and geothermal energy. The municipality also encourages farmers to install biogas generators which can in turn supply local households. Today the community's 46,000 residents are almost self-sufficient in energy.



While many other community energy movements end with investment in decentralised generation, Thisted has developed a much more holistic approach. It recently launched the 'Energetic Citizens' project, which aims to encourage greater energy efficiency. The local authority has begun a programme to upgrade council buildings such as day care centres, swimming baths, schools and nursing homes with better insulation, intelligent lighting and the installation of micro-generation on site.

Education and community engagement is facilitated through local business networks such as the Passivhus Nordvest initiative, which aims to keep local tradesmen up to date with the latest developments in passive housing. Nordic Folkecenter for Renewable Energy, a not-for-profit organisation providing research, training materials and technology development, is also located in the region.

Thisted is at the forefront of what community energy schemes can achieve. A strong local desire to decarbonise and become self-sufficient became reality through a collaborative approach in which the local authority played a fundamental part. This highlights the importance of a joined up local energy strategy, rather than a number of isolated energy projects.



A platform for success

All stakeholders in the energy industry have a role to play in making community energy successful. We believe that we have come up with a solution that provides a step change in communities' ability to take control of energy, which we have outlined below. At the same time government needs to ensure it is creating the right conditions for community energy to flourish.

Our solution

We believe that we have found a scalable solution that will – for the first time – enable any community to take control of their energy supply. Scalability is essential as it allows us to keep our costs as low as possible, meaning that customers can see the maximum possible savings. Since founding OVO in 2009 we have continuously strived to find more efficient ways of doing business, and have passed these savings back to customers in the form of some of the cheapest energy tariffs on the market. Scalability also allows us to immediately offer our community energy to every community in the UK.

We recognise that communities are often at different stages along the road to greater energy independence. With that in mind we have designed our offer to be modular, so that communities can choose the elements that suit their needs on day one and build a more integrated offer over time. There are four central elements to our offer: energy supply, smart metering, energy efficiency, and power generation.



How will it work?

At the heart of our offer is a bespoke community tariff fed by a combination of local generation and grid-sourced energy. We will buy energy produced by community-controlled schemes wherever possible, and then top this up with grid-sourced electricity and gas as required. We expect the share of local generation will grow over time as more local generation projects are completed.

Buying energy from community-controlled schemes should allow us to pass on cost savings to consumers, and thereby create a tariff that is cheaper than any alternatives. These cost savings will likely come from a combination of three sources:

- Reduced grid and balancing charges – achieved due to the energy being generated close to where it will be consumed
- A lower price for each unit of energy generated – community projects typically do not target the same high profit margins as privately owned generation
- Ring-fenced ‘community benefit’ funding – for example, onshore wind projects are expected to contribute up to £5,000 per MW per year to dedicated community benefit funds. It may be possible to use this money to benefit the community in the form of cheaper energy

All residents within the community will be able to sign up for this cheaper tariff. The level of savings that each resident will see will depend on the size of the community and the magnitude of the cost savings.

At the start of 2014 OVO launched its Smart Pay-As-You-Go plan, designed for customers who pay for their energy in advance. This is designed to be cheaper than any existing pre-payment offer, and is also a much more convenient alternative to traditional pre-payment meters. Customers no longer have to go to their local PayPoint to top up their meter; they can do it wherever they are, via our online platform ‘My PAYG’, using the OVO PAYG app for iPhone and Android, or even by text. Customers also have the capability to monitor their consumption and stay on top of their energy usage wherever they are. We are acutely aware that customers with pre-payment meters – who are predominantly tenants of Housing Associations and Local Authorities – have been neglected by energy companies for far too long. Hence we will ensure that these customers see the same benefits from community energy tariffs as customers with standard meters.

As we roll out smart meters to all of our customers in the community we aim to make the data available to the community, for example to show customers where their energy is coming from and to help identify which households would benefit most from energy efficiency measures. Smart metering will also allow us to explore ways of making the local energy system even more efficient, for example by offering customers cheaper energy when there is plentiful local generation.

Once we become eligible for the Energy Company Obligation – which we expect to happen from April 2015 – we will work with our partner communities to direct our funding for energy efficiency measures to those most in need. Rather than seek out the lowest possible cost for discharging our obligation, we will seek to have the greatest possible impact. And as we expand our community energy offer, we aim to expand the provision of funding to include capital investment in local power and heat generation projects.

Government support

Given the benefits that community energy can bring to customers, we think the government should focus on creating a supportive environment that enables the sector to overcome the challenges of competing against large incumbent energy companies. With this in mind our top three recommendations for government are:

1. **Encourage local councils to reduce council tax for community energy customers who have invested in energy efficiency.** Even where energy efficiency measures make economic sense many people do not take them up. But people hate paying council tax. One-off council tax discounts and rebates have been trialled successfully by several councils – including Glasgow, Kirklees, Aberdeenshire, Moray and West Lothian – but a permanent reduction in council tax would provide an even stronger incentive for investment in energy efficiency.
2. **Introduce measures to ensure the financial benefits of local energy projects are accessible to everyone – not just those individuals with large sums to invest.** Organisations like Abundance and Trillion Fund are already having a positive impact in enabling individuals to invest in community energy projects. The government should move more quickly to embrace this emerging sector, and consider creating additional incentives to ensure that this is a viable opportunity for everyone regardless of their personal wealth, for example by allowing such investments through ISAs and workplace pension schemes.
3. **Accelerate the introduction of half-hourly settlement for customers with smart meters.** Giving customers access to real data drives more engagement and participation. It can be a powerful driver in changing consumer behaviour. But unless the data is accompanied by economic incentives, the impact will be limited. The settlement system needs to be upgraded to take advantage of real time meter data, allowing suppliers to realise and pass on the benefits of peak demand reduction.
4. **Provide community power generation schemes with priority access to the grid.** In parts of UK the electricity grid is already under pressure; as a result new power generation projects can be delayed or even halted permanently. In these situations community-controlled power generation should be given priority access to the grid ahead of other forms of generation.

What happens next?

To find out more details of our community energy offer and to register your interest as a customer or a community, visit our website or contact us at communities@ovoenergy.com.

Appendix: The UK Government's community energy strategy

The UK Government is increasingly recognising the importance of community energy in creating a secure, green and affordable energy market. The focus of policy has historically been on the very largest and very smallest parts of the energy equation, namely industrial scale generators and individual households, and too little attention has been paid to the growth potential of community energy initiatives.

DECC's Community Energy Strategy, published in January 2014, praises the approximate 5,000 groups which are already engaged in community energy schemes across the UK – groups which, discontented with the existing energy policy and sector, took matters into their own hands and changed their local energy landscape for the better.

Current community energy schemes range from investment in local electricity generation such as wind farms to concerted efforts by community groups to negotiate better electricity supply deals for local residents – a wide variety of initiatives which help local residents “*produce energy, reduce energy use, manage energy demand and purchase energy*”.

Government now believes that UK community energy will be an integral part of the country's energy future and as such must receive the right level of support in order to succeed. A new Community Energy Unit has been established in the Department of Energy and Climate Change which will provide energy advice and support to local authorities and community groups.

Local electricity and heat generation

DECC's own estimates suggest that local generation schemes could generate enough power to supply over 1 million households in 2020. The following incentives and support mechanisms will be available for local authorities and community groups who are considering building their own generators from spring 2014:

1. A Community Benefits Register for onshore wind will publish the details of benefits which can be expected from various wind projects. This register will have similar content to the Scottish Government Register of Community Benefits from Renewables (www.localenergyscotland.org), which makes transparent the setup process for energy schemes, including negotiations with developers and financial benefits available to communities during development and construction.
2. A commitment from the renewables industry to increase the amount of shared ownership of new generation developments with local authorities and communities. The UK onshore wind industry's new community benefits protocol was also highlighted. This recommends that communities receive £5,000 per MW of installed local generation capacity per year from developers.
3. The DECC/ DEFRA Rural Community Energy Fund (RCEF) has been given a budget of £15m to provide financial support for communities in England who need help with the feasibility

- studies and planning processes for local energy and heat generation projects.
4. The £10m Urban Community Energy Fund (UCEF) was established for the same purpose.
 5. Support from the Feed-in-Tariff scheme⁴³ may soon be available for community projects with a capacity of up to 10 MW.
 6. The Renewable Heat Incentive⁴⁴ has now been extended to non-domestic schemes.
 7. A new Heat Networks Delivery Unit (HDNU) within DECC with a budget of £6.9m will have the remit of supporting local authorities in the early development and planning of district heat networks.

Local energy efficiency schemes

In addition to local energy generation projects, communities and local authorities are also being encouraged to put in place energy efficiency initiatives. These could range from projects which boost the installation of energy efficient heating appliances or home insulation or awareness campaigns which aim to change the local communities' energy usage pattern. Government seeks to support these schemes with the following incentives:

1. An increase of the Green Deal Communities scheme's budget from £20m to £80m, available to communities working in partnership with local authorities to develop efficiency initiatives.
2. A community energy savings competition with a £100,000 prize available to the most innovative community energy saving initiative.
3. A £500,000 scheme which trials peer-to-peer approaches to energy saving advice amongst different housing associations.

Smart grids and collective purchasing

Government also seeks to support the uptake of local initiatives to improve the electricity tariffs available to communities, particularly to the most vulnerable customers. In particular, the Big Energy Saving Network (BESN)'s £900,000 budget to support vulnerable customers in taking collective action to reduce their energy tariffs and in gaining access to energy efficiency offers has been extended by £1m to allow the programme to extend its reach. Guidelines on collective switching were also published alongside the Community Energy Strategy.

DECC also recognises the importance of smart distribution grids in allowing local authorities and communities to actively manage their energy use. No direct support measures were published as part of the Community Strategy, however.

The importance of industry partnerships

DECC's Community Energy Strategy stresses the importance of partnerships with the electricity industry to fuel growth in community energy. Where Government can only incentivise select elements of the local energy supply chain, energy suppliers can actively support community groups and local authorities in connecting the dots and implementing a full programme of local energy initiatives – and we at OVO Energy agree.

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OVO Energy

OVO launched in 2009 with a simple idea and a big vision – that we could do a better job of supplying energy to UK consumers than the Big Six energy companies. Consumer trust was non-existent after a decade of rocketing prices and poor service levels that coincided with rising energy supplier profits. Despite little industry experience and being told it ‘could not be done’ we’ve established ourselves as a genuine alternative to the big suppliers that have dominated the market for so long.

Today, we supply gas and electricity to over 300,000 customers and continually strive to offer the very best value and the highest levels of service. We’ve hired a team of talented people who share our vision for putting people first, then profits. We don’t pay lip service to ‘putting the customer first’; we actually behave as though the customer is in the room with us, which engenders longer-term thinking in an industry that has been guilty of regressive short-term profiteering.

For our customers, the promise has always been clear – we want to make energy cheaper, greener and simpler. Paying 3% interest on credit balances and always offering our best price are just two ways in which we bring this promise to life. We continually invest in technology that gives our customers the very best experience and helps keep our energy prices as low as possible, for as long as possible.

As a team, we’re not afraid to speak out about the dubious practises we’ve seen undertaken by larger suppliers; whether that’s differential pricing tactics, falling wholesale prices not being passed onto customers or the need for more competition. Above all, we practise and advocate honest and transparency in an industry that is beleaguered by opaque practises that confuse consumers.

We believe we’re building a great business and a great brand but we can’t change the way energy works in this country all on our own. That’s why we’re launching OVO Communities.

ovoenergy.com/communities