



THE PRICE OF POWER

ENERGISING SMALL BUSINESS
IN THE NEXT UK CARBON PLAN

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Experts in Business

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WHO WE ARE

The Federation of Small Businesses (FSB) is the UK's leading business organisation. Established over 40 years ago to help our members succeed in business, we are a non-profit making and non-party political organisation that's led by our members, for our members.

Our mission is to help smaller businesses achieve their ambitions. As experts in business, we offer our members a wide range of vital business services, including advice, financial expertise, support and a powerful voice in government. Our mission is to help smaller businesses achieve their ambitions.

FSB is also the UK's leading business campaigner, focused on delivering change which supports smaller businesses to grow and succeed. Our lobbying arm starts with the work of our team in Westminster which focuses on UK and English policy issues. Further to this, our expert teams in Glasgow, Cardiff and Belfast work with governments, elected members and decision-makers in Scotland, Wales and Northern Ireland.

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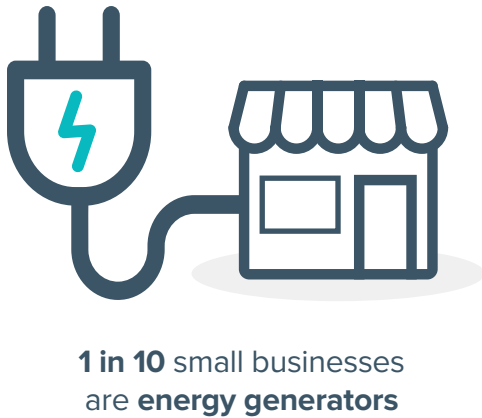
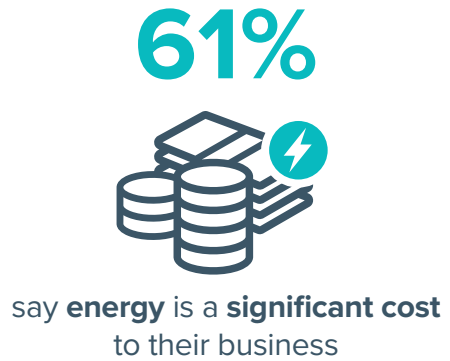
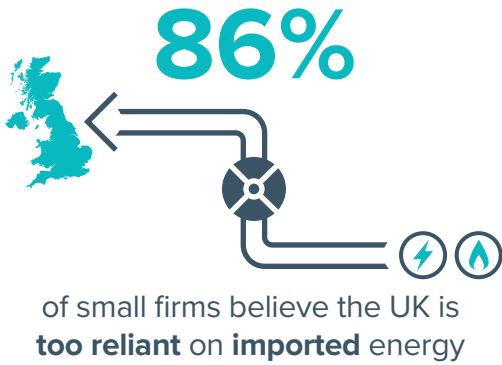
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THE PRICE OF POWER:

ENERGISING SMALL BUSINESSES IN THE NEXT UK CARBON PLAN



Energy **efficient** measures taken by small businesses



Why small businesses choose **energy efficiency**



FOREWORD

The way the UK generates, distributes and uses energy is facing the greatest transformation since the Industrial Revolution. In delivering this new infrastructure landscape, the UK Government recognises the need to balance security, affordability and sustainability – the energy ‘trilemma’.

As a country, we must now make difficult decisions about how and where we choose to invest in our critical energy infrastructure. The Government’s National Infrastructure Delivery Plan acknowledges that many of the UK’s existing energy assets are old, inefficient and in need of replacement.¹ It predicts that £117 billion will be spent on energy infrastructure between 2016 and 2021, accounting for 57 per cent of the UK’s entire investment in economic infrastructure. The vast majority of this investment will be funded through the private sector, but, ultimately, the cost burden will be passed on to domestic and non-domestic energy customers, either directly through their energy bills or indirectly through taxation. These costs must be shared out fairly and equitably across the industry, tax payers and consumers, including small businesses.

For businesses – like households – what constitutes a fair cost burden depends on the opportunities and benefits they receive in return for their respective financial contribution. At its most basic, this could simply represent a reduction in energy costs, either immediately or in the longer term.

However, energy bills are not the only important factor. Other business benefits may include carbon reduction and energy efficiency, microgeneration and investment opportunities, greater supply chain prospects, new market development, encouragement of innovation, demand management, greater market choice, job creation, an upskilled workforce, and long-term security and risk-reduction.

So which energy technologies are most likely to provide these potential benefits and what infrastructure is required to support them? What do small businesses actually want to pay for?

This report sets out small business views on UK energy infrastructure investment. As the UK Government develops a new Industrial Strategy, it will help policymakers take informed decisions on future energy generation, distribution and storage, ensuring investment in this critical and expensive infrastructure is equitable and reflects the needs of the UK’s 5.5 million small businesses.



Martin McTague
FSB Policy Director

¹ Infrastructure & Projects Authority, National Infrastructure Delivery Plan 2016-21 (March 2016)

EXECUTIVE SUMMARY

The UK energy sector is facing unprecedented change as we seek to meet challenging carbon emissions targets and move towards a distributed energy system. This will require an extensive, and expensive, overhaul of the UK's energy infrastructure, the costs of which will fall on tax and bill payers. These costs must be shared out equitably, balancing a variety of relative and sometimes competing opportunities and risks.

As a group, small businesses are a diverse audience and, depending on their exact circumstances, will prioritise opportunities and risks in different ways. However, small businesses do share some common, overarching themes when it comes to the direction of UK energy policy. Recent FSB research suggests that energy security is the biggest single concern for most small businesses. For many, this even outweighs concerns about costs and carbon emissions. Eighty-six per cent of FSB small businesses believe the UK is too reliant on imported energy.

Small businesses have a complex and varied relationship with the energy sector, operating as generators and investors, consumers, and suppliers of products and services.

Generators and investors

FSB research suggests that small businesses are optimistic about the role of renewable energy generation. Twelve per cent of FSB small businesses already generate their own electricity, the vast majority of which is from solar panels. Looking to the future, 41 per cent of FSB small businesses believe renewable and low carbon energy will be cheaper than fossil fuel in future, compared to only 23 per cent who believe it will never be as cheap. Twenty-seven per cent believe that a low carbon economy will create more opportunities than threats for their business, as opposed to just 14 per cent who believe the opposite.

FSB wants to see a strong strategic UK policy direction that provides confidence and security to investors in new energy technologies, including generation, storage and efficiency. The UK needs a broad, measured and transparent strategy for promoting investment in the right places through a combination of different incentives including, but not limited to, subsidies and tax reliefs.

Consumers

Following the completion of a recent Competitions and Markets Authority (CMA) investigation, FSB broadly welcomed remedies for improving the retail energy market, particularly the development of published, comparable prices for microbusinesses. However, the investigation did not extend to looking at how the retail market can empower customers to use less energy or choose how and where their energy is generated. Energy reduction is the single best way that small businesses can save money on their bills, yet the post-CMA market is still not well placed to drive and support this behaviour change.

FSB wants to see a new energy market that acknowledges a diverse customer base and enables smaller businesses to make holistic decisions. Business customers must be empowered to understand and choose what services they pay for, where they can find the best deal, where they can save energy, and where and how their energy is generated.

Thirty-three per cent of FSB small businesses believe that energy efficiency savings will offset the increasing cost of their energy, as opposed to just 23 per cent who don't think this will be the case. So, small businesses need support and information to help make these savings wherever possible.

Suppliers of products and services

Small businesses have a major role to play in the energy industry supply chain, providing products, services, skills and innovative solutions, either directly to individual customers or indirectly via larger industry and suppliers. However, small businesses have traditionally faced a number of issues related

to supply chains.

Across the UK, there are relatively few appropriately sized contract opportunities as a result of contract aggregations and use of frameworks which frequently exclude small suppliers. Supply chain processes can be overly complicated and lengthy, often with complex prequalification requirements. Eligibility often depends on small businesses holding a combination of accreditations from a wide range of schemes, each requiring time and resource to achieve and maintain. And, finally, poor payment practices continue to be a massive problem for small suppliers.

New and emerging energy industries can assist by putting in place and monitoring specific payment policies for small business suppliers. These industries can set the example in terms of robust implementation, monitoring and enforcement through their entire supply chains. Energy supply and infrastructure companies should set out their supply chain criteria in procurement adverts in a way that enables small firms to quickly and easily assess their own suitability before investing further time and effort. And they should take account of third party accreditations that small business suppliers already have.

KEY RECOMMENDATIONS

A stable UK investment landscape

Burdens must not fall unfairly on small businesses as a result of poor investment planning.

- The Government should produce an updated Carbon Plan. This should include a specific strategy for promoting microgeneration, efficiency, storage and demand response across the UK small business community. Without this, the UK will not meet its binding carbon reduction targets.
- The Government should formally review the effectiveness of subsidies and other incentives related to low carbon generation and energy efficiency, for both small and large scale technologies.
- In light of the UK's recent vote to leave the EU, the Government must clarify access to the EU Internal Energy Market and provide reassurance about the continued commitment to UK carbon reduction targets.

Opportunities for small businesses

The new UK energy landscape must provide opportunities for small businesses, as generators and investors, consumers, and suppliers of products and services.

- Ofgem should examine the current role of Distribution Network Operators (DNOs) and the potential future role of Distribution System Operators (DSOs) in facilitating microgeneration schemes. There is also a need to urgently address connection and usage charges related to storage.
- The Government must work with the regulator and industry to explore solutions for those in rented premises. As consumers, small businesses must be empowered to reduce and manage their usage, and reduce costs. To achieve this, suppliers need to do more to understand their diverse business customer base.
- The Government should publish supply chain action plans for the renewable and onshore oil and gas sectors and consider the production of such plans for other emerging energy technologies as they develop.

A fair, holistic energy market

A new energy market must acknowledge the diversity of the small business customer base and empower them to contribute towards the UK's transition to a low carbon economy.

- Government should work with the industry and Ofgem to implement all remedies and recommendations from the CMA Energy Market Investigation related to small business customers.
- Ofgem should finalise proposals for a regulated TPI market and set ambitious expectations for products and services related to smart meters, so that small businesses are empowered to take advantage of energy efficiency (the single best way of reducing consumer costs).
- Energy companies need to improve understanding and segmentation of the diverse small business customer base so that their energy needs can be targeted in a more focused, bespoke way.

INTRODUCTION

The Prime Minister recently announced plans for a new Industrial Strategy that would ‘be ambitious for business and ambitious for Britain’.² In this context, the Government must deliver a strong, strategic UK policy direction that provides confidence and security to investors in energy infrastructure. Investment in new energy infrastructure comes at a time when, as a country, we are seeking to increase the proportion of energy generated from renewables and low carbon sources, as well as reducing the amount of energy we use in the first place. Significant progress must be made in both these areas if we are to meet our binding carbon targets, manage challenging fluctuations in daily demand, and reduce consumer costs.

According to the Committee on Climate Change, the UK has successfully reduced carbon emissions by 38 per cent since 1990 while growing our economy by over 60 per cent.³ Carbon reduction and economic growth should not be mutually exclusive. The right investment in the right infrastructure at the right time will enable the UK to continue this economic trend as we seek to reduce our carbon emissions even further.

The Climate Change Act commits the UK to 80 per cent reduction in CO₂ emissions by 2050 (compared to 1990 levels). This provides a strong market steer and promotes investment in low carbon technologies, like solar and wind. But the roll-out of new forms of low carbon energy generation needs to be managed carefully, balancing efficiency and equity. In terms of investment, ‘too much too quickly’ may cause as many problems as ‘too little too late’, particularly with regard to supply and demand management. Equally, poorly planned investment may place cost burdens unfairly on those that can least afford it.

In 2011, the Coalition Government published its Carbon Plan for achieving emissions reductions targets, including actions and milestones.⁴ The Carbon Plan acknowledged the major changes required in the way that the UK generates energy, the increasing importance of energy efficiency across all sectors, and the need for vehicles and heating systems to switch to electricity, sustainable bioenergy or hydrogen. It also highlighted the role of a smart electricity grid in balancing demand and supply. In the short term, the Government committed to reducing emissions from electricity generation through increasing the use of gas instead of coal, increasing generation from renewable sources, and laying the foundations for the rapid decarbonisation required in the 2020s and 2030s (particularly through reforms to the electricity market and the introduction of low carbon subsidies like Feed-in Tariffs (FITs) and Contracts for Difference (CfD)).

Since the publication of the 2011 Carbon Plan, National Grid’s Future Energy Scenarios report says Britain’s progress on wind and solar-powered electricity has been quicker than some expected. On the one hand this is to be celebrated. However, without the equivalent investment to upgrade and maintain the energy network, improve energy storage, reduce consumption and introduce smart technology, there will be no way to drawdown this low carbon power when we need it. We could have a Formula 1 engine, but box-cart brakes.

With this in mind, National Grid have highlighted three technologies that are needed to ensure a cost-effective path towards our 2050 goals – 22 gigawatts (GW) of nuclear, 100GW of renewables and 20GW of fossil fuel generation with carbon capture and storage technology.⁵

However, ‘cost-effective’ is not the same thing as ‘low-cost’. By 2050, the UK will need to spend a huge amount of money on improving generation capacity, as well as all the distribution and storage infrastructure that will support it. Much of this investment will be delivered through the private sector and, therefore, paid for largely by energy customers through their energy bills. In this regard, FSB has repeatedly raised concerns about how equitable this process is, particularly for small businesses. The energy retail market has not served small businesses well in the past. The CMA recently completed an inquiry into the energy market and provided a number of remedies to improve transparency and fairness for customers, many of which were directly informed by FSB evidence.

FSB broadly welcomes the CMA’s remedies for improving the retail energy market, particularly the

² Gov.uk website, Press release: PM announces major research boost to make Britain the go-to place for innovators and investors, accessible at www.gov.uk/government/news/pm-announces-a-2-billion-investment-in-research-and-development

³ Committee on Climate Change, Meeting Carbon Budgets - 2016 Progress Report to Parliament (2016)

⁴ HM Government, The Carbon Plan: Meeting Our Low Carbon Future (2011)

⁵ National Grid, Future Energy Scenarios, GB Gas & Electricity Transmission (2016)

development of published, comparable prices for microbusinesses. However, the CMA's market investigation was limited to the price that customers pay for their energy, particularly with regard to fairness and transparency of contracts. The investigation did not extend to looking at how the retail market can empower customers to use less energy or choose how and where their energy is generated. Energy reduction is the single best way that small businesses can save money on their bills, yet the post-CMA market is still not well placed to drive and support this behaviour change.

This report calls on Government to urgently produce a new Carbon Plan, setting out exactly how the UK will generate, distribute and use energy over the coming decades so that we meet our binding carbon targets. And just as importantly, it must set out how this new infrastructure will be funded in the most equitable way, particularly for smaller businesses. The last Carbon Plan was produced in 2011, under a different Government and in the aftermath of the 2008 financial crisis. In the intervening time, the world has changed dramatically, though the economy remains fragile.

Since 2011, the UK has taken tentative steps out of a severe economic slowdown, held a Scottish independence referendum, had a change of Government following a general election, voted to leave the EU and installed a new Prime Minister with a new Cabinet. In the energy sector, we've also had a major market investigation by the Competitions and Markets Authority, made significant progress in new industries like nuclear and fracking, signed up to the UN Paris Climate Change Agreement, produced a fifth carbon budget and faced a major overhaul of the renewables subsidies system. The Department of Energy and Climate Change (DECC) has also been abolished, with areas of responsibility now merged into the much broader remit of the new Department of Business, Energy and Industrial Strategy (BEIS). So the need for a new Government energy strategy is stark.

This report covers the whole of the UK, including England, Scotland, Wales and Northern Ireland. Energy policy is a reserved issue for the UK Government in Westminster. However, some decisions about how UK energy policy is implemented are taken at a devolved level (e.g. Renewables Obligation). For example, through planning and licensing, the Scottish Government has some control over new generation technologies, as well as developing its own plan for emissions reduction, energy efficiency and developing a low carbon economy.

THE IMPACT OF THE EU REFERENDUM 'BREXIT' DECISION

The huge investment in the energy sector is being planned in the backdrop of the UK's changing relationship with the European Union. The UK is physically attached to the European energy grid via a number of interconnectors and pipelines, an arrangement that will almost certainly remain regardless of the outcome of EU Brexit negotiations.

National Grid, as the company responsible for strategically managing the supply of electricity and gas to customers, believes the UK's decision to leave the EU presents no immediate risk to their operations, the wider energy system or energy security. The EU has been working towards a 10 per cent interconnection target for each Member State, allowing substantial transportation across borders to neighbouring countries. National Grid continues to see very strong value in cooperation going forward, regardless of the UK's future relationship with the EU, remaining fully committed to ongoing cooperation with energy transmission companies through the European electricity and gas networks (ENTSO-E and ENTSO-G) and other pan-EU energy bodies (such as CORESO, Prisma and GIE).

But energy remains a global market, rather than European. As such, the large energy retail companies have, by and large, provided a measured response to the EU Brexit vote. However, according to Cornwall Energy, three factors stemming from Brexit will drive market uncertainty over the next few years:⁶

- The UK's exit strategy (and subsequent impact on energy policy).
- The extent of the anticipated economic downturn at both the UK and the EU level.
- The extent to which energy demand is reduced as a consequence of any economic slowdown.

Apart from the wider economic uncertainty and market volatility that the UK's renegotiation brings, there are huge legislative and policy implications for any new bilateral deal with the EU. For example, it is unclear what impact the UK's exit from the EU will have on things like wholesale energy costs, import tariffs for renewables, or carbon taxation. Brexit raises particular questions around the future of the EU Emissions Trading Scheme and, by extension, the UK Carbon Price Floor.

There are also uncertainties about how Brexit will affect bilateral relationships between the UK and individual states, either inside or outside the EU. For instance, there may be potential consequences for major projects that involve international partnerships, like the interconnector between Northern Ireland and the Republic of Ireland, or the French and Chinese investment in Hinkley Point nuclear power station.

These interrelationships are complex, evolving and hard to predict. In terms of carbon reduction, it must be recognised that the UK has led the EU, rather than vice versa. UK carbon targets – and so wider UK investment policy – are driven by the legally binding Climate Change Act rather than European legislation. In the days following the EU referendum result, and in accordance with the aforementioned Climate Change Act, the UK Government formally accepted the fifth carbon budget as recommended by the Committee on Climate Change. This domestic legislation commits the UK to a 57 per cent reduction in greenhouse gas emissions by 2030 (relative to 1990 levels) and sends a clear signal to the markets, regardless of the UK's uncertain future relationship with the EU.

It is also worth noting that, in November 2016, the UK ratified the United Nations Paris Climate Deal, requiring developed and developing countries to limit their emissions enough to avoid an increase in global average temperature to well below 2°C above pre-industrial levels.⁷ The UK took part in the Paris negotiations as an active member of the EU. However, the way in which the burden of these reductions is eventually shared out across the EU is yet to be agreed by member states. Britain's exit from the EU could change the balance of this equation substantially.

The extent of the impact of Brexit on the UK energy market is hard to predict. There remains great uncertainty around macro-economic factors as the fallout from the Brexit vote continues to send ripples around the world. For example, the value of the pound will have a huge impact on UK

⁶ Cornwall Energy, Brexit and UK Energy (2016)

⁷ Gov.uk website, UK ratifies the Paris Agreement, accessible at www.gov.uk/government/news/uk-ratifies-the-paris-agreement

investment. Some, but not all, of these potential impacts will be dependent on the outcome of the forthcoming negotiations and the exact nature of the eventual relationship with the EU.

A recent report by Vivid Economics suggests that continuing membership of the EU Internal Energy Market (IEM) – or similar arrangement via bilateral agreement – will be a key consideration. There appears to be broad industry consensus in acknowledging the benefits that the IEM brings in terms of energy security and stability.⁸ Harmonised IEM rules facilitate energy transportation and increased interconnection, which allows efficient buying and selling of energy. However, the industry appears to hold a range of views about the relative benefits and viability of potential alternatives to the IEM.

Regardless of the exact nature of the future UK/EU energy relationship, the market is sending a clear message to Government that the additional costs associated with ongoing uncertainty in this regard are unwelcome. Investors prefer certainty. Higher risks increase the cost of finance, meaning greater investment returns are required as compensation.

In light of the UK's recent vote to leave the EU, the Government must clarify access to the EU Internal Energy Market as part of the ongoing negotiations around Brexit and provide reassurance about the continued commitment to UK carbon reduction targets. Government should also clarify trading arrangements related to current and proposed interconnectors linking Northern Ireland and the Republic of Ireland.

⁸ Vivid Economics, *The Impact of Brexit on the UK Energy Sector* (2016)

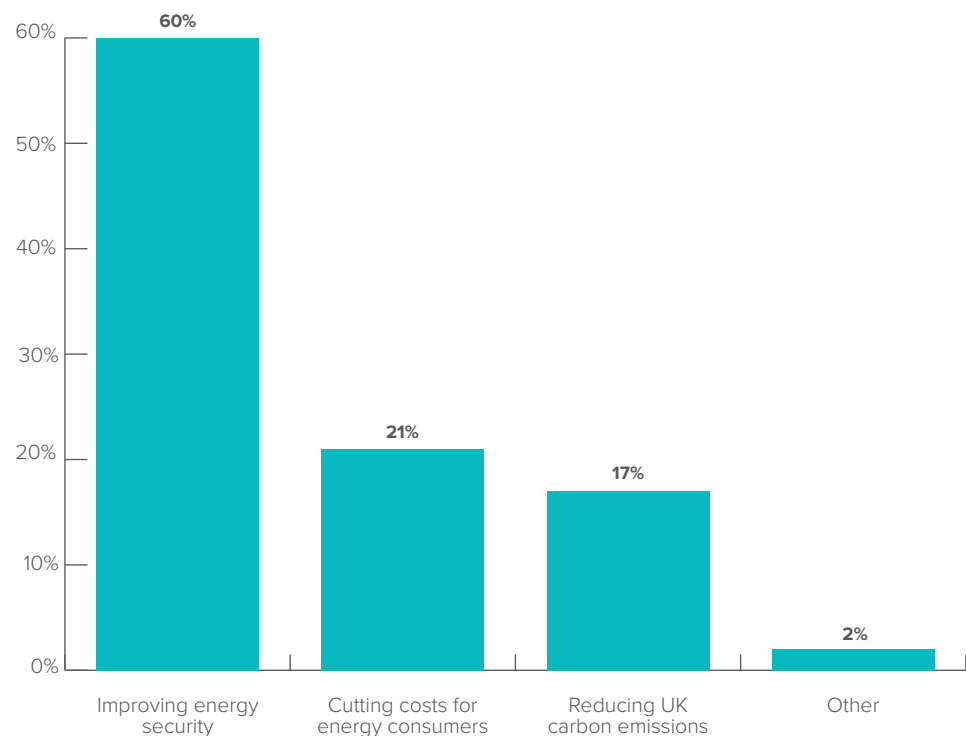
SMALL BUSINESS VIEWS ON UK ENERGY INVESTMENT

FSB members want to see a more self-sufficient UK energy sector, with 86 per cent believing we are too reliant on imported energy.

52 per cent believe the UK should seek to be self-sufficient, producing all our energy in this country rather than relying on imports. A further 34 per cent believe that imported energy is important, but the UK is too reliant on it and should seek to reduce our dependence.

In terms of the UK's energy trilemma (security vs. sustainability vs. affordability), 60 per cent of small businesses identify 'security of supply' as the most important issue that needs addressing. Only 21 per cent believe 'cutting consumer costs' was the priority, while 17 per cent thought 'reducing emissions' was the priority.

Figure one: Small business views on priority areas for UK energy investment
Source: FSB energy infrastructure survey 2016



It is important to note that these figures refer solely to the energy trilemma. It is assumed that security, costs and carbon emissions are all important issues that need tackling. So the fact that carbon reduction is considered the least important of the three by most small businesses doesn't mean they don't think it is an important issue per se. Rather that, of the three choices, energy security is the particular issue that keeps them awake at night, or is the area where they believe not enough is currently being done.

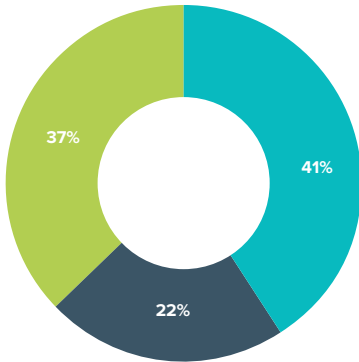
In fact, FSB small businesses appear to be fairly optimistic about the role of renewable energy generation in the future. Forty one per cent of those surveyed believe renewable and low carbon energy will be cheaper than fossil fuel in future, compared to only 23 per cent who believe it will never be as cheap.

What's more, 27 per cent of those surveyed believe that a low carbon economy will create more opportunities than threats for their business, as opposed to just 14 per cent who believe the opposite. That said, clearly many remain undecided or uncertain.

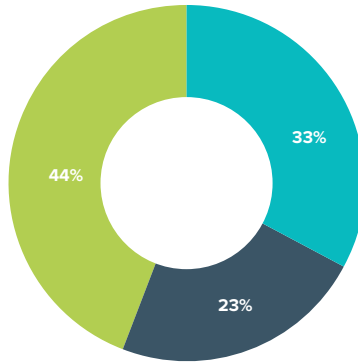
Figure two: Small business beliefs about low carbon investment

Source: FSB energy infrastructure survey 2016

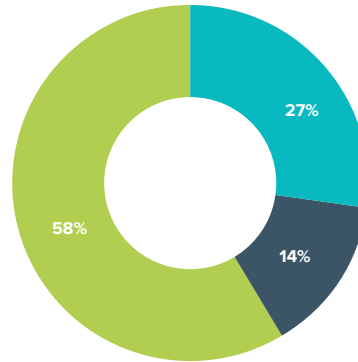
Renewable and low carbon energy will be cheaper than fossil fuel in future



Energy efficiency savings will offset the increasing cost of energy



A low carbon economy will create more opportunities than threats for my business



- Agree
- Disagree
- Not sure

SMALL BUSINESS AUDIENCES WITHIN THE UK ENERGY SECTOR

Investment in industry, infrastructure and technology clearly has the potential to bring a wide range of economic benefits to small businesses, creating skills and opportunities and reducing the cost of doing business. When it comes to the specific choices we make about the direction and speed of investment – weighing up the relative pros and cons – small businesses want to know what they are likely to get in return for their money. In this regard, they generally fall into one of the following categories:

- Generators & investors
- Consumers
- Suppliers of products and services

These different groups overlap to varying degrees, but they do represent different perspectives on the relative benefits that certain infrastructure investment may bring. Each of these audiences may consider value for money in a different way.

It must be acknowledged that the ability of small businesses to take advantage of new technologies and opportunities related to energy – particularly when it comes to generation, efficiency and supplier products – is very much a factor of the type of premises from which they operate and whether or not they are the owners of those premises.

Figure three: Breakdown of small business premises
Source: FSB energy infrastructure survey 2016

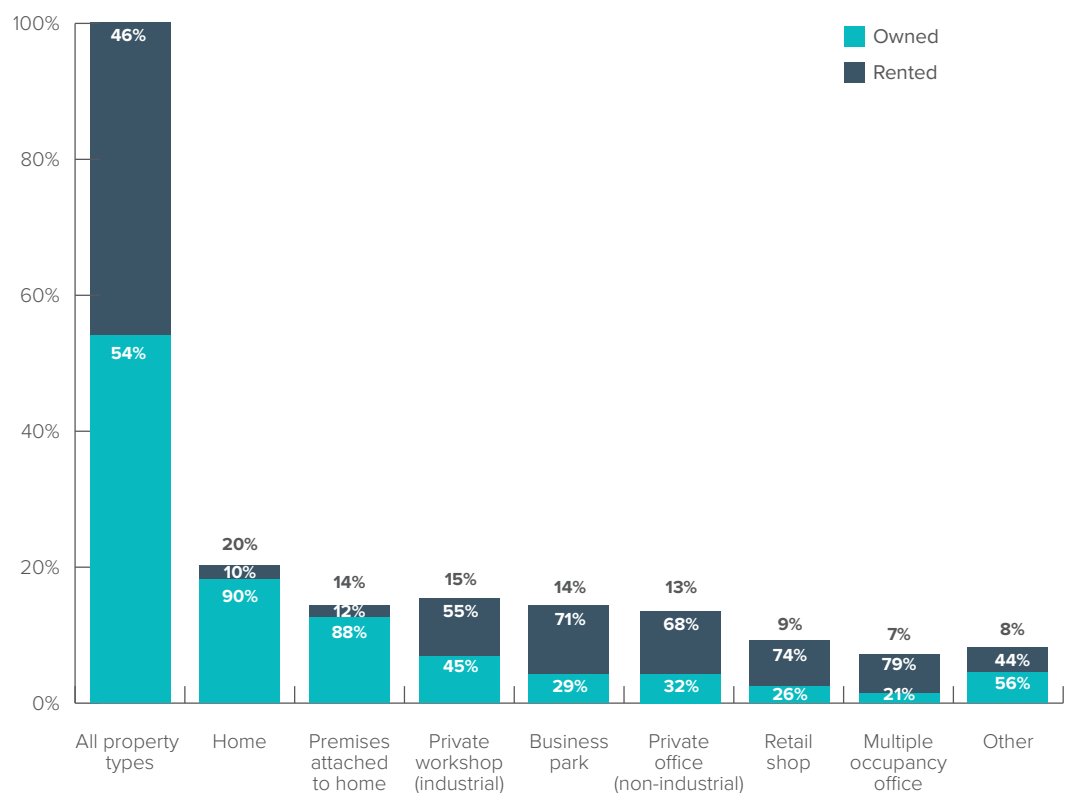


Figure three shows that around 54 per cent of small businesses own their premises, compared to around 46 per cent that rent. However, this figure is distorted slightly by the fact that around a third (34%) of these are businesses that operate from home (figure five). Discounting those that operate from home, then, the number of FSB members that own their premises drops from 54 to 45 per cent. It is also worth considering that previous FSB research in Scotland suggested up to half of all Scottish small businesses are home-based.⁹

⁹ FSB in Scotland, Home Truths: The true value of home-based businesses (2015)

Figure four: Ownership of business premises (by business size)

Source: FSB energy infrastructure survey 2016

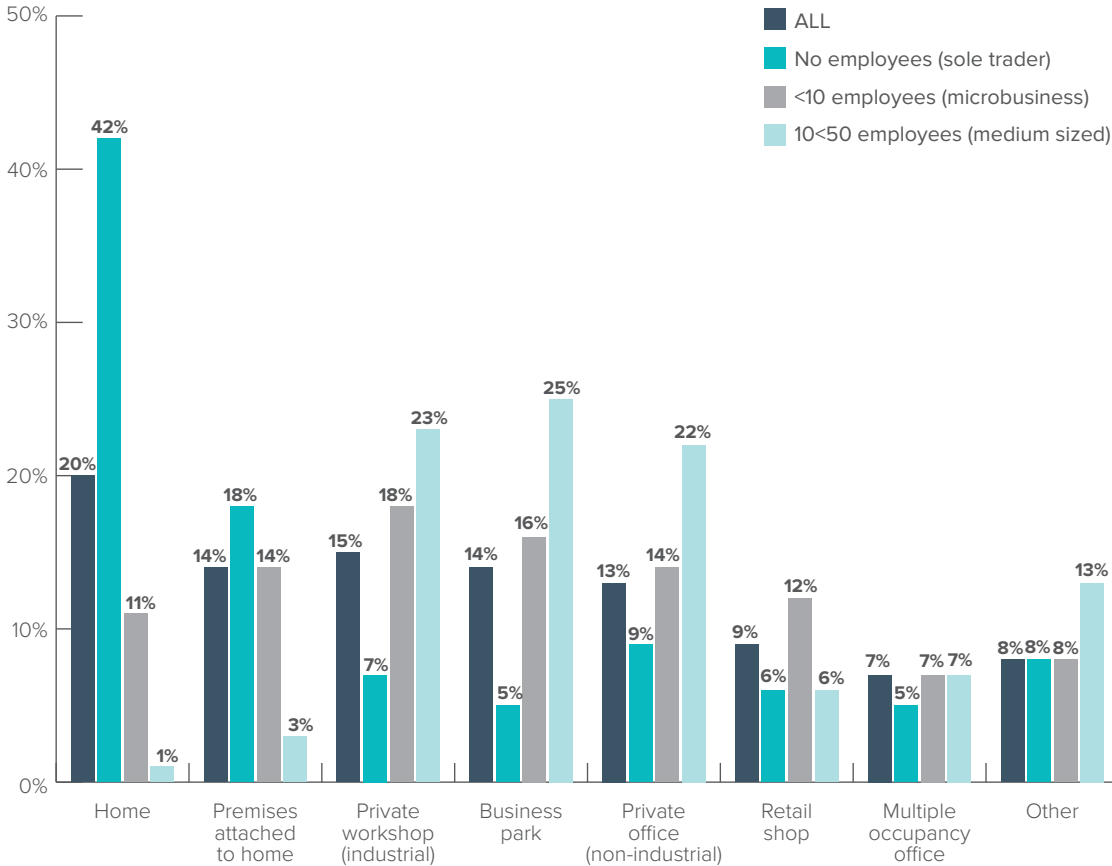
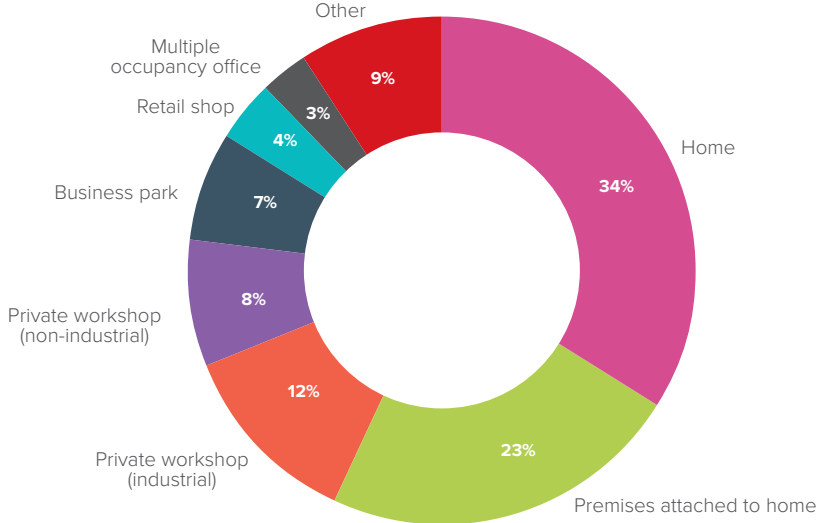


Figure four shows there is also a correlation between the size of a business and the type of premises from which they tend to operate. Around 61 per cent of FSB sole traders are home-based (including those that operate from premises attached to their homes). This figure drops to around 25 per cent for microbusinesses (fewer than 10 employees), and becomes negligible for medium sized businesses (between 10 and 50 employees). It is clear that larger businesses have a greater tendency to operate from bespoke workshops/offices, or from business parks. Around 69 per cent of medium sized businesses fall into this category, a figure which drops to around 47 per cent for microbusinesses and just 21 per cent for sole traders.

Figure five: Breakdown of business premises (by ownership)
Source: FSB energy infrastructure survey 2016

Owners



Renters

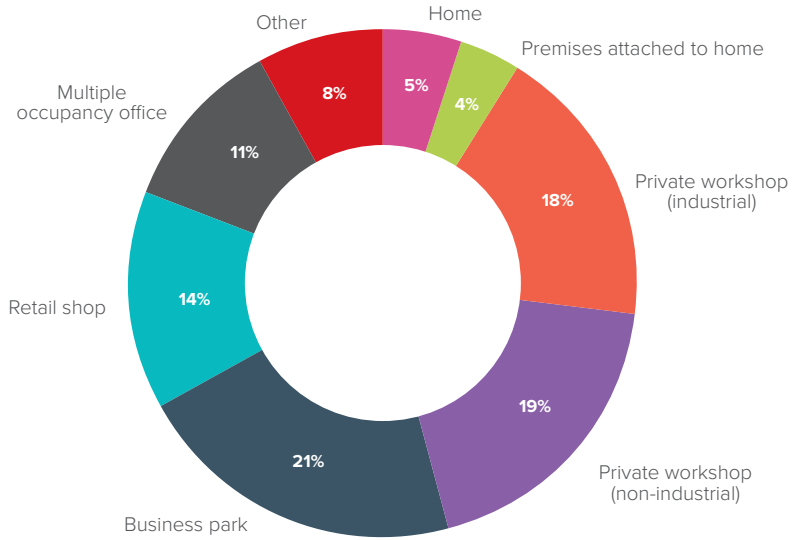


Figure five shows that different types of business premises are associated with varying levels of ownership and tenancy. This is important because smaller businesses that own their premises are a very different audience to those that rent, not just in terms of how empowered they are to make decisions, but also in terms of the type of premises from which they typically operate.

For those that own their properties, around 57 per cent are a home-based business (including those that operate from premises attached to their homes). For those that rent their properties, around 58 per cent operate from bespoke spaces, either standalone workshops/offices or as part of larger business parks.

Figures three, four and five demonstrate that policies, products and services related to energy generation and management must be tailored, acknowledging the differences between those that rent and those that own, smaller and larger businesses, and those that operate from different types of premises. A one size fits all approach will not work.

SMALL BUSINESSES AS ENERGY GENERATORS AND INVESTORS

The transition to a low carbon economy will place great pressure on the energy network, both through the large number of additional connections that will need to be enabled and, subsequently, through managing the potentially steep peaks and troughs of daily generation and usage. New technology and innovation will be required to take pressure off the energy transmission and distribution networks. FSB believes that microgeneration and community energy schemes will play a critical role in this.

Microgeneration provides an opportunity for small businesses to invest in solutions that work for them, reducing their dependence on a centralised energy grid and helping to reduce carbon emissions. However, FSB has raised concerns that micro-generators are being discouraged in the market through a combination of regulatory, policy and practical constraints.

Twelve per cent of small businesses generate their own electricity, the vast majority of which is from solar panels. On the face of it, this represents a strong baseline and evidence that small businesses are willing and capable of generating their own electricity. However, most of this generation (61%) is attributed to those businesses which either work from home or operate from premises attached to their homes. The proportion of home-based businesses (including premises attached to homes) that generate their own electricity rises to 21 per cent, while, conversely, the proportion of non-home-based businesses generating their own electricity drops to seven per cent.

This figure tracks quite well with an existing estimate by the Solar Trade Association of around 23,000 non-domestic rooftop solar installations generating between 10kW to 5MW, and around 1,000 solar farms, in operation across the country.¹⁰

It is likely that the willingness and ability of small businesses to generate their own energy has less to do with whether or not they are home-based per se and more to do with whether or not they own (rather than rent) their premises/property. In other words, how empowered they are to make decisions about investments and improvements. The vast majority (93%) of small business energy generators own their properties, regardless of whether these represent bespoke business premises or homes.

The UK Government should produce an updated Carbon Plan, including a holistic strategy for promoting microgeneration, efficiency, storage and demand response across the UK small business community. Without this, the UK will not meet its binding carbon reduction targets. This strategy must create a more detailed understanding of the different and varied circumstances of small businesses, their relationships with energy, the types of premises they either rent or own, the consequential opportunities and obstacles they may face. Which ultimately, a clear and achievable pathway for achieving carbon reduction. We urge Government to look at the particular issue related to disempowered small businesses in rented premises. Such a strategy must also provide an open and honest assessment of the predicted costs of various technologies, which includes the costs of required investment in any associated infrastructure.

The first step to empowering small businesses is providing them with access to trusted, accurate and user-friendly information to help them understand their options around generation and energy management. There is a huge amount of information in the public domain. However, much of it is inaccurate, out of date, inappropriate, or provided by those with a commercial angle or other vested interest.

The UK Government should investigate the potential for a one-stop-shop website for small businesses, offering advice and guidance around products and services related to generation, energy management and efficiency.

¹⁰ Solar Trade Association, The 2017 Business Rates Revaluation: Impact on Self-owned Commercial Rooftop Solar PV (2016)

Subsidies and incentives

The Levy Control Framework is the mechanism for controlling and capping expenditure on energy subsidies. According to the Government, by 2020-21, annual spending on electricity policies within the Levy Control Framework is forecast to be £6.25 billion (capped at £7.6 billion), broken down by:¹¹

- Renewables Obligation £3.9 billion¹²
- Contracts for Difference £1.1 billion
- Feed-in Tariffs £1.1 billion
- Capacity Market £tbc¹³

The Levy Control Framework has been recognised as an important tool for controlling consumer costs, but, since its inception, it has faced scrutiny about its transparency and accountability, and the robustness of arrangements to monitor, control and report.¹⁴ In the 2016 Autumn Statement, the Chancellor announced that Government is considering the future of the Levy Control Framework with a decision to be announced in the 2017 Budget.¹⁵ This followed a number of announced cuts and restrictions throughout 2015/16 to a variety of subsidies and incentives related to renewable generation and energy efficiency.

It is not yet clear what impact these subsidy reductions will have on the overall development of new microgeneration capacity. However, early anecdotal evidence from FSB members suggests that the microgeneration industry is gravely concerned. In many cases, the subsidies on offer only just made these investments viable. A reduction in subsidy can have a major impact on this, particularly when it comes to decisions about capital expenditure and the emphasis on upfront costs. From this point of view, mains gas or even a diesel generator, would be considered a better business decision than, for instance, a biomass boiler.

However, it is clear that many small businesses are making decisions to invest in microgeneration based on much more than financial considerations.

FSB recognises that financial incentives can play a role in driving investment in certain areas. In fact, the Government underestimated the popularity of subsidies in the onshore wind and solar sector to such an extent that they have been forced to withdraw some of them earlier than planned. FSB has raised concerns about how this withdrawal has been implemented. However, we also acknowledge that incentives don't necessarily benefit those that need them most, particularly small scale and community generation schemes, which, by their nature, take a comparatively long time to complete. These schemes often compete with larger commercial projects which, funded by liquid market capital, are able to progress more quickly. Therefore, incentives may promote schemes that offer the quickest return, rather than those in areas where alternative energy is needed most. So, in terms of fairness, incentives must promote investment in the right places, and across the right audiences. They must be simple, straightforward and worth the effort.

The issue of subsidies for certain technologies has become highly politicised. Subsidies must be viewed in the context of a number of other mechanisms that promote the development and roll-out of certain energy technologies by providing investor confidence (e.g. tax penalties and reliefs, legal obligations, access to finance, capacity market, binding carbon reduction targets, skills development, education and information, etc.). The relative contributions of each of these mechanisms may change over time, reflecting the ebb and flow of variables such as energy prices and technology development. It is important to keep these mechanisms under review as they all have the potential to both stimulate and subdue the market in different ways.

Many small businesses have taken advantage of subsidies across a variety of markets, and FSB has welcomed the opportunities these can provide. However, such benefits often depend on whether or

¹¹ Department of Energy and Climate Change, Annual Energy Statement (2014)

¹² The Renewables Obligation will not be available to new generating capacity from April 2017, but capacity accredited before then will receive ROCs for 20 years.

¹³ The Capacity Market will also be paid for through the Levy Control Framework, but in addition to the existing £7.6 billion Levy Control Framework cap. First payments are due to start in 2018 (see Annex 2).

¹⁴ National Audit Office, The Levy Control Framework (2013)

¹⁵ HM Treasury, Autumn Statement (2016)

not a particular business falls within the (often narrow) scope of a subsidy, which may set arbitrary parameters such as location, property type, turnover, etc. In this sense, subsidies are not universally fair.

The Government provides two subsidies for small businesses that wish to invest in non-domestic energy and heat generation – FITs and Renewable Heat Incentives (RHI). The former is covered by the Levy Control Framework. The latter is subject to a separate budgeting framework as it is funded from general taxation.¹⁶

Those wishing to use these subsidies to help fund small-scale installations (up to 50kW capacity for electricity generation, up to 45kW capacity for heat generating technologies) must use an installer covered by the Microgeneration Certification Scheme (MCS). This is an industry-led and nationally recognised quality assurance scheme, supported by Government. MCS certifies installation companies to ensure the microgeneration products have been installed and commissioned to the highest standard for the consumer. FSB believes the MCS should provide a valuable service for small businesses, most of which will have a low base-line of expertise in this area. However, some FSB members have reported problems with some MCS accredited companies, with regard to the quality of advice and service they have received (see Case Study one, page 21).

Government should assess the success of the MCS at identifying and promoting those that provide high quality products and services, and how well it safeguards against poor practices. A robust MCS scheme should provide quality assurance for would-be investors, and make it more difficult for rogue traders to undercut and undermine the service provided by quality installers. However, as the energy market changes, the scheme must be frequently assessed to ensure it maintains the right balance between the risks and costs associated with regulatory burden.

It must be noted that subsidies is one area where there is an element of diversity across different parts of the UK. For instance, FITs are not available in Northern Ireland, which took a slightly different approach to incentivising certain technologies via a change to the Northern Ireland Renewables Obligation (NIRO).¹⁷ Similarly, the Renewables Obligation is administered in Scotland and Northern Ireland by the devolved administrations, but by DECC jointly for England and Wales.

¹⁶ Department of Energy and Climate Change, Control Framework for DECC Levy-funded Spending (2011)

¹⁷ Ofgem, Feed-in Tariff: Guidance for Renewable Installations (2015)

FSB MEMBER CASE STUDY ONE

Geraint Jones, Call of the Wild, training centre

We're an ILM approved training centre in the heart of the Brecon Beacons National Park. We have a strong focus on leadership management, team building and personal development. We've been going for 18 years and we currently employ around 30 people and have a turnover of around £1.4 million.

The training centre itself is a 200 year old farmhouse in the middle of a 73 acre site. We've planted around 2,000 trees and we're trying to go carbon neutral. Government subsidies are helpful because, otherwise, renewable technology is a lot more expensive than just burning oil. Some of those who come to us are schoolchildren so renewable energy and carbon reduction form an important part of our educational programme.

We installed two 8kw air source heat pumps about six years ago. These were better than ground source heat pumps because the majority of our business takes place over the summer period. We carried out a detailed business case, ordered our machinery and were about to sign a contract with our preferred supplier. Unfortunately, at that point, we were advised by our installer that the Government had announced changes to the RHI scheme, meaning air source heat pumps were no longer eligible. This was a huge slap in the face.

However, we decided to proceed with the project anyway, despite the fact that the changes to RHI probably added about £15,000 to the overall cost. As a result, the original pay-back time of seven years was more like 11 or 12 years.

Last winter, we also installed 10kw of solar PV. We wanted to do this back in 2011 when FITs were almost 40 pence per kWh. However, at the time, we just couldn't get finance. Tariffs have fallen massively since then, but we still wanted to do it. We wasted a lot of time and resource trying to get a £9,000 loan through the Carbon Trust, only to find out, at the end of a long process, that we weren't even close to being eligible. This is a basic piece of information that any advisor should have been able to tell us at the start of the process. It was a really frustrating situation, but we eventually got the loan through a bank.

It's been more painful than it should have been, but, on the whole, now that the technology is all installed and working well, I'm glad we did it. It's been pretty reliable. But I can see why many people are put off. The combined projects must have taken a least a couple of months of my time to sort out – time spent away from my core business.

There's more that could be done to help businesses like ours. A lot of the issues we had were related to receiving bad advice from companies who were poorly qualified, even though they had MCS status. There was also a lack of information about suppliers and products. In this regard, a one-stop-shop for trusted advice and information would save a huge amount of time and resource.

1. Feed-in Tariffs (FITs)

FITs were introduced to promote uptake of small-scale renewable and low-carbon electricity generation.¹⁸ These tariffs, funded through contributions from larger suppliers, are paid to generators of solar, wind, hydro or anaerobic digestion power. The Government estimates that the scheme supports over 780,000 installations with a total of 4.2GW of renewable electricity generating capacity.¹⁹ Ninety-nine per cent of these installations are solar PV, with wind generation, hydro-electric, combined heat and power (CHP) and anaerobic digestion (AD) accounting for just one per cent of FITs.²⁰ However, this one per cent accounts for around 20 per cent of overall generating capacity supported by FITs, implying these non-solar installations tend to be larger, more commercial projects.

In terms of individual installations supported by FITs, the majority (96%) are attached to domestic households, accounting for 61 per cent of the overall capacity delivered through the scheme. However, according to Ofgem, uptake from the non-domestic sector is growing rapidly as commercial property owners increasingly become aware of the long-term investment opportunities. Non-domestic and community schemes now account for four per cent of all FITs installations. This four per cent provides 39 per cent of the overall capacity delivered through the subsidy scheme. So, non-domestic installations trend towards bigger, more commercial generation schemes, compared to those installed by householders. In this regard, Government should assess the relative success and efficiency of subsidies at unlocking generation capacity across the non-domestic and domestic sectors.

In early 2016, in response to higher than expected renewables deployment, changes were made to the FITs scheme to control/reduce tax payer expenditure. Changes to deployment caps, accreditation, tariffs and tariff degression all combined to make FITs a relatively less attractive package for small-scale investors. This posed potential problems for generators who had already made their investment calculations on the assumption of unchanged FITs arrangements. The changes were particularly challenging for microgeneration and community schemes, many of which face relatively slow development timescales (see case studies one, three and four). Such schemes are often driven by individuals who may have already committed significant time, effort and money before they were in a position to make a formal FITs application.

Although changes have been controversial and undoubtedly reduce the attractiveness of FITs, this subsidy remains an important support mechanism for low carbon investment.

¹⁸ Ofgem website, Feed-in Tariffs, accessible at www.ofgem.gov.uk/environmental-programmes/fit

¹⁹ Department of Energy and Climate Change, Review of the Feed-in Tariffs Scheme, Government Response (2015)

²⁰ Ofgem, Feed-in Tariff Annual Report 2014-15 (2015)

FSB MEMBER CASE STUDY TWO

John and Celia Whitehead, Bryn Eltyd ECO Guest House

We run a three star mountain guest house just inside Snowdonia National Park. Since taking over the business nine years ago, we've achieved our ambition of running entirely on 100 per cent green renewable energy, winning multiple high-profile awards along the way, including the Green Tourism Gold Standard, Superhomes Carbon Saving Award, Trip Advisor Certification of Excellence and the Considerate Hotelier Sustainability Award.

Six years ago, we were one of the first businesses to take advantage of FITs and the RHI. Back then, subsidies were far more generous than they are today, but the technology was three times the price.

We invested £20,000 in a 26kW wood pellet gasification biomass boiler. We could have done it a little cheaper, but we chose to buy it locally, have it installed by local people, and we run it off locally-supplied wood pellets. For us, carbon reduction and sustainability are part of our philosophy, a way of life. From a purely money-making operation, it's not necessarily the best business model. Let's be honest, we could have simply installed an oil heater for about a quarter of the price!

Without the contribution of RHI, we wouldn't have been able to justify the up-front investment costs. As well as reducing the overall cost burden, RHI also provided us with a secure investment model and reduced the pay-back time of the project, which made us a more attractive proposition for lenders when we looked for a finance package.

The key to success is to think long term, because very few schemes have short pay back. We take a holistic approach to how we generate, store and use energy. As well as the biomass boiler, we've used FITs to subsidise 2kW of solar PV. We've also recently partnered with Tesla to install electric vehicle charging points. Tesla funded these and put us on their Destination Map. We get extra business and, in return, our guests don't have to pay for recharging their cars.

We also have a much bigger solar array (around eight square meters) which provides thermal heating to a large water storage tank. We had to move these solar panels from their original position when we added a new boiler house. This now provides us with significant insulation and thermal mass heating. The solar panels now lie on top of the boiler house in a much better position, at an angle of 37 degrees pointing due south. But, because they've been moved, they're now classified by Government as second hand equipment, so they are ineligible for RHI support. That seems ridiculous!

There is a general problem with RHI in that we only get paid for the energy we produce. We've invested a lot in energy efficiency and insulation. Insulation is the key to energy saving in an older house like ours – you need to put the plug in the bath before you start to pour in the energy. But the more efficient we become, the less energy we produce, so the less money we receive. Again, that doesn't feel right, somehow. We're taking a holistic approach to energy, but the Government isn't. However, we believe in what we're doing here and we have no regrets. The biomass boiler works beautifully and our solar panels seem to cope well with the impressive lightning and hail storms we get in these parts.

2. Non-domestic Renewable Heat Incentive (RHI)

The Non-domestic RHI aims to increase the uptake of renewable heat by businesses, the public sector and non-profit organisations.²¹ It provides a subsidy in the form of quarterly payments over 20 years based on the amount of heat generated. This incentive is funded through the tax payer, with payments provided directly from Treasury.²² The subsidy covers a range of technologies, including solid biomass, biogas, heat pumps, geothermal, solar collectors, energy from waste, and combined heat and power (CHP).²³

As of August 2016, Government figures suggest there were around 15,000 non-domestic RHI schemes providing a combined generating capacity of almost 2800MW. The majority (81%) of these schemes are listed as small solid biomass boilers with generation capacities of less than 200kW.²⁴ These microgeneration schemes provide over 50 per cent (a combined 1470MW) of the entire RHI generating capacity.

Since its launch in November 2011, RHI has been a demonstrable success in promoting biomass boilers amongst smaller non-domestic generators. However, Government has recently announced reductions to RHI tariffs from October 2016, including a five per cent tariff reduction for small commercial biomass. It is unclear what impact this will have on a technology which, to date, has proven a popular choice for many smaller businesses.

Anecdotal evidence from FSB members suggests that reductions to RHI will change the decision-making process for some, with oil or diesel generation cited as a cheaper option than biofuel. Some members have also raised concerns about the impact that reduced RHI will have on access to finance. However, as FSB member case studies number two and three suggest, money is not the only consideration for many who invest in low carbon solutions. So, the overall impact of RHI reduction could be complicated.

21 Ofgem website, Non-Domestic Renewable Heat Incentive (RHI), accessible at www.ofgem.gov.uk/environmental-programmes/non-domestic-rhi

22 House of Commons Library, Renewable Heat, Briefing Paper No. 6328 (2016)

23 Ofgem website, Tariffs and payments: Non-Domestic RHI, accessible at www.ofgem.gov.uk/environmental-programmes/non-domestic-rhi/contacts-guidance-and-resources/tariffs-and-payments-non-domestic-rhi

24 Department for Business, Energy and Industrial Strategy, Non-domestic RHI and Domestic RHI Monthly Deployment Data, August 2016

FSB MEMBER CASE STUDY THREE

Janet Jones, Great Porthamel Services (GPS), Farm

We were originally a mixed livestock and arable farm in Talgarth, Powys. We had an agreement to take animal waste (mainly gut contents) from an abattoir about 30 miles away in Merthyr Tydfil, which we used for composting and fertiliser.

In 2007, following extensive research and the development of a robust business case, we decided to take advantage of FITs and invest £2.4 million on an anaerobic digester plant made up of four large tanks. We arranged finance pretty quickly and we also won a national competition, overseen by WRAP, to have a third of our costs funded through an EU grant.

But the project was subsequently held up for three-and-a-half years because of a planning objection from Brecon Beacons National Park. We ended up going to a Judicial Review and the High Court, which ruled conclusively in our favour. Unfortunately, the years of delay meant we lost the £730,000 grant from WRAP. And the fallout from the economic crash meant it then took 10 months to find finance.

However, our business case was still robust. The anaerobic digester would break down the waste and create methane gas, which would be converted into renewable electricity. The digestate would also provide us with an excellent fertiliser. We have now built two of the four tanks and have installed two Combined Heat and Power Units (generators) which convert the methane gas into electricity. The first generator is locked to 499kW at a higher tariff, and the second is unlocked at a lower tariff. Between them, they provide around 1MW per hour of electricity to the grid. We have planning permission to build another two tanks, but, unfortunately, we are now constrained by a lack of spare grid capacity. So, we are now exploring the option of providing gas-to-grid, rather than electricity. This also has the advantage that FITs are still relatively generous for this technology. Gas-to-grid is more complex and expensive because the gas needs to be scrubbed (or cleaned) before it can be added to the grid.

The anaerobic digester has now become a large part of our business and our employee numbers have risen from one to 15. The crops we grow now mostly feed the anaerobic digester along with the waste, because, with the high quality fertiliser we produce and spread on local farms, our grain is now more valuable as fuel than food.

For us, installing this new technology was a hard-headed business decision. We're hoping for a 10-year payback, and the technology runs extremely well as long as unexpected debris – like manhole covers – doesn't damage our feeders (but we've now put in place more filters to stop that happening).

3. Contracts for Difference (CfD)

In principle, small generators can also take advantage of a third incentive scheme involving direct subsidies, CfD.²⁵ In reality, CfD do not serve the microgeneration market as these agreements are not applicable for schemes with a generating capacity of less than 5MW.

CfD decide how much subsidy (or FITs) an individual scheme should be awarded. They allow generators to compete for subsidies based on how much they require to guarantee a return on their investment. These contracts promote upfront investment in new technologies by reducing the uncertainty associated with volatile wholesale prices. A CfD is a private law contract between a low carbon electricity generator and the government-owned Low Carbon Contracts Company (LCCC). As part of the contract, a strike price is agreed reflecting the cost of investing in a particular technology. The LCCC then commits to make up any difference (via a subsidy) between the market average reference price and the agreed strike price.

In the first round allocation, launched in February 2015, contracts were awarded to 27 schemes providing over 2100MW of generating capacity at an average of 79MW per scheme.²⁶ It is noteworthy that a huge chunk of this capacity will be provided by just two offshore wind projects, providing over 1100MW of generating capacity between them. However, a further eight renewable generation projects – considered at serious risk of delay while CfD was being negotiated – were previously awarded early contracts as part of the Government's Final Investment Decision enabling for Renewables (FIDeR) scheme.²⁷ These FIDeR schemes provide a total generating capacity of over 4500MW at an average of 560MW per scheme.

The level of combined subsidy for these projects (CfD and FIDeR) is expected to be around £300-350 million a year by 2021.²⁸ The majority of these schemes are large onshore wind and solar farms. So, most of the small business benefit associated with CfD currently comes from supply chain opportunities, rather than direct energy generation. In May 2015, Government published new guidance stating that:²⁹

“Encouraging open and competitive supply chains and promoting innovation and skills in them will encourage low-carbon electricity generation, drive down the cost of low-carbon generation over the long term and result in lower energy costs to consumers.”

As part of this guidance, Government now requires that adequate supply chain plans are a pre-condition for projects over 300MW to enter the CfD allocation process. Although FSB welcomes Government's focus on supply chain opportunities for schemes of this size, it must be noted that only two of the 27 schemes announced as part of the CfD first round allocation would require such a plan. It is unclear whether these requirements will retrospectively apply to the larger schemes included in the first round CfD allocation or the initial FIDeR process.

The UK Government should formally review the effectiveness of subsidies and other incentives related to low carbon generation and energy efficiency, for both small and large-scale technologies. This should include existing small business access to subsidies, including scrutiny of market accessibility and transparency, acknowledging that microgeneration and community schemes have different requirements and timescales than larger investments. Any incentives aimed at promoting small business microgeneration, storage and efficiency must be simple, straightforward and worth the effort. A Government review should also include an examination of the relative success and efficiency of subsidies and other incentives of unlocking generation capacity across the non-domestic and domestic sectors, particularly in the context of recent alterations to FITs and the Non-Domestic RHI.

25 Gov.uk website, Electricity Market Reform: Contracts for Difference, accessible at www.gov.uk/government/collections/electricity-market-reform-contracts-for-difference

26 Department of Energy and Climate Change, Contracts for Difference (CFD) Allocation Round One Outcome (2015)

27 National Audit Office, Early Contracts for Renewable Electricity (2014)

28 Department of Energy and Climate Change, Annual Energy Statement (2014)

29 Department of Energy and Climate Change, Contracts for Difference: Supply Chain Plans for Projects Over 300MW (2015)

NON-SUBSIDY SUPPORT AND INCENTIVE MECHANISMS

The Government has made it clear that it wants a market-led approach to carbon reduction. The recent decision to withdraw subsidies for wind and solar generation has – rightly or wrongly – had a detrimental impact on investor confidence, at least in the short term. However, the long-term impact is unclear, especially given the shift in emphasis to other forms of support. For instance, generation schemes already receiving low carbon support (e.g. through the Renewables Obligation, CfD, or small-scale FITs) are not eligible to enter the capacity market.³⁰ Withdrawal of FITs, therefore, may increase take-up of capacity market applications. So, with regard to microgeneration and community schemes, the accessibility and transparency of this market must face greater scrutiny.

Subsidies are just one of a number of interacting mechanisms that can help to promote investment in certain technologies, and so should never be viewed in isolation. Alongside other incentives, they help small generators to climb over certain hurdles.

Carbon Reduction Targets

Binding international, European and domestic targets for carbon reduction and renewables create their own market pressure. They represent a market roadmap and provide a degree of confidence to investors. The legally-binding UK Climate Change Act established a target for the UK to reduce its emissions by at least 80 per cent from 1990 levels by 2050. To ensure that regular progress is made towards this long-term target, the Act also established a system of five-yearly carbon budgets to serve as stepping stones along the way. The first five carbon budgets, leading to 2032, have been set in law. The fifth carbon budget, approved by parliament in July 2016, requires a 57 per cent reduction in emissions (on 1990 levels) by 2030.

So, the Climate Change Act ensures long-term policy certainty and, subsequently, investment security. The Act goes further than other EU targets, which only commit the UK to, amongst other things, a 20 per cent reduction in greenhouse gas emissions by 2020 and 27 per cent reduction by 2030.

Capacity Market

The capacity market is designed to ensure security of electricity supply and is aimed at large and medium-sized generators. The scheme is designed to incentivise both power generation and demand response at certain times to manage overall electricity demand. The first auction was held in December 2014 and Government paid just under £1bn to leverage 49GW of peak demand energy capacity. According to Government, this auction cost UK bill payers, on average, £11 each, a cost that is expected to drop in the future.³¹ In December 2015, the second auction leveraged a further 46GW.³²

There is an ongoing debate about how much the capacity market drives investment in the new and innovative technologies of the future. The majority of the Capacity Agreements awarded in 2014 were to large-scale gas (45%), coal/biomass (19%) and nuclear (16%). By contrast, the capacity market only leveraged 0.35 per cent of capacity from demand side response technologies and 5.48 per cent from storage.³³

An increasingly smarter market could increase opportunities for aggregators (representing numerous smaller clients) to take advantage of the capacity market, with the benefits passed on to those they represent. This could include generation as well as demand side.

30 EMR Delivery Body website, Prequalification, accessible at www.emrdeliverybody.com/CM/prequalification.aspx

31 Gov.uk website, Press Release: The first ever capacity market results have been released today, accessible at www.gov.uk/government/news/the-first-ever-capacity-market-auction-official-results-have-been-released-today

32 National Grid, Provisional Auction Results: T-4 Capacity Auction Results for 2019/20 (2015)

33 National Grid, Final Auction Results: T-4 Capacity Market Auction (2014)

National Grid Balancing Services

National Grid uses financial incentives to manage real-time changes in demand and supply throughout the day – e.g. Demand Turn Up, Fast Response, Short Term Operating Reserve and BM Start Up.³⁴ The opportunities to take advantage of these payments will vary for different technologies, depending on the amount of energy they are able to provide (or remove), the speed at which they can do this, their reliability, and the length of time they can sustain this service. Though these payments are currently aimed at larger energy generators and users, an increasingly smarter market could increase opportunities for aggregators representing numerous smaller suppliers or demand side responders.

Time of use tariffs

Time-of-use tariffs will undoubtedly take on increasing importance as the market gets smarter, enabling demand side response technology to respond to price signals. This will promote the development of certain technologies designed to take advantage of cheaper energy.

Tax incentives

Businesses can claim capital allowances when they buy energy-efficient, or low or zero-carbon technology.³⁵ This reduces the amount of tax they pay. However, anecdotal evidence from FSB members suggests that capital allowances for low carbon technology is being under-claimed, particularly as microbusinesses are now less likely to use external accountants due to changes in company reporting regulations.

The UK Government should look to increase awareness and promote existing small business opportunities related to capital allowances for energy efficiency and renewable generation.

In some areas, tax also works as a disincentive. For instance, small business investment in solar energy may be punished through the Business Rates system because solar installations are currently included as part of the rateable value of business premises.³⁶ Unless this is addressed, it could prove to be a huge disincentive for businesses.

Others

Like the aforementioned, there are a myriad of different factors that combine to promote or hinder technology development.

- **Regulatory Controls** to ensure that legal targets are achieved in the most efficient or equitable way.
- **Access to finance** for renewables and energy efficiency. For example, the Green Investment Bank's Smart Energy Finance vehicle, set up to provide SME loans for energy efficiency projects.³⁷
- **Using energy company fines and Ofgem settlements to fund grants**, e.g. the £3.2 million British Gas Energy Efficiency Fund for small businesses and the £7 million EON/Carbon Trust Green Business Fund.³⁸
- **Access to trusted information** is something that many FSB members have highlighted as a barrier to investment.

34 National Grid website, Keeping the Electricity Transmission System in balance, accessible at www2.nationalgrid.com/uk/services/balancing-services/

35 Gov.uk website, Environmental taxes, reliefs and schism for businesses, accessible at www.gov.uk/green-taxes-and-reliefs/capital-allowances-on-energyefficient-items

36 Solar Trade Association, Industry Briefing: The 2017 Business Rates Re-evaluation (2016)

37 Green Investment Bank website, New funding available to help small businesses become more energy efficient, accessible at www.greeninvestmentbank.com/news/2014/new-funding-available-to-help-small-businesses-become-more-energy-efficient/

38 Carbon Trust website, The Carbon Trust Green Business Fund, accessible at www.carbontrust.com/client-services/technology/implementation-and-finance/green-business-fund/

- **Government and public sector leadership** through their own procurement policies, for instance the Department for Environment, Food and Rural Affairs (Defra) – including all of its agencies and public bodies – used 232 million kWh of energy costing £17 million, a third of which was purchased through a green tariff.³⁹
- **Dedicated renewables and low carbon investment funds** play an important role in unlocking capital and the CSR and investment policies of the UK's FTSE 100 and 250 companies have a significant impact on the direction of UK energy and investment markets.

The UK Government should provide a consistent tax incentives framework across all forms of energy generation. They should move away from the patchwork system of subsidies for some, tax incentives for others, and no incentives for many. The current system lacks transparency, long-term security and fairness. Government must ensure that microgeneration and efficiency investments at business premises are not punished through additional business rates rises.

CAPACITY

According to National Grid, UK electricity consumption tends to peak at around 61GW. But, because of uncertainties related to the speed and reliability of generation, the UK requires a capacity of around 80GW.⁴⁰ The debate about the UK's ongoing and future capacity comes in the context of older coal-fired power plants being decommissioned, reducing the UK's generating capacity by about 8GW (20%) by 2020 unless this gap is filled by other sources.⁴¹

Smaller electricity generators tend to connect to the regional, low-voltage distribution network, rather than the national, high-voltage transmission network. This is known as distributed or embedded generation.⁴² When microgeneration and small community schemes want to connect to the network, they require permission and confirmation that there is adequate capacity available.⁴³

The individual processes for incentivising, promoting and rolling out new energy generation technologies – particularly smaller scale microgeneration – cannot be viewed in isolation. Every new generation scheme brought online across the country requires a raft of supporting infrastructure to adequately manage, distribute and control the additional energy being added to the national grid, for instance new connections and upgrades to grid capacity through additional or larger substations.

National Grid's Future Energy Scenarios ('maximum solar' scenario) suggests that, by 2050, the UK could have as much as 25 per cent solar capacity (approximately 60GW), generating around 10 per cent of the UK's electricity.⁴⁴ They highlight the 'challenging operability requirements for the electricity network' that this scenario would create, because solar PV generally generates most electricity when demand is at its lowest (in the middle of the day). So, the roll-out of new technology, such as solar, must be done in a measured and consistent way that cost effectively builds, not just generating capacity over time, but also the underlying infrastructure upon which that capacity relies. This is particularly the case as UK generation moves away from the centralised transmission network (high voltage) towards the decentralised distribution network (low voltage).

Problems are created when investment in new generation and underlying infrastructure are out of sync with each other. This is already being demonstrated today across the UK's growing distributed generation market. In some circumstances, investment in microgeneration and community generation schemes are being delayed, or even prevented, by a lack of available capacity on the grid.

FSB would like to see small businesses given an increased opportunity to supply energy to the grid, but also the opportunity to supply directly to customers locally. As it stands, a small energy generator may only make £0.04kWh exporting locally-generated energy to the grid. However, by selling directly to a

39 Department for Agriculture, Food and Rural Affairs, Annual Report and Accounts 2014-15 (2015)

40 Royal Academy of Engineering, GB Electricity Capacity Margin (2013)

41 Energy UK website, Power stations expected to close before 2025, accessible at www.energy-uk.org.uk/publication.html?task=file.download&id=3055

42 House of Commons Energy and Climate Change Committee, Low Carbon Infrastructure (2016)

43 National Grid website, New Transmission Connections, accessible at www2.nationalgrid.com/uk/services/electricity-connections/new-connection/

44 National Grid, Future Energy Scenarios, GB Gas & Electricity Transmission (2016)

local smart grid (e.g. adjacent village/housing estate) at market rates, they could make £0.11kWh.⁴⁵ This would transform the viability of local energy generation without the need for public subsidy or green levy on energy bills, encouraging small businesses to invest in peak capacity beyond their own consumption.

Ofgem should promote technology that takes pressure off the energy transmission and distribution networks, particularly highlighting the innovative and flexible opportunities that small business microgenerators can provide. As part of this, they should explore the feasibility of allowing direct sale of electricity by microgenerators. Ofgem should also keep the MCS under review, ensuring it maintains the right balance between the risks and costs associated with regulatory burden.

There are a number of hurdles that need to be addressed in order to realise this microgeneration revolution:

- Amending regulations restricting the direct sale of power from any power station below 50MW would need to be amended.
- Establishing a light touch regulatory regime for sub-50MW retailers who would supply to local grids.
- Creating a separate category of light touch licence for community or business energy retailers selling to a defined local area with a limited number of customers.
- Developing a smart grid, with real time data available for distributed microgeneration schemes.
- Transitioning of DNOs to DSOs, responsible for managing and controlling supply and demand across their local distributed networks.

DNOs should work with Ofgem, Government, National Grid, other DNOs, distributed generators and stakeholders to develop a system in which fully-functional DSO are responsible for balancing and controlling distributed networks. These should incentivise innovative storage, demand side and efficiency technologies to help balance supply and demand.

THE ROLE OF NETWORK OPERATORS

National Grid is responsible for overseeing the strategic management and transmission of energy across the country. However, the delivery of energy to and from customers is managed by seven DNOs, divided across 14 geographically-defined areas of the UK. There is no competition across these areas, so the activities and services of these DNOs are regulated by Ofgem. DNOs do not buy and sell energy to customers; rather they are responsible for ensuring customers are provided with adequate infrastructure to meet their energy needs.

The cost of managing and maintaining this infrastructure is passed on to consumers via their energy bills. According to Ofgem, network costs are the second biggest costs associated with energy bills (after wholesale costs), accounting for between 20 and 25 per cent of the overall bill.⁴⁶

DNOs assess whether there is a need to reinforce the National Electricity Transmission System (NETS) as a result of any new microgeneration scheme being connected.⁴⁷ This is called a Statement of Works (SOW).⁴⁸ Though each individual microgeneration scheme may have a negligible impact on the transmission system on its own, the combined impact of these schemes needs to be managed. This may lead DNOs to impose conditions and constraints on microgeneration schemes.

As the UK increasingly moves from transmission-level to distribution-level generation, it will be even more important for DNOs to understand how and where energy is being consumed and generated across the networks they manage.

⁴⁵ Make It Cheaper website, Business Energy Prices and Rates, accessible at www.makeitcheaper.com/business-energy/prices-per-kwh-unit.aspx

⁴⁶ Ofgem website, Understand your gas and electricity bills, accessible at www.ofgem.gov.uk/consumers/household-gas-and-electricity-guide/understand-your-gas-and-electricity-bills

⁴⁷ National Grid website, Thresholds for Statement of Works, accessible at www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=24678

⁴⁸ National Grid, Small Embedded Generation (2011)

National Grid must boost opportunities for distribution level interconnection to enable greater potential for sharing and managing demand and supply between DNOs and, in future, DSOs.

A major stumbling block in this regard is behind-the-meter generation and storage. This type of technology provides only black box information to energy suppliers and DNOs taken from meter readings. In reality, a whole sub-system of generation, usage and storage is happening behind the meter at particular sites. Currently, the charging scheme for electricity is based on a number of parameters, including how much a customer consumes, how much they generate and how much they store. In addition, these costs vary depending on the time of day that these activities take place. None of this information is provided in a meter reading for behind-the-meter technologies. This potentially has a major impact on those who rely on the more traditional model of paying for energy and infrastructure through their metered usage.

The decision to holistically manage on-site energy in this way and operate more off-grid is to be applauded. However, from a cost-benefit point of view, this tends to be an option reserved for larger and more energy-intensive industries, at least under current market arrangements. As more industries move to this kind of approach, there is a risk that charges related to the maintenance and improvement of energy infrastructure will be disproportionately passed on to smaller users who do not have the same opportunity to avoid these costs.

Ofgem are reviewing this issue at the moment and it is imperative that they come up with a new model for charging that provides fairness for customers of all sizes during the transition to a more distributed energy system.⁴⁹

A report by the Energy and Climate Change Select Committee – Low Carbon Network Infrastructure (June 2016) – criticised the Government for being “slow to present a clear, holistic plan for the evolution networks need.”⁵⁰ It found a number of potential barriers to distributed energy generation, including:

- **Rapid scale-up:** The rapid increase in the number of local connection requests from new types of power generation has strained the ability of DNOs to connect distributed generation. Applications can take many weeks. Outcomes can be uncertain and slow decisions around agreed capacity can delay design work.
- **Lack of capacity:** Existing rules disadvantage customers who trigger a major reinforcement scheme. Currently, if a connection request would overload the local substation, then that business would have to fund the entire upgrade cost of that substation. ‘Anticipatory investment’ - work to meet expected future capacity – can potentially reduce such problems before they arise. Anticipatory investment can speed up distributed generation connections but, if miscalculated, could also create stranded assets at bill-payer expense. Up-to-date modelling will minimise this risk.
- **Lack of standardisation:** Standardisation of processes and expectations can be difficult as different DNOs operate in different types of locations, with different types of network.
- **Planning consent:** Planning consents can be difficult for some of the physical infrastructure associated with distributed generation. In addition, planning consent for connections lies with local and national authorities, whereas grid-connection processes are in the hands of the network companies. This lack of integration can potentially delay connections.
- **Queue blockers:** DNOs are required to offer connections on a first-come-first-served basis, regardless of the relative merits, or potential for success, of the schemes applying. There are currently no up-front application fees related to connection requests and, therefore, little to lose by applying. Some believe that the balance has shifted too far towards encouraging speculative applications (with lower chances of success), thereby delaying more serious applications. Others are wary that introducing fees may deter bone fide applications.
- **Connection and Network costs:** Microgenerators wishing to connect to the network must pay Distribution Use of System (DUoS) charges. Network costs and connection costs vary across the UK and there is a lack of transparency around the level at which they are set.

49 Ofgem, Open Letter: Charging Arrangements for Embedded Generation (2016)

50 House of Commons Energy and Climate Change Committee, Low Carbon Infrastructure (2016)

Anecdotal evidence from FSB members also suggests a lack of clarity around how DNOs manage their reserve capacity, particularly as they seek to address uncertainty about future availability related to changes in local demography. This approach can potentially distort the calculation about the level of demand in a specific area, which is particularly important in a situation where a business applies to increase its generating capacity.

DNOs should work with smaller generators to provide innovative solutions to network capacity constraints and the burden of required reinforcement or upgrade costs. They should provide greater transparency around costs of non-contestable works and these costs should be broken down and explained to customers in more detail. They should highlight any areas that are contestable and open to competition, signposting small business customers to alternative providers. And they should provide real time information about available capacity, as well as committed generation. This should take account of planned re-enforcement works.

FSB urges DNOs to provide dedicated account managers to help small business microgenerators and community schemes through the process of connection. We want to see DNOs working with small generators to provide innovative solutions to network capacity constraints and the burden of required reinforcement or upgrade costs.

They should facilitate microgeneration partnerships and consortia, signpost to areas of available capacity, and provide flexible contract arrangements to promote investor confidence.

Costs of non-contestable works require greater transparency and should be broken down and explained to customers in more detail. DNOs should highlight any areas that are contestable and open to competition, signposting customers to alternative providers. Information about available capacity, as well as committed generation, should be available in real time and should take account of planned re-enforcement works.

Some DNOs have already started to implement some of these ways of working and provide good templates for others. We also note that Ofgem has tasked all DNOs with developing their own enforceable Code of Practice (COP). These should be published clearly on DNO websites and should be as consistent as possible across the industry.

More broadly, there remains a lack of clarity around the division of responsibilities between DNOs, National Grid and Ofgem. This makes it difficult to identify where delays are occurring in the planning, funding and implementation of microgeneration schemes. FSB would like to see improved clarity and delineation around these roles and responsibilities.

Ofgem should examine the current role of DNOs and the potential future role of DSO in facilitating microgeneration schemes. This must include an assessment of how costs of required upgrades to the network are passed on to microgenerators. It should review the transparency and fairness of contestable and non-contestable charges, particularly with regard to variations across the country. It should also urgently review issues related to behind-the-meter generation and storage relating to data collection and fair charging, as well as management of supply and demand. It should publish a new model for charging that provides fairness for customers of all sizes during the transition to a more distributed energy system. The responsibilities of DNOs, National Grid and Ofgem with regard to planning, funding and implementation of microgeneration schemes should be clarified and where delays are occurring in these processes, these should be identified.

STORAGE

In early 2013, Government set out eight great technologies where Britain's research and development sector could lead the world.⁵¹ One of these great technologies was energy storage, with Government believing this technology:

"...has the potential for delivering massive benefits – in terms of savings on UK energy spend, environmental benefits, economic growth and in enabling UK business to exploit these technologies internationally.

"Efficient energy storage technologies could allow the UK to capitalise on its considerable excess energy production."

Compared to generating technologies, energy storage is still costly, and a quickly changing market can discourage investors.⁵² Large-scale storage units compete against fuel-burning power plants, interconnector supply and demand-side response.⁵³ Small-scale electricity storage competes against small diesel-fuelled electricity generating units and the use of flexible grid electricity.

Storage also faces a number of regulatory barriers, relating to uncertainty around whether it is classed as a demand response technology or part of generation capacity. At the moment, it is classified as both and, therefore, subject to two different connection regimes and charging methodologies. Ofgem must urgently address connection and usage charges related to storage, particularly with regard to double-charging.

In a low carbon future, storage will be the key to enabling the UK's renewable technologies to flourish, helping to balance and manage the energy system. As such, many argue that this technology should not be subjected to connection charges. However, under the current arrangements, storage schemes are charged twice, once for consuming electricity, then again when they supply it back to the grid. This anachronism must be addressed by Government as a matter of urgency.

Government has, to a degree, recognised the increasing urgency around energy storage. In 2005, it set up the Energy Research Partnership (ERP), made up of industry experts and investors, to explore some of the more pressing 'blue skies' issues facing the evolving energy sector. The ERP's report – Barriers to Energy Storage – is due to be published in early 2017.⁵⁴ FSB has contributed to this group.

Some technologies have developed more quickly than others. The automotive industry is responsible for much of the development and innovation in this area, with big names like Toyota and Honda placing their faith in hydrogen fuel cell technology, while the likes of Tesla and BMW are leading proponents of electric. As such, battery storage costs are expected to decrease significantly in the next few years.⁵⁵

However, there is clearly some way to go before battery storage is widely adopted by small businesses. A tiny fraction (<1%) of FSB small businesses have invested in energy storage. Of those few that have, it is unclear what their motivation was, since they cover a range of businesses which, respectively, believe their energy costs are 'high', 'moderate' and 'low'. However, all of those that say they have invested in energy storage have also invested in renewable energy technology, suggesting that their investment in energy storage may, currently, be solely an associated by-product of their decision to invest in renewables. It must be noted that the sample size is extremely small in this regard, so further research is required in this area.

51 The Rt. Hon David Willetts, Speech: The Eight Great Technologies (2013)

52 Parliamentary Office of Science and Technology POSTNOTE Number 492: Energy Storage (2015)

53 Parliamentary Office of Science and Technology POSTNOTE Number 452 Electricity Demand-side Response (2014)

54 Energy Research partnership website, Barriers to System-Wide Energy Storage, accessible at www.erpu.org/project/barriers-system-wide-energy-storage/

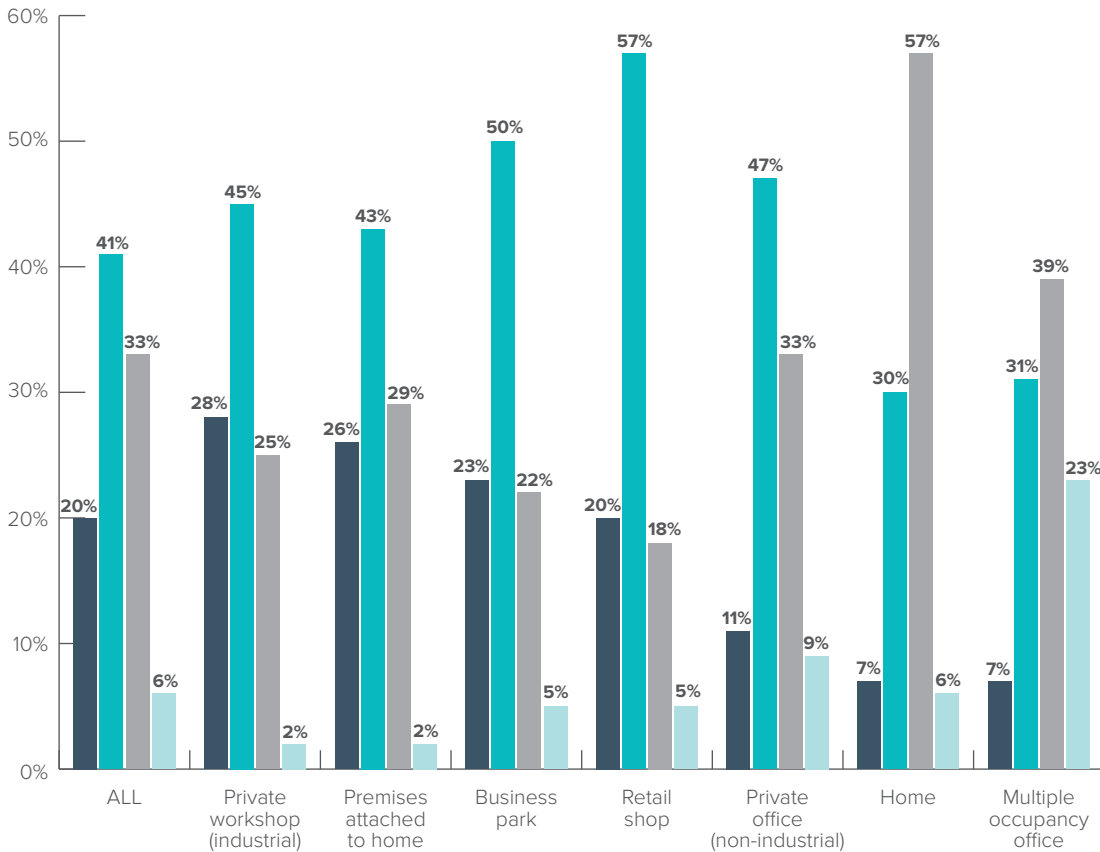
55 Lazard: Levelized Costs of Energy Storage Analysis (2015)

SMALL BUSINESSES AS ENERGY CONSUMERS

Around 61 per cent of FSB members describe their energy costs as either high (20%) or moderate (42%), with any potential for cost reduction ranging from ‘useful’ to ‘critical’ to the profitability of their businesses (figure six).

There is a clear correlation between size of business and perceptions around affordability of energy. Figure seven shows that around 48 per cent of sole traders believe their energy costs are significant enough to impact on the profitability of their business. However, this figure increases for microbusinesses (64%) and rises even further for medium-sized businesses (82%).

Figure six: Small business views on energy costs (by premises type)
Source: FSB energy infrastructure survey 2016



My energy costs are...

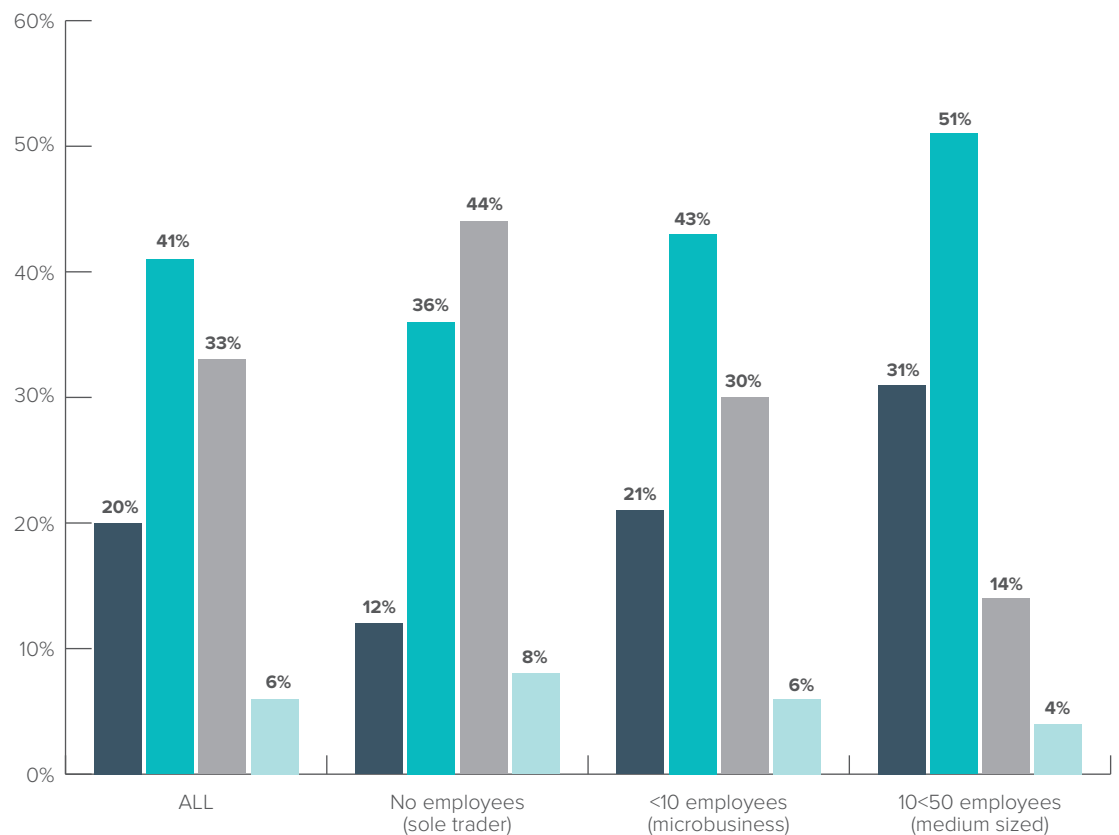
- HIGH** energy saving is **crucial** to reducing costs
- MODERATE** energy saving is **useful** for reducing costs
- LOW** so energy saving has **little impact** on costs
- Other**

There is also clear variation between businesses operating from different types of premises. Twenty eight per cent of small businesses operating from industrial workshops perceive their energy costs as high (significantly impacting their profitability), compared to just seven per cent of those that operate from home.

Many businesses, particularly those operating from multiple occupancy offices, reported that energy was incorporated as part of their rent. It must be noted that, of these, some small businesses suggested they paid nothing for their energy, highlighting the disconnect that some customers have with the true, holistic costs of energy and supporting infrastructure.

Figure seven: Small business views on energy costs (by size)

Source: FSB energy infrastructure survey 2016



My energy costs are...

- HIGH** energy saving is **crucial** to reducing costs
- MODERATE** energy saving is **useful** for reducing costs
- LOW** so energy saving has **little impact** on costs
- Other**

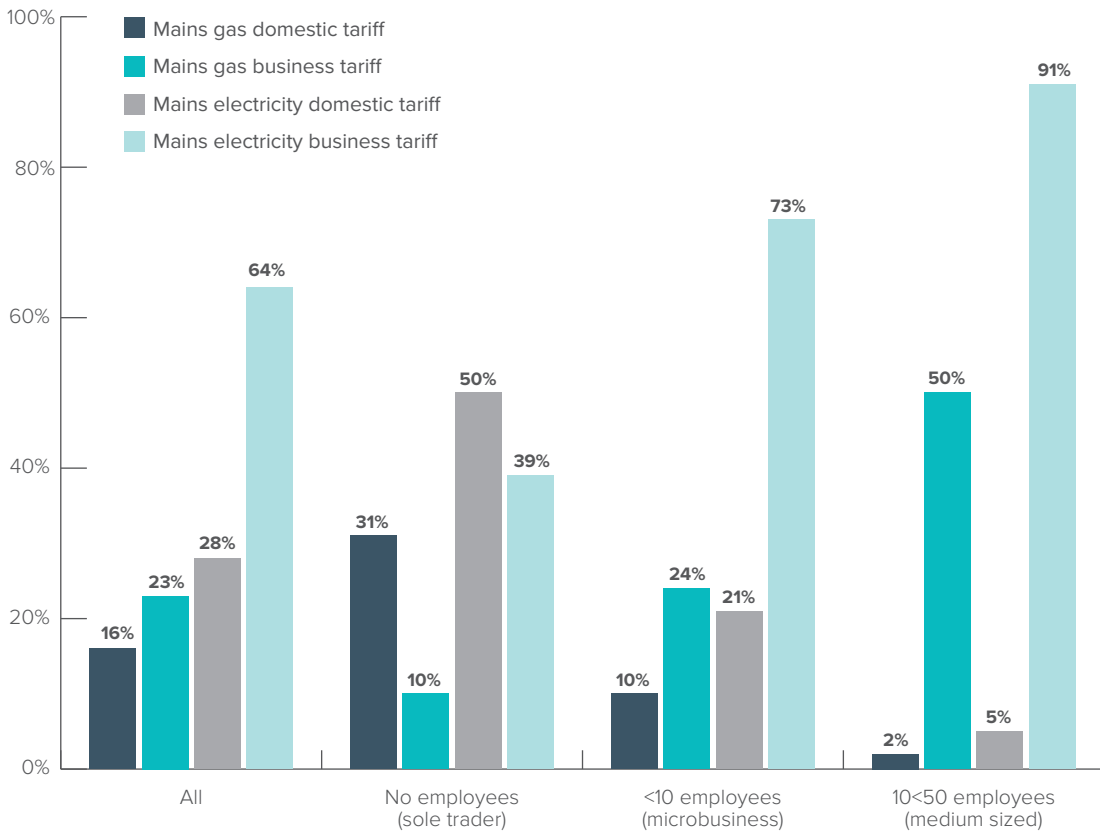
Gas and electricity bills are clearly linked to the wholesale cost of energy, although the degree to which the two are correlated is a matter of fierce public and political debate. However, there are a number of other costs passed on to customers by energy retailers which contribute to bills, such as the cost to energy providers of distribution, operations (including VAT and corporation tax), infrastructure investment and retailer profit.⁵⁶ In addition to these, there are costs associated with longer term investments related to changing the UK’s reliance on certain generating technologies, particularly with regard to reducing UK carbon emissions. These costs are also passed on to consumers.

Figure eight shows that 92 per cent of small businesses are connected to a mains electricity supply (domestic and non-domestic). Around two-thirds of these (71%) have a non-domestic tariff while a third (31%) have a domestic tariff. A small proportion (2%) have both. Far fewer FSB members (39%) are connected to a mains gas supply. Again, around two-thirds (59%) have a non-domestic tariff and just over a third (42%) have a domestic tariff. An extremely small fraction (<1%) have both.

⁵⁶ British Gas website, Explaining energy bills, accessible at www.britishgas.co.uk/youraccount/discover/your-bill/explaining-energy-bills.html

There are clear variations in energy supply between businesses of different sizes. Figure four has already established that 61 per cent of sole traders work from home, or from premises attached to their home. This is reflected in the fact that 50 per cent of sole traders are operating from a domestic (rather than non-domestic) electricity tariff, and around 30 per cent have a domestic gas tariff.

Figure eight: Small business energy supply (by size) – not mutually exclusive
Source: FSB energy infrastructure survey 2016



A small but significant minority of FSB members are ‘off-grid’ altogether, with just over eight per cent reporting they have neither a mains gas nor a mains electricity connection. However, two-fifths of these off-grid businesses reported that energy supply was ‘not relevant’ to their business, implying that they may operate on-the-hoof where a long-term energy contract is not required. A handful of others also reported that their energy (presumably electricity) was included as part of their rent. Ignoring these, then, a figure of around two to four per cent may be a more reasonable estimate for FSB members who operate genuinely and consistently off-grid. The sample size was too small to gain precise figures for alternative, non-mains sources of energy for these businesses. However, reported technologies included heating oil, bulk LPG gas tanks, portable gas canisters, wood and solid fuel burners, biomass boilers and solar panels.

The majority of small businesses have negotiated a non-domestic tariff for their supply of electricity and gas. Previous research by FSB around small businesses as consumers identified a number of areas where small businesses are disadvantaged compared to large businesses and domestic consumers in utility markets.⁵⁷

⁵⁷ FSB/CCP, Small Businesses as Consumers: Are They Sufficiently Well Protected? (2014)

These disadvantages include the following:

- **Lack of expertise in purchasing energy.** Most small businesses have a similar level of expertise as a domestic customer when purchasing most products and services and they are far less likely than large businesses to have staff with a specific procurement role.
- **High opportunity cost of time spent making purchasing decisions.** Running a small business generally takes up the majority of the owner's time during the working week, and often the weekend. This leaves limited time to concentrate on non-core activities such as renegotiating contracts. Therefore, the 'opportunity loss' associated with searching for a new energy supplier can be high.
- **Low benefits (actual or perceived) of time spent making purchasing decisions.** A small business will typically have relatively low requirements for products and services that are not directly linked to its core trade – they want their heating to work and lights to be on. Small businesses often do not think they will benefit significantly by spending time choosing their ideal energy supplier.
- **Poor bargaining power.** Smaller businesses have far less bargaining power, especially compared to large companies such as major utility service providers.

FSB believes small and microbusinesses should be given an enhanced level of consumer protection, more akin to domestic customers.

The recent CMA report into the energy market provided a variety of remedies to increase transparency and fairness for customers, including microbusinesses. FSB successfully campaigned for a number of improvements to the non-domestic energy market, particularly the introduction of comparable, published tariffs and the abolition of unfair, restrictive auto-rollover contracts. Despite these improvements, the new post-CMA energy market will still very much focus on the price that customers pay for the energy they use, rather than driving down their overall consumption. However, energy efficiency remains the single best way to reduce consumer costs.

Ofgem must implement all remedies and recommendations from the CMA Energy Market Investigation related to small business customers. With regard to areas not covered by the CMA, they must urgently finalise proposals for a regulated TPI market and bring forward ambitious expectations for products and services related to smart meters. They should explore ways in which the UK retail energy market can empower small businesses to take advantage of energy efficiency and enable them to choose where and how their energy is generated. They should promote energy efficiency as the single best way of reducing consumer costs and require energy suppliers to offer advice to customers.

Energy suppliers must improve their understanding and segmentation of diverse small business customer base so that their energy needs can be targeted in a more focused, bespoke way. This will help to tailor their customer offers related to energy costs, contracts, efficiency support, innovation, products and services. They should hold regular customer steering panels, where the views of a wide range of customers, including small businesses, can be raised directly. Many energy companies have started to do this.

ADDITIONAL COSTS

UK energy investment policy is framed by the legally-binding carbon targets set out in the UK Climate Change Act. The Government has introduced a number of penalties and obligations, aimed at larger carbon generators and emitters, to steer investment towards low carbon. These policies have a long-term aim but, in the short term, introduce additional costs which, ultimately, are passed on to customers, including small businesses.

Tax penalties

If subsidies and incentives represent the carrot, then tax penalties represent the stick. Direct energy taxes tend to be aimed at heavy, intensive industry, rather than small businesses or domestic consumers. However, costs will ultimately be passed down to consumers through industry products, services and supply chains. Therefore, these taxes eventually impact on small business costs and must be factored into the wider relative costs/benefits associated with promoting investment in this area. What do small businesses receive in return for this additional cost?

The **Climate Change Levy** (CCL) is the Government's main mechanism for taxing carbon emissions.⁵⁸ It was expanded following the recent abolition of the Carbon Reduction Commitment (CRC) following a Government Review.⁵⁹ The Levy applies to large, intensive industry (industrial, commercial, agricultural, public services) with monthly usage greater than 1,000kWh electricity or 4,397kWh gas.

Since August 2015, a change of Government policy means that renewable-sourced energy are no longer exempted from CCL. However, a number of exemptions and reliefs are in place for certain uses and circumstances.⁶⁰ For instance, intensive electricity users are eligible for a 90 per cent reduction in CCL (65% for gas) if they have a **Climate Change Agreement** in place with the Environment Agency to reduce their energy use and carbon emissions.⁶¹ This is due to rise in 2019 to 93 per cent (78% for gas). It is worth noting that increases in CCL will hit small business disproportionately because they are not eligible for Climate Change Agreements.

The **EU Emissions Trading Scheme (ETS)** is EU-wide regulation on greenhouse gas emissions.⁶² It is aimed at energy-intensive sectors (oil refineries, steel works and heavy production works), those generating power and heat, and commercial aviation. It places an EU-wide cap on emissions and then offers allowances to industries, which can be topped up through an auction process (bought directly from the EU allocation) or by trading (bought and sold between industries with either too few or too many allowances). Over the last few years, carbon has traded between £3 and £8 per tonne of CO₂ (the 'carbon price').⁶³

The carbon price has been considered too unstable, too uncertain and too low to encourage sufficient investment in low-carbon alternatives in the UK (to achieve the 80 per cent reduction by 2050 required under the Climate Change Act). This prompted the UK Government to introduce the UK Carbon Price Floor in 2013, designed to provide the robust and reliable incentive that the ETS failed to deliver.⁶⁴

The Carbon Price Floor (CPF) essentially distorts the EU Emissions Trading Scheme so that UK-based industries pay more for their allowances – currently around £25 per tonne (at least three times the original ETS traded price). The difference between the open EU market 'carbon price' and the UK imposed 'price floor' is called the Carbon Price Support (CPS). This is paid by the owners of electricity generating stations and operators of combined heat and power stations – i.e. those producing high carbon emissions from burning large volumes of gas, LPG, coal and other solid fossil fuels.

Many argue that the carbon price support is weighted in such a way that, in reality, it promotes UK conversion from coal to gas, rather than specifically promoting renewables. Critics of the carbon price support also argue that it reduces UK competitiveness by artificially increasing energy costs while, at the same time, having no impact on overall EU emissions. After all, the total Europe-wide pot remains the same size, regardless of the UK's involvement. So, the only way to ensure real emissions reductions within the EU ETS is to tighten the overall carbon budgets set by the scheme. However, France has recently followed the UK's lead by introducing their own carbon price support, so that their domestic carbon price floor is closer to £30 per tonne of CO₂.⁶⁵ Germany is also considering the introduction of its own price floor.⁶⁶

58 Gov.uk website, Environmental taxes, reliefs and schemes for businesses, accessible at www.gov.uk/green-taxes-and-reliefs/climate-change-levy

59 HM Treasury, Reforming the Business Energy Efficiency Tax Landscape (2016)

60 HM Revenue and Customs, Excise Notice CCL1/3: Climate Change Levy - Reliefs and Special Treatments for Taxable Commodities (2016)

61 Gov.uk website, Climate change agreements, accessible at www.gov.uk/guidance/climate-change-agreements--2

62 European Commission website, The EU Emissions Trading Scheme (EU ETS), accessible at ec.europa.eu/clima/policies/ets/index_en.htm

63 Investing.com website, Carbon Emissions Historical Data, accessible at www.investing.com/commodities/carbon-emissions-historical-data

64 HM Treasury, Excise Notice CCL1/6: A Guide to Carbon Price Floor

65 The Guardian website, France sets carbon price floor, accessible at www.theguardian.com/environment/2016/may/17/france-sets-carbon-price-floor

66 Bloomberg website, German considers minimum EU carbon price in energy policy draft, accessible at www.bloomberg.com/news/articles/2016-05-04/germany-considers-minimum-eu-carbon-price-in-energy-policy-draft

Statutory obligations

Specific legal obligations are placed on energy companies by Government, but the costs of meeting these requirements are subsequently passed on to customers. Because these obligations cover the vast majority of the energy retail market, their costs are largely unavoidable for customers and, therefore, are viewed by many as an indirect tax. Small businesses contribute to the cost of these obligations, but receive none of the direct benefits. These include:

- **Energy Company Obligation (ECO)**, including the Carbon Emissions Reduction Obligation (CERO), Carbon Saving Community Obligation (CSCO) and Home Heating Cost Reduction Obligation (HHCRO).⁶⁷
- **Renewable Obligation** (closed to new generators from 31 March, 2017).
- **Non Fossil Fuel Obligation** (closed to new generators, but honoured until 2019).

Feed in tariff (FIT) cost recovery

Additional costs placed on small business energy consumers are not uniform. Suppliers above a certain size are required to provide payments to those taking advantage of FITs. They recover these costs through additional charges, distributed proportionally across their wider customer base. So, generation costs for those using renewables are being paid for by those that don't, or can't.

However, in the 2015 Government Spending Review, the Chancellor announced an exemption for energy intensive industries (EIs) "from the policy costs of the Renewables Obligation and FITs, to ensure that they have long-term certainty and remain competitive." This means that these costs are now weighted disproportionately onto the less intensive side of the market, while those that generate the most carbon pay less. The Government is now consulting on the proposals.⁶⁸

The impact on non-exempt customers is dependent on how empowered they are to avoid the additional costs which are consequentially placed upon them. At the moment, smaller businesses have very little ability to adapt because the mechanisms and pathways for reducing their energy use simply do not currently exist. Without these, smaller businesses are not empowered to avoid the increasing costs of energy through reduction in their consumption. They remain unable to adapt without further intervention from Government or the market.

ENERGY EFFICIENCY

Energy efficiency will play an increasingly important role in managing grid capacity and reducing carbon emissions. For smaller businesses, it is also the single best way of reducing energy bills. So, promoting energy efficiency is in the interest of consumers (cheaper bills), Government (targets met) and energy companies (better risk and supply management).

Thirty-three per cent of FSB members believe that energy efficiency savings will offset the increasing cost of their energy, as opposed to just 23 per cent who don't think this will be the case. Last year, the Department for Energy and Climate Change (now part of the Department for Business, Energy and Industrial Strategy) estimated that the average SME could reduce its energy bill by 18-25 per cent by installing energy efficiency measures, with an average payback of less than 1.5 years. Thus, small businesses need support and information to help make these savings wherever possible.⁶⁹

But, like the domestic audience, it has been difficult to persuade small businesses to invest in significant energy performance improvements. Many small businesses do not feel empowered to make these savings because of practical constraints, a lack of information and available cash, or suitable motivation.

⁶⁷ *From April 2017, ECO will be replaced with a new supplier obligation to reduce carbon emissions and focus on the fuel poor

⁶⁸ Gov.uk website, Implementing an exemption for energy intensive industries from the indirect costs of the RO and the FITs, accessible at www.gov.uk/government/consultations/implementing-an-exemption-for-energy-intensive-industries-from-the-indirect-costs-of-the-ro-and-the-fits

⁶⁹ Department of Energy and Climate Change, SME Guide to Energy Efficiency (2015)

One of the mistakes that Government and the industry have made in the past is to assume that money saving is the primary – or even sole – driver for energy efficiency. This is a broad-brush misjudgement that has also been made in the retail energy market, where both domestic and business consumers have been reluctant to switch suppliers, even though they could save money.

The opportunity to save money is obviously important to every business, but it must be balanced against the cost of the time and effort required to achieve this – the ‘opportunity cost’. In addition, such decisions can be severely hampered by a lack of faith that investment (costly or inconvenient) will actually achieve the desired benefits.

The problem for Government and energy suppliers attempting to persuade small businesses to invest in efficiency is that they represent an extremely diverse group with very varied pressures and motivations. Yet, time and time again, the tactics for engaging with the small business community across a range of energy issues – efficiency, switching, smart meters etc. – rarely involve any meaningful segmentation or sub-division of this audience into more homogeneous groups. For instance:

- Are they home-based or do they operate from bespoke business premises?
- Are they the landlord or the tenant?
- Are they sole traders, microbusinesses, or larger employers?
- Are they vulnerable, start-ups or well-established?
- Are they intensive energy users?
- Are they asset rich or cash rich?
- Is their business expanding or contracting?
- Do they have access to available capital?

The decision-making processes are entirely different for, say, a processing plant, a hair salon, an accountancy firm and a mechanic. So, a one-size-fits-all approach to promoting efficiency simply will not work. The small business market must be segmented.

However, gaining information about small businesses is extremely challenging. They are, by their nature, an extremely difficult audience with which to engage. Time spent talking to civil servants or energy companies (or even FSB staff) is time spent away from their business. FSB has been keen to explore the factors that prevent or promote the implementation of energy saving measures by small businesses.

FSB research from 2015 discovered that the vast majority of FSB small businesses (90%) said they wanted to be energy efficient and acknowledged the direct benefits of energy efficiency (86%). Figure nine shows that the majority of FSB small businesses thought energy efficiency was important for saving money (78%), protecting the environment (70%) and increasing profits (67%).

Figure nine: Small business views on efficiency

Source: FSB energy infrastructure survey 2016

To what extent do you agree with each of the following statements?

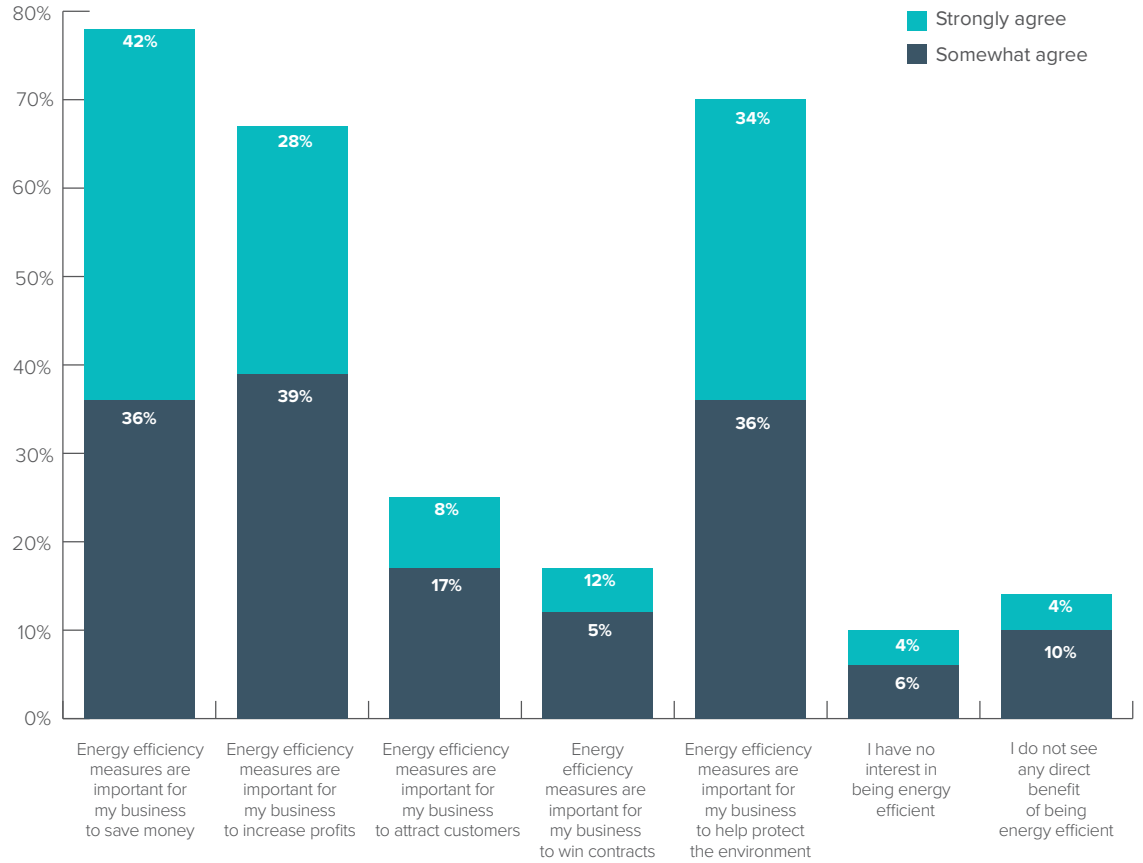


Figure 10: Energy efficiency measures of small businesses

Source: FSB energy infrastructure survey 2016

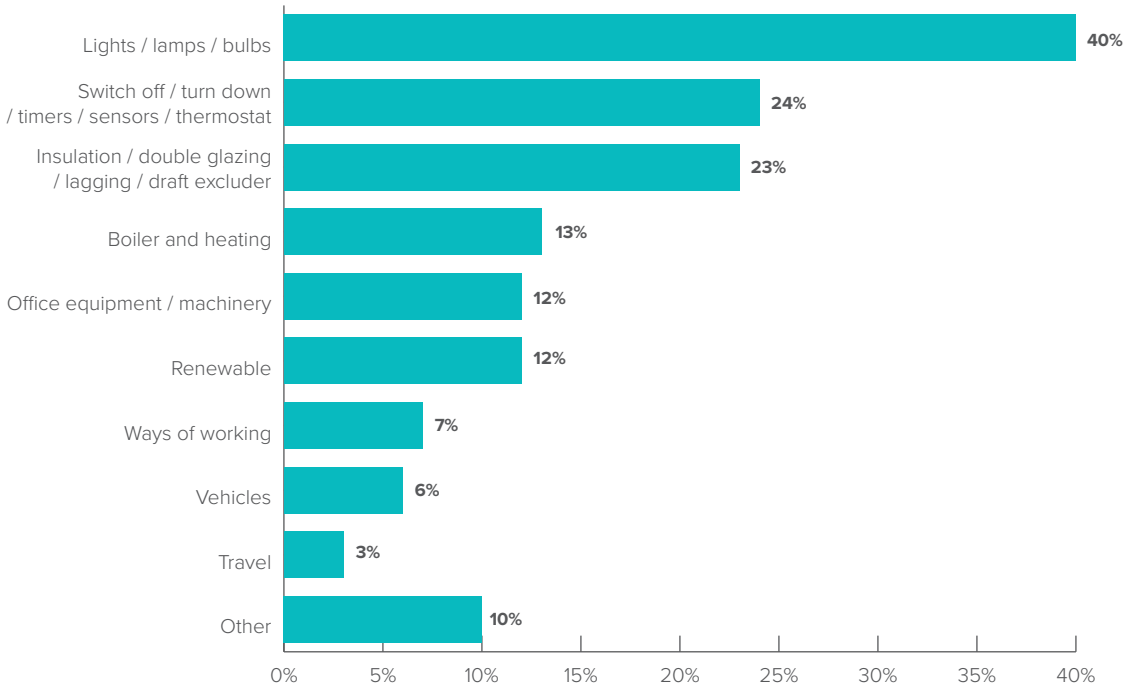
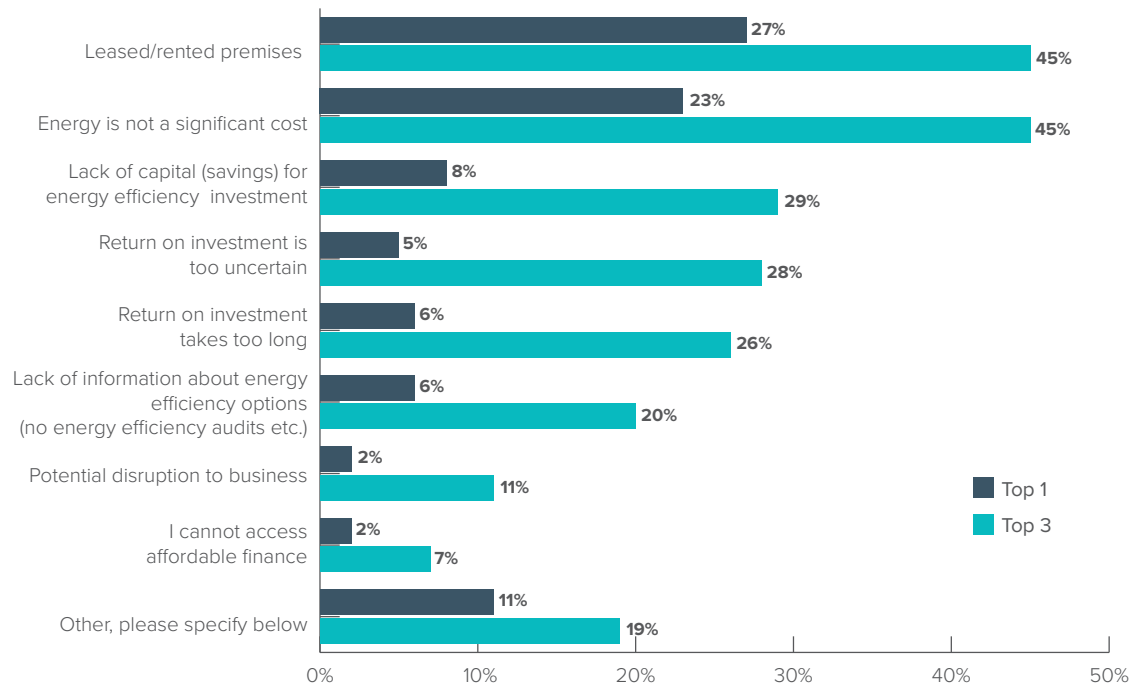


Figure 10 shows that many small businesses have already taken steps to become more energy efficient. Fifty-eight per cent of those surveyed have made changes to improve the energy efficiency of their business. Of these, the most widely reported measures were the installation of more efficient lights, lamps and bulbs (40%), switch off/turn down policies (24%) and improved insulation (23%).

Around a third (39%) of small businesses said they would need to see a return on their energy efficiency investment within one year. Over half (55%) said they would need to see a return within two years.

Despite the high number of businesses recognising the value of energy efficiency measures, not all firms are taking action and far fewer are making significant changes. Figure 11 shows that the main reported issues preventing many small businesses from becoming energy efficient are leased/rented premises (45%) and a lack of concern around their energy costs (45%). Issues around access to finance and available capital were less of a concern, affecting less than a third of small businesses.

Figure 11: Obstacles to small business energy efficiency**Source: FSB energy infrastructure survey 2016**

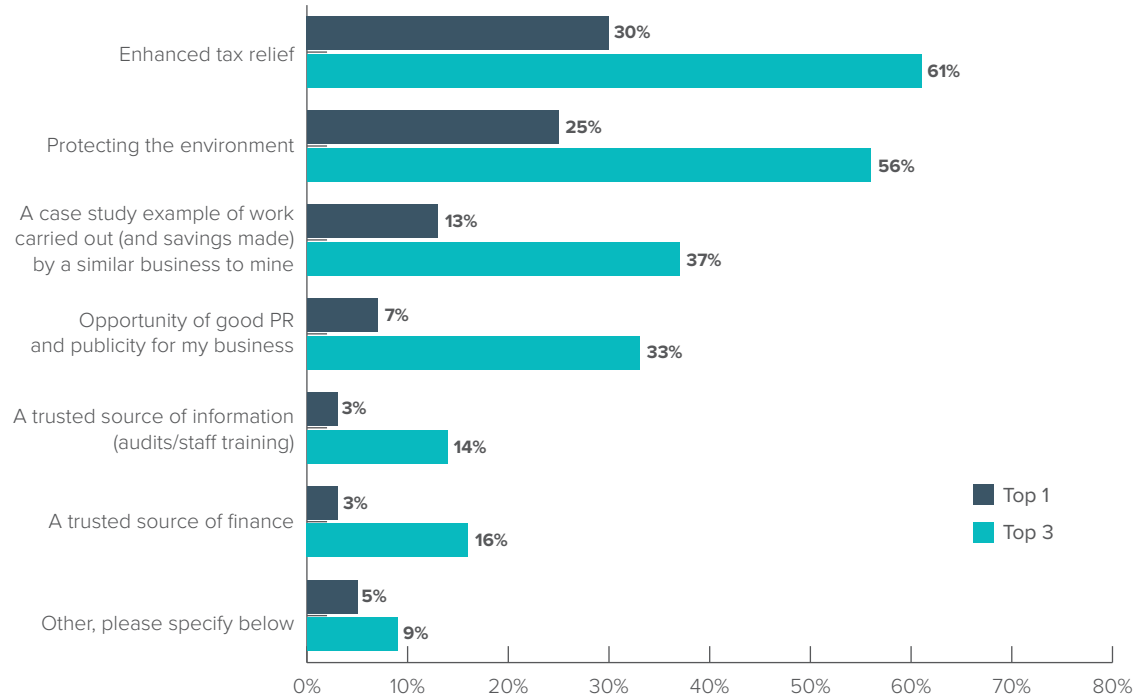
There is no silver bullet for engaging small businesses on energy efficiency. There is a clear need for market segmentation. A business that is not concerned about its energy bills may not be motivated by the potential for cost savings, but may be motivated by other factors – such as environmental responsibility, profit margins and attractiveness to customers. Likewise, although access to finance may not be the most widely reported barrier for most small businesses, it could still be a deal-breaker for those that it does impact. It is also worth bearing in mind that access to finance may not be widely regarded as a major barrier to energy efficiency, simply because most businesses have never reached the point where they would be seeking it. This is because other hurdles, like tenancy issues, would be failed at an earlier stage.

Figure 12 shows that, apart from cost savings, the two key factors that small businesses said would encourage energy efficiency were enhanced tax relief (top for 30%, top three for 61%) and environmental protection (top for 25%, top three for 56%).

Energy suppliers should provide a wider range of tariffs that allow businesses to choose where and how their energy is generated. They should explore ways of engaging small businesses in additional products and services related to generation and efficiency.

Figure 12: Drivers for small business energy efficiency

Source: FSB Energy Efficiency Survey 2015



THE ROLE OF TPIS

Although FSB welcomes the CMA’s decision to introduce published, comparable tariffs for small businesses in the non-domestic energy retail market, this does not eradicate the need for the services provided by external brokers or TPIS.

TPIS can play an important role in helping businesses secure the best possible energy deals. But, as the energy landscape changes, the value for money that small businesses associate with their own personal energy deals will increasingly depend on the wider opportunities that come with them. The role of a TPI will become even more important as energy bills increasingly include costs associated with additional products and services, such as energy efficiency advice, renewable-sourced energy and smart technology.

Currently, the TPI industry covers a huge variety of different individuals and organisations providing many different services – ranging from the unscrupulous to the excellent. FSB members continue to have very mixed experiences in this market, so it is critical to have a transparent, regulated TPI industry.

FSB supports the introduction of a regulated TPI industry, one which builds trust by promoting the good and excluding the bad. Before the CMA investigation into the energy market, FSB supported in the development of a draft code of practice for non-domestic TPIS, setting out customer engagement standards (professional and honest behaviour, transparency of information and effective monitoring).

Ultimately, the regulation of the TPI industry was not directly addressed by the CMA. However, they did formally acknowledge the problem:

“TPIs have the potential to help customers engage with energy markets and reach good outcomes. However, this may be undermined if customers do not trust TPIs. Our evidence suggests that there have been long-standing concerns about the conduct of a minority of TPIs; that some TPIs may not offer customers the best tariffs for the customer; and that customers lack information about how they pay for TPIs’ services. These issues may not apply to all TPIs, but they may affect customer perception of all TPIs. This may deter the use of TPIs and form a barrier to higher levels of engagement.”⁷⁰

Despite failing to address the TPI regulation issue directly, the CMA did acknowledge the work that Ofgem had begun in 2013 to explore a workable regulatory framework, essentially pushing this problem back to the regulator to deal with:⁷¹

“Due to concerns about poor customer experience of using TPIs and the potential negative impact on future engagement that this may have, has developed a draft code of practice for non-domestic TPIs.⁷² The purpose is to build consumer trust and confidence when using TPIs. The draft code of practice sets out standards for TPIs when dealing with customers, such as: including clearer information, fair marketing tactics and effective monitoring and complaints redress.”⁷³

Ofgem should now urgently work to finalise proposals for a regulated TPI market, in consultation with industry representatives, energy suppliers and consumer groups.

Alongside a regulated TPI sector, FSB also wants to see increased scrutiny around the system for giving consent for trusted TPIs to operate on behalf of their clients, specifically Letters of Authority (LOAs). Good TPIs have a valuable role to play in the energy market, yet there is evidence that LOAs received by some suppliers are not being dealt with adequately, leading to unnecessary delays for potential switchers. This is a key barrier to engagement. If businesses cannot get access to information about their contract and consumption, it leaves them in a poor position to exploit their own data and make informed choices around their energy use.

Recent research carried out by Make It Cheaper looked into the reasons why so many SMEs are disengaged from the energy buying process and tested the hypothesis that more would switch if there was a service to which they could delegate their authority and which adheres to their preferences. Make It Cheaper conducted research in November 2016 among small business owners, including FSB members. Qualitative and quantitative data gathered from an online survey of 300 businesses and two focus groups, found the following:⁷⁴

- SMEs are less likely to tackle business energy costs than many other overheads, such as insurance, telecoms, rent and even their own household utilities.
- Among regular switchers, having someone they trust to take care of it for them is the number one driver for engagement in the market.
- An overwhelming majority (92%) expect their supplier to provide switching information to a third party operating on their behalf via a Letter of Authority (LOA).

Finally, participants were provided with various suggestions to promote market engagement and asked to score each between 0 (highly unfavourable) and 10 (highly favourable). By far the most popular choice – scoring an average of 8.2 (or 82%) – was a ‘Do it for you’ service which simply delegated authority to a trusted third party to take care of renewals.

70 CMA, Energy Market Investigation Final Report, Appendix 16.1: Microbusinesses (2016)

71 Ofgem website, Third Party Intermediaries (TPI) Programme working group, accessible at www.ofgem.gov.uk/gas/retail-market/forums-seminars-and-working-groups/third-party-intermediaries-tpi-programme-working-group

72 Ofgem, (Draft) Code of Practice for Non-domestic Third Party Intermediaries (2013)

73 CMA, Energy Market Investigation Final Report, Appendix 16.1: Microbusinesses (2016)

74 Make It Cheaper, Switching On Small Businesses (2016)

SMART INNOVATION

FSB has engaged with Government around how best to promote energy efficiency among businesses. The national roll-out of smart meters across the UK, and the associated move to a smarter and more dynamic market, provides the greatest opportunity for customers to take control of their energy and reduce their consumption. If usage cannot be monitored, it cannot be managed.

Smart meters are a microcosm of the wider investment landscape. According to Smart Energy GB, by the end of 2020, around 53 million smart meters will be fitted in more than 30 million premises (households and businesses) across Wales, Scotland and England.⁷⁵ The roll-out of this new technology provides a neat example of the potential benefits that investment can provide, while highlighting the level of planning and effort required to ensure that these benefits are realised to their full potential for all those who bear the cost.

In the case of smart meters, simply installing the new technology won't automatically provide any benefits. Cost savings will come with the behaviour change that this technology empowers and the energy savings that come with this. The smart meter programme is believed to cost somewhere in the region of £12bn.⁷⁶ However, the Government believes this technology will eventually provide a net saving to customers of around £6bn in the longer term.⁷⁷

Without a clear strategy for ongoing customer engagement and empowerment, the costs and benefits of this new technology will not be equitably distributed. Therefore, the rollout of smart meters must be supported by ambitious and holistic industry plans for ongoing energy saving support and advice to small businesses.

At a more strategic level, smart meters are the first step to building flexibility across the supply chain in the GB electricity system. Ofgem's aim is to ensure the energy system becomes sustainable while continuing to deliver resilience and value for money. Beyond the initial benefits of ending estimated bills and empowering energy use decisions for consumers, smart meters provide the foundation for a much smarter market, particularly with regard to energy grid management. Demand Response, driven by monetary rewards and penalties for using energy at certain times, will benefit from the proliferation of real time data.⁷⁸ In this regard, it is important to acknowledge that the average energy profile for businesses – in other words, the variation in energy use during the day – may be very different to that of domestic household customers. This could represent opportunities and threats in terms of the way this sub-market is devised. The ability of small businesses to take advantage of demand side response will depend on the development of a number of sectors and technologies, including storage, microgeneration, smart meters, smart products and equipment, aggregators and price signals. The Government should set out a more detailed strategy for Demand Response.

Time-of-use tariffs will undoubtedly take on increasing importance as grid infrastructure becomes more stressed. Some businesses are already accustomed to time of use charges, but many smaller firms will not be. Going forward, their ability to take advantage of these charges will be dependent on the equipment they rely on, the development of new technology and smart appliances, and the degree to which they can introduce flexibility into their day-to-day activities. It is clear that some businesses will be more able to take advantage of time of use charges than others, depending on the nature of their operation. Many businesses operate on different cycles to the average domestic customer. So, a one-size-fits-all approach to time of use charges will not work. In order to drive behaviour change, the market will need to provide not only a price disincentive against using energy at certain times, but also a clear pathway for achieving this. For instance, it may be prudent to consider a recommendation for all users above a certain energy threshold to implement storage and management systems that allow them to run 'off line' at certain times of the day.

⁷⁵ Smart Energy GB website, FAQs, accessible at www.smartenergygb.org/en/the-bigger-picture

⁷⁶ Energy UK website, How much will the smart meter roll-out cost me?, accessible at www.energy-uk.org.uk/customers/142-how-much-will-the-smart-meter-roll-out-cost-me.html

⁷⁷ Department of Energy and Climate Change, Smart Metering Implementation Programme (2015)

⁷⁸ National Grid website, Demand Side Response, accessible at www2.nationalgrid.com/UK/Services/Balancing-services/Demand-Side-Response/

Aggregators are likely to play an important role, both in managing demand response across a wide domestic and non-domestic customer base, and also providing those customers with the necessary information, products and services to enable them to take advantage of this sub-market.⁷⁹ It is vital that small businesses have access to a trusted aggregator service and all the benefits this potentially provides. Some small businesses may be considering the opportunities to provide this service themselves, depending on how smart technology develops. Aggregators are, essentially, a form of TPI and, as this market grows, it will be important to learn lessons from the performance of TPIs in other markets, particularly acknowledging the problems caused by a lack of regulation in the energy retail market.

⁷⁹ Gkatzikis, Koutsopoulos & Salonidis, The Role of Aggregators in Smart Grid Demand Response Markets, IEEE Journal on Selected Areas in Communications, Vol. 31, No. 7 (2013)

SMALL BUSINESSES AS SUPPLIERS OF PRODUCTS AND SERVICES

The energy industry and the infrastructure it relies on – generation, distribution, storage and management – is facing some enormous changes over the next few decades. As part of this new landscape, the Government has made it clear that new industries, such as nuclear, onshore oil and gas and renewables, are likely to make a significant contribution to the future supply of UK energy.

Small businesses have a major role to play in the energy industry supply chain, providing products, services, skills and innovative solutions, either directly to individual customers or indirectly via larger industry and suppliers.

There is little precise data detailing the exact input that small business suppliers have across all aspects of the energy sector. We do know that around nine per cent of FSB members generate enough energy to sell on elsewhere. Three per cent advise others on how they purchase and use energy. And many will operate as tier two (or below) suppliers of products and services to the energy generation and distribution sectors. Government acknowledges the importance of reducing transaction costs associated with small business supply chains, particularly in key sectors like manufacturing⁸⁰ and construction⁸¹.

In 2014, the Department for Energy and Climate Change (DECC) released their Supply Chain Plan, setting out guidance for renewable projects of 300MW or more applying for subsidies through the Contracts for Difference scheme.⁸² Projects over 300MW applying for a Contract for Difference are required to submit a supply chain plan as part of their application. According to the Department, the aim of the supply chain plan assessment process is to encourage the effective development of low carbon electricity generation supply chains. It will do this by encouraging open and competitive supply chains and the promotion of innovation and skills. As part of this process, the submitted plans must demonstrate the project impact on the lower tiers of the supply chain.

FSB is supportive of Government's aims to promote open and competitive supply chains in the renewable energy sector. Government should examine the success of these supply chain plans at facilitating small business suppliers, and explore potential for reducing the threshold for these supply chain plans for projects below 300MW.

Across other industries, particularly emerging areas like nuclear and onshore oil and gas, there are further opportunities to embed expectations around small business supply chain opportunities. It is important for new and emerging energy industries to communicate supply chain opportunities to the small business community. These potential suppliers may have low levels of knowledge about these industries, particularly during the development and planning stages. These growing industries should ensure that regular training opportunities and supplier pre-engagement activities are available for smaller firms in the supply chain. This will also help project delivery by ensuring that capacity is built ahead of opportunities becoming available and by expanding the choice available to buyers.

80 HM Government, Strengthening UK Manufacturing Supply Chains: An Action Plan for Government and Industry (2015)

81 Department for Business, Innovation and Skills, Supply Chain Analysis into the Construction Industry (2013)

82 Department of Energy and Climate Change, Supply Chain Plan Final Guidance (2014)

FSB MEMBER CASE STUDY FOUR

Chris Eades, Craven Energies, electrical contractor

We provide a wide range of electrical contracting and renewable energy services, mainly operating in the commercial, agricultural and public sectors. I'm a firm believer in low carbon and renewable generation and, as this technology started to emerge, I was keen to provide a more holistic service that separated us from our competitors. As Charles Darwin said, "to survive one must adapt to change".

However, carbon reduction doesn't tend to be high on the list of most of our customers. Some want to make money, and others want to save money. We make sure we understand their desired outcomes before agreeing the best solution. As such, we have experienced no customer regret. The technology itself, and the service we provide, is high quality and robust, and our customers quickly realise the cost reduction benefits related to their electricity, heating and lighting.

We have developed some long-term partnerships with quality suppliers who provide guarantees around their products, and who we know will be around for a long time. They may not be the cheapest, but you get what you pay for in this business. Unfortunately, there are a lot of sales-fronted companies out there, simply taking advantage of easy subsidies, and often disappearing from the market as quickly as they arrive. As such, we're fixing a lot of problems where people have received bad advice or poor service. We're grateful for the business, but it's another example of trust being eroded.

Perception is a really important factor. So it's a shame that Government has taken such an amateurish approach to cutting subsidies. People are starting to think the process isn't worth it. Sure, FITs will not make customers a quick profit anymore, but that certainly doesn't mean renewable investment isn't worthwhile – far from it! It's still a great option if you consume the energy you generate (rather than sell it back to the grid) and if you want to become more self-sufficient and less dependent on fossil fuels. Solar PV, in particular, is fantastic. It's passive, so no moving parts, and you can monitor it and diagnose any issues remotely.

The Government should look at the way subsidies are distributed, and who and what should be eligible. Their focus should be on supporting self-consumption generators which take pressure off the national grid and reduce carbon emissions. They have to reward self-consumption over just-for-profit. Much of the investment that was previously unlocked by subsidies was simply big investors looking for a quick buck. This profiteering has drained the pot of money that was available to smaller generators. Meanwhile, companies like ourselves have invested time and money, taking a commercial risk on a new direction based on a maturing, but supported, market. So it's critical that Government comes up with a stable, long-term approach to subsidies where the goal posts don't keep changing. We recently lost a large number of prospective clients when Government suddenly announced changes to Feed-in Tariff eligibility criteria, with no notice whatsoever. It almost put us out of business!

Finance is another issue that needs looking at. We've got plenty of prospective clients where, following an energy audit, we know where and how they can save money through generation, management and efficiency. But they can't get the finance. Again, it's frustrating because banks don't seem to take into account the long-term guarantee of subsidies. I don't think the banks trust the Government either.

Small businesses have traditionally faced a number of supply chain issues:

1. Opportunity creation

The most significant barrier currently facing smaller supply chain businesses is the low number of appropriately sized contract opportunities that exist as a result of contract aggregations and use of frameworks which frequently exclude small suppliers from the market. This issue is often aggravated by the poor visibility of those appropriately sized opportunities that do exist.

New and emerging energy industries can provide leadership by pressing tier one suppliers to demand that all levels of their supply chain break down contracts into smaller lots, wherever practical, and by avoiding the temptation to aggregate contracts. Contract aggregation can reduce competition pressure through over reliance on a limited number of major suppliers. Long contracts can also effectively close the market and, thereby, reduce competition pressure.

FSB is not generally supportive of supplier portals as they have been prejudicial to the interests of small businesses. There are a number of reasons for this, including:

- Approved lists do not get refreshed at regular intervals, penalising new entrants.
- Approval processes are often unclear.

2. Process simplification

Small businesses face a number of supply chain burdens related to overly complicated processes. For instance, they are often required to fill out lengthy and complicated prequalification documents so potential procurers can score them against their assessment criteria. Lessons can be learned from the recently announced Lord Young reforms in response to the Public Contracts Regulations 2015. These were designed to open up public sector procurement to small firms and, though not directly mandated in the private sector, new and emerging energy industries have an opportunity to demonstrate what can be achieved. The reforms propose a range of measures, including simplified prequalification processes for smaller procurements below EU thresholds.

Suppliers should set out their criteria in procurement adverts in a way that enables small firms to quickly and easily assess their own suitability. This enables small business owners to quickly identify which opportunities merit the time and effort to produce a full bid, and which do not.

3. Standards and accreditations

Industry clients can require small business suppliers to have any combination of accreditations from a wide range of schemes. Each accreditation requires time and resource to achieve and maintain. Where a firm works for multiple clients that require such accreditations, it is common for them to be required to hold a number of such qualifications which overlap, particularly in the field of health and safety (a key issue in the energy industry). While there is some value to be had from accreditation, there is also significant waste as a result of overlapping requirements. The overall burden of maintaining accreditations, and seeking new ones, can act as a barrier to smaller firms. New and emerging energy industries can help by requiring suppliers to take account of third party accreditations that small business suppliers already have, rather than insisting that all bidders are registered with a specific accreditation body as a blanket requirement.

Smaller firms can also be excluded from supply chain contracts by disproportionate requirements. These are typically around insurance and turnover and which are excessive in proportion to the value and risk of the contract. New and emerging energy industries should ensure that requirements are proportionate and are communicated and implemented effectively through the supply chain.

Energy generators should demand that all levels of energy industry supply chain break down contracts into smaller lots wherever practical, avoiding the temptation to aggregate contracts. They should introduce and monitor specific payment policies for small business suppliers, ideally following the lead of the Government pledge to pay within 10 days of receipt.

4. Payment practices

Poor payment practices are a massive problem for small suppliers. New and emerging energy industries can assist by putting in place and monitoring specific payment policies for small business suppliers, ideally following the lead of national government pledges to pay within 10 days of receipt. The industry can set the example in terms of robust implementation, monitoring and enforcement through its entire supply chain.

NUCLEAR SUPPLY CHAIN ACTION PLAN

In 2012, the Coalition Government published the Nuclear Supply Chain Action Plan. At that time, the UK nuclear supply chain was valued at £3.8bn in domestic sales and the Government's belief was that it had the potential to grow beyond this figure, taking a larger share of a global market valued around £95bn per annum.

Launching the Nuclear Supply Chain Action Plan, the then Minister of State for Business and Enterprise, Michael Fallon, said:

“(UK) companies could capture £25bn-£35bn worth of business, as well as a share of multi-billion contracts globally, creating exceptional opportunities for growth and new jobs across the country. The opportunities are there. I want to see UK businesses seize these all the way along the supply chain, from large companies to SMEs with specialist products and skills. I want to see businesses competing successfully for the large scale construction projects for new nuclear power stations, and above all for the high value manufactured products and quality jobs associated with them.”

The Nuclear Supply Chain Action Plan highlighted a number of areas where SMEs could be helped, including:

- The creation of one generic set of terms and conditions.
- A standard approach to Pre-Qualification Questionnaires.
- Agreement of a common approach to advertising work and to working with SMEs.
- Collaborative R&D and feasibility funding to stimulate innovation in the civil nuclear power sector and to strengthen the UK supply chain.
- The provision of nuclear safety, culture and quality workshops and localised SME-tailored training.
- Facilitation of supplier excellence training.
- Provision of manufacturing improvement opportunities to SME-sized companies.
- Development of specific capability programmes covering processes, quality and people.

It is unclear how successful the Nuclear Supply Chain Action Plan has been in terms of facilitating small business opportunities, largely because of the hiatus around decisions related to every aspect of the nuclear energy programme – decommissioning, geological disposal and new build. The Government's recent commitment to a UK nuclear energy sector, particularly with regard to recent investment at Hinkley Point, means that these areas are now developing rapidly. As this happens, Government must closely monitor how well the nuclear industry meets the objectives set out in the Action Plan.

Though its success is so far difficult to gauge, FSB is supportive in principle of strategic sector plans designed to promote smaller business engagement. The nuclear model is one that can be extended to other new and emerging energy sectors, such as renewables and onshore oil and gas. FSB has been working with other sectors to ensure they enable small business supply chain opportunities as much as possible.

The UK Government should publish supply chain action plans for the renewable and onshore oil and gas sectors and consider the production of such plans for other emerging energy technologies as they develop. Guidance related to Contracts for Difference supply chain opportunities for low carbon schemes should be expanded to cover all energy technologies and the threshold for supply chain plans being a pre-condition of Contracts for Difference eligibility should be lowered from the current level of 300MW capacity schemes. The existing Nuclear Supply Chain Action Plan must also be closely monitored to ensure its objectives are being met by the nuclear industry.

RECOMMENDATIONS

OVERALL

- **FSB wants to see a new energy market that acknowledges the diversity of the small business customer base and empowers them to contribute towards the UK's transition to a low carbon economy.** Business customers must be enabled to understand and choose what services they pay for, to search for the best tariffs, to save energy, to generate their own energy and to contribute to the deployment of a smarter national energy system.
- **We want to see a strong strategic UK policy direction that provides confidence and security to investors in energy infrastructure, including new generation, new storage and new grid support services and most importantly energy efficiency.** The UK needs a broad, considered and transparent strategy for securing this essential investment. Measures to attract this investment need to be designed to be inclusive and accessible so that all businesses can contribute, including a diversity of incentives, disincentives, subsidies and tax reliefs.

GOVERNMENT

- **Produce an updated Carbon Plan, including a holistic strategy for promoting microgeneration, efficiency, storage and demand response across the UK small business community.** Without this, the UK will not meet its binding carbon reduction targets. This strategy must create a more detailed understanding of the different and varied circumstances of small businesses, their relationships with energy, the types of premises they either rent or own, the consequential opportunities and obstacles they may face and, ultimately, a clear and achievable pathway for achieving carbon reduction. We urge Government to look at the particular issue related to disempowered small businesses in rented premises. Such a strategy must also provide an open and honest assessment of the predicted costs of various technologies, which includes the costs of required investment in any associated infrastructure.
- **Formally review the effectiveness of subsidies and other incentives related to low carbon generation and energy efficiency,** for both small and large scale technologies. This should include existing small business access to subsidies, including scrutiny of market accessibility and transparency, acknowledging that microgeneration and community schemes have different requirements and timescales than larger investments. Any incentives aimed at promoting small business microgeneration, storage and efficiency must be simple, straightforward and worth the effort. A Government review should also include an examination of the relative success and efficiency of subsidies and other incentives for unlocking generation capacity across the non-domestic and domestic sectors, particularly in the context of recent alterations to FITs and the Non-Domestic RHI.
- **Increase awareness and promote existing small business opportunities related to capital allowances** for energy efficiency and renewable generation.
- **Provide a consistent tax incentives framework across all forms of energy generation.** Move away from the patchwork system of subsidies for some, tax incentives for others, and no incentives for many. The current system lacks transparency, long-term security and fairness. Government must ensure that microgeneration and efficiency investments at business premises are not punished through additional business rates rises.
- **In light of the UK's recent vote to leave the EU, clarify access to the EU Internal Energy Market** as part of the ongoing negotiations around Brexit and provide reassurance about the continued commitment to UK carbon reduction targets. Clarify trading arrangements related to current and proposed interconnectors linking Northern Ireland and the Republic of Ireland.
- **Publish supply chain action plans for the renewable and onshore oil and gas sectors** and consider the production of such plans for other emerging energy technologies as they develop. Guidance related to Contracts for Difference supply chain opportunities for low carbon schemes

should be expanded to cover all energy technologies, and the threshold for supply chain plans being a pre-condition of Contracts for Difference eligibility should be lowered from the current level of 300MW capacity schemes. The existing Nuclear Supply Chain Action Plan must also be closely monitored to ensure its objectives are being met by the nuclear industry.

- **Investigate the potential for a one-stop-shop website for small businesses**, offering advice and guidance around products and services related to generation, energy management and efficiency.
- **Assess the success of the Microbusiness Certification Scheme (MCS)** at identifying and promoting those that provide high quality products and services, and how well it safeguards against poor practices.
- **Reduce the threshold for entering the Capacity Market** so smaller generation schemes can take part.

OFGEM

- **Implement all remedies and recommendations from the CMA Energy Market Investigation related to small business customers.** With regard to areas not covered by the CMA, urgently finalise proposals for a regulated TPI market and bring forward ambitious expectations for products and services related to smart meters. Explore ways in which the UK retail energy market can empower small businesses to take advantage of energy efficiency and enable them to choose where and how their energy is generated. Promote energy efficiency as the single best way of reducing consumer costs and require energy suppliers to offer advice to customers.
- **Examine the current role of DNO and the potential future role of DSO in facilitating microgeneration schemes.** This must include an assessment of how costs of required upgrades to the network are passed on to microgenerators. Review the transparency and fairness of contestable and non-contestable charges, particularly with regard to variations across the country. Urgently review issues related to behind-the-meter generation and storage relating to data collection and fair charging, as well as management of supply and demand. Publish a new model for charging that provides fairness for customers of all sizes during the transition to a more distributed energy system. Clarify responsibilities of DNOs, National Grid and Ofgem with regard to planning, funding and implementation of microgeneration schemes, and identify where delays are occurring in these processes.
- **Promote technology that takes pressure off the energy transmission and distribution networks**, particularly highlighting the innovative and flexible opportunities that small business microgenerators can provide. Explore the feasibility of allowing direct sale of electricity by microgenerators. Keep the Microgeneration Certification Scheme under review, ensuring it maintains the right balance between the risks and costs associated with regulatory burden.
- **Urgently address connection and usage charges related to storage**, particularly with regard to double-charging.

ENERGY COMPANIES

- **Improve understanding and segmentation of the diverse small business customer base** so that their energy needs can be targeted in a more focused, bespoke way. This will help to tailor customer offers related to energy costs, contracts, efficiency support, innovation, products and services. Hold regular customer steering panels, where the views of a wide range of customers, including small businesses, can be raised directly. Many energy companies have started to do this.
- **Provide a wider range of tariffs that allow businesses to choose where and how their energy is generated and provided.** Explore ways of engaging small businesses on additional products and services related to generation and efficiency.
- **Bring forward ambitious proposals and products for small businesses linked to the roll-out of smart meters,** and a smarter market in general.
- **Demand that all levels of energy industry supply chain break down contracts into smaller lots** wherever practical, avoiding the temptation to aggregate contracts. Introduce and monitor specific payment policies for small business suppliers, ideally following the lead of the Government's pledge to pay within 10 days of receipt.
- **Set out procurement criteria in a way that enables small firms to quickly and easily assess their own suitability.** This enables small business owners to quickly identify which opportunities merit the time and effort to produce a full bid, and which do not.

DISTRIBUTION NETWORK OPERATORS (DNO)

- **Provide dedicated account managers to help small business microgenerators** and community schemes through the process of connection. Facilitate microgeneration partnerships and consortia, signposting to areas of available capacity, and provide flexible contract arrangements to promote investor confidence.
- **Work with smaller generators to provide innovative solutions to network capacity constraints** and the burden of required reinforcement or upgrade costs. Provide greater transparency around costs of non-contestable works. These costs should be broken down and explained to customers in more detail. Highlight any areas that are contestable and open to competition, signposting small business customers to alternative providers. Provide real time information about available capacity, as well as committed generation. This should take account of planned re-enforcement works.
- **Develop enforceable Codes of Practice (COP) and publish these clearly on websites.** These should be as consistent as possible across the industry.
- **Work with Ofgem, Government, National Grid, other DNOs, distributed generators and stakeholders to develop a system in which fully-functional DSOs are responsible for balancing and controlling distributed networks.** These should incentivise innovative storage, demand side and efficiency technologies to help balance supply and demand.

NATIONAL GRID

- **Boost opportunities for distribution level interconnection** to enable greater potential for sharing and managing demand and supply between DNOs and, in future, DSOs.

OPPORTUNITIES FOR SMALL BUSINESSES

• Save money

- o Contact FSB Energy to get a competitive quote for gas and electricity – or check online to make sure you have on the best deal.
- o Carry out a simple audit to see where you can cut your energy consumption – many suppliers offer free audits.
- o Ask your supplier to install a smart meter – your ‘real time’ consumption will then be digitally available.

• Generate income and energy

- o Install photovoltaics, solar thermal, small scale wind, heat pumps or biomass. And don't forget the emerging opportunity to use batteries – ask your accountant for details of tax and other incentives.

• Reduce your emissions

- o Install your own renewable power and heat generation.
- o Switch to a supplier who offers low carbon or renewably-sourced energy.

METHODOLOGY

This report draws from data collected from two separate surveys of FSB's Big Voice panel, both carried out by Verve. The first survey, exploring small business views around energy efficiency, took place in January 2015. The survey asked seven questions and provided 1,077 responses. The second survey, exploring small business views on energy infrastructure investment, took place in May 2016. The survey consisted of nine questions, providing 919 responses. Both surveys covered FSB members in England, Wales, Scotland and Northern Ireland.

In addition, qualitative follow-up interviews with FSB members were carried out in October and November 2016 to explore in greater depth a number of issues relating to small business engagement with the energy sector.

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