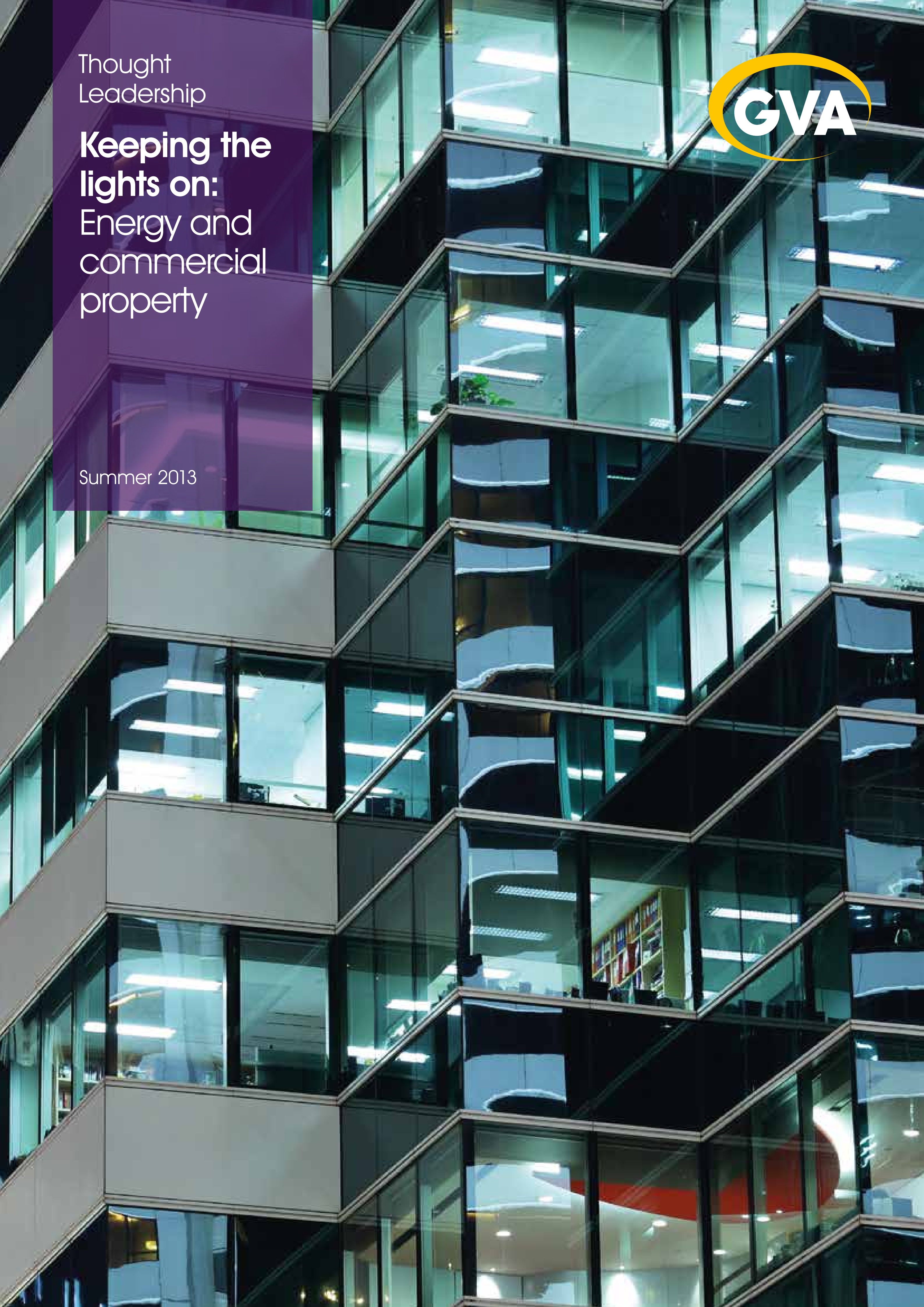


Thought Leadership

Keeping the lights on: Energy and commercial property

Summer 2013

Executive summary

The UK is committed to reducing carbon emissions by 50% compared to 1990 levels by 2025, rising to 80% by 2050. The Government's target is for renewable energy to account for 15% of all generation by 2020 and 30% by 2030.

- Coal, gas and an ageing nuclear network account for over 90% of the UK's energy capacity. EU emissions legislation means that the majority of coal stations will be closed by 2015, whilst the nuclear network is either in the process of being decommissioned or has a decade of operational life left.
- Ofgem reports that there are serious question marks over the UK's capacity to meet demand by 2015 while energy costs are also going to continue to rise. Ensuring energy supply will have major implications for the businesses and the commercial property sector.
- The future of energy supply in the UK requires a mix of cleaner coal, gas and nuclear, with a government mandate to support all forms of renewable energy. There are no shortage of renewable resources in the UK, whether wind, tidal or reserves of unconventional gas. Whatever the mix, it needs to be embraced and decisive action is required soon, with the credibility of UK plc at stake if not.
- Demand for energy from commercial property is expected to increase by as much as 50% by 2030, depending on levels of economic growth. This is despite all new build required to be zero carbon and minimum EPC requirements for private rentals from 2019.
- Microgeneration, the small scale production of energy by individuals or occupiers for their own needs, has the potential to alleviate the pressure on the national grid, as well as providing other noticeable benefits for the occupier. Dependent upon technological advances and costs, take up of this source of energy is expected to increase by as much as 3,600% by 2030 and could well provide up to 24% of UK energy capacity.
- In terms of microgeneration schemes registered to receive payments via the Feed in Tariff (FIT) for energy generated, there are 310,000 residential installations but only 7,257 for commercial property. The residential sector outweighs commercial by four to one, with 150 installations per million sq m compared to 36 per million sq m for commercial.
- In order to avoid an energy gap, renewable energy has a greater role to play. The commercial property market has the potential to play a significant role in meeting this challenge, as well as providing energy security for businesses who otherwise may suffer if no action is taken.

Term	Definition
Kilowatt (KW)	1,000 Watts
Megawatt (MW)	1,000 KW
Gigawatt (GW)	1,000 MW
Terawatt (TW)	1,000 GW
Megawatt hour (MWh)	Equivalent energy produced on an hourly basis, eg 20kw x 365 days x 24 hours = 175.2 MWh.

Introduction

Having been largely ignored for the past 20 years, the energy sector in the UK is about to enter a period of rapid transformation. For households, businesses and the property market, energy security and the associated cost will become an increasingly important issue.

The current UK government has maintained its commitment to the Climate Change Act 2008, with the stated aim of reducing carbon emissions between 1990 and 2050 by 80%. More urgently, the treaty also incorporates a 50% reduction by 2025.

Many of the UK's existing coal and gas fired power stations are set to be shut down in the next two years due to EU legislation applying limitations on carbon emissions. In addition, much of the existing nuclear network has either entered decommissioning or has less than a decade of operational life left. So far only one of the proposed 10 replacements has gained planning permission, creating uncertainty over whether new reactors can actually be built in time.

Much of the resulting shortfall in energy production is expected to be taken up by renewable energy sources. By 2020, it is projected that 15% of all generation will come from renewable sources. However, in 2012, this sector accounted for just 9% of energy production. Through the Energy Bill, the government has pledged £7.8 billion towards a greener mix of energy development, with energy from waste another key component alongside nuclear and clean fossil fuels. The big question is whether this is anywhere near sufficient for the UK to meet its obligations.

The UK is increasingly reliant upon overseas providers for both investment in energy infrastructure and imported energy. There is a recent precedent of supply being withheld from one nation to another, whilst the prolonged cold spell in February and March 2013 drained UK gas reserves. The combination of insufficient infrastructure and external events, over which the UK has little or no control, could potentially result in rolling blackouts for large parts of the country, or major spikes in the price of power due to mothballed gas plants being turned back on.

Consequently energy security and cost has major implications for business and the economy, as well as being of significant interest to property investors, landlords and occupiers. By and large the property sector has been quick to adapt to the issue of sustainability and how efficiently energy is used within a building. Several funds now exist which are solely concerned with sustainable property, while sustainability has now become an established theme within corporate social responsibility.

The next step for the property industry requires a new approach which looks beyond how efficiently a property uses energy, and to also consider where that energy comes from. What steps can landlords and occupiers take to ensure energy supply can be maintained, and how can they take advantage of the potential economic benefits that this change can bring?

Future demand and supply

Significant reforms must be introduced and adhered to so that future demand can be met. Currently the UK has the ability to produce more energy than is required, although by 2030 this capability may be significantly reversed.

Between 2005 and 2011, total annual energy consumption in Great Britain declined by 11%, from 320 terawatt hours (TWh) to 286 TWh. Within households, consumption fell by 7% over this period whilst for the commercial and industrial sector, the fall was 13%. Despite the economic slowdown, much of this fall in demand over the past six years was the result of technological developments and improved efficiency.

Demand forecasts published by the National Grid for the period between 2012 and 2030 show varying scenarios of anticipated energy consumption by both the domestic and commercial sectors, the scale and speed of which are all dependant on the future economic growth and adoption of green thinking by both households and commercial occupiers.

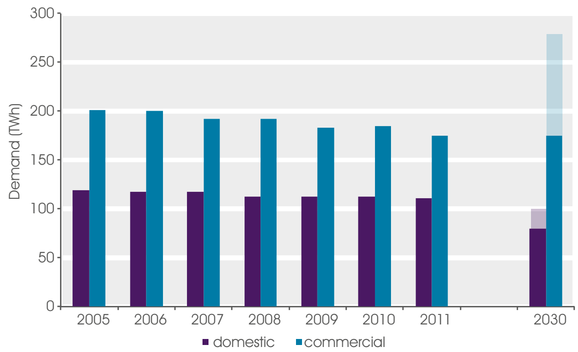
Domestic consumption is likely to reduce largely as a result of more money being invested in carbon saving measures as well as the increased adoption of low carbon technologies as the economy improves, but energy costs remain stubbornly high.

Other drivers behind the reduction in anticipated domestic demand include the increasingly widespread use of smart metering by households and the broader adoption of more efficient heat pumps instead of boilers. National Grid has modelled various scenarios that anticipate domestic consumption between 80 and 100 terawatt hours (TWh) per annum by 2030, compared to 111 TWh now (latest data available for year end 2011).

However, the combination of decreasing household size (from 2.91 in 1991 to 2.16 in 2033) and population growth (currently 0.8% per annum) is expected to create an additional 6.5 million households over this period which GVA believes could force up demand, despite these improvements in energy efficiency.

Levels of demand for energy within the commercial property sector depend on economic growth between now and 2030. Scenarios put forward by the National Grid point to consumption ranging between 175 to 270 TWh by 2030. Levels of demand for 2011 were 175 TWh, having peaked at 200 TWh in 2007. Barring any prolonged economic depression, we can expect demand to increase over this period, perhaps significantly.

Figure 1- Demand by type



Source: DECC/National Grid

Supply side solutions: Traditional

The government has maintained the UK's long held stance of abiding by the Kyoto Protocol as well as continuing to commit to the previous Labour government's target for 15% of the country's energy to come from renewable sources by 2020, increasing to 30% by 2030.

This is increasingly looking like an ambitious target in view of less than 10% renewable production in 2012. Contrast this with the UK's traditional sources of energy. Coal, gas and nuclear power currently account for over 90% of energy supply when imported energy is also factored in.

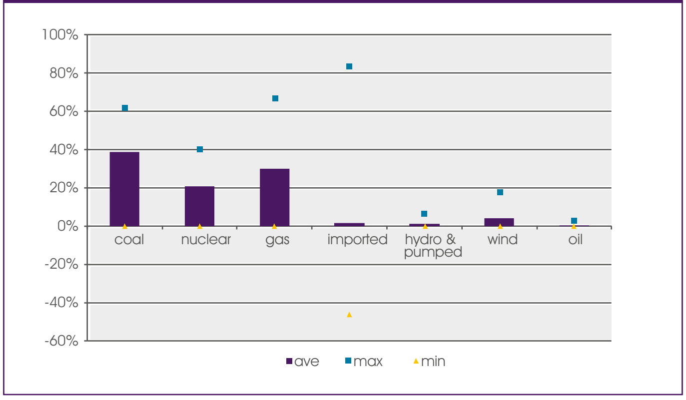
It is estimated that upgrading the existing infrastructure in the UK to meet these targets under the auspices of energy market reform will require investment in the region of £110 billion, putting the Government's Energy Bill pledge of £7.8 billion into renewables into perspective.

Much of this would be aimed at implementing new, cleaner technologies into existing fossil fuels to help lower carbon emissions and developing a greater degree of input from renewable sources. In order to upgrade the UK's grid network and energy infrastructure, the costs are being directly transferred to the consumer rather than being paid for by the energy firms.

Traditional gas powered stations are gradually being replaced with combined cycle gas turbines (CCGT) which offer greater efficiency and lower emissions. Any heat generated as a by-product can be utilised to generate electricity simultaneously. It is estimated that the next generation of these power stations will provide 5GW more capacity than the existing gas network, but this won't be fully established until 2030.

The UK's reliance on coal is proving to be problematic. As Figure 2 shows, the amount generated between 2011 and 2013 was almost 15GW, equivalent to 38% of all energy produced. Coal is one of the highest polluters, accounting for 900g of CO_2 per kilowatt hour (KWh) in 2011, compared to 400g for CCGT, 19g for nuclear and 11g for offshore wind. However the fate of our coal-fired power stations is not completely sealed.

Figure 2- Daily energy production by source 2011- 2013



Source: Gridwatch

Drax coal power station now uses biomass pellets from recycled wood for 50% of its fuel. Also, the process of carbon capture (pumping emissions into a contained environment such as an underground geological structure) would enable coal to remain a major fuel source whilst significantly reducing pollution.

Plans were in place for a £5 billion coal powered carbon capture station to be built near Doncaster, with a 60 kilometre pipeline transporting emissions to be stored in naturally porous rock deep under the North Sea. Once fully operational, it would have resulted in an estimated 90% reduction in CO_2 emissions. However, the scheme has become a victim of rising costs and difficulties in establishing the pipeline, leading to plans being suspended for now.

In the meantime, five UK coal powered stations have had to close in the last two years as a consequence of the European Large Combustion Plant Directive, which limits emissions for plants with capacity of 50MW or more. A further four are set to close by the end of 2015, equivalent to the loss of 11.5GW of power.

The sector with the task of shouldering the burden of protecting the UK from an energy gap is nuclear power. The UK currently has nine reactors, with the capacity to produce 10GW of power. The sector currently provides approximately 16% of all energy supply, having peaked at 26% in 1997. Since 2000, seven reactors have been retired, with another closure planned at Wylfa in 2014.

If the UK is to meet its carbon emissions targets and at the same time maintain energy security, there needs to be more provision for nuclear power, and soon. By 2019 a further three reactors will be taken out of service, followed another four by 2023. The government's nuclear strategy identifies the need for 16GW of new supply by 2030, based on 12 new reactors being built at five sites.

Responsibility for constructing the new reactors has been handed to the private sector and the process has been beset by delays and problems. Several of the parties originally interested in developing future capacity have withdrawn, while Hitachi requires a lengthy assessment of its plans due to the type of reactor being proposed. Planning permission has been granted for the first new reactor at Hinkley Point which is set to be built by EDF, but the process is being held up by the protracted negotiations regarding guarantees on pricing for the energy generated.

If the UK is to satisfy energy demand whilst adhering to all its policy targets on carbon emissions and energy market reform, then action is required immediately. Imported gas is forecast to rise to 80% of all gas consumption by 2030. There is a major risk that there may be energy shortages within the next decade unless additional capacity is developed or brought back into use. Failure to do so could have major economic consequences for which many businesses are not prepared.

Supply side solutions: Renewable energy

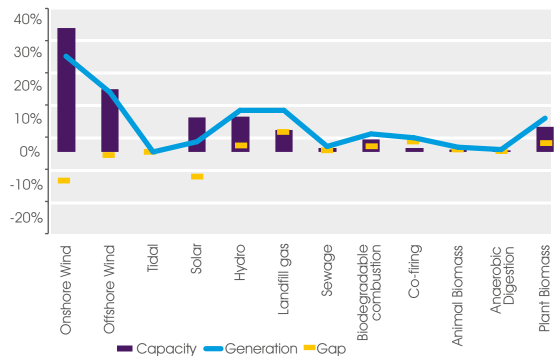
Renewable energy is inevitably going to play a greater role in the market. Policy targets dictate that the amount of energy produced from these sources must increase threefold by 2020, with even faster acceleration beyond that to 2030. Within the renewable energy sector, the largest component is and will continue to be wind power. It currently provides around 4% of energy supply on a daily basis, although this is dependent upon weather conditions and output can vary anywhere between 0% and 18% in extreme conditions.

Although development of the UK's renewable energy sector is a key aim for the government, the process has struggled to overcome issues arising from costs and political opposition. As the technology is young, much of the early infrastructure has been expensive to implement. The impact of installing this infrastructure has also raised concerns as many sites, such as the Severn Estuary tidal barrage or rural on-shore wind farms, are in locations previously untouched by any form of intensive development and detached from the national grid framework.

More than half of the UK's renewable energy capacity is generated by wind farms. Out of an overall capacity of 15.4GW, almost 9GW comes from this source, with 3.8GW from on-shore wind in Scotland and 2.6GW from English off-shore arrays. Much of the renewable capacity in the Celtic nations is either wind or hydro powered. In England, the range is far more diverse, with solar power and biomass capacity both over 1GW.

While onshore wind and solar power are the most widely recognised and abundant forms of renewable energy, they are less consistent due to the reliance both technologies have upon the weather and environmental conditions, as shown in Figure 3. More consistent sources of renewable energy such as hydro and the various types of waste to energy have less installed capacity but generate a greater share of the UK's renewable energy in proportional terms.

Figure 3- Renewable energy capacity v generation



Source: DECC

Table 1 identifies the main types of renewable energy sources and sets out what these are, and importantly looks at current levels of production and how much energy they are expected to provide in the long term.

Table 1- Renewable energy sources

Technology	Details
Hydro	Over 90% of the UK's capacity is based in Scotland, with the majority of the remainder based in Wales. Most of the capacity is in large scale stations, with a combined capacity of approximately 1.5GW. There is potential for a further 2.8GW of capacity but the remote, rural nature of these stations makes full delivery unlikely.
Tidal	The only operational system is the 1.2MW turbine in Northern Ireland at Strangford Narrows. A range of "oyster" turbines have successfully been tested in Orkney but the implementation has been delayed by the fact the no inter-connector can be installed before 2017.
Onshore wind	There are currently over 400 sites in the UK, with a total of 3,874 turbines providing approximately 6GW of capacity. By 2020, capacity is expected to increase to between 10-19GW, although this relies heavily on issues such as planning and infrastructure.
Offshore wind	In terms of planning, offshore wind faces fewer planning problems but is more costly to install. As of 2012, there are 20 sites with 973 turbines. Current capacity is 3GW but is likely to increase to 8GW by 2016 and 18GW by 2020. There are 4GW under construction with a further 8GW in the planning pipeline.
Solar	There has been a sharp increase in the UK's solar capacity in the past two years. In 2012, capacity was 1.7GW compared to 27MW in 2009. Much of this growth has been driven by the Feed in Tariff (FIT) with small domestic installations accounting for 60% of capacity. The government forecasts that capacity could increase to 22GW over the next decade.
Anaerobic digestion	This is the process of natural waste being turned into methane and carbon dioxide and can use food waste, slurry and crop residue as feedstock. There are over 100 plants in the UK, up 46% in the past year with capacity of 88MW. Three million tonnes of waste generated 330GWh in 2012. The 2022 potential generation target is for up to 5TWh.
Biomass	Biomass is the process of burning organic matter, either animal or plant thermally, chemically or bio-chemically. For the first time, 2012 saw more wood recycled for biomass than for use as wood chip, totalling 1.25 million tonnes. Plant biomass by far the larger, with capacity of 1.2GW (10% UK renewable energy).
Energy from Waste	The municipal solid waste market in the UK is well established, with 24 plants burning 4 million tonnes of residual (non recyclable or organic) waste in 2012, equivalent to 20% of the national waste stream. Current generation is 1.2TWh with growth forecast between 3.1TWh - 36TWh by 2020, with commercial waste a major growth market.

Fracking: a supply side revolution?

One major opportunity to reduce reliance upon imported energy is the exploration of the country's shale gas reserves via the process of hydraulic fracturing, or fracking. This is a contentious subject which has sharply divided opinions over the benefits and the drawbacks.

In the USA, the growth in fracking has had a significant impact on the cost of energy and has boosted economic growth by making it cheaper for goods to be manufactured in the US rather than overseas. Indeed, the USA is now a net fuel supplier which means that reliance on fuel imports is greatly reduced, resulting in lower fuel costs as well.

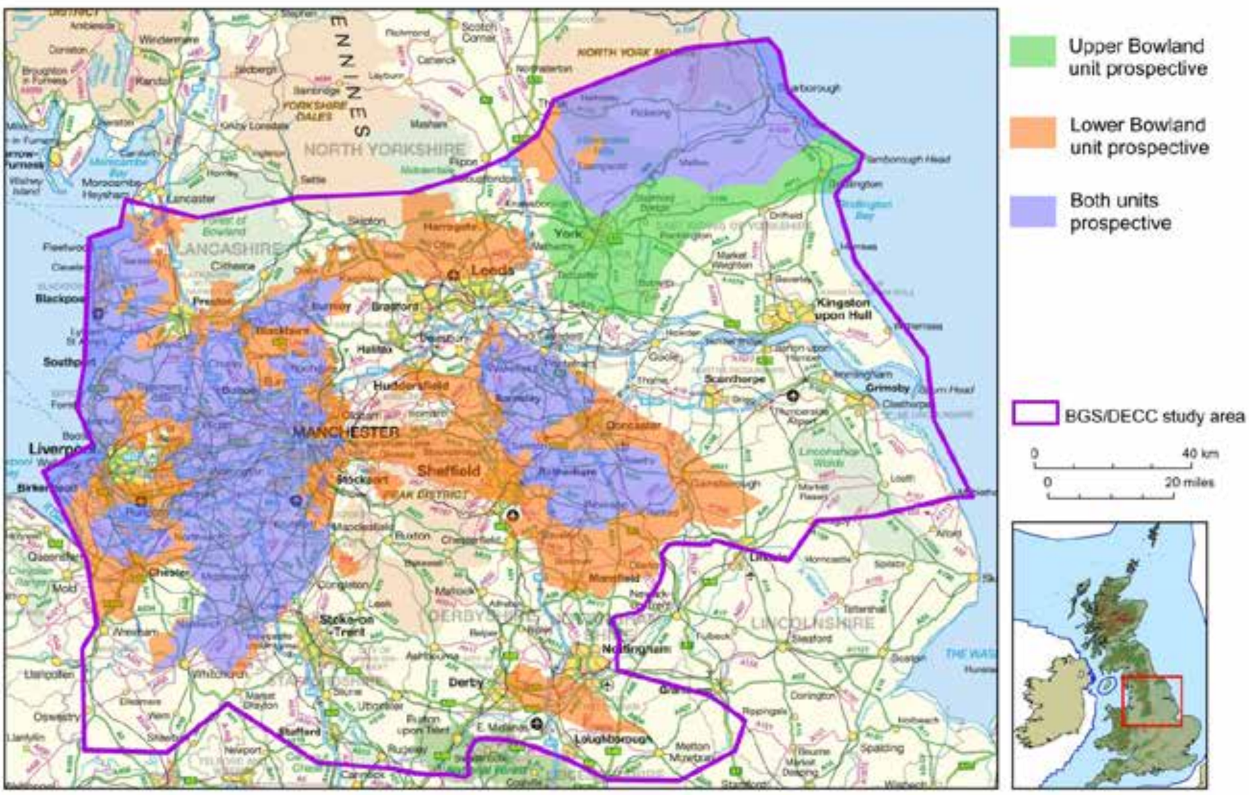
In the UK it is estimated that there is potentially as much as 300 trillion sq ft of shale gas reserves, compared to total annual gas consumption of 3 trillion sq ft. As of March 2013, the government has granted over 300 licences for exploration, although licensees still need to obtain the necessary permits and planning consents before exploration can begin.

The government is highly supportive of the sector and has established an all party parliamentary group on Unconventional Oil and Gas to support research and development within the sector. Any reserves automatically belong to the Crown, which means there is less incentive for land owners to provide sites for exploration compared to the USA, where landowners are financially incentivised to explore.

An early concern about fracking related to the environmental impacts that have yet to be fully understood with a relatively new technology. The Blackpool earthquake of 2011 was originally thought to have been linked to exploration but research suggests that there is only a minimal risk of tremors causing damage to property.

Other concerns relate to localised carbon emissions and the risk of contaminating water supplies. Consequently, high numbers of planning objections from local residents have led the government to offer additional planning gains to local authorities in return for planning permission, including up to 1% of revenues generated over the lifetime of the well.

Figure 4- Estimated shale deposits in northern England



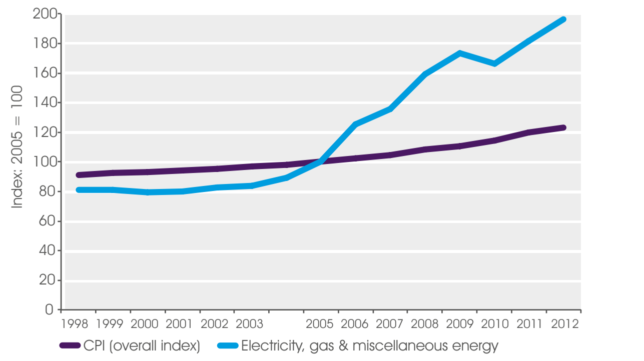
Source: British Geological Survey

Demand side solutions: Commercial property

The concept of sustainability and the associated environmental and financial benefits of improved energy performance have become broadly established within the property market.

The extent to which the adoption of this practice has been driven by the rising cost of energy prices in a weakened economic climate or by a genuine desire for greater efficiency is open to debate, although Figure 5 paints a compelling picture.

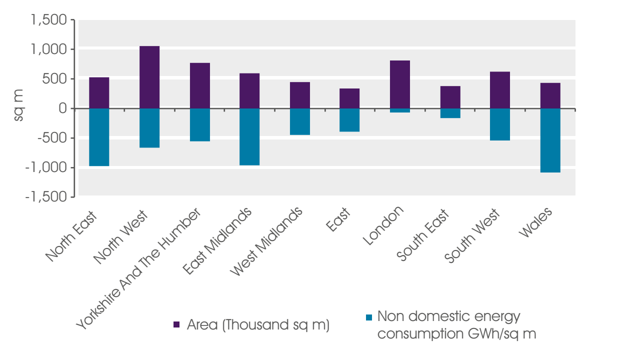
Figure 5- Energy inflation



Source: ONS

However, the average level of consumption for commercial consumers has decreased in each region of England and Wales to varying degrees over the period 2005 to 2011, while at the same time the amount of commercial floor space has increased. Part of this shift will be accounted for by improved building standards, including the greater use of double glazing, wall insulation and improved awareness of energy saving measures.

Figure 6- Change in commercial floorspace and energy



Source: VOA/DECC

The energy efficiency of commercial property will continue to increase in the future, with all new builds from 2019 required to be zero carbon. This has recently been re-defined as a building which produces zero carbon emissions for the purpose of heating, fixed lighting and hot water. However, these improvements in terms of new build as a percentage of overall stock will have an impact of more relevance to existing buildings is the fact that all privately rented property must have an EPC rating above the lowest two bands (F&G) if it is to be let from 2019. If the property does fall within the two lowest bands, the necessary remedial works must be carried out, regardless of whether the minimum ranking can be met.

> "Many of these measures target the built fabric of the building, such as glazing, insulation and the type of building materials used. Yet the way in which occupiers use property is also changing."

The increased digitalisation of society and the workplace environment means that more energy is required to maintain this new capability. One option for occupiers is to move energy intensive IT equipment, such as servers, off site to purpose built data centres to improve energy ratings or meet corporate social responsibility targets. However data centres are a relatively new asset class and, as well as being highly energy intensive, they are currently expensive to use and so are not viable for many smaller/ medium size businesses.

As sustainability becomes an increasingly important consideration from both an investment and corporate perspective, what steps can property owners take to ensure security of energy supply and benefit from other advantages such as reduced energy costs and an additional income?

Demand side solutions: Microgeration

A key to meeting the government's target towards zero carbon property, the 2030 renewable energy target and some of the potential energy gap shortfall is the process of microgeneration. This is the process of small scale heat or power generation by individuals or occupiers as an alternative or supplement to the main energy network and is heavily reliant upon renewable sources.

In 2012, microgeneration produced approximately 500MW of the UK's average sum of 35GW, equivalent to 1.4% of all energy supply. The largest source was solar power, with over 90% coming from mainly residential photovoltaic panels. National Grid forecasts for microgeneration capacity by 2030 to vary from 2GW to 19GW.

This is an increase of anywhere from 300% to 3,700% in capacity, with the scope to provide up to 24% of the UK's energy capacity based on 2012 figures. The rates of growth in this process are highly dependent upon economic performance, cost of installation, technological advances and take up of the concept of microgeneration.

Many property owners have the potential to future-proof by installing microgeneration facilities within their property portfolio. The principle sources of energy are solar or wind, with energy from waste a fast growing alternative where physically viable. An additional option is combined heat and power (CHP) replacing traditional boilers.

The benefits of microgeneration are threefold. Firstly, the property owner or occupier receives an income from the Feed in Tariff (similar to the Renewable Obligation Certificate but for smaller generators) or Renewable Heat Incentive for energy produced. Secondly, if any additional energy can be exported back into the grid, a further 4.64p per KWh is received. Finally, there are the savings from not having to pay for electricity or heating the property.

The residential sector has been much more aware of the benefits of this, with the number of installations registered for the Feed in Tariff (FIT) standing at almost 310,000, compared to 7,257 for commercial property. In terms of installations, the residential sector outweighs commercial by four to one, with an average of 150 installations per million sq m of residential compared to 36 per million sq m of commercial.

By far the largest source of power for microgeneration is solar. Within the commercial property sector, it accounts for 94% of installations registered under the FIT. A good recent example of this is the Bentley factory in Crewe which has installed PV panels on all roof space. Not all properties are suitable for some forms of microgeneration. Obvious examples of this are hydro electric and

Table 2 - FIT: Commerical installations 2012

	Hydro - electric	Micro Combined Heat & Power	Solar	Wind	Anaerobic Digestion	TOTAL
North East	0	0	394	29	0	423
North West	3	0	598	60	0	661
Yorkshire & Humber	3	0	644	90	0	737
East Midlands	2	1	646	42	0	691
West Midlands	1	0	1396	33	0	1430
East of England	2	0	779	43	1	825
London	0	0	406	1	0	407
South East	0	0	851	16	0	867
South West	4	0	1139	72	1	1216
TOTAL	**15**	**1**	**6853**	**386**	**2**	**7257**

Source: Ofgem

wind power. Both are very location specific, relying on suitable geography or adequate space.

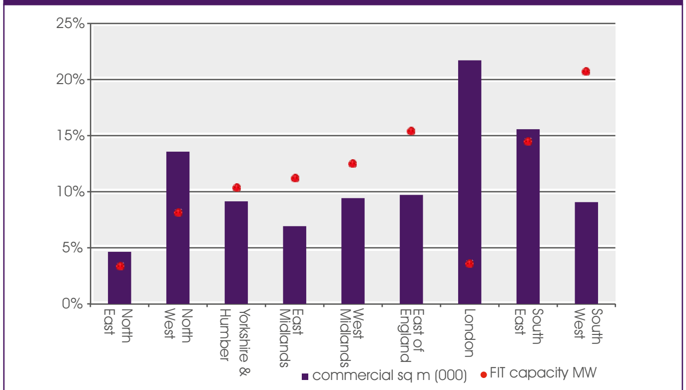
Providers of renewable energy receive a payment over a fixed term for energy produced and also for energy sold back to the grid. Large purpose built schemes such as a wind farm or biomass plant receive payment via a renewable obligation certificate (ROC) for every megawatt-hour they generate. Smaller producers, such as stand alone microgeneration are paid via the feed in tariff (FIT) or renewable heat incentive (RHI).

The FIT relates to electricity produced, whereas the RHI is for energy used towards heating and the traiffs are dependent upon what type of technology is used to generate the energy. The term of the tariff is generally for 20 years with annual increases linked to RPI inflation. In addition, there is an export tariff of 3.2p per KWh for each unit of energy sold back to the grid. If the occupier still needs to buy energy from a supplier, it can do so but obviously will require a smaller amount.

In terms of stock, the residential to commercial floor space ratio is 10:1. In terms of FIT registered installations, the residential to commercial ratio is 50:1. The biggest discrepancy in this relationship comes in London, where there is 22% of England's commercial floor space but only 6% of FIT registered commercial installations (Figure 7).

In contrast, regions such as the South West and East of England have a ratio surplus of commercial property to microgeneration installations. Between them they have 28% of all commercial installations and produce 36% of commercial capacity (35MW) against 18% of floor space. There are some practical reasons for this, density being one. The South West covers an area of 9,200 sq miles with just over 18 million square m of commercial floor space, whereas London has 44 million sq m of commercial property in just 600 square miles.

Figure 7- Commercial floorspace vs commercial FIT capacity distribution



Source: GVA/Ofgem

However, as the photo-voltaic clad Heron Tower in the City and CIS Tower in Manchester show, there is scope for commercial property in urban environments to include some form of microgeneration. Solar is perhaps the most practical solution and it is for this reason that National Grid forecasts solar to account for the largest share of both capacity and installations.

Currently 406 out of the 407 commercial FIT registered installations are solar power. All that is required for solar panels to work is a non-north facing aspect and exposure to daylight, although not specifically direct sunshine.

Technological improvements now allow for a greater use of wind turbines in more confined spaces. However the effectiveness of these small systems in the context of large commercial buildings reduces their overall efficiency.

One area where commercial property can quickly make progress on its microgeneration deficit is by incorporating micro CHP – combined heat and power. As of 2012, there are 390 residential micro CHPs that are FIT registered, but just one for commercial property. This cogeneration system's primary purpose is to make the most of the fuel's energy. At a domestic and small commercial level, it uses the heat generated to provide electricity as well. In larger industrial systems, the main purpose is electricity generation with the resulting heat being harnessed.

Microgeneration in practice

Bristol & Bath Science Park

PV and Biomass

This site has 200 sq m of solar panels which provides 10% of the building's energy, as well as a biomass boiler which uses locally supplied wood pellets. Along with other sustainable design features, the science park has achieved BREEAM excellent status. GVA provided planning consultancy as well ongoing property and facilities management.

Tata Steelworks, Port Talbot, Wales

Combined Heat and Power

Tata have applied to replace the existing 95.7MW power generating facility at Port Talbot with two new boilers and turbines, with potential to provide up to 225MW. The new facility will be fuelled by gas produced from the steel making process which is currently burnt off by stack flares. As well as producing energy and securing supply, it will also significantly reduce energy costs on site. Gva is providing planning and consultancy advice for this nationally, significant infrastructure project.

Dobbies Garden Centre, Stirling, Scotland

Wind

Installation of a 41metre turbine with capacity for 80kw at a garden centre in the Highlands. The turbine will provide 17% of the store's energy demands, equal to a saving of £13,476 per annum (February 2012). A further £40,715 per annum will be received through the FIT. GVA provided planning consultancy.

Co-operative Farm, Piddlehinton, Dorset

Anaerobic Digestion

The facility will be capable of processing 25,000 tonnes per annum of domestic and commercial waste, as well as 12,000 tonnes of agricultural slurry, generating 700KW of power to supply the National Grid, while also heating the farm. GVA conducted the business valuation for the site as well as assessing current and future capacity and impact on ROCs/RHIs.

Conclusions

There is no question, that with energy pricing likely to rise further, measures to improve energy efficiency will continue to shape the way we design and occupy our buildings, both new and old. In addition to efficiency measures, the proliferation of microgeneration both for commercial and domestic property will not be the overall solution but one of many marginal gains which when combined will help to alleviate pressure on the UK's energy infrastructure.

So far, the commercial property market has been slow to acknowledge the role that microgeneration can play, particularly when compared to the residential market. Although the number of FIT registered installations per million sq m of commercial property are just a quarter of the residential total, the average output per installation is 10% higher.

If microgeneration capacity in commercial property was increased to the same proportion as residential, that would provide an additional 0.5GW of installations with the potential to generate up to 1.3TWh per annum, equivalent to 3% of all renewable output in the UK in 2012. Beyond that, the potential for growth within the sector is reliant on how much occupiers, landlords and developers embrace the concept of microgeneration. The wider the use, the cheaper the technology will become, hopefully increasing the appeal.

As zero carbon targets in 2019 for new build property get even closer, microgeneration will begin to form a more integral role. The biggest opportunity however lies with existing stock, which accounts for a much greater proportion of buildings. Stand-alone renewable energy schemes can have difficulties in navigating the planning process, but this could be remedied if the impact is softened by becoming an integral part of an existing structure.

What is certain is that the cost of energy will continue to increase for all consumers. At some stage there will be a tipping point were microgeneration becomes not just an environmental or policy led decision but primarily an economic one as well. Reducing a property's reliance on the national grid by even 10% will be less of a motivational concern than the associated savings to the occupying business.

Another important consideration is the additional income stream generated by the tariff for producing energy. The amount and term of the tariff is dependent upon the type and size of microgeneration technology used, but could also contribute towards improving the asset value compared to a similar building without this capacity.

The government must engender confidence and be receptive to original thinking on renewable energy. Energy suppliers must also contribute with new technologies, business models and helping to secure appropriate sites. The fundamental driver behind all of this process is the pricing which underpins energy production. It is this that removes uncertainty from the equation and will drive engagement in renewable energy.

Commercial property as a sector has started to embrace and understand the need for sustainability. Microgeneration is part of the next stage in the evolution of that process. The motivation behind this could either be from a corporate responsibility viewpoint, good public relations or even financial. Yet if the lights do start to go out, energy security will be vital, whatever the motive.

London West End
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