

UK Energy - March 2019

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**SPOTLIGHT**  
Savills Research

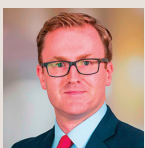
# The Energy Market



Generation and storage • Offsetting and sustainability • Electric vehicles • Future predictions

“Last year we saw a perfect storm of events. Renewable energy generation was lower than expected; the global demand for gas and coal rose; the uncertainty over Brexit affected the strength of the pound”

**Welcome** to our first *Energy Spotlight*. Savills has a long history of working in the wide-ranging, ever evolving energy sector. In fact one of the most significant areas of focus for our clients is the green agenda and renewable energy. In this publication we review the factors that affected the 2018 market from the “gilets jaunes” protests in France, the demise of many smaller UK energy suppliers and the growth in investor confidence in solar across Europe. We also ask a number of key industry figures for their 2019 predictions – unsurprisingly the rapid growth of the electric vehicle market was highlighted. We explore this in more detail on page 6. Meanwhile, Emily Norton, Head of Savills Rural Research, looks at the growing market in ecosystem services and natural capital and the role they play in helping companies reduce their carbon footprint. In 2018 our forestry teams worked with clients to plant circa 200,000 trees and subject to approval another 3.5 million trees will be planted via the new woodland creation scheme. Also the business has moved all our offices, where we are responsible for procuring power, to 100% green tariffs. I hope you enjoy this *Energy Spotlight*, and please do not hesitate to contact me or any member of the team should you have any questions.



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## Energy market update

With prices directly affected by political, economic and technical pressures, 2019 could prove to be a volatile market

The energy market is a complex web of connections and correlations, in which localised events quickly ripple out to affect the entire sector. Not surprisingly then, it can be volatile, with prices buoyed or buffeted by political, economic and technical pressures. Last year saw plenty of these, and the result was a year of fluctuating prices: from January to December 2018, prices ranged from just over £42/MWh to nearly £66/MWh for electricity, and from 42p/th to 68p/th for gas, with plenty of rises and falls along the way. In 2017, the ranges were approximately £40–£46/MWh and 41p–48p/th.

“Last year we saw a perfect storm of events,” says Shaun Greenwood of Savills Energy. “Renewable energy generation was lower than expected; the global demand for gas and coal rose; the uncertainty over Brexit affected the strength of the pound; and maintenance issues and

lack of storage throughout Europe created practical problems.”

Following a steady upward trajectory from January to September, prices for both electricity and gas fell sharply in the last three months of 2018, although towards the end of December prices in Europe surged due to a lack of wind, unplanned outages and, in France, the “gilets jaunes” protests, which have included strike action that has closed nuclear reactors. Over the last year as a whole, however, the pricing picture was more varied.

With wind generation reaching 10–12 Gigawatts during peak load hours, reliance on non-renewable sources was eased and electricity prices softened as a result. A surplus of liquefied natural gas (LNG), running counter to pricing signals and forecasts of warmer weather, triggered selling in an already over-supplied market. And

as those weather forecasts were proved accurate, wholesale gas prices dropped sharply, setting values into the winter of 2020. In December, LNG imports into Europe reached a record high for a quarterly period thanks to weak demand in Asia and favourable shipping rates, and were helped by below-forecasted production from the Norwegian Continental Shelf as the result of unplanned outages.

The oil market has been highly volatile since June 2018. Oil prices collapsed as the market corrected itself following some artificial upward drivers: market excitement, OPEC’s unfulfilled announcement of production cuts and expectations of a shortage in supply as a result of the USA’s sanctions on Iran. In the event, OPEC was able to make up for the decline in output from Iran, and North American production has reached record-breaking levels. But with too much

oil in the market – despite many big producers cutting output – prices have inevitably softened.

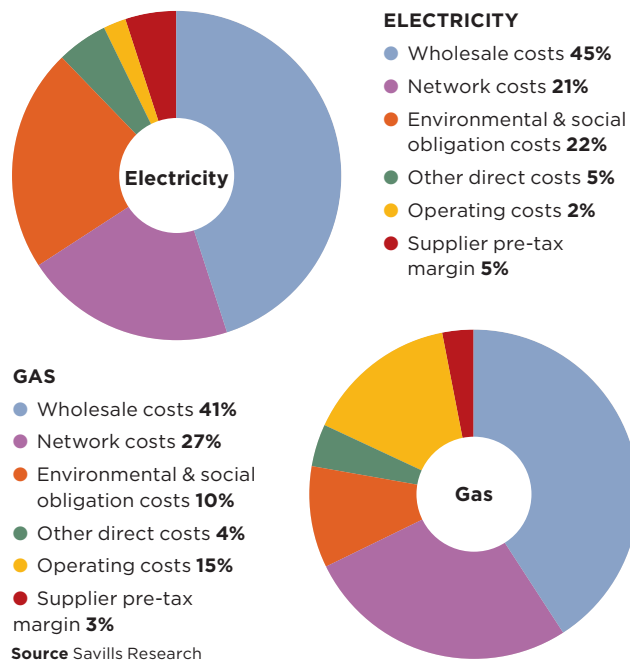
As ever, political interventions are contributing too, and not just because of Brexit and sanctions against Iran: the implications of the Government's energy price cap are beginning to take effect. The cap on the Standard Variable Tariff (SVT), which came into force on 1 January this year, aims to save 11 million domestic customers in the UK about £76 per annum on energy bills. But it is currently being challenged by Centrica, owner of British Gas, on the grounds that it has been set too low by Ofgem, the industry regulator. Centrica estimates that the cap will cost it around £70m over the first quarter of 2019. With the cap estimated to strip £1bn of earnings a year from the energy retail sector, the impact on the industry is likely to be significant (see box).

The price cap is pegged to wholesale prices and will be revised twice a year. However, wholesale costs constitute less than half the retail price of energy: 45% for electricity, 41% for gas. The rest of the bill is made up of so-called Third Party Costs that include environmental and social obligation costs, operating and network costs, and supplier margins. The price cap could distort this equation.

"This is certainly going to be an interesting year," says Shaun. "With all eyes on the UK at the moment, it's hard not to talk about Brexit and whether a deal will be agreed in time. However, with other events such as the collapse of the SSE/Npower retail merger and its ownership being transferred to E.ON, leading to the loss of 900 Npower jobs, the cancellation of several UK nuclear projects and the confidence of the industry being tested as smaller energy providers close up shop, 2019 won't be a stable year and we should prepare for a very volatile market."

### Third party costs

Non-commodity costs include a number of mandatory charges that make up over 50% of the total bill



### SUPPLIER EXIT

With Ofgem tightening its grip on trading and the implementation of new price caps from January, energy suppliers are under ever more pressure, and some have not been able to withstand it. Even SSE and Centrica have posted profit warnings as they struggled with rising wholesale prices and increased competition in the second half of 2018, so it is not surprising that several smaller suppliers exited the market over the past year. In January 2019, Economy Energy and Our Power took the number to 13.

The business model of smaller suppliers is based on undercutting the wholesale

prices paid by the Big Six (British Gas, EDF Energy, E.ON, Npower, Scottish Power and SSE), while having lower operational costs and less tax to pay. However, the price cap now places the same limits on all suppliers for the bulk of their customers. Added to this weakening competitiveness is the smaller firms' lack of equity, which restricts their ability to meet changing obligations relating to green energy and prevents them buying much energy in advance, thus making them vulnerable to increases in the wholesale price. Continuing price rises could see more small suppliers cease trading in the months ahead.

### SMART METER ROLL-OUT

In 2009 the Government introduced an £11bn scheme that would see smart meters installed in every home in the UK by the end of 2020. This initiative is part of the Government's strategy to achieve low-carbon, efficient and reliable gas and electricity resources. The hope is that, with smart meters recording energy consumption (and cost) in almost real time, householders will be able to monitor their gas and electricity use and modify it accordingly; the average household bill is expected to fall by £11 in 2020 and £47 in 2030.

However, the scheme is facing difficulties, as Chris Phillips of Savills Energy points out. "There are concerns that the Government has neither drawn on the full expertise of the energy industry in implementing its scheme, nor looked at the scheme's limitations, which include the manufacture of the meters, the wireless technology required and the adoption of different meter models," he says. "In the face of rising costs, and uncertainty about who should pay them, the projected savings appear increasingly ambitious, and the 2020 deadline looks likely to be missed."

**£47.00**  
Expected saving  
on an average  
household energy  
bill by 2030

👉 This is certainly going to be an interesting year. With all eyes on the UK at the moment, it's hard not to talk about Brexit and whether a deal will be agreed in time 👉

**-17%**

There was a 17% fall in the amount of energy used by the UK between 1998 and 2015

**>50%**

More than half of Scotland's energy was supplied by renewables in 2017 and 2018

**+26%**

The heat wave of 2018 produced a 26% rise in daily sun hours compared to 2017

# Power to the future

The move towards smaller, renewable sources together with the need for a capacity market are providing opportunities across the UK

Without a doubt we are in the middle of a revolution of the energy market as Britain's power supply makes the transition from its old carbon polluting sources to newer cleaner ones.

Now, instead of power coming from a limited number of very large suppliers and being transmitted through the National Grid, much of it comes from smaller renewable sources that connect directly into the regional Distribution Network Operators (DNOs). This increase in renewable energy means there's a need for a back-up system for when the sun goes down and the wind doesn't blow.

"For energy developers and landowners, these changes provide two opportunities," says David Grindley of Savills Energy. "Firstly, there is a healthy market for clean power generation at various scales and secondly, there is a growing need for capacity systems, such as battery storage or gas-peaking stations, that help the grid networks to balance their flow of supply and demand.

It is a very different picture today than three years ago, when the market for solar schemes collapsed after the Government pulled the plug on subsidies. Since then, a drop in import taxes on solar units means the opportunities for solar schemes are definitely back.

## Healthy market for solar schemes

"Developers of solar farms are crying out for landowners again," says David. "There is also a healthy market for smaller storage or gas peaking schemes that connect into existing substations or overhead lines. Many of these don't require much in the way of land – a reasonable sized plant only needs between half an acre and two acres.

"But there's also a dash to secure grid capacity," he continues. "Developers look for economies of scale on large solar projects – a 50 MW solar farm might need around 250 acres. There are even bigger ones being proposed of more than 1,000 acres, but those will go through the Development Consent Order Route rather than the local planning office," David says.

In England, the planning and political environment for new onshore wind projects is still at a standstill, however in Scotland and Wales the market is active and healthy. Offshore wind is also very active and seen as a key development model by the UK Government. "We have seen investors pulling out of the nuclear sector in recent months

and coal power stations will be phased out by 2025, so now is the time to be looking into renewables. In 2018, they supplied a third of the UK's energy, so they're definitely a proven technology," says David.

## The capacity market and its opportunities

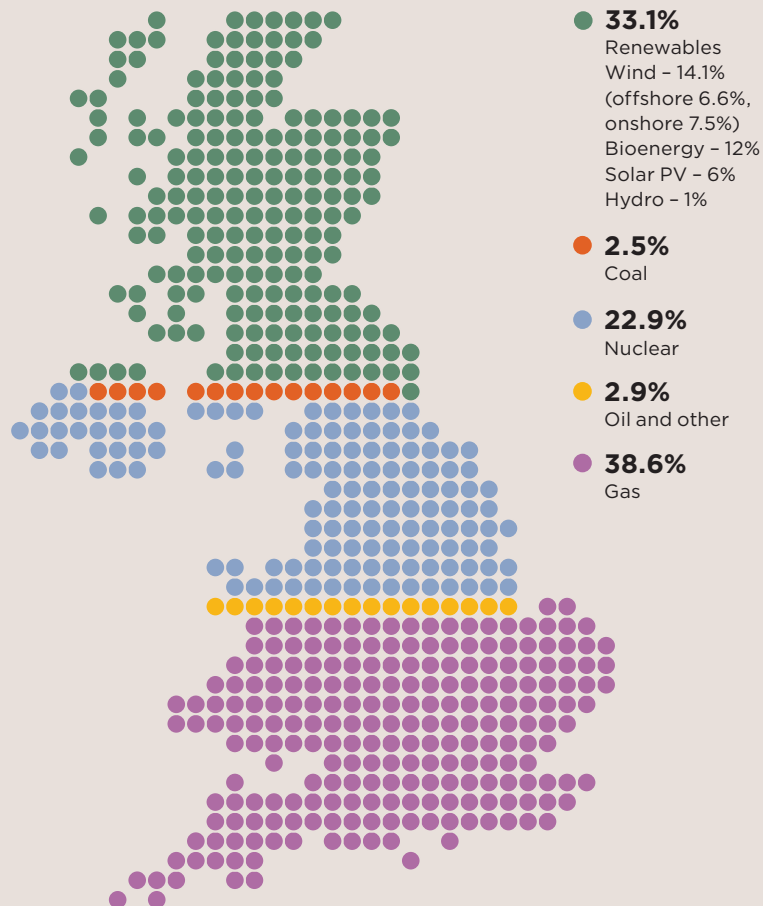
The "capacity market" was set up in 2014 to provide a guarantee that the UK could have access to energy supplies that can meet demand and cope with the fluctuations inherent in energy supplied by wind and solar sources. The sources for this back-up supply receive a payment for the capacity they can offer in addition to also being paid for any electricity they are called on to supply.

"It's a specialist market but, depending on the technology, capacity solutions only need a small area of land for a large mega-wattage," says David. "And the advantage for developers is that investors are attracted to the stable baseline income that is paid to capacity providers."

There is currently an issue, however, as in November 2018, the capacity market was suspended following a ruling from the European Court of Justice over whether the scheme is subsidising fossil fuels rather than incentivising newer, cleaner technologies.

"The Government is working with the EU to resolve the matter," says David. "It will be keen to get it back on track as soon as possible."

## Energy production by sector for Q3 2018



Source DBEIS



## The value of ecosystem services

Source Forestry Commission; ONS; Energy Saving Trust

**£22.5bn**

Natural capital valuation of England's public forest (2017)

**£761bn**

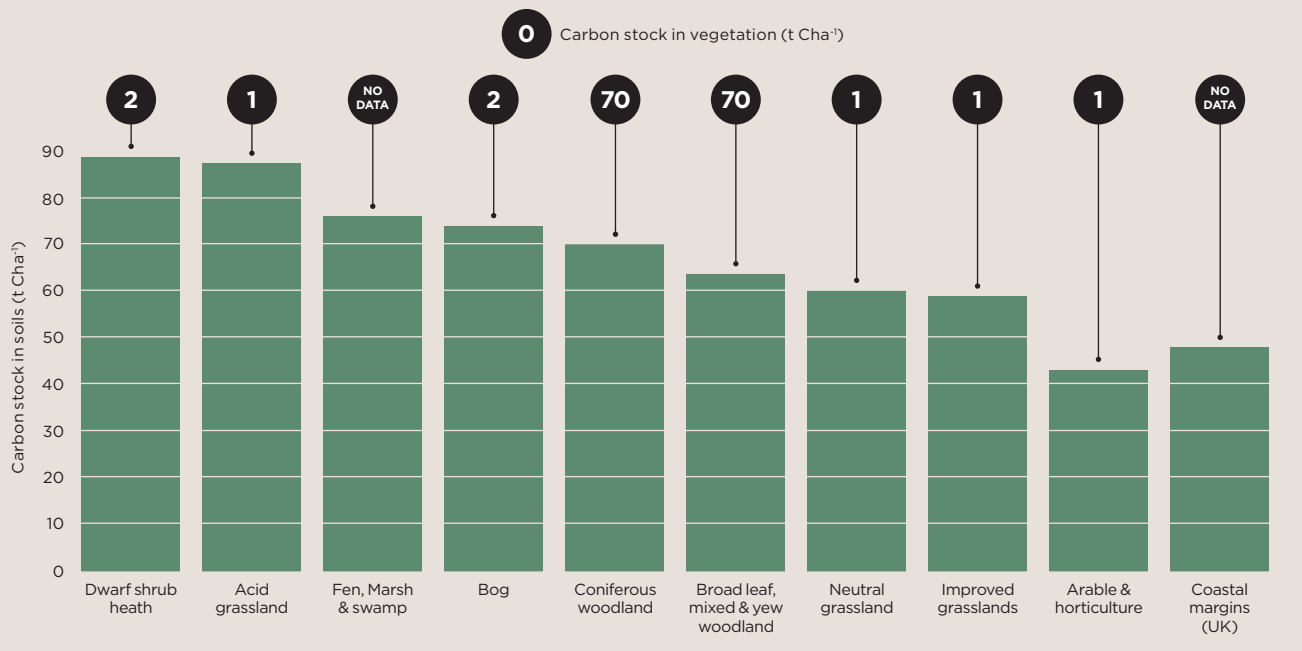
Total value of the UK's natural capital (2015)

**16bn**

Litres of water are used every day in the UK

### Carbon storage potential

The carbon storage potential of different habitats (tonnes of carbon per hectare)



Source Natural England

## Natural collaboration

The importance of natural capital makes a carbon trading offsetting system a priority

There is plenty of talk about ecosystem services and natural capital – the value that rivers and pasture land, for example, give to the nation. However, there is less practical action on how the managers of these resources can be compensated for the services they provide.

One recent exception is in the field of water supply, where there are now several schemes under which landowners are paid by private water companies to farm in a way that causes less water pollution and so reduces the water company's costs further down the line. Could there be future opportunities for landowners to work with other industries such as energy producers in this way?

Emily Norton, Head of Savills Rural Research definitely thinks that is the direction of travel. "What we'd like to see is an emissions trading scheme

that offers a viable marketplace for energy companies to offset their pollution with carbon credits. Central to the scheme would be recognising the value of carbon stored in soil and paying a fair price to landowners for this service."

While we often hear about forestry and tree planting as working to offset emissions, less is said about soil. However, all soil captures carbon. "It's what farmers call the organic matter," explains Emily. "The higher the measure of organic matter, the higher the level of carbon contained in the soil." Even soil that is ploughed regularly can act as carbon capture as long as it is having a good deal of organic matter added to it – such as via the growth of a cover crop. "Increasing the level of carbon in the soil is not only good for carbon capture, but also for soil health.

"There are multiple environmental benefits to land managers being involved in a carbon trading scheme," says Emily. "It's a win-win for them and the environment."

So, is such a scheme likely, or just a pipe dream? "When the Government announced its 25 Year Environment Plan, it made it very clear that the system of agricultural support was going to change and that public money would be in exchange for public goods," Emily points out. "Pair this with the message at the heart of the proposed Environment Bill that the 'polluter pays', and the landscape is perfectly set for a carbon offsetting system where polluters who need to mitigate their emissions can pay those who have the natural resources to capture the carbon."

Currently, all publicly listed companies have to calculate and

declare their carbon emissions. Only the very largest energy consumers (about 1,000 in the UK) are required to offset these emissions through the EU's Emission Trading Scheme and the Government is required to limit the country's emissions as a whole to meet EU targets.

However, as Savills Sustainability director Lizzie Jones points out, an actual commitment to sustainability isn't about off-loading the carbon abroad: "What we want to aim for is a UK-wide collaboration where businesses can link up with UK schemes to offset their emissions." She cites commercial buildings in London teaming up with rural estates to offset their carbon footprint. "We are seeing increased interest from commercial owners to off-set part or all of their properties' emissions through local tree planting or similar schemes."

💡 Anyone who is thinking that the world of renewable energy and clean technology is sometime in the future is out of date. That tomorrow is already here 💡

Dr Nina Skorupska, Chief Executive of the Renewable Energy Association

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**202,000**

The number of plug-in cars registered in the UK

**19,340**

Charging points available to the public in the UK

**22.7%**

Of charging points are in Greater London

**100+**

Different models of plug-in vehicle available in the UK



## Driving forward

The growing ownership of electric vehicles presents interesting opportunities for real estate owners

The switch to electric vehicles is gathering pace. In 2018, sales grew by around 20% and they made up around 6% of all new car registrations. This is news that will be welcomed by the Government, which has made strong commitments to reduce roadside emissions, firstly in its Clean Air Strategy and then more specifically in its Road to Zero Strategy that sets out its plans to enable a massive expansion of green infrastructure across the country. The Government's aim is that by 2030 the ultra low emission sector will account for half of all new cars bought and that by 2040 there will be no new petrol or diesel cars or vans sold in the UK. Scotland aims to be at this point by 2032.

With around 2.5 million new car registrations each year, the potential growth for the sector is huge. While hydrogen fuel cell vehicles will account for some of that growth, it is the electric and hybrid market that is leading the charge. So much so that this year an electric car, the Kia e-Niro, was crowned Car of the Year 2019 by *What Car?* Kia's UK CEO doesn't take this sort of recognition lightly: "This marks an important milestone as we approach the tipping point where every motorist will be seriously considering buying an electric car as their next car," he said.

With a growing ownership of electric vehicles (EVs) comes a growing need for a charging network. For real estate owners this

presents interesting opportunities.

"Shell and BP are busy putting rapid chargers into the forecourts of petrol stations, but is that where people really want to spend time while their car charges?" questions Thomas McMillan of Savills Energy. As an EV owner himself he says the last place he wants to be is in a fume service station. "Far better for the car to charge while I'm doing something I want to with my time, whether that's going to the gym, the supermarket or enjoying a coffee."

He advises real estate owners to look at the amenities they already offer and consider whether they could enhance this, or pull in more visitors, by adding charge points.

“If you have a retail or leisure outlet, for example, a rapid charge point in the car park makes perfect sense.” As do chargers next to supermarkets, restaurants and work spaces – anywhere people might spend a bit of time.

Real estate owners need to consider the average dwell time that visitors spend at their attractions to work out if a charger – and what type – is viable.

“There are three types of charger at the moment,” explains Thomas. “The trickle charger that takes between six to 12 hours to charge a vehicle and is typically what people install in their homes. The fast charger that takes 1-5 hours, depending on the connection and the rapid charger that can recharge a car’s battery to 80% full in 20-40 minutes.”

While trickle chargers can run off mains electricity, rapid chargers in most cases will need to be situated near a substation or an overhead three-phase power line. The closer they are, the lower the grid connection cost.

There are more than 20 different operating companies running public charge points at the moment. Drivers usually sign up to be a member of a particular network. Some operate pay-as-you-go systems, while others work on a subscription basis. While some only offer their own network of chargers to drivers, others operate across several networks – clearly a more popular model for users. Generally, all operators have an interactive map of their charge points, so as soon as you put one in, EV drivers on that network would know it was there.

Real estate owners would need to do their research to select the right partner for their charge points. “One that supplies reliable

“With a growing ownership of electric vehicles (EVs) comes a growing need for a charging network. For real estate owners this presents interesting opportunities”

chargers with a good digital interface”, recommends Thomas.

The model for how the finances and operation of the charge points would work out would tend to involve the real estate owners leasing the space to an operator. The operator shoulders all the costs of the charger and installation and pays the real estate owner an annual rent.

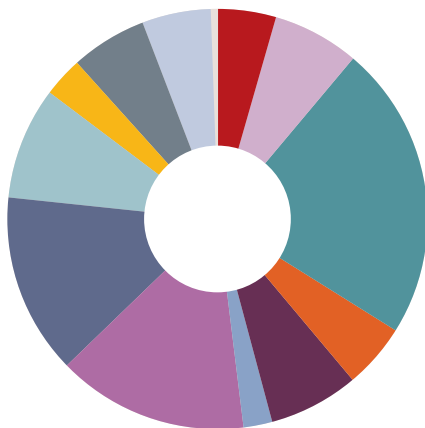
“It’s similar to the mobile phone mast sector,” explains Thomas. “Rents hugely vary depending on the situation. It might not seem like much, but it could also give your business the edge over a neighbouring similar business.”

There are grants for installing chargers at the moment, which differ between England, Scotland and Wales.

Some grid operators are predicting that if charge points continue to be installed in an ad-hoc way without smart management systems there will be insufficient grid capacity after the first 10% of domestic properties are provided with connections. This will impact on all asset owners, not just for EV installations, so securing a power supply early is essential.

### Charging connectors across the UK regions

East Midlands	896	4.6%
East of England	1,289	6.6%
Greater London	4,440	22.9%
North East	925	4.8%
North West	1,358	7.0%
Northern Ireland	468	2.4%
Scotland	2,816	14.5%
South East	2,733	14.1%
South West	1,640	8.5%
Wales	617	3.2%
West Midlands	1,086	5.6%
Yorkshire & Humber	1,032	5.3%
Other	98	0.5%

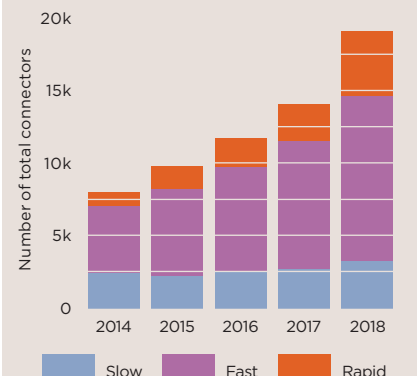


Source Zap-Map

## CHARGE POINTS IN NEW DEVELOPMENTS

Last July the Government published its Road to Zero Strategy, which outlined its proposals for increasing the uptake of ultra low emission vehicles. In order to ensure the EV charging infrastructure is expanded, it proposed that: “All new homes should have a charge point available”. Clearly this will have consequences for residential developments. The strategy document said: “We plan to consult as soon as possible on introducing a requirement for charge point infrastructure for new dwellings in England where appropriate,” but as yet no consultation has been announced.

### Charging connectors by type



Source Zap-Map

## ELECTRIC FARM VEHICLES

While there is interest in developing electric tractors – one prototype from John Deere keeps costs down by employing an extremely long extension cord rather than batteries – the realities are that these are still several years away from becoming a viable option for most UK farmers. Those wanting to move away from diesel, however, could look into electric utility vehicles. They appear to have moved on from glorified 4x4 golf buggies in recent years, now offering enough power to get up hills and the range to get you home again.

“The challenge is clear: if we’re to clean up our economy and tackle climate change, the way we power our cars and homes will need to change for good”  
Lord Deben, Chairman of the Committee on Climate Change

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“It makes increasing sense for a low carbon economy to use electricity, as heat pumps are three times more efficient than gas boilers”

# Energy-saving homes

The Government’s Clean Growth Strategy targets energy-saving measures for both old and new buildings, which will have an impact on future greenhouse emissions

Britain’s homes are responsible for 15% of the UK’s greenhouse gas emissions. To reduce this figure, the Government’s Clean Growth Strategy targets both energy saving measures that new buildings should employ as well as retro-fitting the existing housing stock.

While all building regulations include some level of energy efficiencies, the Greater London Authority stands out as the best-practice example that has taken these measures further and published a London Plan that sets out exactly how it will create a zero-carbon residential sector by 2031.

“Every proposal that we submit for a residential development in London has to show what the baseline energy use of the building would have been in 2013 and then how we are reducing that by 35%,” explains Harry Renton-Rose of Savills Planning.

“The London Plan advises on an energy

hierarchy of: be lean – use less energy; be clean – as in supply energy efficiently; and be green – use renewable energy. There’s now a fourth step too, of be seen, which involves monitoring the energy use so you can show exactly the difference you’re making,” says Harry.

He has recently been working on a residential masterplan of 4,000 units in West Ham. Among its zero carbon credentials, the homes will all be heated from one central energy centre running a gas-powered combined heat and power system that will transport the heat to the homes through a district heat network.

“It is far more efficient to have one large boiler that is on all the time than smaller ones being switched on and off,” explains Thomas McMillan of Savills Energy.

However, despite the efficiency, he doesn’t think planning around gas is the right way to

be heading in 2019. “Natural gas is still a fossil fuel and really we’ve gone past the time when it’s beneficial to be planning around it, but policy hasn’t caught up yet,” he says.

His preferred solution is a heat pump – an electrically powered device that operates a little like a fridge in reverse. “As the national grid becomes decarbonised, it makes increasing sense for a low carbon economy to use electricity, as heat pumps are three times more efficient than gas boilers,” he says.

Although popular throughout northern Europe, the United States and Canada, heat pumps are relatively uncommon here. This is partially due to their higher upfront costs and the relative low price of gas compared to electricity.

“The Renewable Heat Incentive does offset this cost imbalance, and has been extended until 2021,” says Thomas, pointing to the





15%

of the UK's greenhouse gas emissions come from Britain's homes

£3.6bn

The value of the Energy Company Obligation, launched by the Government

Government initiative to create take-up of more renewable sources.

Heat pumps can be ground source, water source or air source depending on the location of the development. "Each one is positioned differently, so it's essential that the right energy solution is planned right from the start of a building project," explains Thomas. "Sustainability should not be a bolt-on item."

At the moment, renewable technologies don't add any premium to a property ("although this might change if Green Mortgages gain a greater share of the market," says Thomas, see panel below), which means there's little incentive for developers to go beyond the basic requirements of building regulations when putting sustainable solutions into properties. "However, it could be viewed as an additional investment to the property itself and be done in such a way that the sustainable solutions have their own commercial value," suggests Thomas.

"For example, a developer could fit enough solar panels on a project to run a heat pump and a car charge point, and tie all the assets together into an energy service company that retains ownership of the technologies and locks the customer into a rental agreement for 20 to 25 years. It's not a new business model, but it could be used to justify the capital investment."

In the wake of the Grenfell Inquiry, there are likely to be changes made to building regulations and many commentators think this will be an opportunity to use policy to reduce the emissions of new buildings. As well as looking at the heat and power sources, developers could also be expected to look at the materials and style of buildings too, such as passive houses.

These buildings are designed and constructed to require hardly any energy to heat or cool them. "The costs of factory-built modular passive housing are coming down," says Thomas. In some parts of the UK – for example around Oxford where labour costs are at their highest – their simple construction technique makes them comparable in costs to traditional building styles. "Not all modular housing is passive house, but the cost differences are so marginal that developers ought to future-proof buildings by going down the passive route now," advises Thomas.

With a need for 300,000 new buildings a year, building in energy efficiency will clearly have an impact on future greenhouse emissions. However, a far greater impact



comes from the existing housing stock that makes up the vast majority of homes – and will still account for 80% even in 2050.

The Government has launched several measures to help encourage the retro-fitting of energy efficiency measures. For low-income homeowners, there is the Energy Company Obligation. This is a fund of £3.6 billion that is administered through energy suppliers installing measures such as wall and loft insulation to reduce heat loss from customers' homes. For rental properties, landlords now have to make sure that any property having a new tenancy agreement must have an Energy Performance Certificate (EPC) rating of E or above.

House by house, changes are happening and although emissions from the residential sector are already 25% lower than they were at the beginning of this century, with 27 million households in the UK, it's slow work, and there is still plenty to be done.

### WHAT ARE GREEN MORTGAGES?

Green mortgages are a concept devised to encourage and reward homeowners for buying and investing in energy efficient homes. This could be through offering lower interest rates or higher levels of borrowing, the rationale being that if customers have lower bills, they are less likely to default on a mortgage payment. In its 2017 Clean Growth Strategy, the Government said it would be "working with mortgage lenders to develop green mortgage products". At present, there is just one "green mortgage" available in the UK, offered by Barclays for new-build properties that meet certain criteria.

### LONDON LEADING THE WAY...

Since 2016, all major residential developments in London have to show that they will be "zero carbon" – as in produce no carbon dioxide emissions over their lifetime. Part of this has to be through taking low-carbon measures, but if these don't amount to zero emissions, developments can off-set the rest of their carbon with a cash payment – effectively a carbon tax – to the relevant borough, which the borough has to ring-fence for carbon dioxide savings elsewhere.

London's planning guidance gives a guideline figure of £60 per tonne of carbon dioxide that needs to be paid for the 30-year lifetime of the building. However, the figure is set by the borough and varies from £104 per tonne in Lewisham to £7,560 in Westminster.

To reduce these costs, many developers are negotiating alternative off-setting solutions. In Islington, for example, one developer is providing waste heat from an electricity substation to a neighbouring school through a shared heat network. While in Camden they have agreed to install energy efficiency improvements in existing housing in lieu of the payment.

Developers looking to keep the carbon tax to a minimum need to design in energy saving measures from the very beginning. "Insulation is always the first and most cost-effective measure towards zero carbon," says Thomas McMillan of Savills Energy. "However the reduction in costs of renewable energy over the last five years mean energy systems should be at the centre of zero-carbon thinking."

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“Not all modular housing is passive house, but the cost differences are so marginal that developers ought to future-proof buildings by going down the passive route now”

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**-43%**

In greenhouse gas emissions since 1990

**£62**

Energy cost for EV owners to cover 6,000 miles a year

**50%**

Of UK electricity came from low carbon sources

# The future of energy

Meeting our climate targets and lowering pollution levels are goals that can be resolved by using low or zero carbon sources to power our homes, businesses and cars. We talk to four experts to see what changes they see on the energy horizon in the coming years



Lord Deben,  
Chairman of the  
Committee on  
Climate Change

## Rapid uptake of electric vehicles

“In 2015, nations of the world came together to push for greater action to tackle climate change. The UK has made some progress: greenhouse gas emissions are down 43% since 1990. But more action is needed if we’re to move towards a zero carbon economy in line with the UK Government’s stated ambition. 2019 is a crucial milestone on the road to net zero. This spring, the Committee on Climate Change will advise the Government on the feasibility of that transition and the date by when it should be completed.

“In terms of our energy use, a zero carbon economy implies much more rapid uptake of EVs. It will also require new housing standards that minimise energy use in new homes. And it will mean more action to improve energy efficiency and a switch to low carbon sources of heating in existing homes.

“There is good news: emissions from electricity generation have halved in just five years and last year a record 50% of UK electricity came from low carbon sources. But progress on carbon capture and storage technology has stalled, and we’ll need to see more investment in the cheapest forms of renewable energy if this trend is to continue. The challenge is clear: if we’re to clean up our economy and tackle climate change, the way we power our cars and homes will need to change for good.”



Neil Clitheroe,  
Global Retail  
Director of  
ScottishPower  
([www.scottishpower.com](http://www.scottishpower.com))

## Smart meters: an essential change

“At Scottish Power, we’ve already made the transition to renewable energy so now the focus is on helping customers join the decarbonisation journey. That starts with the way we use energy in our homes and the cars we drive. Fundamental to this is the roll out of smart meters. So far, it’s been challenging (meters are largely located inside homes) but they offer consumers much more control over the cost of the energy they use and provide suppliers with much-needed information about how to better manage demand.

“Many predict that by 2023, the cheapest cars on the market will be EVs and smart meters are essential to owners because you can plug in the charger at home over night and, when the tariffs drop to the cheapest levels, the meter will tell the system to start charging. We’ve just launched a tariff which, based on this premise, will allow anyone who already owns an EV to cover 6,000 miles a year for just £62 – about the cost of a single tank of diesel.”



James Sparrow,  
CEO Savills UK  
& EMEA

## Sustainability opportunities

“As a company, we take our CSR obligations very seriously, by not only fulfilling our statutory obligations, but by also furthering our own internal projects, policies and programmes worldwide.

Savills has been tracking its own progress on sustainability metrics since 2013, and as a global property business, Savills is at the forefront of designing, building and selling real estate assets on behalf of a client base that is increasingly motivated by the environmental and social impacts of their investments. We welcome their focus on the positive impact that property assets can deliver, and see increasing evidence of this driving innovation in all property sectors.

Energy is a common demand across all of our property divisions, and Savills now has substantial expertise in our Energy division, with specialisms covering everything from on-farm renewables to energy procurement for commercial property.

In the context of sustainability assessments, energy usage has perhaps been the easiest metric to assess and monitor. Externally, energy production has been driven by a policy agenda that has tried to diversify energy resources towards renewables, and this has enabled us to seek better returns and cleaner investments for all of our energy customers.

In the UK, for offices where we are responsible for procuring energy, in 2018 we moved 100% of electricity tariffs over to green tariffs.

With increasing demand on limited resources, it’s clear that both energy and sustainability are huge motivators in finding opportunities and minimising risk to investment portfolios.”



Dr Nina  
Skorupska,  
Chief Executive  
of the Renewable  
Energy Association  
([www.r-e-a.net](http://www.r-e-a.net))

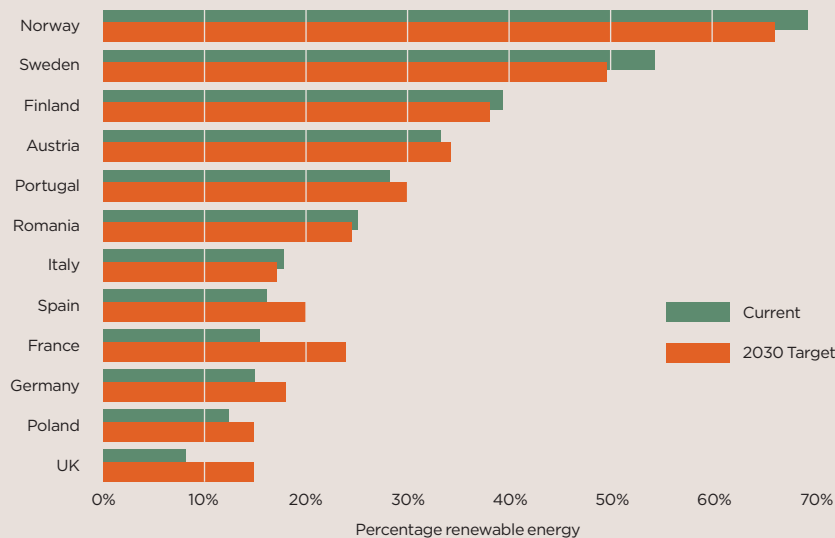
## Capturing the decarbonisation dividend

“The future of energy lies, of course, in renewables. Anyone who is thinking that the world of renewable energy and clean technology is sometime in the future is out of date. That tomorrow is already here. Having to move to a low carbon future isn’t just an option, it’s a must. The challenge is how to capture the decarbonisation dividend.

Making our homes warm and energy efficient is a priority. Those that we call the “first movers” (or early adopters) are already taking advantage of the technologies that are currently available and are enjoying lower energy bills at home. Everyone needs to be able to take advantage, particularly owners of existing houses. This is a key point: 80% of the housing stock in 2050 has already been built. We need to make sure owners of older houses know how to decarbonise, without sacrificing the aesthetics of our period buildings.

The excitement is growing about electric vehicles [EVs] but we need connected thinking. Eighty per cent of owners of electric vehicles charge them at home, but only about 60% of households have access to private parking. Consumers also need to know how to charge their EV at the lowest price using a renewable energy source. We need to give people the choice and chance to change their habits that could both benefit them and the climate at the same time. Change is scary so what we have to do in the next one or two years is help everyone understand their choices otherwise they will miss out but more importantly our planet will miss out too.”

### Current vs target renewable energy share by country



Source Greenmatch

## Beyond the UK

With their low risk technology and long-term, stable returns, renewable energy schemes are providing attractive investment opportunities internationally

As confidence in the renewable energy market has increased in recent years, so have investment opportunities throughout Europe and further afield: solar and wind power schemes worldwide have become attractive and reliable investment vehicles. “With energy supplies and environmental issues always prominent on governments’ agendas, an international view of the renewable energy market makes sense,” says Nick Barber of Savills Cross-border Energy Investment.

Underpinning the vigour in the sector is the EU’s goal of reducing greenhouse gas emissions by 80–95%, compared to 1990 levels, by 2050. In 2011 the European Commission produced the Energy Roadmap 2050, which sets out how to achieve this target; increasing the share of renewable energy is key, so the Roadmap lays the foundations of a secure market for the next 30 years.

Another spur is the lower cost of wind turbines and solar panels, thanks to more efficient technology and greater production capacity. Add to this low interest rates, the scrapping of tariffs on imports from China and

the phasing out of subsidies, which has forced manufacturers to monitor their margins, and the foundations are laid for a robust market.

Renewable energy is therefore an attractive investment vehicle anywhere with a reasonable framework of legislation in which to operate. Key to the sector’s sustainability in EU countries is the principle of “priority dispatch”, which gives power generated from renewable sources priority over other kinds of generation. In other words, renewable energy should always be bought before energy from other sources, thus guaranteeing sales.

#### Integrated cross-border approach

The EU is also encouraging greater cross-border participation in markets, so that rather than switching off wind turbines in times of high generation, excess energy may easily be sold to another country. So fine-tuned network management is essential: operators must be smart and responsive, with an integrated approach. In this, of course, an understanding of the national and local scene is crucial.

“Each jurisdiction has its own legislation

around location and permits, which can act as barriers to entry,” says Nick. “Within the EU’s framework, it’s up to individual governments how the sector functions to attain their 2050 targets.

“For example, in France the strong agricultural lobby is resistant to solar PV, so projects are generally on non-agricultural land or failing farms. Dutch farmers, on the other hand, see solar as a welcome diversification stream. Poland – a potentially lucrative market – tends to be obstructive because renewable energy is seen as a threat to the coal industry. We’ve also got local politics impacting on project size, permitting times, values and land rent.”

#### Investor confidence in solar

Throughout Europe, solar projects are booming because they are quicker and easier to implement than wind farms. “It can take four to six years for zoning permits to be obtained for wind projects, but just two for solar farms,” Nick points out. “As long as the site is well-chosen, solar projects can move quickly.”

What sort of returns are these investments making? Investors are typically buying solar projects at an internal rate of return of 6%. Factor in 80% debt and the average weighted return is around 4%. “That’s quite low,” Nick acknowledges, “but the technology is low-risk and the long-term, stable return is attractive.

“During the subsidy boom, sites were sold with an equity return of 8–10%, but now investors are happy to take a lower rate of return because they have got used to how schemes work. The maturity of the sector is now attracting interest from the major oil and gas companies – we recently entered into a contract with Shell to assist in developing new projects.”

Another reason for investor confidence in a subsidy-free environment is the increase in direct contracts with corporate users, which has changed the way new schemes are financed. This is now commonplace in southern European markets, and the trend has recently reached the UK.

So far, so stable. But what of the future, and in particular the ramifications of Brexit? “Exchange rates could affect the cost of equipment because panels and turbines are sold in dollars and euros,” says Nick.

“There is also the prospect of tariffs imposed on EU-based clients contracting with UK businesses.” But whatever the future holds, the international renewables sector is facing it with confidence.

👉 Another reason for investor confidence in a subsidy-free environment is the increase in direct contracts with corporate users, which has changed the way new schemes are financed 🏆





## Savills Research

We provide bespoke services for landowners, developers, occupiers and investors across the lifecycle of residential, commercial or mixed-use projects. We add value by providing our clients with research-backed advice and consultancy through our market-leading global research team

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