



Local Energy Matters



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East Anglia energy news

East Anglia offshore wind training centre opens

On 22 June, companies including 3sun Group, Scottish Power Renewables and Vattenfall supported the East of England Offshore Wind Skills Centre, now opening its doors to prospective students. The centre, based at the Great Yarmouth campus of East Coast College, is a recent investment to train the next generation of offshore energy sector workers in East Anglia.

Stuart Rimmer, chief executive and principal of East Coast College, said the centre will build upon the college's "long-standing relationship" with the region's energy coast, helping to deliver expanded wind assets in the North Sea leading up to 2050.

Currently, 60 places have been made available in the first phase of the employer-led programme. The college offers a 12-week course for jobseekers and school leavers starting in July, teaching a variety of skills that will help develop the future of wind energy engineering. East Anglia One wind farm developer Scottish Power Renewables has invested £55,000 to sponsor up to 13 places, with a further £500,000 worth of equipment including wind turbine generators and blades donated by businesses.

Victoria Sinclair, supply chain strategy manager at Scottish Power Renewables, noted that the centre would be important for securing talent for the offshore wind sector. She described East Anglia's contribution as important, noting that it is "one of the most relevant areas" in the global industry.

West Suffolk per capita carbon emissions 55% above national average

A recent energy framework for West Suffolk has drawn attention to the region's carbon emissions. The report found that, despite efforts to follow the national strategy, West Suffolk is falling short on achieving 2050 goals. Although carbon emissions have reduced by 18% in the region, it is still less than the national 20% reduction, with per capita emissions 55% higher than the national average.

Joint cabinet members Alaric Pugh (St Edmundsbury) and Lance Stanbury (Forest Heath) indicated that economic growth has been a priority, but the districts will now focus on building more "energy resilience" for their businesses and communities.

The councils said they plan to reduce carbon dioxide emissions by 35% within the next seven years, and 75% by 2050, with additional focuses on affordability of energy, the effects of an aging population and integration of renewable options. Additionally, new homes are set to be built to low-carbon emission standards, and more electric vehicle charging points are to be introduced in the near future. A new scheme, Solar Together Suffolk, will also be introduced to assist households in purchasing affordable solar PV.



Tariff headlines

Default tariff price increases applied

Following the announcement from E.ON UK in June that it will be increasing its prices for standard variable customers, all six of the large suppliers have now announced price rises on their default products. Rising wholesale and policy costs were uniformly held responsible. The average price increase of 5.1% for dual fuel customers mirrors the 5.5% increase in the prepayment cap in April, with several suppliers using it as a benchmark in their press releases. Large supplier SVT rises will apply to existing customers by mid-August.

Increasing number of exclusive tariffs

May saw a range of exclusive tariffs, both for renewing customers and bespoke deals for new customers through particular price comparison websites (PCWs). This forms part of a trend seen in 2018, of suppliers trialling different roll-off and customer acquisition strategies as competitive pressure continues to mount.

The exclusive PCW tariffs offered by Avro Energy and Simplicity Energy appear to be more expensive than the equivalent tariffs direct from the suppliers' websites. It also appears that the two suppliers were not making their direct acquisition tariffs available through comparison websites at the same time as the exclusive deals were live. In contrast, savings of up to £111/ year for average users were seen on exclusive large supplier tariffs.

EDF Energy has been offering renewal tariffs recently to attract single fuel customers to renew as dual fuel customers, as well offering renewal variants of its online only tariffs. In May, the supplier offered two online-only renewal products, although these were priced between just £1/ year and £8/ year less than the equivalent acquisition products.

Cooperative Energy adjusts regional pricing strategy

Cooperative Energy has consistently shown regional pricing strategies similar to those used by some of the large suppliers, and in May it adjusted target regions on its cheapest tariff to incorporate two new regions: North Wales and Mersey and the South East.

This may reflect Cooperative Energy's purchase of Flow Energy, which became effective on 1 May. By adjusting pricing in the North Wales and Mersey and South East regions, the supplier has created a more complementary pricing strategy to that used by Flow Energy, in order to increase the number of regions where its best prices are offered. Unlike its other 'white label', GB Energy Supply, Cooperative Energy intends to run Flow Energy "as a separate brand, under its own licence and with its own tariffs."

Energy prices vary by region due to variations in demand, predictions about demand and different charges imposed by the region's distribution network operator.

East of England tariffs

Figure 1 displays the best deals in the Eastern region for each archetype, whereas Figure 2, overleaf, shows the range of annual cost of tariffs for the Eastern supply region, updated to June 2018.

The average saving between the most and least expensive deals across all archetypes is £377.

The average price of the lowest cost standard variable tariff (SVT) across all archetypes is £836, which is £39 cheaper than the average lowest cost fixed tariff.

Although SVTs tend to be more expensive, small supplier Powershop is offering a SVT to a range of archetypes that is undercutting the cheapest fixed deals in the region. The suppliers offering the cheapest fixed deals are Utility Point and Simplicity Energy, whose tariffs are cheaper than the SVTs. The most expensive deals are always SVTs.

Prepayment customers will always spend more than credit customers, with the least expensive prepayment deals always more expensive than the least expensive fixed and SVT deals. However, the range between the least expensive and most expensive prepayment deals is much smaller.

This is explained by the price cap imposed on these deals from April 2017. On 2 February 2018, Ofgem extended this price cap protection to a further 1mn vulnerable customers receiving the Warm Home Discount - a scheme that offers a one off payment of £140 towards the electricity bills of eligible households in England, Scotland and Wales.

Figure 1: Best buys in Eastern region (June 2018)

A	SVTs			Fixed tariffs			PPM tariffs				
	Supplier	Tariff	£/year	Supplier	Tariff	£/year	Supplier	Tariff	£/year		
1	Powershop	Top Shopper	749	Simplicity Energy	Exclusive EHL	712	Economy Energy	Smart PAYG	890		
2	Outfox the Market	Zapp!	1,051			987			1,249		
3	Powershop	Top Shopper	441	Simplicity Energy	Exclusive EHL	441	Robin Hood Energy	Evergreen	521		
4			601			582			702		
5			572	Utility Point	Just Up	602	Nabuth Energy	Holly Tariff	719		
6			698			744			866		
7			680			725			844		
8			852			920			1,046		
9			906			982			1,108		
10			1,108			1,211			1,344		
11			Economy Energy	Switch Saver	1,061	One Select	Secure	1,163			1,292
12					1,309	Nabuth Energy	Mollie	1,428	Bulb	Vari-Fair	1,586

Fixed tariff

A tariff which offers guaranteed standing charges and unit rates, usually until a defined end date.

Standard variable tariff (SVT):

A supply contract with an indefinite length, which has variable prices that can go up and down with the market.

Prepayment tariff:

A tariff for customers with prepayment meters, which enables payment for energy in advance through 'topping-up' using prepay tokens, cards or a key.

Non-mains gas households:

A1: Low-income electrically-heated

A2: All other electrically-heated

A3: Low-income non-metered fuel-heated

A4: All other non-metered fuel-heated

Mains gas heated households:

A5: Low-income, out-of-work single adults in small 1-bed social rented flats

A6: Young working adults in rented flats

A7: Low-income single adults (lone parents or elderly) in social rented houses

A8: Younger working families in medium-sized rented houses

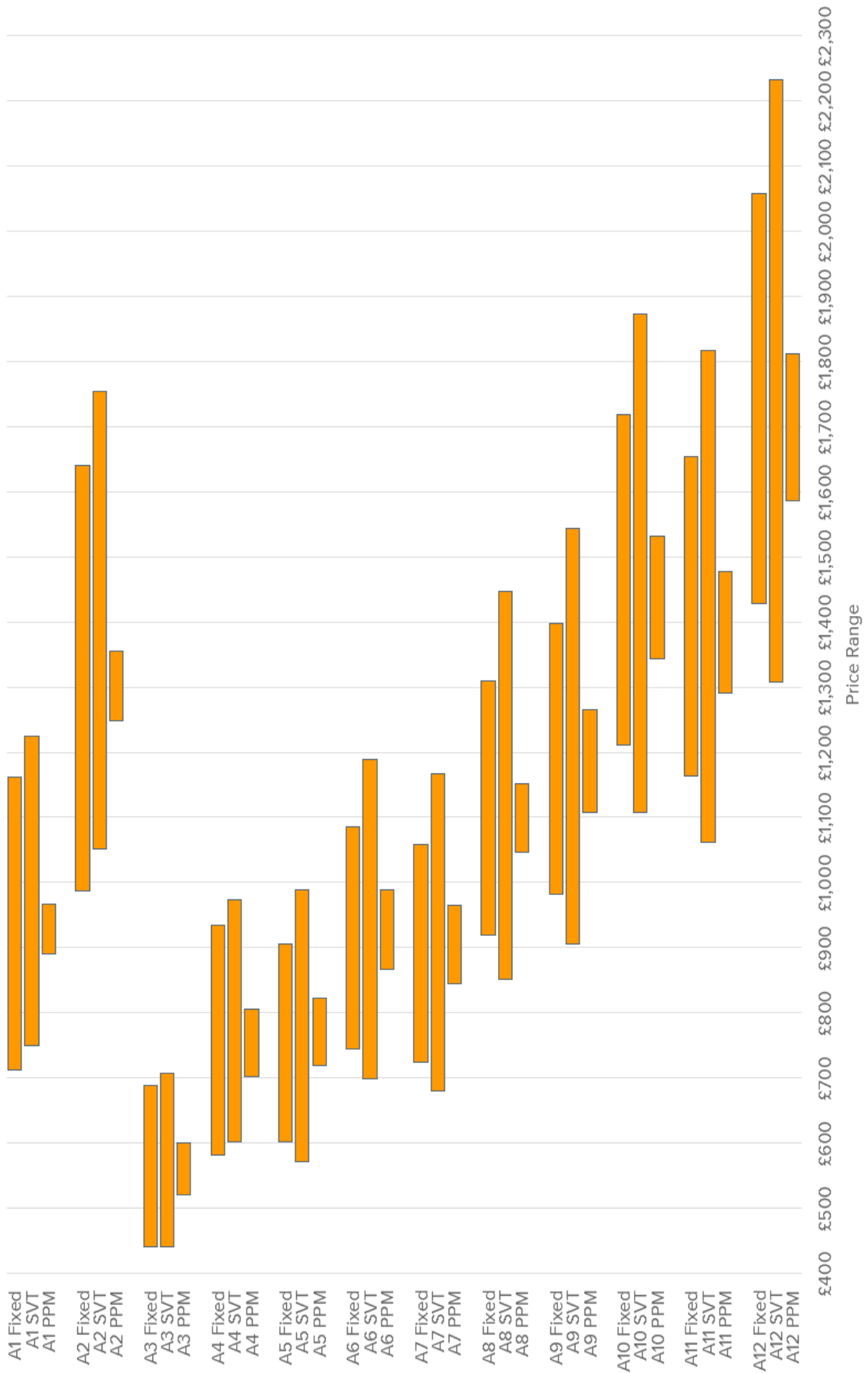
A9: "Average" mains gas-heated households

A10: Wealthy working families in 3-4 bed semis owned with mortgage

A11: Asset-rich, "empty-nesters" in detached houses in less urban areas

A12: Wealthy working families in larger detached houses in less urban areas

Figure 2: Annual tariff cost spread in the Eastern region at Ofgem medium typical consumption value (June 2018) by archetype



Energy efficiency

Local authorities fail to enforce energy standards

The Environmental Industries Commission (EIC) has warned in its report *Improving Non-Domestic Energy Efficiency after Brexit* that there are weaknesses in regulatory frameworks to advance energy efficiency in commercial buildings. The industrial body found that no local authorities have been issuing fines for failing to display energy performance certificates. This information was fed back from a survey of 149 local authorities.

Matthew Farrow, EIC's executive director, said: "Business energy efficiency has a prominent role in the *Clean Growth Strategy*, but current policies are not coherent and don't command the confidence of the energy management industry nor business energy consumers."

He suggested that policy enforcement needs revamping in order to solidify coherent energy efficiency strategies.

UK's first energy-positive office opens in Swansea

The UK's first energy-positive office building was opened on 21 June, marking a new generation of low-carbon offices that produce their own supply of clean electricity. The Active Office was designed by SPECIFIC, a UK Innovation and Knowledge Centre led by Swansea University.

The office combines a variety of innovative technologies aiming to generate, store and release solar energy in a single integrated system. Included in the design is:

- a curved roof with integrated solar cells
- a photovoltaic solar thermal system on the south facing wall, capable of generating both heat and electricity, and
- lithium-ion battery to store electricity generated with a 2,000-litre water tank to store solar heat.

The Active Office is not a new concept, with the Active Classroom (the UK's first energy-positive classroom) named Project of the Year by the RICS Wales in July 2017. In its first year of operation the Active Classroom generated more than one and half times the amount of energy it consumed. It is hoped that the Active Office will follow suit, and work in tandem with the Active Classroom to provide an energy community hub model. In this model, excess power can be traded between buildings and used for systems such as electric vehicle charging.

Buildings currently account for approximately 40% of UK energy consumption and Kevin Bygate, CEO of SPECIFIC, stated that: "Offices are enormous consumers of energy, so turning them energy-positive has the potential to slash fuel bills and dramatically reduce their carbon emissions."





Community energy update

Community energy decline in 2017 despite public support

Community Energy England's (CEE's) *State of the Sector Report 2018*, the second annual review of community energy in England, Wales and Northern Ireland, was launched on 23 June. The report claimed that 2017 saw 30 fewer successful projects and a 31% drop in new community-owned capacity compared to 2016.

The report found an overall increase of 47MW in community-owned electricity generation capacity. But it noted that this was achieved by the purchases of existing generation assets by communities rather than new-build. Community projects generated over 202GWh of electricity in 2017, enough to meet the annual electricity demand of 67,000 households.

Despite a growing number of barriers, the report said, UK community energy groups have shown resilience. To navigate the lack of financial support, communities have embraced:

- new business models, including behind-the-meter solutions
- direct/local energy supply, and
- a more collaborative approach to community energy.

Community energy is, according to the report, greatly influenced by geography, which can determine factors including asset availability, levels of local and state financial support, expertise and finance, and support networks.

The *State of the Sector Report 2018* recommends in its conclusion that “clearer and more supportive government strategy is required, with greater support at the regional and local levels from local authorities.”

Greater policy support would incentivise projects by improving the likelihood of good profit margins. These could come in the form of reviewed subsidy schemes, investment incentives, innovative support, or early stage funding. Furthermore, it is stressed that the public sector, for example local authority partnerships, must attempt to engage more in enabling community projects.

On 22 June, Cooperative Energy reported research findings which found that nearly four-fifths (79%) of GB residents support the idea that the government should do more to help local communities generate their own energy. The survey found that 59% thought the government should offer tax relief to communities which invested in generating their own energy.

Cooperative Energy is also sponsoring Community Energy Fortnight 2018 in partnership with CEE, running from 23 June to 8 July, which is showcasing examples of communities who are sharing their technologies.

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Low-carbon technology policy updates

June saw multiple updates on low-carbon policy from the department of Business, Energy and Industrial Strategy (BEIS), such as the opening of the seventh round of the energy entrepreneurs fund. The £10mn fund is a competition for small and medium sized businesses to investigate innovative ways to manage their energy use. The fund applies to energy efficiency, power generation and heat and energy storage.

Low-carbon industry funding also included updated information on two successful case studies winning £560,000 in the Industrial Energy Efficiency Accelerator. There was also further detail on the hydrogen supply programme, which aims to accelerate the bulk of low-carbon hydrogen, improving emission capture rates and capital costs compared to traditional hydrogen production techniques.

The Renewable Heat Incentive (RHI) also saw updates this month, with updated budget caps to the scheme. Budget caps were £640mn for 2016/17, and will rise to £1150mn for 2020/21. It is estimated that the RHI will comfortably not hit these caps in any given period, but an allowance for overspending was provided.

Proposed amendments to Contracts for Difference (CfDs) were published, focusing on wind on remote islands, combined heat and power (CHP), and amending the definition of waste. Remote island wind is to be brought before parliament to be considered for eligibility of CfDs, as well as opening further consultations to review adding it to the scheme. CHP requirements for minimum efficiency are to be updated, due to previous concerns that CHP previously may not have produced optimally useful energy. The definition of waste is to be updated for equivalent reasons, allowing more efficient usage of energy from waste plants under CfDs.

Secretary of State for BEIS Greg Clark made a public statement supporting the Horizon nuclear project at Wylfa Newydd, Wales, setting out the government's intent in current negotiations with provider Hitachi to deliver two reactors with a combined capacity of 2.9GW. A key theme of his statement was for the project to provide the best value for consumers, and that longer term new nuclear would not be financed by the state. The plant is expected to contribute 6% to the UK's future power supply.

The government also updated information on the Microgeneration Certificate Scheme (MCS), with a link to the new website as the scheme is now fully independent of government. The MCS 'certifies, quality assures, and provides consumer protection for microgeneration installations and installers', which include small scale solar, wind and biomass producers. It was made fully independent of government on 20 April 2018, with control being handed to the MCS Service Company and the MCS Charitable Foundation.

The RHI is a government financial incentive to promote the use of renewable heat.

A CfD is a mechanism that gives stability of revenues to electricity generators by reducing exposure to volatile wholesale prices, whilst protecting consumers from paying higher costs when electricity prices are high.



Heat decarbonisation pathways set out

On 28 June, the Committee on Climate Change, together with Imperial College London, published preliminary findings in *Analysis of Alternative UK Heat Decarbonisation Pathways*. Three pathways were examined: decarbonisation via hydrogen, decarbonisation via electrification, and hybrid heating systems (a combination of the two). It developed these scenarios around desired emissions reductions, reducing emissions to 30 megatonnes (Mt), 10Mt or 0Mt.

Costs per year range from £81.6bn-£88bn for hybrid systems, £87.8bn-£92.2bn for electric systems, and £90.9bn-£121.7bn for hydrogen systems, with variations accounting for emissions targets involved.

A key finding from these is that lower emission targets will lead to higher costs. Overall, hybrid systems deliver the lowest cost path. Electric and hybrid systems find it easier to meet the 0Mt target than hydrogen, which would have the highest cost in the scenarios. However, no technology has great advantages over others, with all pathways being relatively similar in cost analysis. The research notes there are significant uncertainties in estimates across all scenarios.

The findings surmised that all decarbonisation pathways will require electrification to some extent. Improving energy efficiency rates across all buildings could reduce costs significantly across all scenarios and is therefore very important. Costs will be dominated by capital expenditure rather than operational costs, so measures that reduce these costs will have a significant impact. Integrating flexibility (how we change our production and consumption patterns) reduces costs across all scenarios by up to £14.2bn a year. In the fully electrified scenarios, creating flexibility could require up to 55GW of electricity storage if thermal storage is not considered.

The research recommends further analysis to deepen understanding. It also recommends greatly expanding the decarbonisation of electricity supply to prepare the pathway preparation, increasing renewable technologies and ultimately bringing online more nuclear, CCS and hydrogen-fuelled gas turbines.

New policies are recommended, including low carbon heat uptake beyond the Renewable Heat Incentive, and 'radical' new energy efficiency policies. Market changes to incentivise flexibility and pilot trials of hydrogen and electrification will also be required.

The research notes not decarbonising heat, as well as decarbonising other sectors, will be incompatible with climate targets, meaning that heating emissions must be reduced, possibly down to 0Mt. Hydrogen production demonstration plants for both steam methane reforming and electrolysis are also recommended for trialling.

Decarbonisation of transport

UK's largest EV charging company to be acquired by BP

Chargemaster - the UK's largest electric vehicle (EV) charging company - is to be acquired by BP, it was announced on 28 June. Chargemaster currently has more than 6,500 public EV charging points across the UK and designs, builds, sells and maintains both public and domestic charging units.

BP Chargemaster plans to begin rollout of ultra-fast charging infrastructure, including 150kW rapid chargers, at forecourts over the next 12 months.

Chief Executive of BP Downstream Tufan Erginbilgic said: "We believe that fast and convenient charging is critical to support the successful adoption of electric vehicles. Combining BP's and Chargemaster's complementary expertise, experience and assets is an important step towards offering fast and ultra-fast charging at BP sites across the UK."

BP thinks there will be 12mn EVs on the UK's roads by 2040, and is moving to lay the foundations to meet the needs of this future market sooner rather than later.

Hampshire County Council releases funds for public access EVs

Hampshire County Council has released funding for district, borough and town councils to install electric vehicle (EV) charging points.

So far there are plans for six 'rapid charge' points, on top of six "fast charge" plots. Rapid chargers typically charge an EV to 80% in 30 minutes, whereas fast chargers typically charge an EV in 3-4 hours.

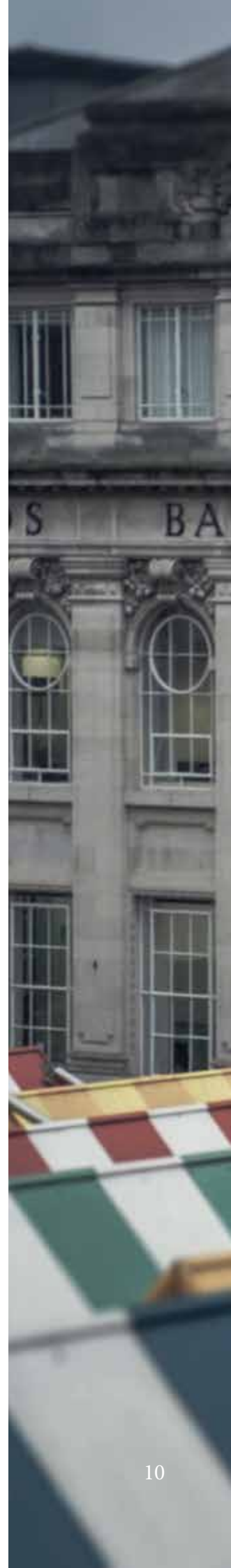
Economic development chief, councillor Mel Kendal, said: "Our EV programme remains focused on investing in facilities so that Hampshire residents can access environmentally friendly travel. This gives value for money both for motorists and the public purse."

While the ambition can be applauded, most EV owners will value shorter charging times. Focus should therefore be on installing rapid charging stations.

Cambridge City Council selects eVolt to supply EV charging points

Cambridge City Council has selected electric vehicle (EV) charging provider eVolt to supply charging points for taxis across the city. The move will help deliver the city's Ultra Low Emission Vehicle Taxi project, which will see 21 rapid and fast chargers installed across the city over the next three years.

Rosy Moore, executive councillor for environment and city centre, said: "Installing these new rapid chargers for electric taxis marks a genuinely positive shift away from polluting diesel taxis."



Energy research/innovation

UKPN to launch London's first virtual power station

Distribution network operator UKPN announced plans on 22 June to set up the first virtual power station in London. Rather than a single site with large power generating machines, the virtual power plant will be made up of solar panels on the roofs of potentially thousands of Londoners. These will be combined when batteries, which will store the energy when it is not needed and release it when it is. The process will be controlled centrally by UKPN.

Participants in the scheme will be rewarded when their batteries are used to provide power, and this could reduce the need for new cables and other electrical infrastructure. The pilot scheme will see 40 homes in Barnet, which have solar panels and storage battery, be remotely controlled. This follows an earlier trial in February where batteries in 45 homes were remotely controlled to minimize consumption during peak hours; the average reduction was 60%.

UKPN will be working with British company PowerVault, who will manufacture the batteries for the scheme. PowerVault batteries can be charged with cheap overnight electricity from the national grid or directly from rooftop solar panels. Joe Warren, managing director of PowerVault, said "A payment for supporting the local networks, on top of the savings from solar and time-of-use tariffs, will enhance the business case for our customers, moving us a step closer to our goal of delivering a mass-market product as common as a dishwasher."

Government issues innovation loans

Innovate UK, the government body responsible for promoting UK research and development, announced £8mn in loans to 13 companies on 25 June. The companies are developing products to compete in the global smart infrastructure market.

Some of the first companies are:

- CitiLogik, which analysis how people move around cities, to help develop better transport links
- G-Volution's hybrid engine which run on a flexible combination diesel and greener fuels such as natural gas, alcohol or hydrogen
- Utonomy, which produces an active management system to control the pressure of gas networks and minimise leakage
- Lightfoot, which makes devices to monitor driving and provide rewards to safer and more efficient drivers

A total of £50mn will be available over two years, with the money to be used to commercialise new technologies.

A virtual power station is a cloud-based distributed power plant that aggregates the capacities of distributed energy resources.

Pixie Energy event draws key insights

On 19 June, Pixie Energy and parent company Cornwall Insight gathered a variety of speakers in London for an event titled *Innovation and Disruption at the Grid's Edge*. Introduced by Pixie Energy founder Nigel Cornwall, the event focused on the large changes needed at the edge of what the electricity grid currently handles to meet the decarbonisation transition.

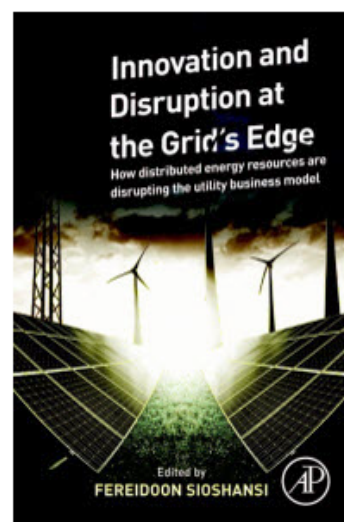
The event was named for energy markets consultancy Menlo Energy Economics founder Fereidoon Sioshansi's new book of the same name. Sioshansi opened the guest lectures with a talk on the transition from traditional electricity consumers to the notion of "nonsumers" – self-reliant energy producers with no need to connect to the grid. He concluded that nonsumers represent the furthest departure from the traditional consumer, with prosumers (consumers creating their own energy) and prosumagers (prosumers with storage capability) representing intermediate steps on the journey to becoming nonsumers.

Retail team lead Anna Moss from Cornwall Insight introduced possibilities for disruption innovation, and how this can benefit energy retail. She argued there is no shortage of supply innovation ideas, but these may be limited in application.

Peer-to-peer (P2P) trading (enabling people to buy and sell energy to each other directly) was the topic of discussion for David Shipworth of the UCL Energy Institute. P2P can help avoid social marginalisation that arises from a range of energy service offerings and can help maximise social engagement. Blockchain (a technology that can facilitate P2P energy trading) and its potential use in the electricity sector was introduced by business school ESMT's Christoph Burger. He demonstrated that blockchain can significantly reduce costs of P2P networks.

Cornwall Insight CEO Gareth Miller discussed how decarbonisation pathways of transport and heat are diverging, with transport following an electrified route and heating following the potential route of hydrogen.

Nigel Cornwall delivered the last lecture, focusing on community energy in a post subsidy world, and the role of Pixie Energy in securing that transition. Pixie Energy is working hard to kickstart local supply models and creating case studies to achieve this.



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