Call for evidence: developing a smart, flexible energy system
Centrica Executive Summary

Overview

- We welcome this *Call for Evidence* on the growth of a smarter, more flexible energy system. This comes at a time of fundamental change in the energy sector:
    - **Smart technology usage is growing**, driven by the GB-wide smart meter rollout and availability of products, such as Centrica's Panoramic Power's Wireless Sensor technology and British Gas' Hive products, which allow consumers to take control of their energy.
    - **Low carbon power generation is growing**. Emissions reduction targets, Government support for renewables, and more challenging economics for polluting power stations, is supporting a transition to lower carbon technology.
    - **Flexible, distributed energy sources are growing but more is needed** to help balance the future electricity network. Battery storage, CHPs and peaking thermal plants are more commonplace and the IEA estimates that distributed energy could grow to 12 per cent of global power capacity by 2030.
    - **Consumers are becoming more proactive** as more homes and businesses take advantage of new, cost-effective energy technologies to create their own energy needs and sell excess energy back to the National Grid.
- Centrica is leading the industry in adapting to this new landscape. We will be investing over £1.2bn in our **Connected Home** and **Distributed Energy and Power** businesses in the coming years, which are focused on using new technology (such as Hive and Panoramic Power) to put consumers in control of their own energy and deliver a more flexible power grid. The National Infrastructure Commission estimated that a smarter power system could save consumers up to £8bn per year.
- We believe that competitive markets are the best mechanism to bring forward new smart energy and flexibility solutions as they provide the most cost effective solutions – the Capacity Market and National Grid's EFR Tender are good examples of this. Because the energy system of the future is difficult to predict we believe the market needs to be allowed to evolve. Ofgem and BEIS should focus on promoting independent, transparent, technology neutral and market-based solutions and promote "least regret" polices where necessary.
- At this stage, we believe there are three areas of focus that can help develop a smarter, more flexible energy system:
    - Support the growth of new technology that puts consumers in control of their energy
    - Realise the potential of larger energy consumers to benefit from a smarter energy system
    - Ensure sufficient power capacity and support the growth of new markets for flexibility especially at local (distribution) level.

Support the growth of new technology that puts consumers in control of their energy

- Centrica is leading the transition to a smarter energy system in the UK.

- We believe the market is already bringing forward new innovations and technologies to support this transition – such as our FreeTime tariff and our suite of Connected Home products.
- We are leading the smart meter roll out in GB – with over 3.5m meters installed in homes and businesses to date – as well as leading the growth of new connected technology.
- We now have over 500,000 Hive customers in the UK and are launching new products regularly, such as active lights, plugs, motion sensors and connected boiler technology.
- We believe Ofgem and BEIS should focus on ensuring regulation is proportionate and does not stifle innovation. For instance the CMA stated that Ofgem constrained innovation via its "simpler choices" Retail Market Review (RMR) rules and we also hold concerns around the introduction of some elements of the General Data Protection Regulation – applicable from May 2018. Some provisions within this regulation are likely to stifle innovation and the roll-out of smart technology.
- We therefore support Ofgem introducing a 'narrow' principle that encourages suppliers to consider the characteristics and preferences of customers and the comparability of their tariffs. We believe 'narrow' principles are more likely to achieve Ofgem's desired customer outcomes and deliver regulatory certainty for suppliers because these principles apply to discrete policy areas and are targeted at a well-defined and identifiable market failure.

Realise the potential of larger energy consumers to benefit from a smarter energy system

- We welcome this call for evidence's focus on the significant potential of encouraging industrial and commercial consumers to better manage their energy.
- Larger energy consumers (industrial, commercial and services sectors) account for over a third of all electricity and one quarter of carbon emissions. Moreover the CBI, in a 2013 report, '***Shining a Light: Uncovering the business energy efficiency opportunity***' has previously estimated that businesses may be paying up to 15% too much for their energy by not installing more efficient energy systems. These savings could help boost the productivity of UK businesses.
- Centrica has launched a new distributed energy and power business, which is focused on using new monitoring, generation and optimisation technology to help larger energy consumers to use energy more efficiently, reduce their carbon emissions and even sell excess energy back to the grid.
- Earlier this year, the British Chambers of Commerce (in association with British Gas) published an Energy Insight report, which sought the view of more than 2100 businesses on Energy Efficiency related matters. Many businesses highlighted that the area remains relatively unknown and complex and they don't have a good idea of the financial benefits of making their energy system more efficient.
- We believe the industry, Government and regulators should work together to highlight the importance of flexibility resources in the future energy system and the potential carbon and financial savings businesses could make by monitoring, managing and optimising their energy assets. We believe an important first step in this journey is encouraging businesses to better monitor their energy. Our Panoramic Power Wireless Sensor Technology, which provides a detailed, real-time view of a business's energy usage, can be installed across a

business's facilities within hours and has helped one business in the US save over $270,000 a year on their energy costs.

Ensure sufficient capacity and support the growth of new markets for flexibility

- The UK needs to ensure it maintains sufficient power capacity, whilst developing new markets for flexibility.
- The Capacity Market is a good mechanism to maintain sufficient capacity and bring forward investment in new, lower carbon capacity, such as Combined Cycle Gas Turbines (CCGTs).
- We believe more needs to be done to create new markets for flexibility.
- Renewables made up 25% of power generation in Q3 2016 and due to their intermittency more flexibility and balancing services are needed.
- We welcome National Grid's Power Responsive which is looking to bring forward more flexibility, not least because we observe that one of the current barriers is a lack of commercial opportunities. More network tenders for flexibility services at local and national level, (e.g. National Grid's Enhanced Frequency Response (EFR) tender where 200MW of battery storage projects were brought forward at a very competitive price) should be prioritised.
- Distributed Network Operators (DNOs) need to adopt a similar approach to managing their networks. Providing signals of their future system requirements will enable new flexibility providers to identify, innovate and develop the new services and technologies needed currently and into the future. When electric vehicles are further rolled out, there could be huge cost implications for local distribution networks. Designing procurement services and building flexibility capability now should help mitigate this risk. DNOs will need to adopt a more sophisticated and proactive approach to managing their networks, but their role should be identifying the flexibility services they need and buying these products competitively from the market. DNOs should not be supplying flexibility products to themselves or to the grid, as this will prevent competition, innovation and the transition to a smart, flexible energy system.
- We believe Centrica's Local Energy Market (LEM) trial in Cornwall will provide important lessons into how to create effective markets for energy at the distributed network level and we look forward to sharing our learnings with Government.
- The LEM is a £19m trial that will see the development of a virtual marketplace to provide participants with a platform to buy and sell energy and flexibility both to the grid and the wholesale energy market. We will also be installing new generation and storage technology into over 150 properties, which will allow us to explore how individuals and businesses interact with the technology.

More Information

Connected Home:	https://www.centrica.com/about-us/what-we-do/connected-home
Distributed Energy and Power:	https://www.centrica.com/about-us/what-we-do/distributed-energy-and-power
Cornwall Local Energy Market Trial:	https://www.centrica.com/news/centrica-build-pioneering-local-energy-market-cornwall-0