

LCH 03

Ymateb gan : Centrica

Evidence from : Centrica

## About Centrica

- Our purpose is to satisfy the changing needs of our customers.
- We are a provider of energy and services to more than 26 million residential and business customers across the UK, Republic of Ireland and North America. We also have a presence in a number of Continental European markets and are looking to expand our key businesses internationally.
- We are repositioning ourselves away from the traditional energy utility model towards an energy and services company driven by technology, and are targeting four focus areas for growth:
  - Energy Supply & Services.
  - Connected Home.
  - Distributed Energy and Power.
  - Energy Marketing and Trading.
- We are currently investing some £1.4bn across our connected home and distributed energy businesses out to 2020. Already, we
  - serve business customers across Europe owning more than 10GW of distributed energy assets.
  - have already installed some 660,000 Hive hubs in customers' homes.
- We have also taken a lead in the smart meter roll out in the UK, having installed 4.5m smart meters in domestic homes. This is equivalent to the number installed by all other suppliers combine. Around 200,000 of these are in Wales. We began installing fully interoperable SMETS 2 smart meters in October of this year.
- Decarbonisation of domestic heat matters to Centrica. Our understanding of what customers want is based on our experience of:
  - Installing around 100,000 boilers each year and servicing around 4m, across Britain.
  - Using innovative connected home technology, including BoilerQ – which remotely diagnoses under-performing boilers, to make life simpler.
  - Conducting field trials of heat pumps, boiler hybrids and other emerging technologies.
- Our response here is informed by this customer experience.

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## Questions

### What role can housing play in Wales' low carbon transition, including the potential positive impacts on greenhouse gas emissions?

- The UK has a legally binding commitment to reduce greenhouse gas emissions from 1990 levels by at least 80% by 2050. In order to achieve this, the Committee on Climate Change's (CCC) assessment is that the heating sector will need "a near complete decarbonisation" by 2050. This is a major challenge and will require action over a number of decades.
- Residential buildings in Wales accounted for 3.5 million tonnes CO<sub>2</sub>e in 2014, around 7.6% of total Welsh emissions.<sup>1</sup> This is a slightly smaller proportion of emissions than in the UK as a whole. But the percentage reduction that will be required in this sector is similar. We recognise that the Welsh Government is waiting for recommendations from the CCC on carbon reduction targets for Wales which may choose to prioritise decarbonisation in domestic settings at a faster rate than for non-domestic.
- It is important to determine the most cost-efficient temporal profile of emissions reductions in the heating of Welsh homes. The advice from the CCC is that direct emissions from heat are to be reduced by around 20% by 2030. This is equivalent to installing a low-carbon heating source in around one-in-seven Welsh homes by 2030; with a much more ambitious roll out of low carbon heat thereafter.
- There are two drivers for this profile of emissions reductions. First, the typical lifespan of heating technologies (around 15 years) means that most existing appliances will be replaced twice between now and 2050 – i.e. we don't need all replacements in the near term to be low carbon to meet the 2050 target. Low carbon options today are significantly more expensive than the most prevalent technology – natural gas. However, second, the supply chain for low carbon heating technologies will need to be developed before 2030 in order to meet the mass roll out thereafter. Some familiarity with these technologies will also be valuable to overcome customer inertia in later years.

### The development and availability of technology needed for highly energy efficient housing: what changes are needed to ensure that existing housing stock is as energy efficient as it can be?

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<sup>1</sup> CCC, Advice on the design of Welsh carbon targets, April 2017

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- There is a good understanding of some of the technology options for low carbon heating of homes. Indeed, many of these technologies can be described as mature. However, there are limiting factors though in the availability of trained installers, the absence of mature supply chains, and very limited customer familiarity with these options. From our experience, we have seen examples of where a top-down approach has ignored issues of customer acceptance and behaviour:
    - Evidence from the failure of the Green Deal, and the reluctance of customers to engage with energy efficiency measures under the Energy Company Obligation demonstrates consumers are put off by long pay-back periods and household disruption.
    - Strong customer inertia in relation to energy is also a powerful force. Customers enjoy the familiarity and flexibility provided by gas boilers and require fresh incentives to modify their behaviours and/or invest in new technology.
  - Against these challenges, we believe serious consideration should be given to the contribution that hybrid boilers can make to decarbonising our housing stock. Hybrid boiler systems constitute an electric heat pump combined with a small gas boiler.
    - The hybrid switches between the two fuel types, depending on which is most efficient or cheapest at any given time. The heat pump will generally meet 60-95% of annual heat demand, although the gas boiler can operate during periods of peak demand in the coldest weeks of winter. Both gas heat pumps and hybrid gas boilers offer a potential remedy to the problem of meeting peak demand and seasonal variation in an overwhelmingly electrified heating system.<sup>2</sup> They also both take advantage of the UK's extensive gas infrastructure.
    - Upfront installation costs of hybrid gas boilers are approximately £3,000-£5,000. Having a dual technology system means that heat pumps can be both smaller and cheaper than those which are installed alone, although the installation of both a gas boiler and a heat pump increases space requirements.
    - Hybrid boiler systems can also overcome some of the practical issues encountered with electric heat pumps, which have a very different user experience compared to a conventional gas boiler. With a lower peak heat delivery, heat pumps are unable to offer the same flexible and rapid 'ramping'

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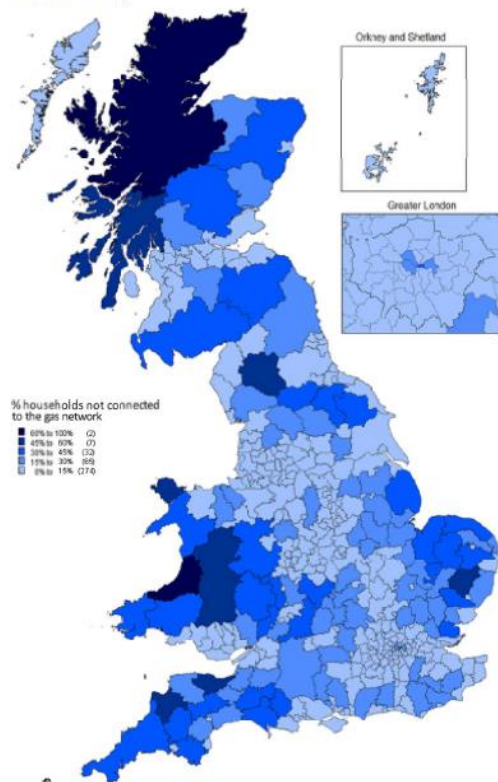
<sup>2</sup> BEIS Evidence Gathering – Low Carbon Heating Technologies. Gas Driven Heat Pumps

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up of heat in the home. Rather, the temperature is moderated over longer periods of time, providing a constant ambient temperature.

- While this can be a more efficient way of heating the home, some users have noted that it does not provide the same feeling of 'warming' as provided by a gas boiler coming on in a cold home. With a hybrid, however, the boiler component means the customer experience can be similar to a gas boiler in terms of responsiveness and rapid ramp up of temperature.
- We would urge that consideration is also given to what technologies represent value for money. Not all energy efficiency measures represent good value. A programme to reduce the UK's heat demand by five per cent through solid wall insulation, for example, would cost around £28bn.
- Centrica believes that priority should be given to the circa four million off-grid households across the UK, recognising that a higher proportion of these are in Wales.

Figure 1: Proportion of properties without a gas meter by local authority (DECC sub-national estimates)



- Off-grid homes have the strongest economic case to invest in alternative technologies. We are recommending that the UK government should set a target of

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reaching all oil-fired homes by the end of 2028 (the end of the Fourth Carbon Budget period.)

- We are calling on the UK government to review the Renewable Heat Incentive (RHI), which to date has had limited impact in incentivising the uptake of new technologies in the domestic sector. The current scheme, based on a seven year pay back model, is unattractive to customers, and requires a high rate of return. Our own customer insight indicates that only around half of owner-occupiers will be willing to invest based on a payback period of three years or longer. This number drops to only one in 10 if the payback period is four years or longer, and virtually none will be willing to invest on a payback period of six years or more. We suggest repurposing the RHI to better target domestic, off-grid customers and other “easy reach” customers through:
  - Moving the RHI to an up-front, capital grant payment, to provide domestic customers with subsidy for technologies would both improve the cost effectiveness of the scheme and stimulate demand. Centrica modelling suggests this would generate savings of up to £1-2bn per annum.
  - Ring-fencing of RHI funding to ensure the domestic sector secures a higher proportion of the overall funding available – the majority of RHI funding currently flows to the non-domestic sector.
  - Bringing low carbon technologies, such as Gas Absorption Heat Pumps, boiler hybrids and mCHP into scope, in line with the approach taken in other countries. These technologies are typically much cheaper than electric heat pump alternatives, offer high grade heat to customers, and do not require retro-fit insulation.
- The above considerations should be factored into any additional support offered by the Welsh Government to assist decarbonisation of heat.

**Whether it is possible and feasible to deliver low carbon, energy positive, affordable housing at scale in Wales and, if so, how this can be achieved;**

**What changes are needed to Building Regulations in Wales to accelerate progress towards ‘near zero’ energy standards and beyond?**

- In May 2016 the UK government scrapped its commitment to ‘zero carbon homes’, a policy which would have required all new homes to have net zero emissions from 2016 onwards.
- We believe that zero carbon homes standards can deliver some of the most cost-effective emissions savings in the sector. The cost depends upon the way in which the Zero Carbon Homes standard is met, but could be as low as £5,000 for a semi-

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detached house. It is likely to be significantly cheaper than the cost of emissions savings from Solid Wall Insulation, which the government is rolling out at an abatement cost of between £233 and £784/tCO<sub>2</sub>40.

- At £5,000 the additional cost of building a home to zero carbon home standards is low enough to be absorbed into the price of a new home, adding around £17 a month over the course of a 25 year mortgage. A zero carbon home also uses approximately half the heat of an average home today, providing significant savings on bills for consumers. It also saves more expensive and disruptive measures having to be installed later on.

### **What are the barriers to delivering transformative change in house building in Wales?**

- We have nothing to add here.

### **What is the role of Ofgem and the National Grid in enabling grid evolution to accommodate new types of housing, and what are the challenges presented by decentralised energy supply?**

- We would like to see the regulator continuing to explore with gas distribution network operators how the potential for hydrogen and biogas can be developed – including through the current innovation funding models. In order to keep costs to a minimum for the consumer, network operators should not be duplicating effort and projected costs should be accounted for “across the system”.
- As mentioned at the start of this submission, Centrica is investing in distributed energy as one of our key priorities for meeting the changing needs of our customers. We are leading a pioneering trial to explore the potential of decentralised energy supply through the Cornwall Local Energy Market, where we are testing how energy storage, flexible demand and generation can be combined with smart technologies to support the local electricity distribution network and potentially reduce energy costs for homes and businesses. We believe this trial will provide major findings that can inform government, National Grid and the regulator about how the UK can best develop new and effective markets for flexible energy. We are also keen to work with the devolved administrations on this agenda and are already sharing initial learnings with key officials in Welsh Government. We would be happy to provide a desk top demonstration to the committee

### **Whether Wales has the requisite skills to facilitate and enable change in the housing sector;**

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- In terms of green skills, Centrica operates a network of academies across Britain where we train engineers in a range of technologies to help our customers heat their homes and manage their energy bills more efficiently and effectively. In Wales, we are training Smart Energy Experts and upskilling our engineers in new technologies at the learning hub in Tredegar.

**How communities can be planned and shaped to be more energy efficient and low carbon (including examples of good practice in Wales and further afield).**

- We have nothing further to add here.