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Flexible and responsive energy retail markets

Putting consumers at the centre of a smart, low carbon energy system

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CREDS responds to consultations and calls for evidence from government, agencies and businesses, providing insight and expertise to decision-makers.

This response is to a consultation issued by the Department for Business, Energy and Industrial Strategy on 22 July 2019.

https://www.gov.uk/government/consultations/flexible-and-responsive-energy-retail-markets

It was prepared for CREDS by Prof Jacopo Torriti (University of Reading) and Prof Nick Eyre (University of Oxford).

CREDS provided evidence to questions 1, 2, 4, 8, 11 and 17. Our full response is below.

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Introduction

CREDS' analysis shows the complexity associated with making the electricity market flexible and responsive. In our recent report 'Shifting the focus: energy demand in a net-zero carbon UK'[1], we provide three main recommendations with regards to flexible and responsive energy demand.

- First, we recommend that consumers should be enabled to benefit from the reform of the pricing settlement.
- Second, we recommend that the National Grid Capacity Market should aim to increase storage and DSR participation, extending the one-year contracts under transitional arrangements for a longer time period.
- Third, we recommend reform of the current system of double charging for storage.

The position of the consultation document is that there are challenges to increasing flexibility whilst maintaining high levels of access for all consumers and these should be studied and understood. We agree with this general position and in our response we try to unpack some of these challenges and provide information on how research can be used to facilitate the transition to an energy system which is not only more efficient from a technical perspective, but also fair for consumers.

We also use our experience of energy efficiency investments and markets to make some recommendations on the future of energy efficiency obligations.

Below we address some of the specific questions set out in the terms of reference of the consultation.

1) Do you agree with our vision for the future of the energy retail market, the outcomes we are seeking to achieve and our characterisation of the key challenges we need to overcome?

The aspiration is to open up suppliers' opportunities for more responsive energy demand and create greater choice to consumers. Overall, we agree with the outcomes outlined in the consultation document, but we also think that there should be a better recognition of how the innovation which will enable this transition will affect different types of users.

[1] https://www.creds.ac.uk/publications/shifting-the-focus-energy-demand-in-a-net-zero-carbon-uk/

This requires careful research work to understand the interaction between flexible (and so-called 'smart') solutions and everyday life (i.e. the current patterns of energy demand). Research at CREDS sets out to shed light on aspects of how innovation aimed at higher flexibility interacts with people's lives. This is because those consumers who can afford the capital costs associated with flexible services will be able to initially reap the benefits and reduce their energy costs.

The principles which drive the energy retail vision outlined in the consultation document relate to post-trilemma thinking. For instance, with regards to fairness, suppliers of small consumers are paying too much for capacity they do not use (kW). Overall the consultation document does not seem to be too negative around the status quo (or arguably not very optimistic about regulatory change). Higher simplification of the retail market is desired, but the areas in which simplification will take place are not specified. Priority areas for simplification should not consist of retail tariffs only, but also billing, customer contracts and access to consumer protection.

Understandably, the consultation document does not analyse in detail examples of innovation for the retail market. However, intuitively products which have recently entered the market, such as 'energy as a service' (where photovoltaics and home batteries are installed by suppliers to facilitate demand flexibility), are better suited to larger dwellings with higher investment capacity. Beside home batteries and 'energy as a service', other flexible products and tariffs which might be offered by retailers include smart tariffs and time of use tariffs for electric vehicles. Compared to all car owners, electric vehicle owners are more likely in the 40-69 age group, high social grade, live in multi-car households[2] and are 89% male[3]. There is increasing evidence that opening the market to flexibility products will be mainly to the advantage of those with financial and capital advantages[4]. It is critical that government intervention takes into account distributional effects of any technical and price intervention aimed at increasing the level of flexibility offered by retailers to consumers.

[2] Department for Transport (2014) Public Attitudes to Electric Vehicles: 2014

[3] Hutchins, R., Delmente, E., Stannard, J., Evans, L. and Bussell, S. (2013) Assessing the role of the Plug-in Car Grant and Plugged-in Places scheme in electric vehicle uptake

[4] Powells, G., & Fell, M. J. (2019). Flexibility capital and flexibility justice in smart energy systems. *Energy Research & Social Science*, *54*, 56-59. The ability to be flexible is affected by a wide variety of sociotechnical factors and determines what we term 'flexibility capital'. Levels of flexibility capital vary in populations, both absolutely and in the extent to which they are primarily derived from technological or social means, which has implications for the (dis)comfort and (in)convenience involved in economising flexibility capital.

2) Are there examples of new products, services and business models that would benefit current and future consumers, but are blocked by the current regulatory framework?

There are examples of new products, services and business models that would benefit current and future consumers, but are blocked by the current regulatory framework. For example, a more responsive power market could be delivered through programmes and tariffs which limit and charge consumers modularly for the amount of power which can be demanded at any given time.

Work carried out on behalf of Citizens Advice[5] reviewed experiences in a number of countries that have implemented measures to place limits on consumers' capacity requirements. These limits appear to be lower than the physical household fuse capacity in these countries. Capacity thresholds are associated with higher costs for higher thresholds. Typically, customers can choose from pre-defined capacity limits. Retailers provide guidance on how much might be required for smaller and larger households, with or without certain appliances, heating and cooling. Some markets also allow for short periods of disconnection if consumers exceed their capacity limits. We found that the Southern European countries of Italy, Spain and Portugal offer substantial experience in implementing and refining capacity-based limits and charging. A key driver of this is the capacity-demand of electric air conditioning. Similarly, countries where heat pumps are gaining ground – Sweden, Norway and France – are starting to implement capacity-based charges for domestic consumers.

4) Would it be beneficial to allow suppliers to specialise and provide products and services to targeted groups of customers? If so, how can this be delivered while balancing the need for universal service?

In principle, it might be beneficial to allow suppliers to specialise and provide products and services to targeted groups of customers. The extent to which this approach will be successful in increasing flexibility whilst balancing the need for universal service depends on whether they will be able to offer flexible products which do not exacerbate differences in bills, whilst incentivising flexibility. For instance, given the current smart meter functionalities, supplier could offer tariffs which not only take into account time-use, but also power demand. The

[5] http://centaur.reading.ac.uk/84886/1/Core%20Capacity%20Report%20Cit%20A%2C%20CAG%20Consultants%20final.pdf

University of Reading carried out work for Citizens Advice[6] to estimate which core capacity different customers can be associated with based on smart meter data. This painted a picture of how maximum demand varied in time, and across different types of consumers (income levels, heating type, rural or urban and other categorisations). Electric heating and high-income levels contribute to high-end capacity usage, whilst vulnerable consumers contribute to low-end capacity use.

8) How could the delivery burden from the Energy Company Obligation be reduced, for example, through the introduction of a buyout mechanism?

The impact of supplier energy efficiency obligations on consumer bills has been hugely beneficial, as the costs of the investments have been significantly smaller than the lifetime energy saving benefits according to Government's own impact assessments. This is significantly underplayed in the consultation document, as it only refers to the period of ECO (2013-current). Supplier obligations have been in place in the UK market since 1994[7]. They were substantially reduced in 2013[8], with consequential damage to consumer interests. Whilst supplier obligations may therefore reasonably be described as a 'delivery burden' to those suppliers that do not want to support energy efficiency amongst their customers, they are clearly in the national interest, and consistent with the statutory duty to promote consumer interests.

The perverse public policy in the UK on supplier obligations has not been mirrored in other countries, many of which have introduced and strengthened energy efficiency obligations in recent years[9]. So, there is now much that the UK can learn from other countries. Two particular changes could help reduce the risk of uneven costs to suppliers that is mentioned in the consultation document.

The first change would be to broaden the base of the obligation. GB supplier obligations are focussed entirely on low income household heating, despite there being no evidence that this is their most effective use. GB supplier obligations have always been unique in being confined

[6] http://centaur.reading.ac.uk/84886/1/Core%20Capacity%20Report%20Cit%20A%2C%20CAG%20Consultants%20final.pdf

[7] Mallaburn, P. S. and N. Eyre (2014). "Lessons from energy efficiency policy and programmes in the UK from 1973 to 2013." Energy Efficiency **7**(1): 23-41.

[8] Rosenow, J. and N. Eyre (2013) "The Green Deal and the Energy Company Obligation." Proceedings of the ICE - Energy **166**, 127-136.

[9] Fawcett, T., Rosenow, J. & Bertoldi, P. (2018). Energy efficiency obligation schemes: their future in the EU. *Energy Efficiency*, **12** (1): 57–71.

to households; every other country uses them to support business energy efficiency as well and some to support transport. In GB, since 2013, almost all electricity use and 'able to pay' households have been excluded as well. Since the collapse of the Green Deal this is a huge anomaly, for which there is no supporting justification. Allowing measures in business and non-heating end uses within the scope of the obligation would increase the number of obligated suppliers, increase cost effectiveness and reduce risks of costs falling unfairly on some suppliers.

The second change would be to place the obligation on gas and electricity distribution companies instead of suppliers. At the time of the unbundling of the Public Electricity Suppliers in 1998, both supplier and DNO options were discussed and both are allowed under the relevant primary legislation. However, the supplier obligation option was preferred on the grounds that it would encourage suppliers to be energy service companies selling energy efficiency as part of their core business. This has clearly never happened, and it is ironic that the current consultation now sees the obligations as a potential barrier to more innovative retail market offerings. DNOs are showing an increased interest in end use efficiency as part of the toolkit for delaying or avoiding network investment. There are a number of reasons to think a distribution option would be preferable. All distribution companies have the size to bear obligations. Their longevity and asset management focus is better suited to infrastructure investment. And costs to consumers would be spread over a price control period rather than incurred in the year of the measures. We therefore recommend that BEIS and Ofgem revisit this option.

11) Do you agree that now is not the time to make further changes on system and network cost recovery, metering and access to data as part of this retail market review?

Any intervention in the retail mark will need to be strongly connected to other targeted changes in Significant Code Review looking at access and forward-looking charging arrangements and access rights and choices for small users. Hence, timing associated with these changes is critical. For example, domestic energy bills are mainly energy-only (charged solely as a flat per kWh rate) and this is the case because of how wholesale energy is bought and sold, and how the networks charge for non-half hourly metered users. If network charges were to change and incorporate a capacity-based charge for smaller users, suppliers would be expected to pass on this change to their customers.

17) What protections or support may be required to engage consumers in vulnerable situations in the future market?

Flexible products such as Real Time Cost pass-through for those customers previously on Standard Variable Tariffs and currently defaulting to price cap could be introduced to ensure flexibility, cost reflectiveness but also reducing distributional effects. Retailers use strategies whereby they charge a higher tariff, and therefore earn a greater margin, to consumers on default arrangements. This tactic of 'tease and squeeze' acts by incentivising consumers to switch through cheap, low-margin or loss leading tariffs on the expectation that they will default on to more expensive (and more profitable) Standard Variable Tariffs once their fixed rate expires. This pricing strategy has prompted a significant price differential between engaged consumers (typically on more competitive fixed price deals) and those on default arrangements. A cost pass-through tariff means that consumers on default arrangements are exposed to a tariff in which short-run marginal wholesale cost changes are passed through in their entirety. This means that consumers will be exposed to volatile wholesale costs in close to real time. This mechanism will probably provide more price-transparency and assurances that default consumers are paying a cost reflective price[10].

Capacity limits also have the potential to ensure energy bills remain fair and cost reflective but there is the potential for disproportionate impacts on vulnerable and disadvantaged consumers. The introduction of something like core capacity or capacity charging is a significant shift for domestic consumers. It will most likely change the way consumers behave, as well as what they pay. Its introduction on a market-wide basis would almost certainly be accompanied by detailed impact assessment, and this will need to include careful consideration of the impact on vulnerable and/or disadvantaged consumers.[11]

[10] Torriti, J. (2016) Peak energy demand and demand side response. Routledge
[11] http://centaur.reading.ac.uk/84887/1/SSEN%20core%20capacity_final.pdf