

Ofgem - Open Letter on the next network price control review process

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Respondent – Glen Dimplex Heating & Ventilation

Glen Dimplex Heating & Ventilation is a leading manufacturer of electric heating product. With over 50 years in the UK market, we have delivered many innovative technologies that work in parallel with the various stakeholders in the electricity supply chain to bring electrification of heat to the homes of customers.

From across our solutions, which cover heat pumps, thermal storage heaters, water heating, smart controls and demand side managed projects, we have unique experience in electrification and decarbonisation of heating in buildings. As such, we feel it is critical that the strategic issue of flexibility and storing energy in smart domestic appliances be covered in some detail, in order that the price control view can be created with the consideration of this transition.

Question One

Do you have any views on the strategic issues we must consider in the development of the next price control review process?

Flexibility on the demand side will certainly grow in the coming years as electrical load from EVs and heating increases and as more variable renewable generation comes onto the electricity grid. We are seeing an increase in smart device innovation, specifically in the categories listed in the government consultation for a 'Safe and Secure Electricity System (SSES)' where heat pumps, smart thermal storage heaters and other thermal storage devices will electrify heat in homes whilst providing balancing mechanisms for the grid.

There are over three million storage heaters installed in domestic homes in the UK, and over 300,000 have already been converted to smart thermal storage heaters capable of responding to price signalling. This is just one example of a mature technology which already exists and can be used for flexibility, however, the current tariff structure and price signals are not appropriate to incentivise consumer participation at scale. This means that when tariffs and price signalling with verified values for the different flexibility services is commercialised, uptake can happen very quickly. In numbers:

- 1.4 million homes in GB are dependent on thermal storage heaters as their primary heating system.
- The total energy storage capacity available from storage heaters is 56 GWhrs with a connected load of 7.7 GW
- Thermal storage heaters in homes distributed around GB provide more than 6 times the energy storage capacity of the Dinorwig hydroelectric plant.

- If thermal storage heaters were removed, this would aggregate to an incremental load of more than 4 GW on the GB power system during peak Winter demand periods. This is more than the 3.2 GW capacity that will be available from the two new nuclear generation units being built at Hinkley Point, at a cost of £25 billion.
- Alternatively, those 3.5 million storage heaters could be upgraded to become connected smart thermal batteries, enabled with the latest demand side management technology.
- This would allow these 1.4 million GB householders to participate in and benefit from the transition and decarbonisation of the energy system.
- In addition, these flexible services will also be available to other thermal storage technologies, electrical battery storage systems, domestic water tanks and many other variants of domestic storage which could sum many times that of smart thermal storage heaters alone.

This highlights two aspects that we would like to put forward as strategic considerations to the defined review.

Firstly, there is a significant volume of demand side flexibility dormant (from a smart response perspective) in the market, and unlocking this quickly via the review process will have many benefits, including accelerating the rollout of non-dispatchable energy generation, securing of our national energy security, creation of a revenue stream to participating consumers, improving their economic position within the model by financially rewarding low carbon, grid supporting activities.

Secondly, these smart thermal stores (and other off-peak derived technologies) are at risk of being removed, should the energy pricing and financial reward system not correctly transition their position from the current Economy tariff structure to the new flexible energy services tariff model. A gap in which the effective storage of off-peak energy is not correctly rewarded could see significant volumes of storage products being replaced with analogue, rather than smart DSR ready replacements. This could permanently remove access to the massive thermal battery that the UK currently has access to – a battery that we as the leading manufacturer of this technology are receiving international interest about developing, where Canada and countries in the Nordics can see the value of a domestic heat battery and are working to build it as a contributing factor to the electrification of heat in homes, and indeed the maximisation of use of their renewably generated energy. We must use this legacy thermal store strategically as a building block towards a modern, smart energy storage network which operates in synergy with our developing grid and electrification goals.

In summary, the price control review process must make strategic consideration for the creation of a new domestic battery and thermal store network, supporting innovation and growth for the benefit of other technology rollouts, energy security, decarbonisation and ultimately, a good deal for consumers.

We would be happy to discuss these points further and are also in discussion with the Pricing Team to review the current Economy tariff structure and its fair transition of financial reward of the off-peak energy utilised to those consumers with the technology that make it possible.