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Our Ref: 1435ejb11

7th December 2011

Dear Mr Mokkas,

Response to the consultation 'Electricity Capacity Assessment' – Demand Side Response issues

Thank you for the opportunity to respond to the Ofgem consultation *Electricity Capacity Assessment: Measuring and modelling the risk of supply shortfalls*.

RLtec is a UK based company operating unique smart grid technology and is the world's first dynamic demand frequency response technology. RLtec's dynamic demand technology provides an energy balancing service to National Grid. The UK Government estimates that the technology could reduce the UK's CO₂ emissions by around 2m tonnes per year.

As a demand side participant in the UK Balancing Market, RLtec would like to like to respond to Question 10 of the Consultation:

Question 10: Under what conditions would users respond by curtailing their demand and how would you go about modelling this? Is it worth Ofgem requesting data from DNOs on self-interruption and interruptible contracts?

RLtec has already suggested to the Department of Energy and Climate Change that the definition they use for Demand Side Response (DSR) should encompass the service that RLtec provides via Dynamic Demand technology. RLtec is already delivering to National Grid a contracted Frequency Balancing service (see below for an outline of the service).

The comment made in Section 4.39 of the consultation – that “to date, [although] DSR has not had a significant role in the market ... its role in balancing the market is likely to increase.” – is similar to RLtec's view of DSR in the balancing market.

RLtec provides an aggregation service where demand side loads can be used to assist in the short term balancing of grid frequency. This is one channel through which “users [might] respond by curtailing their demand”. RLtec has data on the balancing markets and our participation in it as well as experience in modelling demand side services.



We welcome the opportunity to answer any questions which you may have on Dynamic Demand and how this form of DSR participates in the Balancing Markets, freeing generating sources to provide much needed capacity.

We also note that Ofgem and NGET may informally seek the views of industry experts regarding specific technical modelling issues. RLtec offers to provide any assistance that may be of use when considering the application of DSR technology within Ofgem's modelling approach.

If you are interested in understanding more about our technology and the role of dynamic demand frequency response technology in providing an energy balancing service we would welcome the opportunity to meet with you. In the meantime, please do not hesitate to contact us if you have any queries regarding our consultation response.

Yours sincerely,

Joe Warren

Commercial Manager

About RLtec

RLtec is a UK based company operating unique smart grid technology and is the world's first dynamic demand frequency response technology. RLtec's dynamic demand technology provides an energy balancing service to National Grid, whose role it is to ensure that supply of electricity always matches demand. This is traditionally done with power stations set to continuously adjust supply to match demand. In contrast to this, dynamic demand makes subtle adjustments to electricity consumption in response to electrical imbalances which are detected by measuring the "grid frequency".

RLtec has been providing balancing services to National Grid since March 2011, by using its dynamic demand technology installed into 200 Sainsbury's supermarkets. RLtec is also conducting the largest domestic fridge trial in Europe with 1,200+ Indesit domestic fridges fitted with the RLtec technology. The UK government estimates that dynamic demand could reduce greenhouse gas emissions by approximately 2 million tonnes of CO₂ from electricity generation.

Dynamic Demand Frequency Response – an overview

The target frequency range of the alternating current on the National Grid in the UK (which is to say, the rotational frequency of the generating turbines which feed the grid) is 50 Hz \pm 0.5 Hz. National Grid is mandated to keep the frequency within this band and employs many mechanisms to balance the grid frequency. Electric loads which can be enabled to shift their power consumption patterns without adversely affecting the mechanism of the load or impinging on the overall service provided by the load can be utilised to help balance the National Grid.

- If the frequency goes below 50 Hz (a Low frequency event) then demand for electricity has exceeded supply. **Frequency responsive loads switch off** to reduce overall demand. For instance, a portfolio of supermarket air conditioning fans may be switched off while a low frequency event persists.
- If the frequency goes above 50 Hz (a High frequency event) then supply of electricity had exceeded demand. **Frequency responsive loads switch on** to absorb the excess energy and increase overall demand. For instance, a domestic fridge may switch its compressor on if it was otherwise off and the fridge cavity was not too cold as to go outside operational limits.

National Grid historically gets frequency response services from large generators (i.e. adjustments to the supply side). RLtec delivers these balancing services from the demand side by aggregating the response of energy storage devices.