

NATIONAL INFRASTRUCTURE COMMISSION

CALL FOR EVIDENCE

HULL AND HUMBER RESPONSE

Kingston upon Hull, East Riding of Yorkshire, North East Lincolnshire and North Lincolnshire Councils and the Humber Local Enterprise Partnership welcome the opportunity to respond to the Call for Evidence issued in November by the Commission.

The following provides our joint response to the challenge of Electricity Interconnection and Storage which has a direct impact on economic success and development especially given the continued growth of the Energy Estuary and Renewables Industries in our area.

3. Electricity interconnection and storage

3.1. What changes may need to be made to the electricity market to ensure that supply and demand are balanced, whilst minimising cost to consumers, over the long-term?

It is strongly felt that the current system operator function should remain with National Grid (NGET and NGG), and that any dilution of this would be counterproductive. The incentives currently are related to cost factors, which should remain important, should also be moved to incentives that relate to storage capacity and stimulation and delivery of "negawatts" within the system.

The balancing market should be shifted to ensure that the most is made of renewable energy generation, on a local level, so that transmission losses are reduced to a minimum. The inefficiency in the electricity distribution network, due to transmission losses, needs to be addressed, and significant inroads into this will greatly increase energy security, and reduce the costs for consumers. This can be achieved through greater investment in innovation in business and universities through, for example, Innovate UK, and the creation of local distributive networks.

However, there needs to be flexibility that does not penalise renewable technologies, for periods when the wind does not blow or there are low light levels. This would create a perverse twist in the market and add additional burden to the development and deployment of renewables. The move to a low carbon economy needs to accept this intermittency in part of the energy mix, and storage can help with this. To penalise it, in the same way that would happen for fuels that are causing climate change, does not make any logical or clear policy sense. It is the development of storage that is key to smoothing out fluctuations in generation, and this is where investment and market balancing should be targeted.

We would agree with the publication by Green Alliance¹, and comments made by the Energy and Climate Change Select Committee, that the Government should create a

¹ The Power of Negawatts Green Alliance October 2012 <http://www.green-alliance.org.uk/resources/The%20power%20of%20negawatts.pdf>

FIT mechanism for demand side reduction, this can be used to both incentivise business, and domestic investment in storage and energy efficiency investment. The current demand reduction pilot needs to be expanded, and represent better value for money for businesses. It also once the pilot moves to a more mainstream project, which we hope it will, should have more than one auction a year potentially every quarter.

The Government also needs to ensure that the emergency capacity market does not create strange anomalies where diesel generators can out-compete more low carbon options on price without regard to the carbon impact.

3.2. What are the barriers to the deployment of energy storage capacity?

The lack of investment in energy storage capacity at sub-grid level and research, which has the potential to be a significant area for growth and export, lags a long way behind where it needs to be. If we are to achieve the ambitions in the Low Carbon Transitions Plan then we need to increase the development and deployment of the current small scale storage industry. The Government and system operators need to see every renewable technology as an integral part of the mix with storage enabling the smoothing out of fluctuations in generation.

However at present the cost of domestic, community and city scale storage is unaffordable and does not represent value for money at anything but large scale. The Government needs to provide market mechanisms to reduce the initial cost of storage options, and so grow the market place and reduce cost in the long term. The FIT for renewable generation, and the proposed market mechanisms to encourage new gas generation, must also be deployed for storage as has been done in Germany. Homes and offices that generate energy but have surplus would be better storing it for use at peak times thus supporting peak demand reduction as well.

The transition to an electric economy in domestic and transport use requires a significant increase in domestic, community and city storage.

The UK should consider the generation and distribution of energy on a more district heating ethos. In other words, local generation used locally. While we will still need a national generation and distribution network, we need to maximise the benefits of local network storage, to reduce cost for the consumer.

As the energy network of the future needs to be more distributive, then investment must come from Government, National Grid and the DNO's to stimulate the market. The current regulation framework does not appear to incentivise this.

There is the potential for energy companies to develop Power Purchase Agreement solutions for its customers, to increase the spread of single property and community level storage. The current energy system incentivises large scale single point storage,

we need to break this to increase energy security, and make the most of UK local generation and reduce interconnector dependencies.

The Government needs to set a national energy storage policy, and target to stimulate the market and put appropriate incentives in place. The storage should be for both power and heat. There also needs to be a clear policy steer on the role of the hydrogen economy, and how power storage and surplus energy, is used for this emerging part of the economy.

The reduction in FIT has had a negative impact in particular, on the potential for community generation in off grid rural and urban locations, we feel this is unfortunate of the Government and runs contrary to localism, devolution and the Community Energy Strategy. For those communities that are off grid in particular, renewables provide potentially the only option to reduce the significant costs of energy, and when these are linked to storage options can create greater energy security and cost reduction for these communities.

3.3. What level of electricity interconnection is likely to be in the best interests of consumers?

There is a concern that a reliance on greater interconnectivity will leave the UK subject to uncertain energy cost increases from other national governments. There is also a concern about over the distance electricity can be transported before the energy losses through transportation defeat the process.

While there is certainly a need for a European interconnector energy system based around the North Sea, because of the potential from offshore wind energy, we need to consider how we can store energy from UK generation to reduce the need for taking supply from interconnectors. There also needs to be an assessment of the vulnerability of energy generated from countries we are connected to in terms of how climate change will affect their ability to generate and supply surplus energy to the UK.

The cost of energy from interconnectors should be cost competitive with that from renewable and other low carbon technologies. Further any energy delivered through interconnectors should only come from low carbon sources. We would not wish to see the UK low carbon transition undermined through carbon intensive interconnection sources.

The development of the offshore renewables industry within Hull and the Humber provides a key opportunity to utilise the technology required to deliver integrated offshore networks which can reasonably be expected to be available, at the ratings required, by around 2020². Hull and the Humber provides a key point of access into

² Integrated Offshore Transmission Project (East) – Final Report and Recommendations, 23 December 2015, National Grid,

the national grid along with the potential for greater interconnectivity. As noted in the December report, consideration of the development of the codes, frameworks and charging arrangements is required to facilitate such an approach is vital to maintaining integration as a viable design option, which should also reflect national, regional and local economic demands.

3.4. What can the UK learn from international best practice in terms of dealing with changes in energy technology when planning to balance supply and demand?

We need to look to Copenhagen to see how a city can make the transition to a low carbon future and how this model can be developed within the UK.

For example the City of Hull is perfectly placed for hydrogen generation because of its proximity to the Humber Estuary and River Hull. However, there is no national programme that supports the development of the hydrogen economy, and the role of key port cities, which are ideally place for distribution as well as generation. We would welcome working with the Commission in developing this, as this is an integral part of the storage question and the future electricity generation and storage challenge.

The UK can also learn from Germany, together with the nascent work within the USA, on how to develop domestic energy storage market.