

Kent County Council response to National Infrastructure Commission re Electricity interconnection and storage



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Q1. 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?

KCC believes that the system operator function should remain with the National Grid and that any dilution of this would be counterproductive. However, there should be a greater range of incentives covering storage capacity and the delivery of demand reduction within the system.

The balancing market should be shifted to ensure we make the most of local renewable energy generation and reduce transmission losses to a minimum. The inefficiency in the electricity distribution network needs to be addressed as a priority. If this can be achieved it will greatly help to increase energy security and reduce the costs for consumers.

KCC considers the development of energy storage solutions has an important role to play. Future infrastructure needs to be flexible so that it does not penalise renewable technologies when the wind does not blow or there are low light levels in the case of solar. Renewable technologies should not be seen in isolation from complementary storage technologies. Together, and with appropriate investment, they can play a key role in smoothing out fluctuations in generation.

There needs to be greater research into the potential for domestic, business and community level energy storage and to consider how it can be built into new developments. This is particularly important in areas like Kent where major growth is planned. We need to future proof economic development and housing infrastructure for the future so that sustainable and cost effective energy solutions can be easily deployed.

From a low carbon economy perspective KCC wishes to highlight the role that local businesses and universities can play in helping to drive through the commercialisation of solutions. A greater level of investment in innovation to support this potential would be welcomed.

Finally, 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.

Q2. 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 lags a long way behind where it needs to be. We need to increase the development and deployment of the small scale storage industry including investment in non-vehicle based hydrogen fuel cell storage, thermal and electricity storage. The Government and system operators need to see renewable technology as an integral part of the mix with storage enabling the smoothing out of fluctuations in generation and increasing resilience. The Government needs to provide market mechanisms to reduce the initial cost of storage options, and grow the market place and reduce cost in the long term.

The UK should consider the generation and distribution of energy on more of a district heating basis. 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 costs for the consumer and increase resilience.

The Government needs to set out 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.

There needs to be consideration of the climate change vulnerability of current and future energy generation and storage facilities and locations. The floods over the last ten years have shown how vulnerable energy infrastructure is, even where protected. The climate adaptability of our infrastructure is just as important as what infrastructure we should have. It must not be seen as an optional extra but built into the design, location and costing of our future network.

Q3. What level of electricity interconnection is likely to be in the best interests of consumers?

One concern is that a reliance on greater interconnectivity will leave the UK subject to uncertain energy cost increases from other national governments.

KCC acknowledges that a European interconnector energy system based around the North Sea is advantageous. However, because of the significant potential from offshore wind energy around the UK coast, we need to consider how best we can store energy from this generation source to reduce the need to import via interconnectors. There also needs to be an assessment of the vulnerability of energy generated from countries we are connected to in terms of how it will affect their ability to generate and supply surplus or dedicated energy to the UK.

Q4. 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 can definitely learn from the way Scandinavia and Germany have invested and develop more distributive local energy networks. These have the potential to help deliver zero and near zero carbon developments such as at Ebbsfleet Garden City in Kent. The continued investment in Heat Networks Delivery Unit (HNDU) is welcomed and KCC is benefitting from the Unit's support in evaluating the feasibility of establishing a district heat network in Maidstone. Notwithstanding this, there is still a significant knowledge gap in local authorities who are the prime instigators of this approach. Funded training for knowledge transfer to local authority officers involved in district heating would be welcomed so that we can ensure that the public sector is able to unlock local opportunities.