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Sent: 08 January 2016 09:50
To: EnergyEvidence Infrastructure-Commission
Subject: response to consultation
Attachments: pei201512-dl.pdf

Question 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?

- What role can changes to the market framework play to incentivise this outcome: Is there a need for an independent system operator (SO)? How could the incentives faced by the SO be set to minimise long-run balancing costs? Is there a need to further reform the “balancing market” and which market participants are responsible for imbalances?
- **Apart from crude ‘economy 7’ tariff mechanisms there is very little to motivate grid users to demand shift. Smart metering that can deliver ‘Real time tariff’ information to large consumers will help them demand shift more effectively.**
- To what extent can demand-side management measures and embedded generation be used to increase the flexibility of the electricity system?
- **There are a number of large scale borehole thermal energy schemes (Churchill hospital Oxford, Karolinska Hospital Stockholm). We should rethink district heat and coolth as a means of tapping into low carbon electricity for recharging hot or cold boreholes whilst simultaneously unloading grid excess generation. As we know, the earth is the biggest capacitor – both electrically and thermally.**

Question 2: What are the barriers to the deployment of energy storage capacity?

- Are there specific market failures/barriers that prevent investment in energy storage that are not faced by other ‘balancing’ technologies? How might these be overcome?
- **The current regulations make it difficult to operate storage. See this article on page 26 of attached.**
- What is the most appropriate scale for future energy storage technologies in the UK? (i.e. transmission network scale, the distributed network or the domestic scale.)
- **Heat network scale. Heat networks could enter arrangements with individual wind farm operators to recharge their boreholes when the wind farm would otherwise be furling its turbines.**
- **Heat rejection networks also make sense in London (Victoria circle has set a precedent in this)**
- **Alarmingly, most heat networks that are being put in place at present are not optimised for heat pumps (90degC and greater flow temperatures). This flies in the face of a lot of advice, including the recent CIBSE/ADE Code of Practice for Heat networks: CP1.**
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Question 3: What level of electricity interconnection is likely to be in the best interests of consumers?

- Is there a case for building interconnection out to a greater capacity or more rapidly than the current ‘cap and floor’ regime would allow beyond 2020? If so, why do you think the current arrangements are not sufficient to incentivise this investment?
- **I don’t understand this.**
- Are there specific market failures/barriers that prevent investment in electricity interconnection that are not faced by other ‘balancing’ technologies? How might these be overcome?

Question 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?

Look at Germany, Sweden + Denmark

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