Lord Andrew Adonis
Chair
National Infrastructure Commission
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Dear Lord Adonis

Electricity interconnection and storage

The Federation of Small Businesses (FSB) welcomes the opportunity to respond to this National Infrastructure Commission consultation.

FSB is the UK's leading business organisation. We exist to protect and promote the interests of the self-employed and all those who run their own business. FSB is non-party political, and with around 200,000 members, we are also the largest organisation representing small and medium sized businesses in the UK.

FSB has engaged frequently with both Ofgem and the Competitions and Markets Authority (CMA) as they have both seek improvement in the energy market. FSB persuaded the CMA to look specifically at microbusiness issues as part of their wider investigation into the market. We have been particularly concerned about tariff transparency, unfair terms and conditions and the role of Third Party Intermediaries (TPIs).

FSB has long been concerned that small businesses are prevented from getting a fair deal in the energy market. A third of FSB members say energy costs have a significant impact on their business. It is important, then, that they can access the market and understand where and how they can save money on their energy bills.

That said, FSB has stopped short of dictating what the cost of energy should be or what percentage of energy retailer sales margins should be allocated to infrastructure investment, profit, customer service and staff (although it is right and proper that these continue to be scrutinised). The "fair" market we seek is unlikely to ever make energy costs universally insignificant for customers. So customers must be empowered to make wise choices. The transition to a low carbon economy – something which FSB fully supports – will require unprecedented investment in our energy infrastructure and the cost of this will, ultimately, fall on bill and tax payers. FSB's role is to represent the interests of smaller businesses – both as customer and

investor – to ensure that the costs of this transition, and the opportunities that it will undoubtedly bring, are allocated fairly.

It is in this context that we approach the National Infrastructure Commission.

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 clear that the transition to a low carbon economy will place massive pressure on the national grid, both through the large number of additional connections that will need to be enabled and, subsequently, through managing the potentially steep peaks and troughs of daily generation and usage.

FSB's view is that Government should focus investment in new technology and innovation that takes pressure off the national grid. Energy storage is discussed in more detail below, but it is clear that a suite of measures will be required to manage supply and demand.

FSB believes that **microgeneration** and community energy schemes will play a critical role in this, particularly if they are incentivised to sell directly to their neighbours rather than to the grid itself.

Energy efficiency will also play an important role in managing grid capacity. For smaller businesses, it is also the single best way of reducing energy bills. FSB has engaged with Government around how best to promote efficiency among businesses. However, if you cannot monitor usage, you cannot manage it. As smart meters are rolled out across the UK, FSB remains concerned that this new infrastructure may not lead to real energy reduction without a clear strategy for ongoing customer engagement and empowerment. The implementation of smart metering must also enable the introduction and promotion of management and intervention technology, without which they cannot achieve their aim of reducing and managing energy use.

Demand Side Management in the UK energy market needs radical development. **Time of use tariffs** will undoubtedly take on increasing importance as grid infrastructure becomes more stressed. Some businesses are already accustomed to time of use charges, but many smaller firms will not be. Going forward, their ability to take advantage of these charges will be dependent on the equipment they rely on, the development of new technology and smart appliances, and the degree to which they can introduce flexibility into their day-to-day activities. It is clear that some businesses will be more able to take advantage of time of use

charges than others, depending on the nature of their operation. FSB also raises caution that many businesses operate on different cycles to the average domestic customer. So a one size fits all approach to time of use charges will not work. In order to drive behaviour change, the market will need to provide not only a price disincentive against using energy at certain times, but also a clear pathway for achieving this. For instance, it may be prudent to consider a recommendation for all users above a certain energy threshold to implement storage and management systems that allow them to run 'off line' at certain times of the day

In addition to cost indicators, **education** will play a role in managing capacity. In Italy, public education to reduce the use of large capacity equipment at peak times, or in combination with other equipment, has achieved success in reducing the risk of power cuts.

At a macro-scale, the **capacity market** is responsible for driving investment in technology that helps to manage supply and demand. However, it is clear that, in some areas, this framework can be a hindrance as much as a help. For instance, there is evidence of large-scale inefficiency in the way that Distribution Network Operators (DNOs) manage their reserve capacity, largely because of uncertainty about future availability.

Under current arrangements, capacity is reserved at vacant properties due to the risk of a lack of availability once the property is re-occupied. This process can distort the calculation about how much demand is required, or available, in a specific area. This is particularly important in a situation where a business applies to increase its capacity. Currently, if such a request would push the local substation over the total available capacity allocated, then that business would have to fund the upgrade cost to that substation. We believe this situation is unfair, particularly since such investment provides clear benefits to the wider community. However, setting issues of fairness aside, these costs are still particularly difficult to justify if, in reality, the available spare capacity has been deliberately under-estimated for the reasons set out above. The available capacity, as well as committed generation, should be available in real time, and should take account of planned re-enforcement works.

Neither the Distribution Network Operators (DNOs) or National Grid have moved at the expected level or pace that we expected, given that they are the first point of call for demand and load-based applications. There is a lack of clarity around responsibilities for aspects of planning, funding and implementation – and therefore where the delays are occurring – between DNOs, National grid and Ofgem. We would like to see improved clarity and delineation around these roles and responsibilities.

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

Compared to other technologies, the Government has appeared reluctant to explore the potential of storage, highlighted by the lack of subsidies on offer to speed up investment in research and development in this area. Storage has traditionally been seen as overly-expensive or too under-developed. Yet, in a low carbon future, storage will be the key to enabling the UK's renewable technologies to flourish.

Some technologies have developed more quickly than others. Battery Storage costs are reducing by 8 per cent a year. Hydrogen fuel cell technology is being used widely in places like Germany and has shown potential for providing base load and reducing pressure on the national grid. Hydrogen appears to have a number of advantages over other technologies, including scale, seasonal range and versatility. By transferring "power to gas", excess capacity from the grid can be used to produce hydrogen via electrolysis, which can then be stored. This is an example of where new technologies can take pressure off the grid, rather than add to it. Many of these technologies are tried and tested and scalable.

Other Questions

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)?

The scale of storage technologies must be appropriate for their specific location. For example, where there are bulk or industry users, CHP or Hydrogen (piped or tanked) may be a solution. However, for a small village with no industry, battery on a UPS level, supported by solar and wind may be more appropriate.

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 would like to see a greater level of engagement between National Grid and DNOs in this country with their European counterparts so that common goals can be identified and addressed. There is little evidence of this happening currently.

I hope this helps to adequately clarify FSB's position. If you would like any further information or input from FSB, please do contact our energy policy advisor, Andy Poole, at [email address redacted]

Yours sincerely,

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Policy Director