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To Energy Evidence Team

VPI Immingham Response: National Infrastructure Commission Call for Evidence: Electricity Interconnection and Storage

VPI Immingham welcomes the opportunity to respond to the consultation, dated 13th November 2015. VPI Immingham is a combined heat and power (CHP) plant near Immingham, on the south bank of the river Humber. It is one of the largest CHP plants in Europe, capable of generating 1240MW – about 2.5% of UK electricity peak demand and up to 930 tonnes of steam per hour, which is used by the nearby oil refineries to help turn crude oil into products.

Set out below is our response to the National Infrastructure Commission's call for evidence regarding investment in energy infrastructure. We would be happy to engage bilaterally on any of the issues outlined below.

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?
- To what extent can demand-side management measures and embedded generation be used to increase the flexibility of the electricity system?

We believe that the current framework for matching supply and demand in the power markets works well, in that suppliers are able to procure power from generators from years in advance of delivery right up to the same day. Whilst there are, rightly, some concerns regarding liquidity within these markets, we believe that these are largely a result of external factors, such as increased levels of regulation, and they are not a reflection of fundamental issues with the design of the market.

We also believe that the current design of the balancing market is efficient and therefore it delivers good value to consumers, whereby power is procured by merit order, i.e. the generators with the lowest marginal costs are procured first. In addition, the recent changes by Ofgem in relation to the Electricity Balancing Significant Code Review, whereby charges for being out of balance are more reflective of the value during that settlement period should be sufficient to incentivise market participants to ensure that they are balanced within a settlement period. In the very least, with these arrangements less than two months old, the changes should be allowed to bed in before any further changes are made.

As a result, we do not believe that further intervention in and reform of the market is required

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currently. The correct market framework is in place to deliver the current objectives with competition being a fundamental part of the framework to ensure best value for consumers. Whilst some improvements may be required to the various elements of the framework, wholesale change and reform is not required.

However, we do think that further actions outside of the market itself may be required in the medium term to ensure that the balancing market remains fit for purpose. With the energy market expected to change fundamentally, with increasing deployment of embedded generation and less large scale despatchable generation, increased integration with the wider EU market, deployment of smart meters, increasing levels of demand side response, for example, then further reform may be required to ensure that the System Operator is able to manage the system on a day to day basis. This reform could take different forms from a review of the charges allocated to market participants or the introduction of additional products via ancillary services. We expect the requirement for these products to evolve over time without requiring explicit government intervention, as has happened historically.

To protect the integrity of the market, these products must be applied fairly and proportionally across all market participants – we favour the “polluter pays” principle whereby those parties responsible for the costs should pay accordingly. However, with huge amounts of investment required, reform must not undermine previous investment decisions nor should be it applied on a bilateral basis that could distort the market. Competition is the best approach to minimise costs to consumers, but it needs a long term view as opposed to short term, adhoc decision making to be truly effective.

In terms of demand side, it has an important role to play in the future. As the level of intermittent generation increases, demand side is one method of managing short term intermittency. It can also be used to reduce the electricity volume requirement at peak and hence reduce the levels of capacity required as well as reducing the investment required in the wider transmission system. As consumers become more engaged in the market, possibly by the roll out of smart meters, they should be correctly incentivised, via market mechanisms to shift their demand, such as via the introduction of time of use tariffs. However, it is important the DSR competes alongside existing technologies and remunerated at market rates to maximise competition and minimise costs.

National Grid in its current role as System Operator has the ability to develop and identify new balancing products, although these must be approved by Ofgem. However, we have concerns that a private company, concerned with protecting its own reputation and rewarding its shareholders, has such influence over government and regulator decisions regarding energy policy. Whilst there is no evidence of wrong doing from National Grid, there are clear conflicts of interest across the organisation, e.g. its role of EMR Delivery Body whilst its interconnectors are participating in the Capacity Market, its role of advising the government of procuring volumes whilst at the same time being responsible for keeping the lights on and the conflict of both owning the Transmission network and operating the system.

In addition, new products have been proposed and introduced by National Grid, although approved by Ofgem, despite clearly distorting the market and inflicting significant additional costs on market participants. These interventions must not be allowed to continue. For example,

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National Grid introduced the Supplemental Balancing Reserve to maintain healthy margins. This product pays generators that are to close to remain open in an emergency reserve. However, said costs are funded via BSUoS charges, i.e. by those plant remaining open. Our assessment of these costs is that these add approx. £0.15/MWh in 15/16 rising to £0.50/MWh in 16/17 to generators (total procurement cost divided by total expected generation). In addition, although only despatched in an emergency, plant dynamics are such that any despatch is likely to distort the market at the expense of the marginal generators.

As a result, we have a growing concern regarding the independence of the System Operator and believe that it is an appropriate time to review the role of National Grid, if nothing else but to re-instil confidence in management of the energy system. There are clear benefits to having a totally independent, autonomous System Operator overseen by Ofgem.

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?
- 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.)

Whilst others are better placed to concentrate on the detail, it should be noted that large scale storage, in the form of pumped hydro currently exists in the UK and much of it has been successful in the two capacity auctions that have been run to date.

In terms of battery storage, we believe that the current main barrier to deployment is cost. It is only recently that batteries have been available at a domestic level and at current cost levels, payback is many years. With limited engagement in the energy market from the general public, it may be many years before costs are such that the proposition becomes attractive. As a result, any large scale roll out of domestic level battery storage in the short term would require form of government support which could have the consequence of distorting other areas of the market or “picking a winner”. We support the principle of technology neutrality and delivery at lowest cost.

Should any decision be made to support storage, it must be done on a fully costed basis with storage being made to compete with other technologies to ensure best value for consumers. Any such assessment of costs must look at the whole system cost of supporting energy storage, e.g. a concurrent review of Transmission charging may be necessary to ensure that the increasing costs of the Transmission network do not fall on a decreasing proportion of market participants.

Whilst, in general, we support the concept of increasing levels of energy storage, as it is a clear solution to the intermittency issues, any approach must be done on a competitive, market based way.

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

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- 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?
- 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?

As an organisation, we support the principle of increasing interconnection to the United Kingdom – increasing levels of interconnection across Europe should reduce costs for consumers and increase the flexibility of the system. However, it is important that this increasing level of interconnection is supported by increasing harmonisation across European energy markets.

It would also appear that Ofgem's cap and floor framework would appear to be sufficient in bringing forward additional interconnection on the basis of the number of projects in the pipeline, with a further round due to open in 2016.

However, we have concerns regarding the impact on both existing and new UK generation and the potential for much higher costs in the future as a result of a lack of joined up thinking. We do not believe that interconnection alone will resolve any issues regarding security of supply and that their very existence undermines the case for investment in both new and existing assets. The combination of factors outlined below is likely to reduce investment in gas infrastructure, due to the reduced levels of return to be made and therefore any decisions to support increasing level of interconnection must look at the wider picture.

Areas that require consideration are:

- We do not think it is appropriate for interconnectors themselves to participate in the capacity mechanism. We understand that this is a "fix" to ensure State Aid approval conditions have been met. However, interconnectors are classed as transmission assets and therefore cannot in themselves contribute to security of supply and are not exposed to the same charges as generators resulting in their ability to bid lower than generators with no guarantee of security of supply.
- Cap and floor interconnectors are effectively regulated assets and yet are competing with merchant risk generators to deliver security of supply. The very existence of the floor means that any downside exposure as a result of capacity mechanism penalties is limited by the floor price (and underwritten by consumers), meaning that the capacity mechanism is all upside with little to no downside and interconnectors should be able to bid at a lower price, displacing UK generation. We also do not currently see capacity mechanism revenue reflected in the cap and floor assessments.
- Based on current forecasts, interconnectors are expected to reduce GB wholesale electricity prices and load factors by importing cheaper European power (largely driven by the UK Carbon Price Support levels). Whilst some imported energy is low carbon, UK generation may be displaced by more polluting imported power purely because it does not pay a UK carbon tax. Whilst this is of course good for consumers, combined with the reduction in capacity mechanism revenue as a result of interconnection participation, it would appear to be very difficult to make a return on investment in a new

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CCGT. Application of the UK carbon tax to imported energy or strengthening the European wide EU ETS would go some way to resolving these issues.

- With the flow of interconnection supposedly driven by market price signals, the direction of flow is very exposed to regulatory risk. Any policy decision that affects the wholesale market price may also affect the flow of power and impact the UK's security of supply. Currently the arrangements in Great Britain result in higher prices in GB than continental markets. However, changes to policy at either end could change this almost overnight. With each country having different charging regimes, such as for transmission charging, or tax regime, such as the UK's carbon price support, then it is unlikely that there will ever be a level playing field. It is therefore imperative the harmonisation proceeds as far as is possible.

We also have concerns regarding the potential cannibalisation effect of too much interconnection to one country, i.e. the impact of putting all your eggs in one basket. To take France as an example, with potentially over 5GW of interconnection possible by 2020, should something happen in France, driving high prices, such as issues with their nuclear fleet or a policy change that increases prices, then it is highly likely that these interconnectors will be exporting. With these interconnectors included in the capacity mechanism, should there then be a security of supply event in Great Britain, then the UK could be exposed and unable to rely on French imports. This situation could be further exacerbated by interconnection to neighbouring countries. Whilst we do not have a view on the "correct" volume of interconnection, we do believe that further analysis including more extreme, but possible, scenarios is required to ensure that there are no future unintended consequences as a result of the policy.

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 have no comments

We would be happy to discuss the content of the above response in further detail if required. For further question regarding any of the above, please contact:

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