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Date: 26th November 2010.

Proposal to modify the Security and Quality of Supply Standard by increasing the infeed loss risk limits

Sheona,

SmartestEnergy welcomes the opportunity to respond to Ofgem's Consultation on the proposal to modify the Security and Quality of Supply Standard by increasing the infeed loss risk limits.

We understand the desire to address this issue now given that there is currently a number of new large single unit generator designs being considered by developers, including nuclear plants, whose capacities are likely to pose an infeed loss risk of up to 1800MW, significantly in excess of the infrequent infeed loss limit currently set at 1320MW. We also note that the maximum amount of generation that can be disconnected by the outage of single connection equipment most local to the generator unit effectively limits the size of single generating units that can connect to the transmission system to 1000MW.

We note that connecting larger units means the system operator must incur greater cost as additional response will need to be held (ie generation which can be held in readiness) to ensure frequency remains within the acceptable range. Greater reserve is also required. NGET have estimated that the associated additional cost would be around £160m per annum.

We also note that some Review Group analysis indicated that the carbon savings more than offset the additional frequency responses costs required. However, we believe it is wrong to attempt to justify this change by comparing with the costs of carbon saving; the correct comparison to be made should be with the extra cost of building smaller nuclear power stations rather than larger ones.

The reality is that nuclear power plant has not been built in this country for many decades and never has it been contemplated in a privatised environment. There is now a desire to allow new nuclear to be built but whether it would be built (i.e. economically viable) without certain rule changes is unknown. There is a danger that new nuclear is effectively given subsidies/concessions even when it would still be economically viable without them.

Let us look at some indicative/illustrative costs. We are given to understand that a Westinghouse AP1000 (1000GW) reactor currently costs around $2bn to build in China. We also know that once the CAP1400 design (costs not generally known) has been evaluated the aim is to move towards a CAP1700 design with a target cost of $1000/kW. We have assumed that the CAP1400 will cost somewhere between $1.7bn and $2bn to build and we have assumed for these purposes that the cost per kW will be $1321.

We realise that the costs of building an AP1000 in the UK would be greater than $2bn but it must also be recognised that the cumulative effect of £160m additional reserve/response costs per year over the life of nuclear plant (60 years) will also be significant. We are of the view that the costs of a nuclear reactor would have to be in excess of $5bn before the difference is greater than the cost of the additional reserve/frequency i.e. costs would have to be over two and a half those in China before the larger unit makes economic sense in the UK. Admittedly, this comparison is assuming that just one nuclear plant is built but the calculation is presented over 15 years not 60 years.

Design	**Country**	**Capacity**	**Cost**	**Cost per kW**	**Additional cost**
	(Commissioning Date)				**APvsCAP (for 1GW in 2017)**
		GW	**$bn**	**$/kW**	**$bn**
AP1000	UK breakeven (2017)	1.0	5.16	5161	3.840
AP1000	China (2010)	1.0	2.00	2000	
CAP1400	China (2017)	1.4	1.85	1321	
CAP1700	China (2024)	1.7	1.70	1000	

n.b. £160m * 15 years * 1.60 exchange rate = $3840m (nominal)

We are also of the view that there has not been sufficient consideration of whether the costs should be passed on to customers through smearing or whether there is merit in passing the costs back to the plant types which cause the need for additional response. Consideration should be given to the possibility of a mechanism which ensures that each MW of nuclear generated electricity makes a contribution to the additional capacity, in other words a Large Scale Generation Reserve Funding Mechanism. We would suggest that this is taken up by the Market Reform work.

In conclusion we would say that we believe there is merit in increasing the effective size of a single generating unit able to connect to the transmission system (currently set at 1000MW) as units of this size are commercially available but tend to have outputs slightly higher than the nominal. However, we are not convinced that increasing the infrequent infeed loss limit (currently set at 1320MW) should be done without further analysis of the costs of nuclear or consideration of the appropriateness of smearing those costs across consumers.

Should you require further clarification on this matter, please do not hesitate to contact me.

Yours sincerely,

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