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Ref:S862/hmf

Ian Marlee
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Ofgem,
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London
SW1P 3GE

29 March 2010

Dear Mr Marlee,

**PROJECT DISCOVERY
OPTIONS FOR DELIVERING SECURE AND SUSTAINABLE ENERGY SUPPLIES**

The IET is one of the world's leading professional bodies for the engineering and technology community and, as a charity, is technically informed but independent of network company, equipment supplier or service provider interests. We are pleased to comment on Ofgem's valuable Project Discovery work.

The IET welcomes Ofgem's recognition that a host of barriers need to be addressed in order to ensure secure low carbon electricity supplies in the future, and that electricity prices will have to increase substantially in the future. We also agree though that any market review will make investors nervous, and will itself introduce risk. Balancing these two positions is difficult, and we would argue for as swift and well communicated a process as possible, consistent with robust working to minimise these risks.

Our responses to the consultation questions are appended.

This submission has been prepared on behalf of the Board of Trustees by the IET's Energy Policy Panel and takes into account input from the IET Power Trading and Control Technical and Professional Network.

Please let me know if the IET can be of any further assistance.

Yours sincerely

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PROJECT DISCOVERY OPTIONS FOR DELIVERING SECURE AND SUSTAINABLE ENERGY SUPPLIES

Comments by the Institution of Engineering and Technology (IET)

Introduction

The IET welcomes Ofgem's Project Discovery work and the recognition that a host of barriers need to be addressed to ensure secure low carbon electricity supplies in the future, and also that electricity prices will have to increase substantially in the future. We also agree though that any market review will make investors nervous, and itself introduce risk. Balancing these two positions is difficult, and we would argue for as swift and well communicated a process as possible consistent with robust working to minimise these risks.

CHAPTER 3: APPRAISAL OF CURRENT ARRANGEMENTS

Question 1: Do you agree with our assessment of the current arrangements?

We broadly agree with Ofgem's assessment of the current arrangements. The challenges of delivering required investments to 2020 combined with the need over the next decade to position technologies such as smart grids for mass application in the decade thereafter are very substantial.

Question 2: Are there other aspects of the current arrangements which could have a negative impact on secure and sustainable energy supplies, or costs to customers?

We would make the following observations on specific issues that are not explored in detail in the paper:

- **Nuclear:** there are challenges with new nuclear that seem under explored at the moment including:
 - Financing including the level and form of any government support and the ability of even large energy companies to finance multiple projects
 - The potential for objectors to introduce long delays into the planning process, perhaps around site specific licensing
 - The possibility for high costs arising through the lack of competition resulting as an unintended consequence from the streamlined licensing process
 - A downside risk to nuclear should a nuclear accident occur elsewhere in the world during the pre-construction or construction phases in UK
 - A constraint introduced through the Infrastructure Planning Commission process whereby the possible sites for new nuclear have been pre-set. Individual generators may chose to hold sites for later development rather than sell them to generators that might develop them more quickly
 - Risks of construction and commissioning delays, particularly on the first few projects, arising from the need for learning across the whole supply chain

- Offshore wind: other challenges to reaching the 2020 targets include:
 - Very high capital and operating costs, and potentially concerns that government support might reduce when these costs become more visible. Access for both construction and maintenance will be difficult and costly.
 - Major supply chain and logistical issues, including competition from elsewhere in Europe, and the USA
 - Technology risk: for greater water depths there is no currently proven foundation solution, and offshore deployment of high voltage DC transmission at the scales envisaged and configurations needed is new
 - The proposed OFTO arrangements reduce the scales of financings but do introduce risks to project developers who will be expected to finance and build projects without material recourse to OFTOs if network services are delivered late
 - Increased cost premiums with future OFTO bids, associated with planning and construction risk
 - The desirability of an eventual offshore network (rather than point to point connections), not recognised in the current OFTO arrangements

- Gas
 - The future of gas fired generation holds considerable uncertainty depending on how much wind, nuclear and coal is constructed. By say 2025 (by which time a gas station commencing development now would be around 10 years old), the probable outcome of a wind heavy system with strong nuclear baseload will result in highly volatile load factors for gas CCGT. Overall uncertainties make the investment case for gas more risky than in the past and arguably will delay new plant investment decisions in the short term. There seems currently to be anecdotal evidence of this.
 - Risk of requirement to retrofit CCS to gas stations in longer term.

- Coal
 - Aside from the demonstration projects, the provisions governing coal CCS in the National Planning Statement for fossil generation seem onerous as they require generators to commit to fitting full CCS at a future time without having confidence that markets will create a business case or that, alternatively, government will provide full support. CCS involves not only a large capital investment but also a high operating cost in the form of reduced thermal efficiency. This seems likely to slow or stop new coal build.

- Smart Grids and Smart Meters
 - We recognise and welcome Ofgem's commitment to fund network innovation leading to smart grids. However the current UK vision for smart grids is limited compared to their potential and to what is being explored elsewhere in the world, and seems likely to become a barrier to full participation of demand and to the development of community energy schemes. Smart grids will become a necessary part of a wind heavy energy system, and are also essential should changes such as vehicle electrification happen on a large scale. The vision and its realisation need a high priority.
 - Smart meters are an essential enabler of the smart grid. We are concerned that the UK is currently on a high cost and potentially high risk path to deliver a low functionality solution that will not enable the future smart grid.

Question 3: Do you agree that the five issues we have highlighted are the most important?

We agree with your five issues. We would however highlight further the second limb of the first issue: that physical deployment of the required amount of infrastructure to meet the 2020 renewables targets whilst maintaining secure supplies is immensely challenging, especially given that much of the rest of the world will be attempting to deliver something broadly similar over the same time period.

Question 4: Do you have any comments on our description of what might happen if no changes are made to the current arrangements?

We agree with your assessment. We would add that the option of retaining existing coal and oil fired plant currently exists, but decisions need to be taken soon in this regard due to the imminence of the 2015 deadline for closing coal fired plant without flue gas desulphurisation equipment under the second EU Large Combustion Plant Directive (LPD2). Much of the plant is well into its 20,000 hours running limit, all but essential maintenance has ceased, and it is expected to be in scrap condition at its various points of closure between around 2013 and 2015. If this plant is to be retained for a longer period, even as standby capacity, this position needs to be reversed soon. We would argue for a retention of this plant as standby capacity as an insurance against deployment and operational problems given the scale of new technologies and operating practices we are moving towards. This may require a change to the market arrangements to differentiate it from plant that has been retrofitted with flue gas desulphurisation equipment so as to continue to reward this past investment, and will also require a derogation from the EC.

CHAPTER 4: POSSIBLE POLICY RESPONSES

Question 5: Do you believe that our policy packages cover a sufficient range of possible policy measures?

Question 6: Do you have suggestions for variants to these policy packages?

Question 7: What other policy measures do you believe should be considered, and why?

The IET's remit is to provide informed engineering advice to inform the policy debate and it is not able to recommend particular policy instruments. However we would observe that the more radical options (C,D E) are solutions that have worked well in other jurisdictions (for example tendered capacity in Abu Dhabi). We would however agree that radical reform will itself introduce a probable hiatus in investment.

Observations on the engineering implications of the proposals are as follows:

- Demand response: a massive increase in the delivery of smart grids and smart meters is necessary if demand response is to play a major role before 2020. The current trajectory of deployment will deliver only major industry as a potential demand side contributor by then.
- Whilst demand response could help mitigate future price volatility, additional electricity storage could assist and provide additional security of supply. Storage could be large or decentralised.
- Enhanced obligations: the suggested requirement for CCGT plant to burn a back-up fuel has not only technology implications but also permitting and consent implications under the Integrated Pollution Control arrangements. It could also impair operational flexibility (ramp rates etc) that will become increasingly necessary.

- Capacity tenders for large projects elsewhere have succeeded best when made on a site specific basis. Project preparation to a basic level, including for example environmental assessments and site investigations, is normally done by governments, leaving bidders with a cost of bidding that is acceptable. Competitive capacity tenders that are not site specific require bidders to find sites and invest heavily in preliminary work to get to a bid tariff, which tends to limit competition.

CHAPTER 5: ASSESSMENT OF THE FIVE PACKAGES

Question 8: Do you agree with the assessment criteria that we have used to evaluate the policy packages?

Question 9: Do you have any comments on our initial assessment of each of the packages?

Question 10: Do you agree with our summary of the key benefits and key risks of each policy package?

Question 11: Do you have a view on which package is preferable, or alternative policy measures or packages that you would advocate? We are particularly interested any analysis you may have to support your views.

It will be important to get this market reform right first time. Adopting an option now that turns out to be ineffective would require further reforms later, which would further unnerve investors and politicians as well as exacerbating the security problem. Care should therefore be taken in forming a realistic view of investor response to each option, including realistic downside cases. Any solution has to combine efficiency in day to day market operation with sufficient capacity incentives to build long lived capital assets, including some that may need to operate only occasionally, and in doing so must be robust against realistic downside cases.

CHAPTER 6: TIMING

Question 12: Do you agree with our assessment of the timing for important investment decisions?

Question 13: Do you believe that early actions should be considered?

Question 14: Do you think that the issues are such that policy measures should be considered as a package or should they be considered on a case by case basis?

We broadly agree with your assessment on timing – that there is around 1-2 years to complete policy affecting key investment decisions to be made in 2012 or so. However we have a number of comments:

- We believe a lot of LCPD2 coal will close well before 2015, and that CCGT plant that has been developed but not yet commenced construction must proceed to fill the supply side gap that is created. Policy uncertainty may delay this construction and we recommend this is discussed with the relevant developers. As mentioned in our response to Q4 above a partial mitigation would be to retain old coal and oil plant for the short to medium term.
- We believe the opportunity to life extend existing nuclear plant should be explored with its owners to clarify the position on likely closure dates
- We are concerned that the heavy development costs of some projects (e.g. nuclear, coal with CCS, offshore wind) may be deferred by developers if they see high levels of policy uncertainty, meaning that the projects may not be ready for investment commitment in 2012/13 because they need further development work. The point applies also to supply chains and their development. Even the strongest signals

given in 2012/13 will not have a great impact if supply chains are either not ready or are focussing on other markets.

- Thus, whilst 1-2 years is adequate overall for policy completion, we suggest that a target of the **end of 2010** is set to settle the strategic direction of change and to communicate that to the market. Any early actions needed to expedite new CCGT build, retain old coal and oil, and ensure continued development effort on longer term projects should then be taken early in 2011, with remaining details all settled by the end of 2011.

IET
29 March 2010