IESIS

A multidisciplinary professional engineering institution

Response to DECC Consultation on Electricity Market Review

5 March 2011

1. Introduction

1.1 IESIS appreciates this opportunity to respond to the Consultation.

1.2 It has become clear that Security of Supply is being jeopardised through lack of capacity. Arrangements in the wholesale generation market based on energy only do not provide sufficient incentive for generation companies to commit to new plant - particularly for low load factor plant. The situation will deteriorate further as the proportion of wind generation on the system increases. IESIS proposes a basis of tendering for both capacity and energy that will directly encourage competition.

1.3 The proposal will require a significant degree of central planning, and it is recognised that this is a major change from the existing arrangements. However, this proposed arrangement will deliver a high probability of long - term security together with real competition to contain prices to the consumer.

2. Past and Current UK Arrangements

2.1 Pre-privatisation, central planners looked ahead for about seven years – this being the time taken to build and commission new plant - and decided on the amount, timing and type of new plant to contain the risk to Security of Supply based on a risk standard for supply being unable to meet demand. Plant was chosen to minimise total system costs and give an appropriate plant mix. Following privatisation, the Pool arrangement incentivised new build by a form of capacity payments based on Loss of Load Probability (LOLP) and Value of Lost Load (VOLL). This was, essentially the same mechanism as was used pre-privatisation for long-term planning. Moreover, under the Pool arrangements plant was scheduled and despatched on a daily basis to minimise total operational system cost. The proposal outlined below uses these mechanisms of central planning to ensure Security of Supply; and central despatch to minimise total system cost in a competitive arrangement. The mechanisms, therefore, are tried and tested – LOLP in both pre-privatisation planning and operationally in the Pool; and minimising total operational costs both pre-privatisation and in the Pool.

3. Outline of Proposed Arrangements

3.1 A Standing Commission would be set up by Parliament with the remit to ensure that sufficient new plant is built to meet a specified standard of risk to Security of Supply. When the required amount, type, and timing of required new plant had been determined, tenders would be requested which would include capital charges (on which capacity payments would be based), and running costs including provision of energy, start-ups, run-up rates etc. The total lifetime present valued system cost for each tender would be calculated and the minimum cost tender accepted.

3.2 The System Operator would each day (as in the Pool) schedule the plant on the basis of the tender offers that minimised total system running costs taking account of start-up costs, part load costs etc.

3.3 Generators would be paid capacity payments on the basis of tendered capital charges and availability; and running costs on the basis of their tender offer with appropriate indexing applied for fuel costs, wages etc.

4. Details of Proposed Arrangement

4.1 Determining New Plant Requirement

4.1.1 The proposal is to set up a Standing Commission that would comprise members who were disinterested in the financial outcomes of the arrangements, and who had sufficient competence to make appropriate assessments. The Commission would report to Parliament and would be responsible for ensuring there was sufficient plant connected to the system to meet the required standard of Security of Supply. In the first instance the standard would be proposed by the Commission, then endorsed by Parliament or returned to the Commission for modification. Any further modification to the standard would have to be endorsed by Parliament.

4.1.2 For example, the standard used pre-privatisation, based on the ability to meet annual system maximum demand, was that there should be no more than 3 winters of failure in 100 years. (See 'Report on the Generation Security Standard – The Electricity Council, September 1985). This standard has the advantage that it was acceptable to customers over many decades. It has a disadvantage, common to all risk based standards, that the method requires extensive and detailed data on plant availability that may not now be readily available. This will be particularly so for wind generation where, in the immediate period, a proxy using wind speeds may be required.

4.1.3 The Commission would then arrange for study work to be carried out to determine when new plant capacity was required. These studies would have to cover a time period far enough ahead to allow for the construction and commissioning of plant with long

construction periods such as nuclear or the Severn Barrage. Consideration would then be given to the subsequent plant mix and the security of supply issues that could result from long term gas supplies, wind intermittency, type faults etc. From these studies the Commission would decide on the amount, type and timing of new plant required to meet the risk standard (including risks to the delivery of the primary source of energy), minimisation of total system costs, and external limitations such as emission considerations. The studies would test to ensure that the decision was robust for various follow-on plant programmes.

4.2 The Tendering Process

4.2.1 Tender offers would be requested for the new plant and would comprise two sections. The first would cover capital charges and possibly other fixed charges (which would form the basis of capacity payments), and the second details of running costs.

4.2.2 It is perhaps too early in the consultation process to be prescriptive in the area of capital charges since this would be dependent on the sharing of risk. At one end of the spectrum the Generator could be made wholly responsible for providing the tendered capacity at the time of system maximum demand over the life of the station. This is rather similar to the use of Contracts for Differences (CfD) in the Pool where the writer of the CfD would have to buy in generation he could not provide himself. Or further down the spectrum of risk, would the loss of capacity payments be sufficient to ensure that the Generators delivered on their tender offers? The final decision on risk sharing would affect the bases of a Generator's offer. In the first case, Generators may decide to limit their risk by only offering part of the generation they would build. It may be that semi-fixed charges such as insurance and some staffing costs (with suitable indexing) should be included in this part of the offer.

4.2.3 There would be a requirement for the tender offers to include sufficient details of running costs to allow the System Operator to run studies to minimise total system running costs. A program similar to that used in the Pool (Generation Ordering And Loading – GOAL) could be used. The tender offer would include details of sent out energy prices, standby and loading costs and loading rates for cold, warm and hot starts etc. It would also include all running related costs such as operation and maintenance costs. There would be agreed escalation indices to cover fuel costs, staff costs, and contract and purchasing costs for operation and maintenance.

4.3 Discharging the Contracts

4.3.1 Capacity payments would be made on the basis of the original tender offer for the capacity available at times of system maximum demand. It would seem practical to use the Triad Demands as used for Transmission Charging, but it could be a broader definition of 'system maximum demand' might be chosen. As discussed in Section 4.2.2, payments would be dependent on the final decision on risk sharing. The payments would not be subject to escalation since it is considered that Generators should decide whether or not to lock into their financing arrangements at the time of tendering.

4.3.2 The energy related part of the contract would be discharged on the basis of energy provided to the system. Generation would be subject to central despatch by the System Operator based on studies using a program similar to GOAL. The Generators would be paid on the basis of the original contract (not at system marginal cost) but subject to the agreed escalation indices. The System Operator would also run a Balancing Market as now using shorter term contracts to ensure control of frequency and voltage.

5. Conclusions

5.1 This proposal would provide means of ensuring the provision of plant to meet a specified level of risk to Security of Supply.

5.2 It provides by way of capacity payments a high quality stream of income to Generators that will reduce their financial risk and thus cost to the customer.

5.3 Both capacity payments and energy payments are paid on the basis of competitive tender and are thus less subject to 'gaming' than highly administered arrangements.

5.4 Central despatch ensures a reasonable level of optimisation of running costs.

5.5 Many of the mechanisms used in this proposal are tried and tested.

5.6 The proposal provides a mechanism whereby central planning for UK generation capacity can be adopted. It is our contention that only by central planning can the inherent risks for both customers and generators in the development of electricity generation be minimised.