

ESB Customer Supply Response to Paper CER04/064 Demand Side Participation

ESB PES welcomes the encouragement for supplier/customer demand participation. In responding to the paper, we have taken a customer perspective and have drawn on our experience of customer demand reduction incentives such as PowerSave.

3.2.1 Demand Side Bids

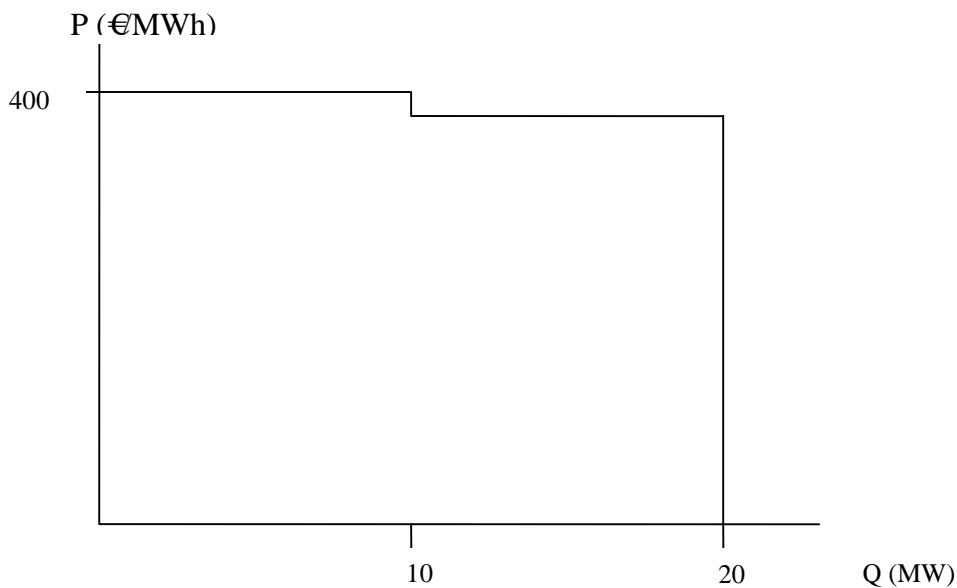
The consultation document states that customers require a supply licence to operate in the wholesale market. We suggest that a full supply licence would not be required as it is designed for a different purpose. A more simple licence designed for demand side bidding would be more appropriate. Nevertheless we agree that such customers should have the option of bidding directly rather than through a supplier because they may need to change their bid at any time due to plant conditions. Suppliers are initially unlikely to have the facility to do so 24 hours per day, 7 days per week on their behalf.

3.2.2 Price Formation and Settlement Rules

Under 3.2.2 Price Formation and Settlement Rules, the paper outlines 3 options and concludes that option 1 should be adopted. Our view is that option 1 will not be successful and that option 2, while having some theoretical disadvantages, can work and the settlement deficit problem can be resolved. We propose that option 2 be adopted for the reasons discussed below.

We concur with the problems identified with option 1 around the *“asymmetry in the incentive structure with those at lower price nodes opting out of the uniform wholesale price determination process”* while *“for those loads located at high price nodes, there would be little incentive to be involved in the market as an active participant”* (in demand side bidding) and *“it is also likely to have the least impact in terms of encouraging the demand side to bid actively in the market”*. Looking at it from a customer’s point of view, let us take a customer with a demand which varies between, say, 15MW and 20MW and who is willing to reduce by 10MW if they are adequately compensated. Typically the demand will vary and will be difficult for the customer to predict. The reduction may also vary or may be reasonably constant depending on whether it is brought about by switching off some plant (e.g. refrigeration on a short term basis) or by running a standby generator. In reality most customers will not think in terms of bidding into the market *“in the form of monotonically decreasing price quantity pairs”*. In fact it is not clear how the customer in the example above could bid in such a way that their “dispatch” would conform to their required demand profile. Firstly how can bids be constructed in advance to guarantee that the “dispatch” will match the actual demand which varies from minute to minute and hour to hour in a way that is not totally predictable. In this way a customer is fundamentally different to a generator which can control its output in response to dispatch instructions. Secondly, in reference to Figure 1 in the paper, the PQ curve below which attempts to indicate that the customer will reduce by 10MW if the price is above €400/MWh does not actually achieve this. For example if

the demand were 17MW before the reduction it should be 7MW after the reduction but this is not clear from the curve. Also it indicates that the customer is willing, on an ongoing basis, to pay €99/MWh for its full demand. In practice a customer would not be willing to do this. Such a customer would probably want to pay a reasonable, predetermined price for electricity and not be exposed to volatile pool prices but may be prepared to reduce load for a known price which is sufficient compensation for lost profit from its business.



Option 2 solves the problems outlined above under option 1. Firstly a customer offering demand side participation is treated in the same manner as all other customers for their demand i.e. conforms to a fair and equitable treatment of all customers whereas, under option 1, different customers are treated differently depending on their location. Secondly it corresponds to the way in which customers think in terms of buying and “selling” electricity. It is similar in concept to PowerSave except that customers have the opportunity to bid a price for which they are willing to reduce load whereas it is fixed under PowerSave. Also they are driving the process whereas, under PowerSave, it is driven by the system operator. We know from our experience of PowerSave that such a mechanism could work.

Under option 2 the money paid to a customer for reducing demand is the equivalent to that which would otherwise have had to be paid to a generator. As this “power” does not actually flow it is not captured in the normal settlement and hence an “uplift” will be required. The illustration given in the paper in figure 2 may give the impression that this uplift would be significant but, in reality, it is likely to be small. Let us take an example where the natural demand is 4,100MW and the highest generation bid is

€500/MWh. A customer bids in a reduction of 100MW at €400/MWh, which sets the price. Hence, without demand side bidding, settlement for 1 hour would be

$$4,100\text{MW} @ \text{€}500/\text{MWh} = \text{€}2.05\text{m}$$

With demand side bidding under option 2 settlement would be

$$\begin{aligned} 4,000\text{MW} @ \text{€}400/\text{MWh} &= \text{€}1.60\text{m} \\ + \text{uplift } 100\text{MW} @ \text{€}400/\text{MWh} &= \text{€}0.04\text{m} \\ &= \text{€}1.64\text{m} \end{aligned}$$

The uplift in such a case would be 2.5% which does not amount to any significant distortion of the market. If the demand side bid set the market clearing price as in this example, there would be a reduction of 20% in the price. Potentially the price could have gone to VOLL without demand side bidding so the reduction in price could potentially be very significant. Even with uplift, the benefit will be the difference in price between the demand side bid and the next generator bid price. Hence we would not agree with the assertion in the paper *“that the advantage, in terms of lower prices...tend to evaporate once the settlement implications are fully worked through.*

Option 3 also has difficulties as the price paid to the customer is only the difference between the uniform and LMP price which in some locations would be negative. Even where it is positive, the difference is largely driven by network congestion and is unlikely to be sufficient to compensate the customer for reducing demand. The customer needs to be able to bid a price which they are assured to receive for reducing demand, not have the price determined by other factors.

The paper appears to dismiss option 2 on the basis of economic theory and *“a range of practical reasons”*. It is not clear what these practical reasons are except for the addition of an uplift to settlement. Furthermore, from the point of view of economic theory, it could be argued that option 2 is more correct as a customer offering demand side participation is treated in the same manner as all other customers for their demand i.e. conforms to a fair and equitable treatment of all customers, whereas under option 1, different customers are treated differently depending on their location. The practical reality is that option 1 is most unlikely to work whereas option 2 could work and, on this basis, balancing the practical against economic theory, we strongly favour option 2.

3.3 The Ancillary Services Market

Currently some customers provide primary operating reserve by instantaneously shedding demand if the system frequency falls below a threshold value. This causes a disruption to their business for which they need to be compensated. Compensation is also required, although to a lesser extent, for the provision of secondary or tertiary reserve. It is not sufficient that they *“would simply save the revenue for power that they would have otherwise consumed”*.

3.5 Implementation Issues

We agree with the implementation approach proposed. The important objective is to put the basics of the new market in place by February 2006 so that trading can take place. Any complexities, not required for the basic market operation, which could delay MAE implementation beyond this date should be left till later.