

Response to DS3 System Services Procurement Design Consultation

I appreciate the opportunity to respond to the consultation on the DS3 System Services Procurement Design. Such a consultation process including the open forum in Dundalk and the clarification document are important in developing a systems services market which works for Ireland.

Summary of Key Points

- Currently the TSO's decision making process for deciding which units should provide operating reserve is based on minimising the overall system cost e.g. fuel costs, start costs etc. The example given at the open forum indicated that it would be based on the annual auction bid price for provision of, say, POR. How would this work and how would this minimise total overall cost? For example, a unit with a very low energy bid price could also bid in a low POR price and therefore be dispatched down (to be able to provide POR) leading to a unit with a much higher energy price bid being dispatched up to compensate. The increase in the energy price could significantly outweigh the savings in POR price which would apply to the POR volume only rather than the full energy volume. It is essential that the full cost should be taken into account in the decision making process e.g. consequential fuel cost and curtailment. The Clarification document (SEM-14-075) recognises this point in the last sentence of section 2.2.2 in relation to constrained on units "*the TSO will take the total cost...into account (obligation for least cost dispatch)*". However this contradicts what it says in section 2.2.1 under the "dispatch basis" where it says "*the units will be selected in ascending order of cost i.e. cheapest first. This cost assessment is made by the TSO with reference to the reserve price (auction bids)*".

Not only should the total cost be taken into account by the TSO in dispatching reserve but it should also be taken into account in the annual auction process. Otherwise there would be a disconnect between the two. If only the bid price was taken into account in the auction, a unit with a low bid price but a high consequential energy replacement cost could win a contract for reserve but rarely be dispatched for it. Conversely a unit with a high bid price but a low consequential energy replacement cost may not win a contract but may be regularly dispatched for reserve without being paid for it (because it had no contract). This would not make sense and would be grossly unfair on the latter unit.

When the MAE¹ market was being developed in the Republic of Ireland, there was a proposal to have co-optimised bidding of energy and system services. However, MAE was regarded as being too complex and was replaced by the current SEM as a single market for the whole island. Under the SEM, all providers of operating reserve are paid the same price and so this does not need to be taken into account in the decision making process by the TSO in dispatching plant in such a way as to provide reserve at minimum cost. If the annual auction bid prices were used on a day to day basis to dispatch reserve, it could mean that a bid (which actually covers a set of bids covering all system services) could be successful at

¹ Market Arrangements for Electricity

the annual auction and win a contract but the bids for reserve may not actually result in reserve from this unit being dispatched on a day to day basis. This would not be an economically efficient outcome for the TSO. Furthermore it would make it very difficult for the generator to be able to predict its revenue from reserve products. This would make it difficult to know what single price to bid for a reserve product in the annual auctions as the revenue would depend on dispatch which would be determined by a clearing price which will vary across the day and year. This complexity and uncertainty would also make it difficult to raise finance for investment.

The definitions of “Availability” and “Dispatch” are causing confusion particularly in relation to reserve. Currently generators declare what reserve they can provide at different levels of output. If they are “available” they are paid for that ancillary service regardless of whether they are dispatched or what output they are dispatched to. In practice their actual ability to provide reserve, if there is an event, depends on them being dispatched on load and the output to which they are dispatched. Under the TSO proposals a payment calculated on this basis was regarded as being on a “dispatch” basis. Under the SEMC proposals, it appears that this is what is meant by an “Availability” basis. The SEMC proposal defines “Dispatch” as a separate basis whereby the TSO explicitly “Dispatches” reserve. Currently the TSO dispatches plant according to a schedule which provides sufficient reserve at minimum total cost. It does not explicitly “dispatch” individual generators, telling them to provide specific volumes of reserve. There may be times when the schedule might result in more reserve than is absolutely necessary (because of, for example, transmission constraints) but all the generators which are running below full output will still be providing reserve and will respond accordingly if there is an event. Under the SEMC proposal the TSO would have to tell certain generators that they were explicitly providing reserve and only these would be paid. The remaining generators which are also (implicitly) providing reserve would not be paid. To me, this is unfair as well as adding unnecessary complexity.

My conclusions from the above discussion are that

- Reserve decisions should reflect the total cost including fuel costs and the effect on curtailment. The obligation for least cost dispatch should continue.
- Not only should the total cost be taken into account by the TSO in dispatching reserve but it should also be taken into account in the annual auction process.
- It would be preferable not to include a single annual auction bid price for reserve from each generator in day by day dispatch decisions but rather pay all generators a single pay-as-cleared price for reserve for the year determined by the annual auction. This would remove excessive complexity and uncertainty
- Payment for reserve should be based on availability (as defined in the consultation paper and clarifications paper) rather than dispatch.
- The description of the auction and bid evaluation process in the Clarification document is very useful in gaining some understanding of the methodology. However it is a “neat” example because all 3 generators are needed to provide the required volume of system services and also each of the generators had all its lowest prices in the same bid. If all generators were not required and if the lowest prices for each of the services were not in the same bid for each of the generators, then a generator could have its first bid eliminated because its price for the first service to be evaluated was not in merit even though prices for the other services in that same bid were very competitive. When the next service is being

evaluated, that generator could have another bid eliminated because, in that particular bid, the price of that particular service was not in merit. In this way, the generator could have all its bids eliminated, each for a different reason. Many additional scenarios would have to be modelled to ensure that the process was robust and did not have unforeseen consequences.

- Under the supply analysis, the capital costs are assumed to be recovered over a life of 20 years. This is too long to be bankable, particularly for new innovative plant.
- The results of the analysis indicate that the SMP will be lower and also that intramarginal rent will be higher. The latter gives the impression that generators will be better off but, in fact, for an individual generator, its inframarginal rent will **decrease** if the SMP is lower. Hence it will need to recover **more** from capacity and system services payments, not less as the paper implies. The overall increase in inframarginal rent is probably earned by wind generators, due to their increased running rather than by the other generators which are providing system services.
- Regulatory certainty is important to be able to raise finance. There are a number of references to possible changes e.g. locational pricing. It would be helpful if it was agreed now that these would not be introduced for at least 8 years. Certainty now is more important than possible marginal improvement in economic efficiency at some future date. This would not prevent some locational pricing now for voltage control where the network is currently weak, such locational prices to remain for a minimum of, say, 8 years.
- There was some discussion at the forum about new entrants being able to bid for a contract which would start at some future date when the plant is built subject to some guarantees about being available by that date. The rules around this need to be made clear now to provide clarity for future investment.
- The emphasis of the Regulatory Authorities appears (from the IPA report and the open forum) to be on conventional generating plant rather than on innovative new solutions even though the latter could provide system services without having to provide energy, thereby not displacing renewable generation. To be truly technology neutral, the consultation papers should include examples of such innovative new solutions.
- It is clear from the studies carried out that estimates of the volume of system services required have been determined. The industry needs to know what these are, if it is to be able to establish the capabilities to provide what is required. I understand that the requirement for individual system services are interrelated (not independent variables) but the information could be provided to the industry by way of indicative scenarios with a number of different mixes of system services which would satisfy the TSO's requirements. An alternative would be a (reasonably tight) range of volumes of each service.
- The value of system services should include the avoided cost of penalties for not achieving the 2020 targets and the additional costs of emissions.
- In the RoCoF Decision paper under 3.6 Alternative Solutions Project, CER has directed the TSO to investigate a number of other areas including Synthetic Inertia. This has implications for System Services definitions e.g. the definition of SIR. As I suggested in a previous response this could be made more flexible to accommodate synthetic inertia by adding another factor in the payment calculation. This would be 1 if the unit is synchronised to the system and would be less if connected through power electronics, the figure depending on how quickly the unit will respond to an event. It would be zero if the unit took 2 sec to respond as this would be covered by FFR. If it responded in 1 sec, the factor could be 0.5 It is

important that this be considered now before System Services are finalised. Otherwise the opportunity to incorporate synthetic inertia, being investigated by the TSO, would be locked out.

1. Demand and Supply Side Analysis

- The data behind the results of the analysis should be provided to the industry.
 - In particular, it is clear from the studies carried out that estimates of the volume of system services required have been determined. The industry needs to know what these are, if it is to be able to establish the capabilities to provide what is required. I understand that the requirement for individual system services are interrelated (not independent variables) but the information could be provided to the industry by way of indicative scenarios with a number of different mixes of system services which would satisfy the TSO's requirements.
 - Details of other outputs such as SMPs would also be of value to the industry
- The value of system services should include the avoided cost of penalties for not achieving the 2020 targets and the additional costs of emissions.
- Under 4.6 "Production Cost Savings" it states that "*as generators' costs are also lower, they can expect higher profits*". It is not clear why any individual generator's costs would be lower.
- The results of the analysis indicate that the SMP will be lower and also that intramarginal rent will be higher. The latter gives the impression that generators will be better off but, in fact, for an individual generator, its inframarginal rent will **decrease** if the SMP is lower. Hence it will need to recover **more** from capacity and system services payments, not less as the paper implies. The overall increase in inframarginal rent is probably earned by wind generators due to their increased running rather than by the other generators which are providing system services.
- Under the supply analysis, the capital costs are assumed to be recovered over a life of 20 years. This is too long to be bankable, particularly for new innovative plant.
- Some research indicates that the Grid Solutions Capital Costs provided by KEMA are too low.

2. Procurement Designs

- The criteria used to evaluate the options are reasonable.
- Regulatory certainty is important to be able to raise finance. There are a number of references to possible changes e.g. locational pricing. It would be helpful if it was agreed now that these would not be introduced for at least 8 years. Certainty now is more important than possible marginal improvement in economic efficiency at some future date. This would not prevent some locational pricing now for voltage control where the network is currently weak, such locational prices to remain for a minimum of, say, 5 years.

3. Procurement options

- The SEMC has provided a good range of options in its consultation paper.

- The conclusions are not self-evidently true e.g. it is not clear that regulated competition is best from an investment perspective as indicated in Table 7. However I agree with the overall conclusion that Option 5, Competitive Multiple Bid Auctions should be selected. The caveat that Option 1, Regulated Tariff, should be used if the auction is a failure for a particular system service needs to be teased out in more detail e.g.
 - How is “failure” defined?
 - How would regulated tariff contracts work in parallel with contracts won from an auction? If a bid for a long term contract was won in the auction but a number of the system services included in it were subsequently removed, the remaining contract may not be viable even if all those services were provided under a regulated tariff because the price and duration of contract may be different

4. Multiple Bid Auctions

- See comments above under 3
- Clarity is required on how exactly the auctions would work. The description of the auction and bid evaluation process in the Clarification document is very useful in gaining some understanding of the methodology. However it is a “neat” example because all 3 generators are needed to provide the required volume of system services and also each of the generators had all its lowest prices in the same bid. If all generators were not required and if the lowest prices for each of the services were not in the same bid for each of the generators, then a generator could have its first bid eliminated because its price for the first service to be evaluated was not in merit even though prices for the other services in that same bid were very competitive. When the next service is being evaluated, that generator could have another bid eliminated because, in that particular bid, the price of that particular service was not in merit. In this way, the generator could have all its bids eliminated, each for a different reason. Many additional scenarios would have to be modelled to ensure that the process was robust and did not have unforeseen consequences.

5. Payment Basis

- It is not clear how dispatch of reserve would be carried out i.e. what would be the decision making process. See my comments above under Summary. Even when this is clarified, it will still be difficult to predict the dispatch of reserve for an individual generator. This makes it difficult for the generator to know what price to bid as a single price for the whole year. More importantly it creates significant revenue uncertainty with the result that investments, particularly for innovative new plants, may not be bankable. The basis should be changed to Availability

6. Interaction with I-SEM

- Although there are some interactions with I-SEM, it is important that the development of I-SEM does not further delay the implementation of DS3 in relation to system services

7. Other issues

- The emphasis of the RAs appears (from the IPA report and the open forum) to be on conventional generating plant rather than on innovative new solutions even though the

latter could provide system services without having to provide energy, thereby not displacing renewable generation.

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