ESB GWM Response

DS3 System Services Auction Design

SEM-15-105

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Contents

1 Introduction

ESB Generation and Wholesale Markets (GWM) welcome the opportunity to submit a response to the Consultation Paper on the DS3 System Services Auction Design.

We are committed to supporting the RAs and TSOs in developing a fully competitive market for DS3 System Services to support the delivery of renewable targets. Procurement of these services should be transparent, non-discriminatory across new and existing providers and provide value for money to consumers, whilst providing the investment signals needed to grow these services and allowing service providers to realise the value of the services they are providing.

Section 2 below summarises ESB GWM's main comments in relation to this consultation. The subsequent sections provide a more detailed response on the areas covered in the consultation. The individual questions raised in the consultation are addressed in Appendix A.

2 Summary

2.1 Emerging concerns with DS3 design

As the DS3 detailed design process has progressed and we have received more information on the likely workings of the products and the procurement model (alongside the development of the I-SEM arrangements), we have become increasingly concerned that elements of the High Level Design (HLD) for DS3 may not best further the SEM-C's objectives. Our concerns are related to the design of the DS3 products, and the complexity of the proposed auction design. A summary of our perception of the current DS3 design against the SEM-C objectives is set out in the table below.

SEM-C objective	**Current status**
Provide a framework for the introduction of a competitive mechanism for procurement of system services.	The proposed design appears to achieve this – however as set out below we have concerns about whether this mechanism will send the correct signals to the market.
Provide certainty for the renewables industry that the regulatory structures and regulatory decisions are in place to secure the procurement of the required volumes of system services.	The proposed regulatory structures may not be appropriate. The certainty is limited by the imposition of the €235 annual expenditure cap on System Services, which may arbitrarily limit the delivery of System Services if not regularly reviewed.
Provide certainty to new providers of system services that the procurement framework provides a mechanism against which significant investments can be financed.	The complexity of the auction mechanism and the black box nature of price determination potentially count against this criterion.
Provide clarity to existing providers of system services that they will receive appropriate remuneration for the services which they provide.	The complexity of the auction mechanism and the black box nature of price determination potentially count against this criterion.
Provide clarity to the TSOs that the required system services can be procured from 2016 onwards in order to maintain the secure operation of the system as levels of wind increase.	The regulated tariffs (presuming they are set at the correct value based level) will secure appropriate levels of services for the TSOs, however under the proposed auction mechanism it is not clear that the correct signals will be sent to the market.

SEM-C objective	Current status
Provide clarity to the Governments in Ireland and Northern Ireland (and indeed the European Commission) that appropriate structures are in place to assist in the delivery of the 2020 renewables targets.	Although there is emerging clarity in the overall design, it is not yet clear that these structures are appropriate and will deliver the investment in system services required to underpin achieving the 2020 targets.
Ensure that Article 16 of Directive 2009/EC/28 is being effectively implemented (duty to minimise curtailment of renewable electricity).	The proposed DS3 auction design may not be effective in delivering the required levels of system services due the risks providers are required to undertake.
Provide assurance to consumers that savings in the cost of wholesale electricity which can be delivered through higher levels of wind on the electricity system, can be harnessed for the benefit of consumers.	Cost savings may not be achieved if the auction mechanism cannot provide efficient and reliable price signals.
Provide assurance to consumers that they will not pay more through system services than the benefit in terms of System Marginal Price (SMP) savings which higher levels of wind can deliver.	This will only be the case if the annual expenditure cap on the cost of DS3 services is regularly reviewed.

2.1.1 Suitability of proposal for TSOs

We are not aware of international experience of availability based contracts for System Services that are auctioned on an annual basis nor is it clear to us why the models used to procure ancillary services in Europe, and the approaches recommended by ACER, are not appropriate for I-SEM. Although we recognise that I-SEM is at the forefront of implementing large volumes of renewables in a small electricity system, this does not mean that international best practice should be ignored.

2.1.2 Suitability of proposal for System Service providers

The requirement to forecast annual availability for each product at the year ahead stage presents challenges for most provider types in most products. Typically, this involves forecasting commercially viable self-dispatch. This is difficult on an annual basis (increasingly so with greater wind penetration), and for longer term contracts would be subject to such significant error that a large risk premium would be required (these concerns are set out in more detail in Section 2.3). Also the introduction of an untested and complex auction design for DS3 System Services in the context of the development and implementation of I-SEM introduces significant uncertainty for providers. We urge the RAs to consider options that would reduce the uncertainty faced by providers such as the introduction of floor prices into any alternative auction designs and the application of a demand curve as discussed under Section 4.3.

2.1.3 Suitability of auction design

We understand that the proposals developed by dot.econ are within the constraints of the published HLD, albeit with some relaxation of certain parameters to achieve a potentially feasible auction design. It may well be that a more appropriate design would be achieved by relaxing the HLD further, or in different aspects. Therefore, we would ask the RAs to consider, in the context of the I-SEM market design, whether there are aspects of the DS3 HLD that could be modified to allow for a less complex auction design that would give the correct signals to the market.

In other consultations for DS3 and I-SEM, we have become accustomed to a presentation of options followed by an assessment against the SEM-C's criteria as established at the HLD stage. In this case, no fundamentally different auction designs or price determination processes have been offered for

consideration. It is not clear whether these have not been considered, have been considered and discarded, or whether fundamentally there are considered to be no workable alternatives to the proposed design. By their very nature combinatorial auctions open up numerous possibilities for the design of an auction. There are a number of different types of combinatorial auctions: Combinatorial Clock Auctions, the Vickery-Clarke-Groves mechanism, iterative combinatorial auctions, a static pay as bid combinatorial auction, Dynamic combinatorial auctions (ascending proxy auction and ascending package auction). As there are many variants of this type of auction it is prudent to recall that:

"Auction design is a matter of 'horses for courses', not one size fits all; each economic environment requires an auction design that is tailored to its special circumstances"

In the context of designing the auction for DS3 services we emphasise the importance that the auction is designed to fit the unique features of DS3. From that perspective ESB GWM and other stakeholders would benefit from the opportunity to contribute to the detailed action design. We request more evidence that alternatives have been considered and the reasons for rejecting these in favour of the proposed design.

We are not aware of any international experience of applying combinatorial auction designs to System Services. If such evidence exists, we request that the RAs review this and make their review available, prior to making a decision on the detailed design of DS3. Although there appears to be significant experience in other fields such as spectrum auctions, and some experience in mid and long term electricity auctions in Chile, we would caution that System Services, given their potential substitutability and the interactions with the other elements of the market, appear to be significantly more complex and dynamic than the examples in the document. For example, combinatorial spectrum auctions are effectively for "one-off" long term leases, with little need to worry about signals for future investment. DS3 is in clear contrast to this, since providers have underlying fixed costs and potentially uncertain variable costs. The results of the auction have a direct impact on the signals for efficient self-dispatch and ability of the TSOs to operate the system efficiently. It is also important that the auction provides reliable price signals to all participants which reflect economic fundamentals and allow participants to make efficient entry and exit decisions.

Therefore, although the product and auction design proposed may work in theory, we are concerned about unforeseen difficulties and unintended consequences particularly in the context of committing to long term contracts and the loss of effective economic signals. We request that the RAs present the additional evidence requested above, and engage with industry on potential concerns before making a decision. It appears that the latest timetable for decision making would allow for this.

Although we have raised concerns here with the overall design, we nevertheless remain committed to supporting the RAs in the design and implementation of DS3 system service framework, and we set out our responses in this context in the remainder of our response.

2.2 Auction Consistency, Alignment and Sequencing

We are supportive of the efforts of the RAs and TSOs to align elements of CRM and DS3, in particular Qualification and Implementation Agreements (if the latter are required). However, we challenge the assumption that CRM and DS3 auctions should be combined into a single auction framework in future. We note that providers of capacity are not necessarily the providers of system services, and vice versa.

What is appropriate for DS3 may not be appropriate for CRM, and in particular the treatment of ROs as a "15th product" would severely limit the RAs' options for a CRM auction design. The relative simplicity and price discovery of a descending clock auction, for example, would probably not be possible for CRM if it were combined with DS3. We do, however, believe that the sequencing of DS3 and CRM auctions should be closely aligned.

The procurement process should be non-discriminatory and technology neutral. We do not therefore support proposals for separate long-term auctions for new service providers and short-term auctions for

existing service providers, as these services provide the same value to the system at the point of delivery. Although there is some international experience of offering different contract lengths in capacity mechanisms, this is typically not the case for ancillary services.

In fact a contract offered four years in advance to align with the CRM will move the DS3 framework away from international trends which are moving towards more frequent and ever shortening delivery timeframes as the means to procure System Services.

Long term contracts should not be offered unless it is established that the market requirement cannot be met in their absence. If longer-term contracts are to be awarded, these should be limited in volume and open to all providers (both new and existing) on a non discriminatory basis. In this way all providers will be able to compete on an equal basis regardless of when their investment was made.

Technical reviews of lead times indicate that many service providers could deliver with relatively short lead times. However, transmission system connections offers may take some time to put in place, but like all investors it is likely that such sites and offers are developed well ahead of any market auction. It is also likely that existing sites or retrofit may be undertaken as options for service delivery. If this is the case then there is little need to secure investments by having separate auctions. This is also important to ensure that all service delivery is equally valued and remunerated.

The logic behind combining the CRM and DS3 auctions and behind long term contracts appears to be an assumption that new providers need to be fully contracted in both DS3 and capacity in the long term where they are joint products. In general we note that markets should be designed to make new investment attractive when required – not to completely de-risk investment.

To establish the combinatorial auction format and build confidence in the DS3 market so as to create an attractive investment environment auction floor prices and the application of a demand curve should be adopted, this will mitigate the risk to participants of erroneous/irrational bidding.

We would prefer both CRM and DS3 auctions to have short lead times[1]. In terms of sequencing, we recommend that the CRM auction comes first with the DS3 auction following. To manage the interdependency this creates, those who qualify for the DS3 auction but were not successful in the CRM auction should have the option to withdraw from the DS3 auction without losing their bid bond. We do not agree with allowing those successful in the CRM being able to withdraw their capacity if they subsequently fail to secure a DS3 contact as this could lead to gaming. Performance Bonds and future DS3 bidding opportunities should reduce the risk of those projects failing.

2.3 Auction Volumes

We agree with the 'additive' approach to calculating clearing volumes. There may be benefits from more time based granularity in DS3 system services, but this would increase complexity further. We do not support the introduction of geographical constraints into the DS3 system services market as this could lead to distortions in the CRM and energy markets, which are not locational. Procurement of these services should also be technology neutral. Hence we do not support the introduction of technological granularity.

We agree with the proposal to increase flexibility in the procurement volume, based on a minimum volume and a demand curve derived from the value of each service in reducing costs in the Balancing Market.

[1] If CRM auctions have four year lead times as suggested in the CRM Consultation 2, then given our preference of short lead times for DS3, the CRM auction would always come first, by a number of years.

2.4 Bidding Parameters

There are some merits with the proposals for package bidding. However, we are concerned that forecasting service availability in advance will be challenging particularly for those service providers who are also participating in the energy market. The need to forecast service availability in submitting these bids further supports short lead times and contract lengths.

Where there is a market then no mandatory grid code compliance is necessary. If mandated grid code provision is retained and imposed on one set of providers it will potentially create a regulatory bias and administrative costs that can create an uneven playing field/ competitive landscape.

2.5 Auction Pricing

There is a significant difference between 'winners' and 'losers' that appears to have been overlooked. 'Winners' will have revenue assurance under the contract for the system services they provide, 'losers' would only receive payment in the exceptional circumstances they are dispatched by the TSOs to provide these services and not when available to provide services as result of their energy market position. Hence we do not agree with the need for 'losers' to receive a lower price than 'winners' to create a differential between winners and losers. Instead, we believe that 'losers' should be paid a premium on the clearing price if they are ever dispatched in the BM to provide system services, thus creating an incentive for the TSO to contract for sufficient service volumes.

We agree with the proposal for winner determination based on least cost. As set out above, we consider that long term contracts should not be offered unless it is established that the market requirement cannot be met in their absence. However, if long term contracts were to be offered the application of adjustments for longer lead times and contract lengths to make bids comparable before running the winner determination algorithm would be required. The fact that there is no clear approach to applying these adjustments highlights the problem inherent in offering long term contracts[2]. If implemented, this process should value shorter lead times/contract lengths more highly than longer lead times/contract lengths given that prices should fall over time with competition and innovation.

The price determination algorithm relies on multiple bids for each bidding unit otherwise it becomes reliant on the regulated tariffs to set the rates for the individual services. In practice, there may not be multiple bids for each bidding unit. Hence it has not been shown that this approach will provide accurate clearing prices for each service, and we have concerns that prices could vary significantly from year to year. Inaccurate and unstable price signals could undermine the development of an efficient and competitive market for these services in the longer-term by undermining investor confidence especially for new entrants who only wish to provide one service.

It would also be unwise to offer long-term contracts based on an unproven auction design and prices that may be unreliable indicators of the fundamentals.

We do not agree that all services should remain mandated as part of the grid code when they have been auctioned. The possible exception to this is SSRP, which we believe may not be suitable for inclusion in the auction given the geographical nature of the requirement.

2.6 Interconnectors

As noted by dot.econ interconnectors will have limited scope for making DS3 system services available. Interconnectors should be excluded from the auction and not receive any payment (as they cannot provide an equivalent product, particularly if commitment is required). There is a case for interconnectors to not be paid unless dispatched by the TSO, consistent with other providers who do not clear in the auction process.

[2] We note that in the context of the GB CRM, DECC found that there was no objective away to apply "Price Duration Equivalence" in the auction.

2.7 Commitment Requirements

We do not support the Contingent Commitment model as this will distort the efficient operation of the balancing and intra-day markets, and agree it may contravene the EU Network Code on Electricity Balancing. We agree that a Full Commitment model in the context of an annual auction could lead to over provision of real time requirements. This could lead to excessive system services costs and an inefficient market schedule. Our preference is for a no commitment model, with DS3 revenues providing the incentive to make available and deliver the contracted services.

If the RAs consider a commitment model is required to generate the price signals necessary to attract new investment, their proposed alternative could be adopted. However, rather than penalties applying if availability falls below that submitted in the bid, we propose that a deadband is used, recognising that forecasting availability in advance will be challenging. Payment rates could be scaled back if availability outturns above the deadband, and penalties applied if availability falls below the deadband.

3 High Level Auction Design

3.1 Separate Long and Short Term DS3 Auctions

We do not agree with the dot.econ recommendation for separate auctions for long-term contracts (for new providers) and short–term contracts (for existing providers) with separate volumes set for each. This would be at odds with the proposed approach in the CRM, and we note that neither approach to long term contracts is satisfactory. The procurement arrangements should be non-discriminatory and technology neutral with all participants having equal opportunities to bid for these contracts. Separate auctions could lead to new and existing service providers delivering the same service at the same time but being paid different rates purely on the basis of when their investment was made, which is not acceptable and may potentially lead to inefficient outcomes for the consumer.

3.2 Consistency Between CRM and DS3 auctions

We support the SEM Committee proposals to develop, where possible, consistency between the CRM and DS3 procurement processes. For example, we agree that Implementation Agreements and the qualification process for DS3 System Services and Capacity should be broadly consistent.

In general, system services in electricity markets are procured under short-term contracts close to the time of delivery, while capacity is typically procured over longer timeframes. This is echoed by the draft EU Network Code on Electricity Balancing which requires balancing services contracts to be no more than one year in length established no more than a year in advance. ACER has recommended these be reduced to no more than one month contracts established no more than a month in advance.

We do not therefore believe it appropriate to align DS3 procurement with the CRM in terms of allowing long lead times and offering long-term contracts. Entering into commercial contracts for 15 years against a backdrop of an uncertain future demand and price of these services risks reducing innovation, foreclosing the market (hindering innovation) and ultimately increasing costs to customers. Long lead time, long-term contracts should not be offered until is it established that they are necessary to deliver the market's requirement.

3.3 Sequencing and Combining Auctions

We recognise the potential issues associated with the sequencing of DS3 and CRM auctions – winning a Reliability Option and subsequently failing to win a DS3 contract, or visa versa, may result in projects not going ahead, with auctions then having to be re-run to make up the shortfall. While this could be addressed by including Capacity in the DS3 auction, the proposed DS3 auction mechanism is as yet unproven and will lack the transparency required by Capacity providers. Accordingly, we believe that

capacity should be procured through a separate auction, and a combinatorial auction only considered at a later date when and if the DS3 auction concept is fully proven and has delivered a successful outcome.

We therefore agree that a Capacity only auction platform should be developed, but it would be premature to include provision for Capacity in this unproven DS3 auction platform. We recommend that the CRM auction comes first with the DS3 auction following.

In terms of creating an inter-dependency to deal with a project succeeding in the CRM but not in DS3, or vice-versa, we agree that those who qualify for the DS3 auction should not be required to take up that market clearing offer in that auction (or lose their bid bond) if they fail in the CRM auction. However, those projects who are successful in the CRM auction but then fail to win a DS3 contract should not be given the option to withdraw their Capacity as this could lead to gaming. The use of Performance Bonds and future opportunities to win a DS3 contract should be sufficient to reduce the risk of these projects not going ahead.

3.4 Lead Times

For DS3 System Services, long lead times should only be offered where the need can be clearly demonstrated. Rather then focusing on delivering investor "certainty" the market framework should increase its attractiveness and should reveal the value of the system services and allow new and existing providers compete to supply the market on an equal basis.

If it is established that a contract including a long lead time is required to meet the market requirement it is suggested that the DS3 auctions are designed to accommodate lead times of no more than to two years. For example in the UK Balancing Service market, National Grid's new Enhanced Frequency Response service, which is aimed at new technologies such as batteries storage technology, will be tendered this year for delivery from winter 2017/18. National Grid in the UK does not procure Balancing Services more than two years in advance.

We propose that auctions for DS3 System Services are undertaken shortly before the delivery year.

3.5 Contract Length

As discussed above, long-term contract should only be offered where the need can be clearly demonstrated. Long-term contracts of up to 15 years are not necessary to attract investment in these services, and would go against international best practice which is moving towards more frequent procurement of balancing services for shorter periods. Long-term contracts would also be inconsistent with the draft Network Code on Electricity Balancing, and would risk locking consumers into high prices for long periods of time whilst limiting the scope for innovation and new entry. We suggest that if long-term DS3 contracts are offered that their duration be significantly shorter then previously proposed. All service providers should be able to bid for these contracts regardless of whether they are new or existing, and should all be paid the same market price for the services they provide. If longer term contracts are to be offered, these should be justified by the RAs as essential to bring forward the required investment.

If longer term contracts are only made available to new providers, these should be limited in volume to demonstration scale to support emerging technologies.

4 Volume Considerations

4.1 Setting Clearing Volumes

We support the 'additive' approach to calculating clearing volumes for each service because it is simple and transparent. Procuring to the annual maximum would ensure that the required service volumes could be accessed regardless of network conditions, time of year, or the technology available, this will give the TSOs security in the knowledge that the calculated combinations of possible events could be addressed.

4.2 Granularity

We appreciate that DS3 System Services requirements will vary throughout the year, in different locations, and could be provided by different technologies. Our views on these are discussed below:

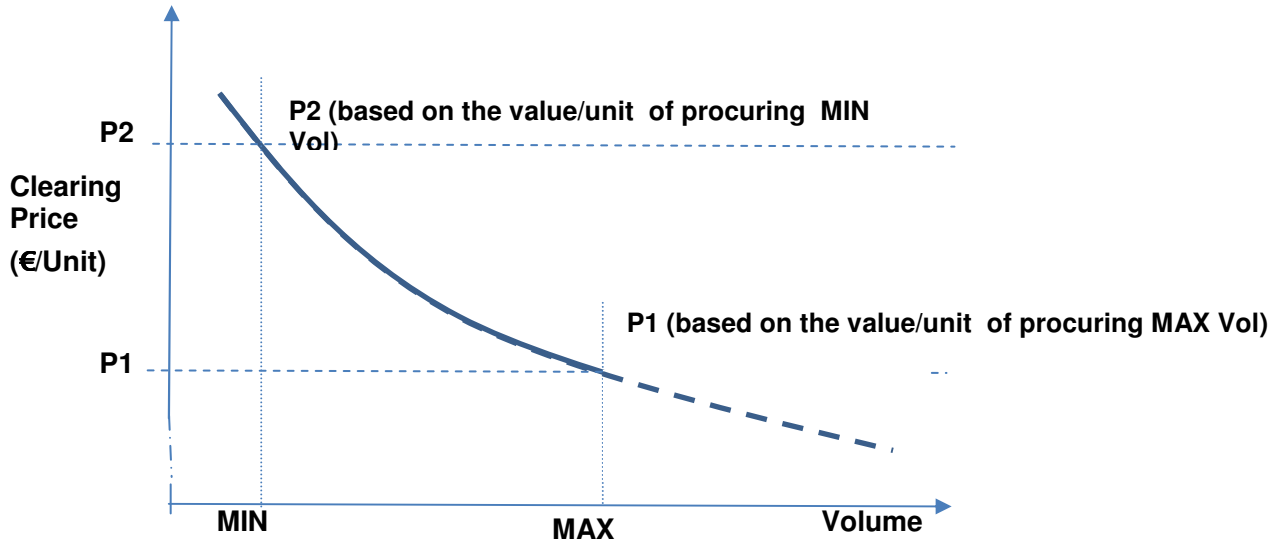
Time based: We recognise the benefits of defining different volume requirements for different times of day, different days of the week, and different weeks in the year. Products could be made more granular (e.g. winter weekday daytime POR), with volumes set for each temporal definition of each product. They could also be procured closer to real time when requirements are better understood, say on a monthly basis. However, given the complexity these would introduce, we suggest that time based granularity should not be introduced in the near future.

Geographical: In general, the majority of DS3 System Services are non-locational. There may be instances of needing to hold more reserve in a given geographic area because of a network constraint, but much of this will be mitigated by the commissioning of the North–South Interconnector. Also, if there is insufficient reserve contracted in a given area, plant could still be re-dispatched in the Balancing Mechanism as a fallback. The requirements for Steady State Reactive Power (SSRP) vary on a geographic basis but for this reason there is a case to exclude SSRP from the auction process, but be paid for under contract. Also introducing geographical constraints into the DS3 system services market could lead to distortions on the CRM and energy markets.

Technological: Procurement of these services should be technology neutral. We do not see a case for treating technologies differently in the procurement of these services. If there are efficiencies to be had by defining a product that is accessible to a wider range of technologies (e.g. static frequency response), this should be defined as a separate DS3 product, a volume requirement established, and procured via the approved procurement mechanism.

4.3 Volume Flexibility

We agree with the proposal to set a minimum volume requirement and use a demand curve to determine the actual volume procured - the higher the clearing price, the lower the volume procured. Value based prices, derived from the cost of alternative actions in the BM, could be derived for different procurement volumes to establish the demand curve.



This would also help mitigate any potential market power concerns, where a service provider seeking to price services above the value to the system would risk procurement volumes being reduced and their bid

being rejected. This should also keep costs within an overall value based budget, with incremental volumes only being procured if they deliver value in excess of their cost and so eliminate the need for the development of the proposed volume scalar.

5 Bidding Parameters

5.1 Package Based Bidding

We support the proposal for package based bidding, allowing multiple bids to be submitted for each bidding unit (e.g. a Generating Unit, a DSU etc.), with individual service volumes and availability and a package price for each. We agree that no more than one bid can be accepted per bidding unit but in some cases where a generator's ability of provide system systems depends on their modes of operation then they should be able to represent these different modes of operation as separate bids, these bids should be linked and either be accepted or rejected in their entirety.

We also support the principle that a bidder would only win with a successful package in the auction if the sum of its predicted revenues from services included in the package (based on established clearing prices) were sufficient to meet the package bid amount. This will ensure that all contracted service providers receive their minimum revenue requirements providing they deliver the level of availability proposed in their bids.

Predicting the level of service availability will be challenging, particularly for generating assets where availability will depend on their relative position in the day-ahead and intra-day markets. The need to forecast service availability in preparing a DS3 bid further supports short lead times and contact lengths for these services.

There may be merit in using generic availability rates for services for different technologies based on historic averages, similar to de-rating factors for capacity.

5.2 Bidding Incentives

We agree with dot.econ in their view that the arrangements should provide good incentives (revealed preference and rational and truthful actions) for truthful bidding, but actual availability is likely to vary in the delivery year due to market conditions, competition, unforeseen outages, weather, demand, increased wind penetration etc.

We suggest that there should be a mechanism to incentivise availability broadly in line with that submitted in the bid, but this should include a dead band to deal with the uncertainty. For example, in order to manage expenditure, payment rates could be scaled back if outturn availability for a given service was a significant percentage higher than that submitted in the bid. However, where the outturn availability rises above that submitted in the bid due to a balancing action taken by the TSO, the payments to the generator should not be scaled back. In this case the generator should be paid a premium on the auction clearing price as they are essentially being required to provide services when the market has a need above the market contracted level. This availability deadband is discussed further in Section 7.4.

5.3 Service Quantity Units

We agree that the quantity of reserves and FFR should be expressed in MW, and that SIR quantities should be expressed in terms of the stored kinetic energy multiplied by the SIR Factor (MWs^2). We also agree with the proposed quantities for SSRP. These all align to the Technical Definitions Decision paper (SEM-13-098) published in 2013.

For FPFAPR and DDR, these are binary in so much as units are either capable or not capable of providing the service, but FPFAPR would be paid based on the pre-event MW output and DDR paid based on the MW Registered Capacity.

5.4 Bidding Restrictions

The dot.econ report suggests that bidders should only be allowed to submit one bid for a specific package of services or quantities, and should not be permitted to bid different availabilities for the same package. This is an unnecessary restriction. For example, a service provider may be able to offer a limited availability of RM3 at low cost (due to the residual warmth of a CCGT from running periodically in the market). However, higher availability for the same quantity of RM3 may be achieved through investment or specific warming actions, which would incur additional costs. The restriction would prevent these options being offered and could lead to less efficient outcomes. If the concern is that large numbers of bids will make the problem intractable, then the number of bids could be limited (e.g. 25 bids per bidding unit).

The report alludes to a reservation price above which bids would not be valid, which could be aligned to the regulated tariffs, it is not clear how this reservation price would apply as bidders would be submitting a package price rather then individual prices per service. Any such restrictions could dilute price signals and undermine competitive price discovery and should be avoided. If individual reservation prices are applied, these should be based on the cost of new entry, otherwise new entrants would not be able to participate. At no times should the guaranteed payment of an actual bid clearing in the auction be undermined through interference in the market. Such interventions are market distorting and will result in potential market inefficiencies.

6 Auction Pricing

6.1 Availability Considerations

We agree with dot.econ's interpretation of reserve availability as "the higher a unit's market or dispatch *reserve* position". We agree that SIR should be considered fully available regardless of MW output when either in the market schedule or physically dispatched. Availability for FPFAPR would be the higher of the actual of dispatch MW position, and availability of DRR would be the Registered Capacity of the unit when either in the market schedule or physically dispatched.

We also agree that the slower reserve services (RM1, RM3, RM8) would be considered available for periods where they are exporting energy and technically capable, or can start up within the relevant notice period (i.e. within 1, 3 or 8 hours). However, there is some ambiguity on whether the available volume is the registered capacity of the unit or the headroom available at t-1, t-3 and t-8 hours respectively.

The proposals require each service provider to estimate the level of availability of each service in advance based on their anticipated market activity, and TSOs will face uncertainty of service availability in real-time. This is an inevitable feature of procuring a non-firm product in advance on an annual basis. There may be over-provision in some periods and under-provision in others, with the TSO re-dispatching plant in the Balancing Mechanism to fine tune their requirements.

6.2 Winners and Losers

We do not agree with the proposal that losers should be paid strictly lower DS3 prices than winners to make the auction viable. Our understanding is that 'losers' would only be paid for these services if they were re-dispatched in the Balancing Market and not when available to provide services as result of their energy market position. They should only be called on to provide such services in the unlikely event that there is insufficient service volume made available by the 'winners' (whether this is self-dispatched or accessible via the BM) or an insufficient volume was procured. Hence the revenue opportunity for 'losers' would be very limited and revenue certainty is the real tangible benefit of winning a contract. 'Winners' will be able to schedule the provision of DS3 System Services and be paid for doing so at the contracted price; losers have no such assurance.

Paying 'losers' a lower rate could also have negative consequences. The TSOs might under procure knowing it can fall back on the cheaper 'losers', thus limiting the size of the competitive market and disadvantaging new entrants. We remain of the view that 'losers' should be paid a higher rate if they are

ever used. This 'higher rate' could be a multiple of the clearing price, thus providing a strong incentive for the TSOs to procure sufficient service volumes in the auction and minimise the need to dispatch 'losers' in the BM to provide these services.

6.3 Mandated Grid Code Services

We do not agree that all services should remain mandated as part of the grid code when they have been auctioned.

We do not support 'losers' who provide mandated Grid Code services being paid below the market rate if they are used, as in effect these generators are being compelled to act as a back stop to both the auction volume requirement defined by the TSO and the delivery of system services by auction winners.. It would be more reasonable for these to be paid the higher 'losers' rate described above if they are ever dispatched by the TSOs to provide these services.

The exception to this is SSRP, which we believe may not be suitable for an auction process due to the locational nature of the product. Therefore, mandated Grid Code requirements could be maintained in this service where it is procured through a regulated tariff.

6.4 Winner Determination

We agree with the approach outlined by dot.econ for identifying winners. Bids would be accepted to meet the individual service volume requirement at minimum cost. The use of demand curves is a reasonable extension to this model.

6.4.1 Dealing with Lead Times

We do not agree with longer term contracts, or with long lead times. If projects are permitted to bid different lead times, we agree that these should be adjusted to make all bids comparable before running the winner determination algorithm. However, it is challenging to find an objective approach to do this. We do not agree with discounting to favour longer lead times as suggested by dot.econ – this would value service delivery in future years higher than for the upcoming delivery year, which would be highly counterintuitive. The process should value shorter lead times more highly than longer lead times.

6.4.2 Dealing with Long-Term Contracts

We do not agree with offering long-term contracts. These should only be offered where the need can be clearly demonstrated. Where this is established we agree with the proposal to adjust bid prices for contract length before running the winner determination algorithm in order to make the assessment comparable, but we note that this is hard to perform objectively in practice. The process should value shorter contract lengths more highly than longer contracts.

6.5 Price Determination

dot.econ have proposed that the individual bids for a given bidding unit are used to back-calculate the providers' price expectations for each individual service using a linear algorithm. The prices calculated must be sufficient to enable the package price to be achieved for the winning bid. If a solution cannot be found, then a regulated price cap is introduced as an additional constraint to find a solution. If a solution still cannot be found, individual prices would be set in proportion to the regulated tariffs. The highest prices from the winning bids would then be used to determine a clearing price for each service.

We have identified the following issues with this approach:

- It is not clear that there will be sufficient number of bids from each bidding unit to derive a reliable price for each service. Each individual bidding unit is unlikely to submit enough bids to derive these prices accurately, particularly with the proposed bidding restriction that only allows one bid for a specific set of services and quantities.

- Using the regulated tariffs to cap clearing prices should not be a constraint used in the algorithm. The purpose of the auction is to create accurate price signals to facilitate a competitive market – these should not be blunted by artificial constraints.

- Using the relative value of regulated tariffs to derive the clearing prices will have similar distorting effects.

- The relationship between the cost, service volume and availability may not be linear. For example, the provision of a small service volume may only incur a small incremental operating cost, but a larger volume may also include investment costs. The price for the larger volume in this example may be much higher than the smaller volume. Using a linear algorithm to derive an accurate price for the wining bid may not be reliable given this non-linear relationship.

- It is possible that individual clearing prices may not be sufficient to incentivise a provider to self-dispatch to provide that service, even if the total package price is recovered through the clearing prices.

Overall we have concerns over the ability of this approach to provide accurate clearing prices for each service, and these could vary significantly from year to year. Inaccurate and unstable price signals could undermine the development of efficient and competitive market for these services in the longer-term.

This auction design is unproven and clearing prices may be unreliable. Hence it may be unwise to offer long-term contracts based on this process. Limiting contract lengths and lead times will allow this procurement process to evolve without foreclosing a significant proportion of the DS3 market.

6.6 Treatment of Interconnectors

We agree with dot.econ that interconnectors will have limited influence over their availability to provide DS3 System Services, and should not therefore be included in the auction or considered to contribute to the service volume requirements. There is a case for interconnectors not to be paid unless dispatched by the TSO, consistent with other providers would do not clear in the auction process.

We agree that the quantity of system services that could be provided by the interconnectors should be limited. These often represent the largest potential infeed loss. Therefore operating reserve to deal with these losses should be held elsewhere and spread across a number of service providers.

7 Commitment Requirements

The argument for a commitment model presented by dot.econ is founded on the need to ensure a difference between ‘winners’ and ‘losers’. However, as discussed in Section 6.2, there is a significant difference between winning and losing which appears to have been overlooked. ‘Winners’ would be guaranteed payment for the services they provide whenever they make themselves available. In contrast, ‘losers’ would only be called ‘in exceptional circumstances’ to provide these services in the unlikely event that there is insufficient service volumes made available by ‘winners’ (either through the market schedule or accessible via the BM). Even then, ‘losers’ would only be paid if they are re-dispatched by the TSO to provide these services and would not be paid for any implicit service.

Winning a DS3 System Services contract therefore provides a great deal of value in the revenue assurance it provides.

Our views on the commitment model options are discussed below:

7.1 Model 1: No Commitment

We agree that without a commitment risk or a floor price, prices might fall to low levels. However, we believe that the auctions should be allowed to establish an efficient price for the provision of these services, rather than include a risk premium. Floor price should be introduced for each service which would act to reduce the level of uncertainty faced by providers in participating in the proposed auction process for the first time.

There may be occasions where there is insufficient volumes of 'winners' available to provide reserve because they are delivering their full output to the market, requiring the TSOs to dispatch plant in the BM to top-up its reserve requirements. Rather than this being a commitment problem, this is the correct economic outcome, with the most economic plant generating electricity rather than providing reserves, and with reserves being held on more marginal plant.

7.2 Model 2: Full Commitment

We agree that a full commitment model in the context of an annual auction could lead to over provision of real time requirements. This could lead to excessive system services costs and an inefficient market schedule and distortions to the energy market.

7.3 Model 3: Contingent Commitment

Under this option, bids and offers in the BM would be controlled through contractual commitments. Given that a significant proportion of units are likely to secure a DS3 contact, the BM would become dominated by contract prices rather than being a fully competitive market that responds to system conditions. These BM price commitments may also influence intraday market prices.

The proposed approaches to determining contractual INC and DEC prices do not take account of the requirement to recover costs of providing System Services. For example, the contractual INC price should not be reduced by the System Services payment, since this implies no revenue for the System Service is allowed or required.

Given our view that the no commitment mode would work effectively, we do not support the contingent commitment model which we believe will have a distortive effect on the efficient operation of the balancing market (and possibly the intraday market). We also agree that this may contravene the EU Network Code on Electricity Balancing.

7.4 RA Alternative Model

If the RAs conclude that some level of commitment is required, we favour the alternative proposal made in the consultation, but with some modification. This option would place an obligation on service providers to provide the volumes and a minimum level of availability based on figures provide in the package bid, or pay compensation if these commitment levels are not reached. The risks associated with these penalties would then be factored into the bid price.

The challenge with this approach is the difficulty in forecasting availability in advance, particularly given that this will be subject to market uncertainty. For example, a generator might forecast it will run for 2,000 hours and bid accordingly, providing a range of DS3 System Services while running. In practice, that same generator may only be scheduled in the market to run 1,500 hours, or may be scheduled to run 2,500 hours. It seems disproportionate to penalise the unit for inaccurate forecasting in what could be a very uncertain market.

If this approach is adopted, we suggest a dead band is used, with a high and low thresholds to incentivise availability levels for each service broadly in line with those in the bid. The thresholds should be a significant percentage either side of the service availabilities submitted in the bid. If availability of any service falls below the lower threshold, penalty rates could be applied. If it rises above the higher threshold, payment rates could be scaled back. Where the outturn availability rises above the threshold

due to a balancing action taken by the TSO the payments to the generator should not be scaled back. In this case the generator should be paid a multiple of the auction clearing as they are essentially being required to provide services above their contracted level. Not only would this help secure minimum levels of commitment, but would also deal with concerns of excess payments for levels of availability well above those in the bid. The penalty rates to be applied for falling below the lower threshold would need to be defined in advance, based on the incremental cost of alternative actions resulting from a shortfall in availability. Careful consideration would need to be given to the incentives on providers when year-end approaches to ensure perverse incentives are not introduced.

Plant that does not need to be running in the energy market should face the same incentives on availability of system services, with penalties applying for failing to meet minimum availability levels, and payment rates scaled back for over delivery. In practice these are less likely to impact, given that these plants are not subject to market uncertainty.

8 Appendix A: Consultation Questions

Our response to the questions posed in the consultation are summarised below:

High Level Auction Design

Question 1: What are your views on the proposals to try to ensure a level of consistency between CRM and DS3 System processes? ***We agree with making the two procurement processes consistent where possible. However, we believe lead time and contract lengths for DS3 system services should be much shorter. Entering into commercial contracts for up to 15 years against a backdrop of an uncertain future demand and price of these services risks reducing innovation, foreclosing the market and ultimately increasing costs to customers. Long lead time, long-term contracts should not be offered until is it established that they are necessary to deliver the market's requirement.***

Question 2: Do you consider that the SEM Committee should consider facilitating a link (where participants require) to only proceed with participation in the DS3 System Services auction subject to a successful outcome in the CRM auction or (vice versa) i.e. create an interdependency that as much as possible mitigates the need for auction re-runs. ***Those who qualified for DS3 auctions but were not successful in the CRM auction should have the option to withdraw from the DS3 auction without losing their bid bond. We do not agree with allowing those successful in the CRM being able to withdraw their capacity if they subsequently fail to secure a DS3 contact as this could lead to gaming.***

Question 3: What are your views on managing the interactions between the CRM and DS3 System Services auctions? The DS3 auction concept is novel and unproven. What is appropriate for DS3 may not be appropriate for CRM, and in particular the treatment of ROs as a "15th product" would severely limit the RAs' options for a CRM auction design. The relative simplicity and price discovery of a descending clock auction, for example, would probably not be possible for CRM if it were combined with DS3. We do, however, believe that the sequencing of DS3 and CRM auctions should be closely aligned.

Question 4: Do you agree with the proposals for separate DS3 System Services long-term and short-term auctions as set out in the dot.econ recommendation? ***We do not support this proposal. The procurement process should be non-discriminatory and technology neutral. The proposal for separate auctions for long- term and short-term auction is at odds with what is being proposed for the CRM.***

Question 5: Do you think the treatment of long-term contracting for System Services should be aligned with the proposed framework in the CRM? ***We do not believe that long term contracts for DS3 system services should be offered until it has been shown that they are necessary to deliver the market requirements. We suggest where long term contract are shown to be necessary they are limited to much shorter timeframes then previously proposed and made available to all participants, not just new entrants. Similarly for contract lead times, a need to offer long lead times should be established before they are offered to be market.***

Volume Considerations

Question 6: What are your views on the proposals to calculate clearing volumes for the auction as set out by dot.econ? ***We support the 'additive' approach to calculating clearing volumes as a simple and transparent approach.***

Question 7: Do you agree with the proposals for introducing granularity for the purposes of calculating auction clearing volumes? ***We recognise the potential benefits of temporal granularity in defining volume requirements, but this proposal would increase complexity. As such it is considered that this proposal should not be introduced until the market has become established. SSRP service may benefit from locational granularity (and perhaps should therefore be removed from the auction), but the other products are non-locational. We do not support technological granularity given our preference for the arrangements to be technology neutral.***

Question 8: What are your views on the proposal to introduce flexibility on the volumes to be procured? ***We agree with the approach, and suggest that the demand curve for each service is applied based on the value of the service and recognises the substitutability with the BM and to an extent between services.***

Bidding Parameters

Question 9: What are your views on the proposals for package based bidding*?* ***We recognise the potential of this proposal but caution that this auction structure is novel to the industry and its introduction will require significant industry engagement and training.***

Question 10: Do you consider that a provider will be able to predict its expected availability accurately on an annual basis? ***This will be challenging for all providers given market uncertainty, and is not viable for long term contracts and long lead times.***

Question 11: Do you agree with dot.econ's proposals in relation to quantity units for the services outlined above? ***We believe that proposed quantity units align to the SEM Decision Paper on Technical Definitions published in 2013.***

Question 12: What are your views on a suggested cap or clawback on expected availability per plant to manage DS3 System Service expenditure? ***Given the uncertainty around forecasting availabilities, a deadband should apply if there is a cap or clawback mechanism introduced to manage expenditure.***

Auction Pricing

Question 13: Do you consider the dot.econ report to have accurately captured the considerations for availability the TSO should use for different DS3 System Service products? If not, please explain your reasons why. ***We agree with availability considerations captured by dot.econ.***

Question 14: Do you agree with the proposals to ensure lower payments are received by System Service providers who are not successful in the DS3 auctions but who are dispatched by the TSO to provide System services, than those providers who are successful in the Auctions? ***No, there is significant value in winning a DS3 system Services contract and a lower price is not necessary to increase the differential between winning and losing. Instead, we believe that 'losers' should be paid at a multiple of the clearing price if they are despatched to provide system services, creating a strong invective for the TSO to procure sufficient volumes and make full use of the contacted services.***

Question 15: Do you agree with the proposals for determining the winner/price as set out in the dot.econ recommendation? ***We agree with the proposal for winner determination. Long-term contracts should only be offered where the need can be clearly demonstrated. Where this is established we agree with the proposal for package prices to be adjusted for lead times and contract length to make bids comparable before running the winner determination algorithm. These adjustments should favour early delivery and short contracts, as the costs of these services are expected to fall over time with increased competition and innovation.***

We have concerns over the ability of this approach to provide accurate clearing prices for each service, and that these could vary significantly from year to year. Inaccurate and unstable price signals could undermine the development of efficient and competitive market for these services in the longer-term. Also, unreliable prices should not form the basis of long-term contracts.

Interconnectors

Question 16: Do you agree with the proposed treatment of interconnectors? Should this apply equally to all interconnectors? ***As interconnectors can not influence their availability to provide system services they should be excluded from the auction and any services they do provide should be paid at the market rate. Both interconnectors should be treated the same, and service quantities capped.***

Commitment Requirements

Question 17: Do you agree with dot.econ's proposed preferred model of Contingent Commitment in DS3 System service Auction procurement? ***No, we believe this will distort the efficient operation of the balancing and intra-day markets, and agree it may contravene the EU Network Code on Electricity Balancing.***

Question 18: Do you agree with the position proposed by dot.econ that successful winners in the DS3 Auction should bid in the BM only at DEC prices set to a proxy of the energy price? ***We do not support this model.***

Question 19: Do you agree with the position proposed by dot.econ that successful winners in the DS3 Auction should bid in the BM only at INC prices set to a proxy of the energy price, or on a costs minus System Services income basis? ***We do not support this model.***

Question 20: Do you support the application of an alternative contingent commitment model that avoids direct commercial interaction and obligation within the Balancing Market? ***Our preference is for a no commitment model. However, if the RAs conclude that a commitment model is required to create price signals necessary to attract new investment, their proposed alternative could be adopted. However, we***

propose that any penalties should only apply outside an availability deadband, recognising that forecasting availability in advance will be challenging.

Question 21: Do you agree with the proposed treatment of plant that does not require it to be in the schedule or on for provision of System Services? ***Plant that does not need to be running in the energy market should face the same incentives on availability of system services, with penalties applying for failing to meet minimum availability levels, and payment rates scaled back for over delivery.***

Question 22: Do you believe that either the Full Commitment model or the No Commitment model offers a better option for DS3 System Service providers? Please explain your reasons for your view. ***A discussed in Section 7.1, we believe the No Commitment model is a better alternative to the Full Commitment model.***