DS3 System Services Consultation – Volume Calculation Methodology and Portfolio Scenarios

This questionnaire has been prepared to facilitate responses to the consultation. Respondents are not restricted to this template and can provide supplementary material if desired.

Please send responses in electronic format to DS3@eirgrid.com or DS3@soni.ltd.uk

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Note: It is the TSOs' intention to publish all responses. If your response is confidential, please indicate this by marking the following box with an "x". Please note that, in any event, all responses will be shared with the Regulatory Authorities.

Response ☐ **confidential**

The closing date for responses is Wednesday, 25th November 2015.

Question	*Response*
Determination of Capability Volume Requirements	
Do you agree with our proposed approach to determining the Capability Volume Requirements for the System Services? If not, please specify what alternative method you believe to be more appropriate.	1. It is difficult to assess if this approach will provide the correct results as there is not enough detail on how the modelling is to be carried out. We are missing some key information on assumptions: • How is Moyle and EWIC modelled in relation to energy flow along with allocation of Ancillary Services? This is an important aspect of the model as it could significantly change the volume requirements of products. Under the Network Codes there is also potential to share Ancillary Services with GB but there is no indication as to what assumptions have been taken on this. • How does the modelling cover the wide range of possible scenarios for customer demand, wind output (including profile volatility), planned and forced outages, etc. as again different assumptions could produce a wide range of different results. The use of historic profiles for demand and wind do not account for the variability of wind in the next settlement period and the fact that wind may not deliver at the time expected and so the live interactions with the DS3 products will be different than if there is perfect hindsight. Research has shown that to provide robust unit commitment schedules the wind needs to be modelled using stochastic methods (see http://mpra.ub.uni-muenchen.de/34849/ (MPRA Paper No. 34849, posted 18. November 2011 / 17:31)). • It is not clear how the volumes will be decided from the runs as these will be different for each and every representation of the system and also different with every half hour. At the DS3 forum on 12 November 2015 it was stated that the target volume is 100% of each product in every situation and every half hour, this is not clear from the consultaion paper and should be clarified to help form opinions on the modelling process.

	• There is no mention of how fuel prices will be modelled and it is particularly important to carry out scenarios with different fuel mixes and to cover the situation where coal is no longer the cheapest fossil fuel. • All forecasting will have some level of error due to the volume and complexity of assumptions, this will need to be accounted for in the modelling process or in the end result. • The consultation states the target of the model is to minimise curtailment. Should the target not be to have no curtailment? If not, what is the criteria that will be used to determine what is minimal curtailment? 2. It is not clear from the consultation paper how many scenarios are planned but multiple scenarios need to be assessed to fully understand the effect of all the assumptions and to make sure the correct volumes are contracted to cover all likely events on the system. 3. We note the modelling is to be carried out on Plexos, it is important that the model matches the reality of the system despatch and replicates the Unit Commitment in the same way the control rooms tools (e.g RCUC) will despatch plant in real time. 4. It is a strange assumption to separately develop real time requirements (as stated on Page 12) as limits and constraints, surely this will create a recursion loop and actually influence the results. The model itself should be used to find the stability limits of the system under each scenario and the volumes of the different services required to ensure operational security. 5. On Page 18 there is a statement, '*As all conventional generator units can provide the desired response, it is only additional non-conventional generation that will be required to supply this service*'. Since the system cannot operate stably without the current generator units providing the DRR and FPFAPR products it can only be assumed that this statement is referring to payments for these products. This being the case we fail to see what role it plays in the

	modelling. 6. We believe there should be a working group established to develop the scenarios and assumptions to make sure the modelling is sufficiently robust to ensure the correct volumes are captured. This volume work is of paramount importance to the DS3 process. Proper governance must be applied to the development of this process to make sure there is appropriate transparency, accuracy and assumptions. 7. The timescales for the delivery of the DS3 process are extremely challenging but it is important there are no shortcuts taken in the modelling and assessment of the volumes required. The volumes are critical for accurate pricing and contracting of the Auction process and so if there are any delays in the development of an accurate model, the Auction process will also need to be delayed. 8. We also consider each year should be modelled rather than only modelling 2017/18 and 2019/20 and interpolating for 2018/19 and using the 2019/20 results for the subsequent 2 years.
Plant Portfolio Scenarios	

Do you agree with the 2017/18 and 2019/20 plant portfolio scenarios and underlying assumptions presented as the starting point for carrying out the analysis of System Services Capability Volume Requirements? If not, please specify what alternative scenarios you believe to be more appropriate, and why.	1. It is unclear from the consultation paper what exactly is contained in the scenarios shown in tables 3 to 5, i.e. is the shown POR value a minimum requirement for system stability or is it a current assumed value? Without a clear description of what these scenarios are it is very difficult to make constructive comments. However looking at the tables 3 to 5, some of the assumed values appear incorrect and so raise concerns over the veracity and integrity of the whole modelling process. Some of these inconsistencies include: • Assumption that no CCGT's (even enhanced ones) will be able to provide RM1 and RM3 is incorrect as any CCGT with open cycle potential will be able to provide both these. Also surely with 4282 MW of CCGT capacity (in Table 3) the RM8 should be much greater than 734 MW. • Why has the total capacity of CCGT's reduced in the 2019/20 scenarios? • Is the huge increase on SIR for CCGT's in 19/20 (Table 4) technically feasible? • Looking at the OCGT's, some of these are shown as enhanced in Table 4 2019/20 scenario, however the remaining OCGT's have a lesser capacity but the same SIR? • For the OCGT's, it isn't clear why the volume of RM products would be different to the Capacity. Similarly, in the Table 4 2019/20 scenario, the DRR and FPPAPR volumes are lower than the OCGT Capacity. • It seems strange that the RR (S) and RR (D) add up to more than the total capacity for all scenarios where both products exist? • The column labelled DSM, I/C and Storage, should be split out for clarity as the I/Cs are likely to have a significant impact on the modelling scenarios. 2. All the above comments in question 1 are also relevant to this question. 3. We note on Page 21 that *'Fast Frequency Response capability was set at 50% of the corresponding Primary Operating Reserve figure for non-enhanced plant, 60% for enhanced plant*.' We do not believe this is a true reflection of the capability of existing plant and this would need to be properly assessed before this assumption is applied in any modelling.

	4. We agree that wind must be tested to the extremes and would suggest that there is also a requirement for a real time element here to cover the eventuality that wind output does not turn at the forecast level or in the expected timelines or indeed drops off unexpectedly (see comment 1 above). 5. There needs to be an additional assumption on the percentage breakdown of plant in each scenario and sensitivities modelled around the impact of this on volumes required. All the units cannot all be considered fully available throughout the modelling period. 6. It is also important as part of this iterative process, where some providers have very low or zero utilisation and will be removed, that all system demand continues to be met by the generation that is selected. 7. If Tables 3 to 5 contain proposed contracted values of Ancillary Services and serveral of these units become unavailable the model will need to determine a surplus for each of the products to ensure there are sufficient volumes of each product to meet all the system requirements. 8. As mentioned above it is not clear how the Interconnectors are being modelled but it is important that these are modelled with different scenarios particularly with full flow in both directions and with an extensive range of variants in between, including scenarios with volatile swings between full import and full export which is the likely outcome of market coupling. 9. We agree that locational constraints must be considered in the modelling and Ancillary Services procured to the meet all these locational requirements and to cover the worst case scenario when an area is electrically separated and operating as an island e.g. Northern Ireland on its own. 10. We do not agree that only 2016/17 and 2019/20 years should be modelled, we believe the full five years should be modelled. Only modelling the two years, is likely to increase the assumption errors and does not look at the changing effects over the years given the potential for step changes, for example, as a consequence of lower coal fired generation, the introduction of the new N/S interconnector, etc. any of which could change system service volume

	requirements considerably. 11. Using only two starting portfolios for the 2019/20 year does not seem adequate to ensure the results are not influenced by the starting conditions. Different starting positions using reduced minimum generations and/ or additional network devices etc should also be included to prove the volumes are not affected by the starting assumptions or to select the worst case scenario as a starting point.