Information Note on the T-1 2022/23 Capacity Auction Volumes and Initial Auction Information Pack

SEM-21-025

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1 EXECUTIVE SUMMARY

This is a supplemental information paper providing additional background to the decisions made by the SEM Committee in determining the inputs to the Initial Auction Information Pack (IAIP) for the T-1 Capacity Auction for 2022-23. The IAIP itself was published by the TSOs on the 13th April 2021. It contains key parameter decisions published by the SEM Committee in SEM-21-019, plus additional decisions approved by the SEM Committee at its meeting in March 2021.

The IAIP settings that the Committee wishes to highlight in this paper are the Derating Factors (DRFs) applied to each technology class, the External Markets Derating Factor (EMDF), and the Volume of supply and demand of capacity 2022-23:

- DRFs: the SEM Committee determined that the DRFs used in the T-4 2024-25 Capacity Auction be retained for the T-1 2022-23 auction. The SEM Committee also decided to instigate a review into the DRF methodology and approach, with a view to incorporating learnings from this review into the DRF settings as soon as is reasonably practicable, while noting that the date for the Initial Auction Information Pack (IAIP) for the T-3 2024-25 auction is 1st July 2021.

- EMDF: The EMDF is to be retained at 60%, while noting that National Grid's latest Future Energy Scenarios (FES) suggest that there are lower chances of scarcity in Great Britain than had been predicted in previous FES modelling, while noting that the date for the Initial Auction Information Pack (IAIP) for the T-3 2024-25 auction is 1st July 2021.

Sections 2 and 3 set out the background to these SEM Committee decisions.

- Volumes: This Information Note also seeks to give some indication to potential partipants in the T-1 auction of the likely focus of the auction, given that it is the first 'top up' auction of its kind, with most volumes for 2022/23 having been procured already under the T-4 which took place in March 2019. In this regard the SEM Committee notes that the volume information set out in the Initial Auction Information Pack (IAIP) relates chiefly to the unconstrained all-island market, and it may be useful for applicants seeking to qualify for the T-1 2022-23 auction to have more insight at an early stage, particularly regarding the likely locations on the island the auction will focus on. This issue is discussed in Section 4.

2 DERATING FACTORS

The Derating Factors (DRFs) are calculated by the TSOs prior to each auction according to the Capacity Requirement and Derating Factor methodology consulted on, and approved by the SEM Committee in SEM-18-030.

Prior to each auction, the TSOs update the assumptions and calculate updated DRFs for SEM Committee consideration.

There have been significant changes to the TSOs' calculated DRFs in recent auctions, driven by a range of factors including:

- A change in the detailed implementation of the modelling methodology. Whilst SEM-18-030 sets out the high-level methodology, DRFs can depend quite significantly on the details of the modelling approach. The TSOs implemented a change to their model (still consistent with SEM-18-030) to better capture the limitations of energy-limited plant, including DSUs with limited off-times and battery storage. This resulted in reductions in DRFs for short-run time DSU and batteries in previous auctions.

- A change in the assumptions about the amount of energy-limited capacity on the system, to reflect the increasing amount of DSUs and battery storage capacity. An observed effect of the marginal approach to DRFs is that the DRFs for short run-time energy-limited capacity are very sensitive to assumptions about how much run-time limited plant is assumed to be part of the notional capacity portfolio. The TSOs have proposed increasing the assumed amount of nameplate short run-time energy-limited capacity in the model, and this would result in substantial further reduction in the DRFs for DSUs and batteries.

- Changing assumptions about the average outage rates of plant by technology type. The SEM Committee has adopted an approach of employing the same DRFs for New Capacity and Existing Capacity, and based the DRFs on historical outage performance of that technology class in the SEM. In recent years, outage rates of existing gas and steam turbine capacity have declined to an extent that it is unlikely to be reflective of the performance of new capacity.

The change in assumptions and the detailed modelling approach has led to a significant change in DRFs between the first auction (T-1 2018-19) and the most recent auction (T-4 2024-25). This has affected a range of technology classes from gas turbines to solar, not just run-time limited plant. The updated values proposed by the TSOs for the T-1 2022-23 auction show further significant changes in values across the technology classes.

The SEM Committee is concerned that:

- The magnitude of change in DRFs from auction to auction is significantly greater than was anticipated, when the SEM-18-030 decision was made;

- The approach of basing the DRFs for New Capacity on the historical SEM performance of Existing Capacity should be reviewed in the light of recent experience; and

- The models used by the TSOs to determine DRFs under the approved methodology are complex, and the sensitivity of certain DRFs to changes in assumptions is not necessarily intuitive.

For these reasons the SEM Committee has decided to:

- Retain the DRFs used for the T-4 2024/25 auction for the T-1 2022-23 auction;

- Instigate a review into the DRF methodology and assumptions, and

- Incorporate learnings from this review into the DRF settings as soon as reasonably practicable.

Depending on the outcome of the review, the SEM Committee may then consult on formal amendments to SEM-18-030 to provide greater certainty to investors on a more enduring basis.

The Committee notes that there is an explicit link between the Capacity Requirement and the Derating Factors when the TSOs produce them under the methodology. For the avoidance of doubt, for the T-1 2022/23 auction the Capacity Requirement has been calculated using the TSO model as-updated, and has not been back-adjusted to account for the fact that the Derating Factors have been retained from the previous auction exercise.

3 EXTERNAL MARKET DE-RATING FACTOR

The External Market Derating Factor (EMDF) applies to the Moyle and EWIC interconnectors, and is calculated by the RAs. Along with the System-Wide Derating Factor, it determines the amount of capacity that EWIC and Moyle can offer into the CRM auction.

The EMDF is a measure of the ability of the GB system to provide capacity at times of scarcity in the SEM and is based on Monte Carlo modelling of coincident scarcity in the two markets. Since the start of the CRM, the RAs have calculated the risk of coincident scarcity in GB, based on the four scenarios presented as part of National Grid's annual Future Energy Scenarios (FES) document. In the first CRM auction, the EMDF was set at 60%, as this was broadly the average probability of coincident scarcity across the different FES scenarios. National Grid updates the FES scenarios annually, and the RAs have recalculated the probability of coincident scarcity following each update. The original EMDF value of 60% has remained within the range of FES scenario outcomes, and the SEM Committee has retained the 60% value for each subsequent auction. However, following the latest National Grid update, all of the updated GB FES scenarios indicate that the chances of scarcity in GB are minimal in 2022-23. As a result, the probability of coincident scarcity is also minimal- indicating that the EMDF would be closer to 100% than 60%.

However, the SEM Committee wishes to investigate in more detail whether the existing approach to estimating co-incident scarcity, in conjunction with the Interconnector De-Rating methodology previously approved (SEM-16-082b) remains the best approach. The SEMC has decided not to increase reliance on GB capacity without more detailed investigation. If the EMDF was set at around 100%, this could result in reliance on GB for an additional 250+ MW of derated capacity.

Similar to the Derating Factors, the SEM Committee consider that some degree of stability in EMDFs is desirable in the context of the somewhat qualitative judgement that must be made in setting these values. For these reasons, the SEM Committee decided to retain the EMDF at 60% for this auction, review the approach and incorporate learnings from the review into auctions going forward as soon as is reasonably practicable.

4 VOLUMES AND LOCATION

In line with Capacity Market Code (CMC) requirements, the IAIP for the T-1 2022-23 auction sets out the following information with respect to volumes and location:

- The Capacity Requirement, which is an all-island value;
- How much Awarded Capacity (New and Existing) has already been procured for the relevant Capacity Year in prior auctions, which are also all-island values only;
- An Indicative Demand Curve, which reflects all-island values; and
- For each Locational Capacity Constraint for the relevant Capacity Year to be used in the Capacity Auction, the final nodes on the Transmission System (and the Distribution System, as applicable) to which the Locational Capacity Constraint applies.

The T-1 2022-23 auction is the first 'top-up' auction, where the majority of the required volumes have already been procured at the T-4 auction held in March 2019.

The TSOs have estimated a revised Capacity Requirement of 6,748MW[1] for 2022-23. However, the total of New and Existing Awarded Capacity is around 7,233MW. This 7,233MW has already been adjusted for the approximately 215MW of Awarded Capacity in the 2022-23 T-4 auction which has been terminated.

Whilst the SEM Committee may decide to procure additional all-island capacity to cover reserve and other factors not captured in the Capacity Requirement (as it has done in prior auctions), it may be that the amount of Awarded Capacity will still exceed the adjusted all-island requirement.

In line with CMC requirements, the SEM Committee will set final volumes for each LCCA in the Final Auction Information Pack (FAIP), to be published a few weeks before the auction.

The SEM Committee notes the recent termination of approximately 215MW of New Capacity contracted for delivery in the Dublin LCCA for 2022-23, and also notes the possibility that other Awarded Capacity may also not be completed in time for Winter 2022-23. In this context it is most likely that the T-1 2022/23 auction will feature an emphasis on the procurement of additional volume in the L2:1 Greater Dublin LCCA. This requirement may exceed the amount of uncontracted Existing Capacity expected to qualify in the Dublin area.

There may also be a requirement for additional volumes in the other LCCAs, namely Northern Ireland and Ireland.

[1] This is based on the DRFs generated by the methodology as it stands, rather than DRFs being retained from the T-4 2024/25 IAIP.