



Energy for
generations

Generation & Wholesale Markets

ESB GWM Response:
Integrated Single Electricity Market
(I-SEM)
Capacity Remuneration Mechanism
Proposed Locational Capacity Constraints
Methodology
Consultation Paper
SEM-17-027

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1. INTRODUCTION

ESB Generation and Wholesale Markets (GWM) welcomes the opportunity to respond to the Locational Capacity Constraints Methodology Consultation (SEM-17-027).

- Section 2 sets out our views on the methodology to determine locational capacity constraints (SEM-17-027a). Overall the proposed approach is comprehensive and rigorous but it does move the capacity market away from a market based solution. We think a number of aspects require further evaluation.
- Section 3 contains our views on the proposed amendments to the methodology to calculate the Capacity Requirement and the De-rating Factors for capacity units (SEM-17-027b). We do not think there is sufficient evidence for stakeholders to say whether the proposed amendment is appropriate or not.

We would be happy to discuss any of our views further with the SEM Committee, the Regulatory Authorities (RAs) and the TSOs, EirGrid and SONI.

2. METHODOLOGY TO DETERMINE LOCATIONAL CAPACITY CONSTRAINTS

2.1 Changes to the I-SEM High Level Design

ESB GWM remains concerned with the decision to include locational capacity constraints in the I-SEM capacity market (SEM-16-081). We set out our reasoning for this view in our response (SEM-16-079h) to the SEM-16-052 consultation. In short these concerns were:

- Maintaining a single bidding zone for energy and capacity in Ireland and Northern Ireland does have costs relative to a multi-zone market, including the costs of resolving locational issues in the long and short term. We are of the view that these costs are outweighed by the benefits of increased market size, competition and liquidity. This is especially the case for Northern Ireland as stated in the recent Select Committee report.¹ In SEM the cost of maintaining the single bidding zone has been relatively small where the total annual Dispatch Balancing Costs are around €120m in a market worth over €2bn. Only part of that can be attributed to the North-South and other power flow constraints.
- It is far from clear from the I-SEM High Level Design (HLD) that the capacity market is the place to resolve locational capacity constraints.² Alternative options that are outside of the CRM do exist and these should be explored and assessed. This could involve sharpening TLAFs and GTUoS³, allowing unrestricted bidding in the Balancing Market (providing an expectation of higher revenues in constrained locations and an incentive to keep capacity open) or through a range of side contracts between the TSOs and generators. The fact that a “targeted contracting mechanism” was flagged as a possibility in the CRM parameters and BCOP decisions begs the question whether the capacity market is the best place to resolve locational capacity constraints.

¹ Electricity sector in Northern Ireland, House of Commons, Northern Ireland Affairs Committee, 1 May 2017, p. 20.

² We do recognise that an unconstrained capacity auction may not resolve long standing network constraints and may not procure sufficient capacity to satisfy the 8 hours Loss of Load Expectation reliability standard.

³ Although we note that incentives on losses and on long run transmission costs may not necessary reflect the short term operational constraints that the TSOs face and hence this may not solve the locational issues.

- The decision to include locational capacity constraints in the I-SEM CRM is at odds with previous CRM decisions and the expectations in the I-SEM HLD decision (SEM-14-085a) of a single bidding zone for energy and capacity. This represents a major change to the HLD.
- Most generators have paid for firm access to the transmission system giving them the right to inject power and to be compensated if that right is curtailed. This is as true for capacity as it is for energy. The decision to adopt option D after the transitional period puts that at risk and creates uncertainty for market participants.
- Including locational capacity constraints in the capacity market adds substantial complications to the design of the capacity market auction and the Capacity Market Code (CMC). This is undesirable in the lead up to the first transitional auction and from a broader I-SEM perspective.

2.2 The proposed methodology

The proposed methodology is comprehensive and rigorous but moves the capacity market further away from a market based solution. ESB GWM suggests the re-evaluation of a number of aspects of it.

2.2.1 Concerns about transparency

The Consultation provides a conceptual overview of the proposed methodology to determine locational capacity constraints in the I-SEM capacity market. While we welcome visibility of this, there are no worked examples or calculations, and the only initial results are set out in the SEM Committee's covering paper. In our view, this is a critical absence. This lacks transparency and makes it difficult for any stakeholder to meaningfully comment on the proposed methodology let alone test and rigorously challenge it. In an ideal world, the TSOs would publish a working model alongside the methodology.⁴ This combined with the four week consultation period limits stakeholders' ability to propose detailed alternatives.

We note the previous consultation on the methodology to determine the applicable capacity requirement and the de-rating factors for a capacity auction (SEM-16-051) included this level of detail.

2.2.2 Scope of locational capacity constraints

The Consultation paper and the TSOs' proposed methodology implies locational capacity constraints could exist on the transmission and distribution networks.⁵ ESB GWM requests that the RAs and TSOs clarify this is not the case. If it were, it would be a significant expansion of the scope of locational capacity constraints envisaged in SEM-16-081. This would also represent a major departure from the high level design of the capacity market.

The proposed methodology makes no allowance for power flow constraints on the distribution network. This is evident in the chosen source data. Despite this, the output of the proposed methodology specifies a locational capacity constraint area can reference the distribution system or a node on the distribution system. The output of this methodology is therefore inconsistent with its inputs. There is also no objective reasoning or benefits case explaining or justifying this change in scope.

ESB GWM considers any locational capacity constraint should be strictly limited to the transmission system. In the next section we explain why limits to Level 2 constraints should be introduced to ensure that any locational capacity constraint is of a minimum size.

⁴ Ideally, this would include the methodology to determine the capacity requirement and de-rating factors.

⁵ SEM-17-027, p. 4 and SEM-17-027a, p. 6 and 15.

2.2.3 Defining Level 2 constraints requires limits

The proposed methodology defines Level 2 constraints as network capacity constraints within the meshed network which limit power transfer and for which generation in an area would be required to mitigate those constraints.⁶ The methodology uses AC load flow simulations to test the ability of the transmission and distribution network to satisfy a large range of demand-generation combinations and identifies constrained areas (and the minimum MW needed to resolve them) where it is unable to.

This approach is however too open ended, and we are concerned it gives too much discretion to the TSOs. This runs the risk that it could become too much of a failsafe mechanism. We propose the methodology should include limits on the size of any Level 2 constrained area. This could include:

- A minimum MW requirement that a locational constraint must be greater than e.g. 20MW;
- A limitation that any locational constraint must be in one of the two biggest (nested) capacity zones;⁷
- An overall limit on the total number of Level 2 constraints may also be appropriate.

2.2.4 Applying different reliability standards in Northern Ireland

In Northern Ireland SONI operates the system to a 4.9 hour Loss of Load Expectation (LOLE) reliability standard. The SEM Committee decided to apply an 8 hour LOLE reliability standard in I-SEM.⁸

The Consultation paper's initial results suggests Northern Ireland will be a Level 1 constrained area. This implies that Northern Ireland and ROI must be assessed separately. This potentially introduces an inconsistency between the application of the reliability standard in Northern Ireland and that applied in I-SEM. On one hand, it would appear reasonable to apply the higher standard in Northern Ireland. Yet this would disadvantage ROI consumers who would in part pay for a higher reliability standard in the constrained region. On the other, Northern Ireland has a higher reliability standard that will not be satisfied. There is no simple fix for this inconsistency but it is a reflection of the CRM 1 decision to apply an 8 hour LOLE standard.

2.2.5 Implications for future bidding zone reviews

The Capacity Allocation and Congestion Management Guideline sets out the procedures for TSOs and National Regulatory Authorities to periodically review the configuration of the bidding zones. The bidding zones apply in the forward, day-ahead, intraday and balancing timeframes. The decision to include locational capacity constraints in the I-SEM capacity market, and the subsequent initial results that Northern Ireland would be a Level 1 constrained region, would appear to impact that future process yet it is not discussed at all in the Consultation or the proposed methodology. This is a major oversight. ESB GWM would like the RAs and TSOs to clarify this interaction.

⁶ SEM-17-021a, p. 14.

⁷ The RAs mentioned this at a seminar in Dundalk on 2 March 2017.

⁸ SEM-15-103, p. 28.

3. PROPOSED AMENDMENT TO THE METHODOLOGY FOR THE CALCULATION OF THE CAPACITY REQUIREMENT AND DE-RATING FACTORS

In testing the de-rating methodology the TSOs have observed year-on-year volatility in the de-rating factors. To improve their year to year stability the Consultation proposes to introduce the below amendment to the de-rating methodology.⁹

- Take the demand forecast level that applies to the Least-Worst Regret demand scenario
- The final De-rating Factor Curves will be formed by **averaging the De-rating Factor Curves from all the demand scenarios at this demand forecast level (i.e. average across all historical profile years at that demand level)**
- The final Capacity Requirement will be formed by **averaging the Capacity Requirements from all the demand scenarios at this demand forecast level (i.e. average across all historical profile years at that demand level).**

It is difficult to comment on the appropriateness of the proposed amendment for a number of reasons.

- The TSOs have not provided any information on the degree of year-on-year variability observed. Without this it's hard to gauge the materiality of the issue or whether it's an issue at all. Before proceeding with the amendment we'd encourage the TSOs to publish more detailed information about the observed volatility.
- The commissioning of new plant and the closure of old ones will cause the de-rating factors to vary year-on-year. It is unclear from the Consultation how significant this variation might be and how that factors into the observed volatility. Given the all island market is a relatively small system and the type of new plant technologies is likely to be different to the older plant they replace, one could expect this to be significant. The capacity auction itself will send an exit signal to plant that is unsuccessful in the auction. It would be helpful if the TSOs could identify the contribution of changes in the composition of the plant on the system in the observed year-on-year volatility.
- Improving stability by introducing averages will come at the expense of watering down the Least-Worst Regrets approach. Averaging the capacity requirements across different demand profiles will produce a lower capacity requirement and not reflect the least-worst case (as driven by particular demand profiles) and will also produce lower de-rated factors. For this reason the TSOs should carefully assess whether the proposed modification undermines the application of the Least-Worst regrets approach.

ESB GWM would like the TSOs to carry out and publish the above mentioned analysis. In the absence of this it's difficult to meaningfully comment whether the proposed amendment is appropriate or not. It is good industry practice to make evidence based decisions, and this matter is no exception. It is our view the evidence necessary to make this decision, one way or the other, is not presently visible to stakeholders.

⁹ SEM-17-027b, p. 4-5.