



**Integrated Single Electricity Market
(I-SEM)**

**Proposed Locational Capacity
Constraints Methodology**

Consultation Paper

SEM-17-027

April 2017

Contents

1.	OVERVIEW	3
1.1	Background.....	3
1.2	Locational Issues Decision Paper (SEM-16-081).....	4
1.3	Proposed Locational Capacity Constraints Methodology	4
1.4	Capacity Requirement and De-rating Amendment and Update	5
1.5	Assessment criteria	5
1.6	Feedback to consultation	7
2.	Next steps	8
Appendix A Eirgrid & SONI Proposed Locational Capacity Constraints Methodology		
Appendix B Eirgrid & SONI Capacity Requirement and De-rating Amendment and Update		

1. OVERVIEW

1.1 BACKGROUND

- 1.1.1 The purpose of the CRM Detailed Design is to develop through consultation the specific design features of the new capacity mechanism. As illustrated in 1, this consultation paper covers more detailed areas of design identified in the three earlier decisions made during the development of the CRM Detailed Design.

Figure 1 : Overview of CRM Policy Development

CRM Decision 1 SEM-15-103	<ul style="list-style-type: none"> Capacity Requirement Eligibility Product Design Supplier arrangements Institutional arrangements 	Decision Dec 2015	
CRM Decision 2 SEM-16-022	<ul style="list-style-type: none"> Interconnector and cross-border capacity Secondary trading Detailed Reliability Option design Level of Administered Scarcity Price Transitional arrangements 	Decision May 2016	
CRM Decision 3 SEM-16-039	<ul style="list-style-type: none"> Auction Design Framework Auction Frequency and Volumes Market Power and Mitigation Measures Auction parameters Auction Governance, Roles and Responsibilities 	Decision July 2016	
CRM 3 Locational Issues Decision SEM-16-081	<ul style="list-style-type: none"> Auction format and winner determination Capacity clearing price determination Local security of supply issues Lumpiness issue 	Decision Dec 2016	Policy
Capacity Requirement and De-rating Decision SEM-16-082	<ul style="list-style-type: none"> Capacity Requirement methodology De-rating methodology Interconnector De-rating methodology Tolerance bands 	Decision Dec 2016	Implementation
CRM Parameters Decision	<ul style="list-style-type: none"> ASP parameters Supplier charging parameters Reliability Option parameters New build parameters Transitional auction parameters Other parameters 	Decision Apr 2017	
Capacity Market Code Consultation	<ul style="list-style-type: none"> Detailed Capacity Market rules 	Published – Jan 2017 Decision – Jun 2017	
Local Capacity Constraints Consultation	<ul style="list-style-type: none"> Methodology to define constrained areas Methodology to determine MW within defined areas 	Publish – Apr 2017 Decision - July 2017	

- 1.1.2 This paper follows on from our Locational Issues decision paper, SEM-16-081, which was published on 8th December 2016. This consultation focuses on the detailed methodology to determine which constraints should be included for the first transitional auction, and the definition of the constrained zones and the minimum requirements in each zone.
- 1.1.3 Appendix A sets out the proposed methodology developed by the TSO's for the determination of Locational Capacity Constraints and their associated minimum MW.
- 1.1.4 In addition to the proposals set out by the TSOs in Appendix A, the TSOs have also proposed an amendment and provided an update to the de-rating process. This is set out in Appendix B. The revised De-rating Factor values for the first transitional auction will be published in July in the Initial Auction Information Pack.

1.2 LOCATIONAL ISSUES DECISION PAPER (SEM-16-081)

1.2.1 Within the Locational Issues Decision Paper (SEM-16-081) the SEM committee made the following high level decisions.

- The likely level of transmission constraints and the potential scale of exit creates a security of supply issue for the first transitional auctions
- In as far as is practical, the SEM Committee wishes to implement a market based solution for dealing with transmission constraints that affect capacity deliverability;
- The scale of the risk to security of supply is such that it is appropriate to incorporate locational constraints within the CRM.

1.2.2 The SEM Committee decision also identified a number of key principles which would be appropriate for any locational capacity framework within the CRM:

- Any locational constraints taken into account within the CRM mechanism would only be used to represent local capacity deliverability constraints.
- A locational need would only be included in the CRM mechanism where the need is clear and significant.
- The means by which local capacity deliverability constraints are identified and quantified would be simple and transparent to the maximum extent practicable.

1.3 PROPOSED LOCATIONAL CAPACITY CONSTRAINTS METHODOLOGY

1.3.1 As set out in Appendix A, the TSOs have developed a methodology for the determination of the Locational Capacity Constraint Areas and the minimum MW requirement in each such area. These Constraints will be used as inputs into future Capacity Market Auctions

1.3.2 Locational Capacity Constraints will apply in a Capacity Auction to ensure that a minimum quantity of de-rated capacity is cleared in an auction for areas where constraints have been identified on the transmission network.

1.3.3 These areas will be referred to as Locational Capacity Constraint Areas and will be defined by reference to the relevant Transmission System and Distribution System.

1.3.4 The methodology, as set out in the paper, is designed to be consistent with that used to identify transmission network constraints and their corresponding reinforcements.

- 1.3.5 The paper sets out the proposed inputs and their sources, the proposed assessment methodology and proposed outputs of the methodology.
- 1.3.6 The intended outcomes of the methodology are the identification of Locational Capacity Constraint Areas, the level of constraint and the required minimum de-rated MW. The Locational Capacity Constraint Areas will be defined as a set of transmission or distribution nodes within each Locational Capacity Constraint Area.

Initial Results

- 1.3.7 Based on the methodology set out in Appendix A, the initial results from testing indicates that:
- (i) Northern Ireland and Ireland are likely to be L1 locational capacity constraint areas and the LOLE assessment would apply to both areas;
 - (ii) Detailed technical analysis indicates that Dublin is likely to be a L2 locational capacity constraint area; and
 - (iii) Not all the units in each of these constraint areas are likely to be required to mitigate the constraints.

1.4 CAPACITY REQUIREMENT AND DE-RATING AMENDMENT AND UPDATE

- 1.4.1 The TSOs are required to calculate the Capacity Requirement for the Capacity Market and also to recommend the De-Rating Factors that will be applied to units participating in the auction and secondary trading. The methodology being used to calculate these is outlined in decision paper SEM-016-082 and associated appendices.
- 1.4.2 Appendix B proposes an amendment to the methodology described in SEM-016-082a that is designed to improve stability of De-rating Factors from year to year. The paper also provides an update on the indicative De-rating Factor values that were provided in the SEM-16-051a consultation document.

1.5 ASSESSMENT CRITERIA

- 1.5.1 The assessment criteria for the detailed design of the CRM (including the auction design) are based on the same principles as those applied to the I-SEM High Level Design and as agreed with the Departments in the Next Steps Decision Paper March 2013. We have developed detailed descriptions of these criteria to focus on issues that are relevant to procuring capacity and tailored to the detailed design elements of the capacity remuneration mechanism.

1.5.2 These assessment criteria are set out below:

- **The Internal Electricity Market:** the market design should efficiently implement the EU Target Model and ensure efficient cross border trade.
- **Security of supply:** the chosen wholesale market design should facilitate the operation of the system that meets relevant security standards.
- **Competition:** the trading arrangements should promote competition between participants; incentivise appropriate investment and operation within the market; and should not inhibit efficient entry or exit, all in a transparent and objective manner.
- **Equity:** the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner.
- **Environmental:** while a market cannot be designed specifically around renewable generation, the selected wholesale market design should promote renewable energy sources and facilitate government targets for renewables.
- **Adaptive:** The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.
- **Stability:** the trading arrangements should be stable and predictable throughout the lifetime of the market, for reasons of investor confidence and cost of capital considerations.
- **Efficiency:** market design should, in so far as it is practical to do so, result in the most economic overall operation of the power system.
- **Practicality/Cost:** the cost of implementing and participating in the CRM should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.

1.5.3 Fundamental to the SEM Committee's consideration of the overall CRM design is the European Commission State Aid Guidelines. We will continue to engage with the Departments (DCCAE and DfE) and the European Commission as we develop the capacity market design as ultimately EC approval is required for the CRM auctions to commence.

1.6 FEEDBACK TO CONSULTATION

- 1.6.1 The SEM Committee welcomes views on all aspects of the methodology proposed in Appendix A and the appropriate use of existing tools and standards to develop the proposed framework.
- 1.6.2 The Committee would particularly want to receive evidence supporting any alternative to the methodology proposed, where possible supported by quantitative analysis.
- 1.6.3 The SEM Committee also welcomes views on the proposed changes in Appendix B.

2. NEXT STEPS

- 2.1.1 Interested parties are invited to respond to the consultation, presenting views on the methodologies presented and where applicable any minded to positions that have been expressed, proposals and discussion in this paper.
- 2.1.2 The SEM Committee intends to make a decision in June 2017 on these specific aspects of the detailed design of the CRM covered in this consultation paper. In reaching this decision we will take into account comments received from respondents to this paper.
- 2.1.3 The TSOs, as the CRM Delivery Body will then publish the actual areas in the Initial Auction Information Pack in early July, following approval of their analysis by the SEM Committee. However, the minimum MW required in each zone will be withheld until the Final Auction Information Pack to be issued in advance of the first auction.
- 2.1.4 Responses to the consultation paper should be sent to Lesley Robinson (Lesley.robinson@uregni.gov.uk) and Thomas Quinn (tquinn@cer.ie) by 17:00 on Wednesday 16th May 2017.
- 2.1.5 Please note that for this particular consultation we intend to share the consultation responses with the TSOs and also to publish all responses unless marked confidential. While respondents may wish to identify some aspects of their responses as confidential, we request that non-confidential versions are also provided, or that the confidential information is provided in a separate annex. Please note that both Regulatory Authorities are subject to Freedom of Information legislation.