SEM committee

Integrated Single Electricity Market

(I-SEM)

Capacity Remuneration Mechanism (CRM) State Aid Update, 2019/20 T-1 Capacity Auction Parameters and Enduring Storage De-rating Methodology

Consultation Paper

SEM-18-009

13 March 2018

EXECUTIVE SUMMARY

The I-SEM CRM Detailed Design has been developed through an extensive series of consultation and decision papers. This involved substantial interaction between stakeholders, including both System Operators and Industry. This interaction took the form of numerous workshops and meetings in addition to the feedback from the consultations. Furthermore an I-SEM Rules Working Group was established aimed to ensure the process was robust and, through their involvement, utilised industry input and feedback. Industry input was provided through regular opportunities to provide feedback on the drafting of processes.

These subsequent design decisions were translated into auction market rules to form the Capacity Market Code (CMC) (SEM-17-033) which was published in June 2017. The CMC sets out the arrangements whereby market participants can qualify for, and participate in, auctions for the award of capacity and participate in secondary trading of awarded capacity. The settlement arrangements for the Capacity Remuneration Mechanism (CRM) form part of the revised Trading and Settlement Code (TSC) (SEM-17-024) published in April 2017.

The introduction of the CRM involved formal notification to the European Commission (EC) of the proposed mechanism for purposes of State aid. The design had been developed to be consistent with guidelines published by the EC in this respect, however, the proposal was still subject to the outcome of the formal notification process. This process was led by Department of Communications, Climate Action & Environment (DCCAE) and Department for the Economy (DfE) who together with the Regulatory Authorities (CRU and UR) engaged with the EC in advance of the notification and during the notification process.

On 24th November 2017 the European Commission granted approval to implement a CRM within the I-SEM. This approval came with the endorsement of many elements of the CRM detailed design, together with their expectations for participation and implementation of enduring design features. These conditions were based around commitments the Departments in Ireland and Northern Ireland had given to the EC and included:

- Auction Design Format and Locational Constraints;
- "Cross-border" capacity i.e. capacity located outside the island of Ireland; and
- Equitable treatment of DSUs.

State aid approval, specifically around the above commitments, had a limited impact on the first T-1 Capacity Auction (CY2018/19). It is anticipated that they will also have a limited impact on this next T-1 Capacity Auction (CY2019/20), but will have a material impact on the first T-4 auction (CY2022/23) and the remaining two transitional auctions for CY2020/21 and CY2021/22. This is outlined in greater detail within this consultation paper.

Following State aid approval the first T-1 transitional auction for the Capacity Year from I-SEM Go-live (May 2018) to 30 September 2019, referred to as CY 2018/19, took place on the 15th December 2017 and secured 7,774 MW with 93 of the 100 Capacity Market Units (CMUs) being awarded capacity for that period. The CY 2018/19 Auction Clearing Price was €41,800/MW per year.

Following the first transitional auction, the SEM Committee is keen to proceed as soon as reasonably possible with the next transitional auction for CY2019/20. In practice, this means that the T-1 CY2019/20 auction will take place in December 2018. Furthermore, the first T-4 capacity auction for the capacity year 2022/23 is now being scheduled for March 2019 to allow time to implement the State aid requirements and make the necessary changes to the Capacity Market Code.

This consultation is focused on the next T-1 transitional auction for the CY 2019/20 and sets out the SEM Committee's proposals for the corresponding auction parameters. The SEM Committee gave their approval of the T-1 CY2019/20 Capacity Auction Timetable which confirms the date of this T-1 CY2019/20 capacity auction to be 13 December 2018. This timetable is available at the following link.[1]

Given the level of detail and consultation the SEM Committee carried out in setting the parameters[2] for the first transitional capacity auction 2018/19 and the experience of this first transitional auction the SEM Committee's is minded to continue with the same parameters for this second transitional CY2019/20 capacity auction, with the exception of Capacity Requirement and De-rating factors which are proposed to be updated. The SEM Committee do not see reasons to change the parameters in the short term but do intend having a full review of the parameters in advance of the first T-4 capacity auction.

The RAs are responsible for calculating the interconnector de-rating factors, according to the methodology determined by the SEM Committee. Within this consultation paper some refinements to the inputs and the methodology are set out for the CY2019/20 T-1 auction, together with indicative results.

Upon request by the SEM Committee the TSOs are consulting on their proposed enduring de-rating methodology for storage technologies with de-rating factors given as a function of both generation sizes (measured in MW) and storage volumes (measured in hours). Also considered within the appended TSOs consultation paper is the treatment of capacity providers (other than storage) who are subject to energy/run-hour limitations such as hydro units, DSUs and emission limited generators. Appendix A contains the TSOs proposals for which the SEM Committee are also seeking consultation feedback.

Separately, a chapter of this consultation is focused on a proposed policy refinement relating to the long stop date applicable to New Capacity. In CRM Decision 2, as part of the consideration of New Capacity, a long stop date of 18 months was allowed form the start of the capacity year. This allows projects with longer construction times to participate in the capacity market and sets a timeframe for when a developer would be liable for termination penalties and have its Implementation Agreement terminated. This policy decision was very much developed in the context of the T-4 capacity auctions for new capacity with a multi-year Reliability Option.

There is currently no distinction made between New Capacity with a multi-year Reliability Option and those New Capacity with a 1 year Reliability Option. Therefore within the CY2019/20 consultation paper the SEM Committee is proposing to make the distinction between the long stop date applicable to multi-

[1] http://www.sem-o.com/ISEM/General/CAT1920T-1%20-%202019%202020%20T-1%20Capacity%20Auction%20Timetable.pdf

[2] CRM Decision 1 (SEM-15-103); CRM Decision 2 (SEM-16-022); CRM Decision 3 (SEM-16-039); CRM Locational Issues Decision (SEM-16-081); Capacity Requirement and De-Rating Methodology Decision (SEM-16-082; CRM Parameters Decision (SEM-17-022)

year Reliability Options and propose a much shorter long stop date for 1 year Reliability Options, applicable to new capacity in capacity auctions 2019/20 onwards.

The SEM Committee intends to make a decision by June 2018 on the matters consulted upon in this document. This subsequent decision will then be reflected within the T-1 CY2019/20 Initial Auction Information Pack due to be published by the TSOs in June 2018.

Responses to this consultation paper including responses to the TSOs Storage De-Rating Methodology paper (Appendix A) should be sent to Karen Shiels (Karen.Shiels@uregni.gov.uk) and Thomas Quinn (tquinn@cru.ie) by 17:00 on 13 April 2018.

Please note the RAs intend sharing the consultation responses to the questions posed in the TSOs De Rating Factors consultation with the TSOs and therefore respondents may wish to include a separate appendix which can be shared with the TSOs. Please also note that we intend to publish all responses unless marked confidential.

Contents

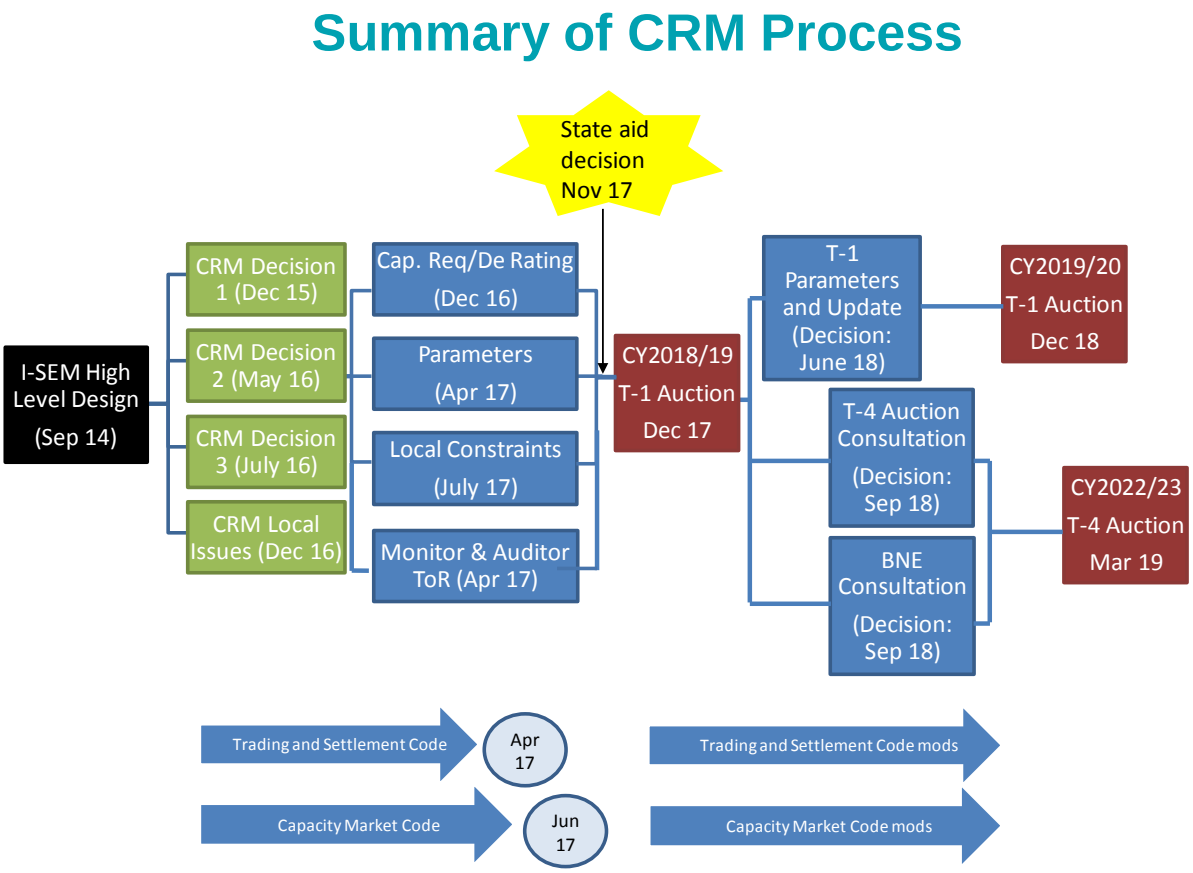
1. OVERVIEW

1.1.1 The I-SEM CRM Detailed Design has been developed through an extensive series of consultation and decision papers. This involved substantial interaction between stakeholders, including both System Operators and Industry. This interaction took the form of numerous workshops and meetings in addition to the feedback from the consultations.

1.1.2 Throughout the design and implementation process of the I-SEM (including CRM) the intention was to avoid any unintended consequences. In order to manage the risk of unintended consequences occurring an I-SEM Rules Working Group was established. The aim of this group was to ensure the processes were robust and, through their involvement, utilised industry input and feedback. Industry input was provided through regular opportunities to provide feedback on the drafting of processes.

1.1.3 Decisions made during the aforementioned consultation periods were translated into auction market rules to form the Capacity Market Code (CMC) (SEM-17-033) which was published in June 2017. The CMC sets out the arrangements whereby market participants can qualify for, and participate in, auctions for the award of capacity and participate in secondary trading of awarded capacity. The settlement arrangements for the Capacity Remuneration Mechanism (CRM) form part of the revised Trading and Settlement Code (TSC) (SEM-17-024) published in April 2017. A summary of this extensive process is shown in Figure 1 below, along with key CRM development milestones over the next 12 months.

Figure 1: Key CRM milestones



1.1.4 The introduction of the CRM involved formal notification to the European Commission (EC) of the proposed mechanism for purposes of State aid. The design had been developed to be consistent with guidelines published by the EC in this respect, however, the proposal was still subject to the outcome of the formal notification process. This process was led by Department of Communications, Climate Action & Environment (DCCAE) and Department for the Economy (DfE) who together with the Regulatory Authorities (CRU and UR) engaged with the EC in advance of the notification and during the notification process.

1.1.5 The EC approved the CRM on 24 November 2017[3], based upon some further commitments given by the Departments to the EC during the State aid approval process. The first Capacity Auction took place in December 2017 to cover the period from I-SEM go-live to 30 September 2019, a period of just over 16 months i.e. CY 2018/19.

1.1.6 Following the completion of the CY2018/19 transitional auction, the SEM Committee is now planning for the next auctions.

1.1.7 The State aid commitments had/have limited impact on the Capacity Year (CY) 2018/19 and CY2019/20 T-1 auctions, but have a material impact on the first T-4 auction (for CY2022/23)

[3] http://ec.europa.eu/competition/state_aid/cases/267880/267880_1948214_166_2.pdf

and the remaining two transitional auctions for CY2020/21 and CY2021/22. Therefore, we propose to make some changes to the auction timings. We now plan to proceed with the CY2019/20 T-1 auction in December 2018, and the CY2022/23 T-4 auction in March 2019.

1.1.8 The purpose of this paper is to:

- Provide an update on the EC State aid decision and its impact on the CRM and other I-SEM arrangements affected- see Section 2- by way of context;
- Set out a proposed set of revised timelines for the T-1 and T-4 auctions for the next few years- see Section 3;
- Set out the CY2019/20 parameters including specific consultation on the TSOs proposed enduring Storage De-rating Methodology; and
- Set out a proposed Policy clarification relating to the Long Stop Date applicable to New Capacity.

2. UPDATE ON STATE AID

2.1 INTRODUCTION

2.1.1 The Department of Communications, Climate Action & Environment (DCCAE) and the Department for the Economy (DfE) led the formal process of notifying the European Commission (EC) in relation to State aid for the CRM. The CRM design was developed to be consistent with the guidelines published by the EC, however the proposals have been subject to the outcome of this formal notification process.

2.1.2 Both Departments and the Regulatory Authorities met with and discussed key design features with EC staff on a number of occasions throughout the CRM design process. In addition to this the Regulatory Authorities were actively engaged via other communication channels with the Departments (DCCAE and DfE) and the European Commission.

2.1.3 The EC approved the CRM on 24 November 2017[4]. This included their expectations for participation and implementation of enduring design features.

2.1.4 Within the State aid approval some further commitments are necessary for the enduring CRM design. The key commitments are:

- Any volume of capacity awarded pay-as-bid Reliability Options to support locational constraints should not be additional to that procured to meet the all-island requirements, from CY2020/21 onwards. Whilst the State aid decision precludes "procuring extra" in respect of locational constraints from CY2020/21 onwards, it does not preclude the inclusion of locational constraints;
- "Cross-border" capacity, i.e. capacity located outside the island of Ireland, should be able to compete directly in capacity auctions which occur in 2020 or later, subject to satisfactory cooperation with the authorities of Great Britain;
- The exemption for DSUs from making difference payments when the demand reduction is delivered must be removed by October 2020. DSUs should be credited directly with the energy value of the demand reduction so they can make the difference payment.

2.1.5 The EC also clarified that renewable generators are free to participate in the CRM but in order to do so, specifically those renewable generators in Northern Ireland will have to forgo any support that they receive through the Northern Ireland Renewable Obligation Certificate (ROCs) scheme.

[4] http://ec.europa.eu/competition/state_aid/cases/267880/267880_1948214_166_2.pdf

2.1.6 Some of these commitments entail changes to the detailed design as described in the CRM detailed design decisions[5] and/or the TSC and CMC. Others relate to commitments to move from certain interim arrangements to enduring arrangements.

2.2 LOCATIONAL CAPACITY CONSTRAINTS AND AUCTION FORMAT

2.2.1 In the CRM Locational Issues Decision Paper (SEM-16-081) it was recognised that for the initial CRM auctions, there will be significant constraints on the transmission network. In this context, it was recognised that in practice the system is not indifferent to the location of capacity required to meet security of supply requirements across the island.

2.2.2 Therefore, to support the transition to the new CRM, locational capacity constraints were recognised in the CY2018/19 T-1 capacity auction. The inclusion of the constraints delivered a market based CRM solution which delivered sufficient generation adequacy in the key transmission capacity constrained areas, Dublin and Northern Ireland, within a competitive framework.

2.2.3 The CRM Locational Issues Decision Paper (SEM-16-081) was clear that transmission capacity constraints should only apply to the first transitional auctions and committed to consulting again on this issue before making a decision whether to implement locational capacity constraints to the first T-4 auction.

2.2.4 Since that engagement, guidance received from the EC regarding State aid, has a number of implications for the treatment of constraints in auctions.

2.2.5 The State aid decision supports the SEM Committee, Regulatory Authorities and the TSOs focusing on transmission network reinforcement to relax these constraints, and in promoting various market reforms to ensure that generators face appropriate locational signals. The EC stressed the importance of market reforms to improve locational signals, including reforms to the ancillary service market, as well as other potential reforms previously noted by the SEM Committee such as a review of GTUoS and TLAFs.

2.2.6 Whilst promoting transmission investment and market reforms, the EC recognised that including transmission constraints within the auction was an appropriate solution to dealing with capacity constraints which cannot be resolved before the commencement of the capacity delivery year.

2.2.7 The EC raised the issue of procurement in excess of the all-island Capacity Requirement for transmission constraint reasons, i.e. the decision in SEM-16-081 to implement Auction Format Option B for the first transitional auction. The EC recognised the arguments that this was a prudent approach to apply in the first two transitional auctions, given the scale of the exit

[5] CRM Decision 1 SEM-15-103; CRM Decision 2 SEM-16-022; CRM Decision 3 SEM-16-039; CRM Locational Issues Decision SEM-16-081; CRM Parameters Decision SEM-17-022

signals generated by the move to the volume based capacity mechanism. However, the EC sought assurances that the CRM would not procure additional capacity for constraint reasons from CY2020/21 onwards- i.e. Auction Format Option B would not apply from CY2020/21 onwards.

2.2.8 Therefore in the first two transitional auctions (CY 2018/19 & CY 2019/20) any out-of-merit Reliability Options awarded for constraint reasons, will be awarded in addition to the capacity awarded in-merit on an all-island basis. In the recent CY2018/19 T-1 auction, 525 de-rated MW of out-of-merit Reliability Options were awarded in addition to the capacity in-merit on an all-island basis[6].

2.2.9 The third and fourth transitional auctions (for CY2020/21 and CY2021/22) are expected to continue to include locational capacity constraints, although it depends on the pace of transmission reinforcement and reforms to locational signals. If the CY2020/21 and CY2021/22 auction include transmission capacity constraints, then any capacity awarded out-of-merit Reliability Options for constraint reason should not be additional to the amount of capacity which is in-merit on an all-island basis. If out-of-merit volumes need to be procured to satisfy locational constraints, this will displace in-merit generation. This is likely to mean moving to either a variant of Auction Format Option C or Option D as set out in SEM-16-081, although the SEM Committee will consult on the options closer to auction dates.

2.2.10 In May 2018 we will consult on whether to apply transmission capacity constraints in the first T-4 auction, and if so, how transmission capacity constraints should be handled. After the CY2019/20 T-1 auction, and until the enduring full combinatorial auction format is in place, a second interim auction format will be required. It will have to ensure that any capacity awarded out-of-merit Reliability Options for constraint reasons must displace a commensurate capacity which is in-merit on an all-island basis (subject to lumpiness considerations[7]).

2.3 CROSS-BORDER PARTICIPATION UPDATE

2.3.1 Extensive consideration of Cross-Border participation (i.e. outside the island of Ireland) was given in the CRM 2 consultation (SEM-15-104) and CRM 2 decision (SEM-16-022).

2.3.2 The SEM Committee continues to be committed to developing arrangements for cross-border participation in the CRM in line with the emerging European common approach[8]. In CRM Decision 2 (SEM-16-022) the SEM Committee's preferred long-term approach was the "hybrid" approach where both interconnectors and cross-border capacity providers participate directly in capacity auctions and are paid for their contribution to the I-SEM generation security standard. However, for I-SEM Go-Live this approach was impractical to implement given the

[6] Not all of this was necessary entirely additional, subject to lumpiness considerations

[7] Which means that the volume of in-merit MW displaced may not be exactly the same as out-of-merit Reliability option MWs awarded for constraint reasons.

[8] http://ec.europa.eu/competition/sectors/energy/state_aid_to_secure_electricity_supply_en.html

need to develop the detail of the approach in conjunction with neighbouring Member States and it was prudent to develop fully and implement the more complex longer-term approach as the emerging EU wide model becomes clearer.

2.3.3 Therefore, in CRM Decision 2, the SEM Committee chose to follow an "interconnector led" model in the interim. This model has the following features:

- Direct participation of the interconnectors in the CRM;
- An availability-based approach, where the technical availability of the assets at times when the Reliability Option is called forms the basis of the model implementation; and
- Interconnector Reliability Options have the same option fee as other I-SEM providers.

2.3.4 In its State aid decision, the EC supports the interim "interconnector led" model which allows interconnectors to directly participate in the CRM with their de-rated capacity. The EC also acknowledged the authorities commitment to endeavour to implement the full explicit participation mode for capacity auctions that take place in 2020, subject to the satisfactory and committed cooperation with the authorities in Great Britain.

2.4 DEMAND SIDE UNIT (DSU) TREATMENT

2.4.1 The EC recognised that certain adjustments were made to the CRM detailed design to facilitate DSU participation.

2.4.2 When generators sell energy at prices in excess of the Strike Price, they have energy income available to make Reliability Option difference payments. However, with the current Energy Trading Arrangements (ETA), when DSUs' end consumers reduce demand, the value of the energy saved is credited to the consumers' Supplier rather than the DSU. Unlike the generator, the DSU does not have offsetting revenue with which to make the difference payment.

2.4.3 In CRM Decision 1, the SEM Committee recognised that it was not practical to make the changes necessary to the ETA and associated systems to credit DSUs with the energy value associated with the demand reduction in time for I-SEM go-live. Therefore, it was decided that at least for an initial period from I-SEM Go-Live, DSUs will not have to make Reliability Option difference payments at all, except when the demand reduction is not delivered.

2.4.4 However the EC notes that the interim arrangement should be remedied in the medium term so as DSUs can access energy payments and has therefore requested the authorities strive to enable a DSU treatment equivalent to that of other capacity providers for delivery period starting in October 2020.

2.4.5 The approach will be considered further for future auctions.

3. AUCTION TIMINGS

3.1 OVERVIEW

3.1.1 Following the first transitional auction, the SEM Committee is keen to proceed as soon as reasonably possible with the next transitional auction for CY2019/20. In practice, this means that the T-1 CY2019/20 auction will take place in December 2018.

3.1.2 Consistent with the EC State aid decision, the SEM Committee will then require Eirgrid/SONI to make changes to the auction system to ensure that the auctions for delivery of capacity in CY2020/21 onwards do not procure extra capacity to satisfy transmission capacity constraints. Following the State aid decision:

- The remaining transitional auctions for CY2020/21 and CY2021/22 will recognise transmission capacity constraints, but any capacity procured out-of-merit to satisfy minimum MWs in constrained zones will displace some in-merit generation. Meeting this State aid commitment is likely to entail making some changes to the CMC and the auction system;
- The SEM Committee will be consulting in May 2018 on whether it is appropriate to incorporate transmission capacity constraints into the first T-4 auction, and if so, how to adapt the auction format so that it does not procure extra capacity to satisfy the constraint(s). The CY2022/23 auction is now planned for March 2019, to allow time for further consultation on the auction format, and to allow time for any required changes to the CMC and auction format;
- The SEM Committee is minded to consult at the same time on the design of the CY2020/21 and CY2021/22 transitional auctions, since it is expected that the same auction format will be applied to these auctions as well as the CY2022/23 T-4 auction. This would allow for the necessary CMC changes and auction system changes to be developed at the same time. Eirgrid/SONI have advised the RAs that they are unable to implement a full combinatorial in time for the first T-4 auction.
- It is envisaged that the combinatorial auction solution (including a format that takes account of transmission constraints, if relevant) will be in place for auctions taking place in 2020 or later. The CY2024/25 T-4 auction is likely to be the first auction that uses the full combinatorial[9] format.

3.1.3 Given the requirements set out in the State aid decision and the range of areas to be consulted upon for the T-4 auction design, the CY2022/23 T-4 auction cannot now take place sooner than March 2019, 3 ½ years in advance of the start of the Capacity Year.

3.1.4 The SEM Committee intends to transition over time to a regular cycle of T-4 auctions in September (i.e. just over 4 years before the start of the Capacity Year) and T-1 auctions in March (between 6 and 7 months before the start of the Capacity Year). Table 1 sets out an indicative timetable for how to achieve this objective.

[9] Other auctions, including the CY2018/19 transitional auction which took place in December 2017 had limited combinatorial elements used to solve the "lumpiness" problem

Table 1: Indicative auction timetable and State aid expectations

Auction Timelines- Transition to Sept/March target					
CY	CY Start	T-4	Time between CY and Auction Date	T-1	Time between CY and Auction Date
2018/19	22/05/2018	N/A	N/A	Dec-17	5 Months
2019/20	01/10/2019	N/A	N/A	Dec-18	9 Months
2020/21	01/10/2020	N/A	N/A	Dec-19	10 Months
2021/22	01/10/2021	N/A	N/A	Dec-19	1 Year 10 months
2022/23	01/10/2022	Mar-19	3 Years 7 Months	Mar-22*	7 Months
2023/24	01/10/2023	Mar-20	3 Years 7 Months	Mar-23*	7 Months
2024/25	01/10/2024	Sep-20	4 Years 1 Month	Mar-24*	7 Months
2025/26	01/10/2025	Sep-21	4 Years 1 Month	Mar-25*	7 Months

	Auction Format B: Procure in addition
	Auction Format C: Second interim (heuristic - no additional capacity for locational purposes)
	Auction Format D: Full Combinatorial
	Participation of Cross-Border Generation Units
	DSU equitable treatment to be in place
*	T-1 auction to procure residual capacity withheld from corresponding T-4 auction

3.1.5 As shown in Table 1, the SEM Committee intends to hold the transitional auctions for CY2020/21 and CY2021/22 at the same time, around December 2019, so the CY2021/22 transitional auction will be a T-2 auction rather than a T-1 auction.

3.1.6 The SEM Committee notes that in response to CRM Consultation 3 (SEM-16-010), a number of market participants requested that the SEM Committee give consideration to expediting the remaining transitional auctions and, if possible holding them before the first T-4 auction[10]. Given the need to revise the auction format for the CY2020/21 and CY2021/22 transitional auctions, it will not be feasible to hold these auctions before the first T-4 auction, whilst still holding the first T-4 auction at least 3 ½ years before the start of the Capacity Year. The SEM Committee does not propose to delay the CY2022/23 T-4[11] auction further, since it would reduce the capability of some new entrant technologies to compete in the auction. Holding the first T-4 auction at the same time as, or very close to the next transitional auction creates a significant degree of operational risk. The indicative timetable expedites the remaining transitional auctions as much as possible, and expects that they take place before the second T-4 auction for CY2023/24, whilst managing operational risk.

3.1.7 As shown in Table 1, the proposed timetable means that, all the transitional auctions are expected to have taken place by the end of 2019, and there will not be any direct participation of cross-border generators in any of the transitional auctions. Subject to agreement with the

[10] Some market participants were concerned at having to commit to capacity delivery for CY2022/23 before they had secured capacity contracts for all the intervening transitional years.
[11] The CMC states that T-4 auctions is one held between 4 years 6 months and 3 years 6 months before the start of the Capacity Year.

relevant GB authorities[12], cross-border generators are expected to be able to directly participate in the second T-4 auction, for CY 2023/24. Cross-border capacity should also be able to directly participate in the CY2022/23 T-1 auction, although the details of their participation will need further consideration, if the interconnectors have already acquired CY2022/23 Reliability Options up to the full de-rated capacity of the interconnectors[13] in the CY2022/23 T-4 auction.

3.1.8 The Capacity Market Code requires Eirgrid / SONI to propose a detailed Capacity Auction Timetable in accordance with Appendix C at least ten months prior to the proposed capacity auction date, i.e. in February for a December 2018 auction. Following receipt of the TSOs proposed timetable the SEM Committee gave their approval of the T-1 CY2019/20 Capacity Auction Timetable which confirms the date of the auction to be 13 December 2018. This timetable is available at the following link.[14]

3.2 SUMMARY OF CONSULTATION QUESTIONS

3.2.1 The SEM Committee welcomes views on the following consultation question:

1) Do you have any comments on the indicative auction timetable set out in this section?

[12] And other relevant interconnectors if new interconnectors to other jurisdictions are built
[13] Including taking appropriate account of the External Market De-rating Factor
[14] http://www.sem-o.com/ISEM/General/CAT1920T-1%20-%202019%202020%20T-1%20Capacity%20Auction%20Timetable.pdf

4. CAPACITY YEAR 2019/20 T-1 PARAMETERS

4.1 INTRODUCTION

4.1.1 This chapter aims to provide a summary of the proposed parameters for the second transitional capacity auction being the Capacity Year from 1 October 2019 to 30 September 2020. The subsequent decision on these parameters will be published as a decision paper and reflected in the Initial Auction Information Pack for CY2019/20. The requirements for inclusion within the Initial Auction Information Pack are set out in section D.3 of the Capacity Market Code[15].

4.1.2 For ease of reference, Table 2 below lists the parameters to be contained within the CY 2019/20 Initial Auction Information Pack together with the proposed CY 2019/20 parameters and a comparison with those final parameters which were in place for the first transitional auction for Capacity Year 2018/19[16].

4.2 SUMMARY OF CY 2019/20 PARAMETERS

4.2.1 The table below provides a high level summary of a list of parameters which are relevant for the 2019/20 Initial Auction Information Pack together with a comparison with the final parameters applied to the first transitional T-1 capacity auction being CY 2018/19.

4.2.2 Given the level of detail and consultation the SEM Committee carried out in setting the parameters[17] for the first transitional capacity auction 2018/19 and the experience of this first transitional auction the SEM Committee's is minded to continue with the same parameters for this second transitional CY2019/20 capacity auction. The SEM Committee do not see reasons to change the parameters in the short term but do intend having a full review of the parameters in advance of the first T-4 capacity auction.

[15] https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-033a%20Capacity%20Market%20Code%20%28Final%20Publication%20Version%29.pdf

[16] http://www.sem-o.com/ISEM/General/Final%20Auction%20Information%20Pack%20v1.0.pdf based upon decisions within CRM Parameters Decision paper https://www.semcommittee.com/publication/publication-crm-parameters-decision

[17] CRM Decision 1 (SEM-15-103); CRM Decision 2 (SEM-16-022); CRM Decision 3 (SEM-16-039); CRM Locational Issues Decision (SEM-16-081); Capacity Requirement and De-Rating Methodology Decision (SEM-16-082; CRM Parameters Decision (SEM-17-022)

Table 2: Summary of CY2019/20 Proposed Parameters compared with the CY2018/19 Final Parameters

Parameter	Proposed T-1 2019/20	Actual T-1 2018/19	Description of Proposed Change
Auction Price Cap	€123,190/MW per year	€123,190/MW per year	No change proposed
Existing Capacity Price Cap	€41,060/MW per year	€41,060/MW per year	No change proposed
Capacity Requirement	Update to latest demand forecast for CY2021/22	7030 MW	TSOs to apply approved methodology and advise figure for Initial Auction Information Pack (IAIP)
Indicative Demand Curve Shape	Same shape	As per FAIP	No change proposed
Locational Capacity Constraints	Dublin and NI	Dublin & NI	No change proposed
De-rating Curves Storage Capacity	Enduring approach	Interim arrangement	RAs to consult on TSOs proposal as part of T-1 2019/20 consultation paper
De-rating Curves for DSUs	Specific time limited de-rating	System wide de-rating used	RAs to consult on TSOs proposal as part of T-1 2019/20 consultation paper
De-rating Curves for Interconnectors	Minor variation due to updated inputs	As per IAIP/FAIP	Minor change resulting from updating inputs e.g. outages and GB 2017FES
De-rating Curves by Tech Class (excluding Interconnectors)	TSOs to update in advance of Initial Auction Information Pack	As per IAIP/FAIP	TSOs to apply approved methodology and advise SEMC in advance of Initial Auction Information Pack (IAIP)
Tolerance Bands	All 0% except DSU 100%	All 0% except DSU 100%	Unchanged but proposal to allow Other Storage Units a tolerance band similar to DSUs.
New Capacity Investment Rate Threshold	€300,000 MW	€300,000 MW; 40% BNE Invt Cost	No change proposed
Performance Securities	Same as for CY2018/19	As per FAIP - staggered rates	No change proposed
Termination Charges	Same as for CY2018/19	As per FAIP - staggered rates aligned with performance securities	No change proposed
Administered Scarcity Price	Reserve 500MW; ASP €500 - €3000/MWh	Reserve 500MW; ASP €500 - €3000/MWh	No change proposed
Strike Price parameter: DSU Floor Price	€500 MW	€500 MW	No change proposed
Strike Price parameters: Others	Fuel/carbon/transport adders to be updated	As per FAIP	TSOs to provide updated values for SEMC approval for Initial Auction Information Paper (IAIP)
Annual Capacity Payment Exchange Rate	Updated exchange rate	As per FAIP	TSOs to propose indicative rate for IAIP and final rate for FAIP
Awarded Capacity	Zero	Zero	No change necessary
Annual Stop-Loss Limit Factor	1.5	1.5	No change proposed
Billing Period Stop-Loss Limit Factor	0.5	0.5	No change proposed

4.2.3 The remainder of this chapter provides some further background to the SEM Committee's minded to position on the above parameters and also provides an update on the Exception Application process in particular the Unit Specific Price Cap process and updated template for the CY2019/20. A separate chapter is provided in respect to the De-Rating Factors, including an update on the interconnector de-rating and also a summary of the TSOs De-rating proposals.

4.3 ADMINISTERED SCARCITY PRICE

4.3.1 No change is proposed to the Administered Scarcity Price for the transitional T-1 CY 2019/20 auction. This reflects the policy decision made in CRM Decision 2 (SEM-16-022) which states that the "value of Full Administered Scarcity Pricing will be set at the Euphemia day ahead price cap of €3,000/MWh. This will exist throughout the transition period."

4.4 AUCTION PRICE CAP (APC)

4.4.1 In CRM Decision 3 (SEM-16-039) the SEM Committee decided to set an Auction Price Cap (APC). The APC is the maximum price any capacity can be offered at, and therefore the maximum price that the auction can clear at, and the maximum Reliability Option fee that any capacity provider can be paid.

4.4.2 In the CRM Parameters decision (SEM-17-022) the SEM Committee set the Auction Price Cap at 1.5 x Net CONE for the first transitional auction. Therefore, for the first T-1 auction (CY2018/19), the SEM Committee set the APC at €123.19/kW/year for capacity providers in Ireland and £110.46747/kW/year for capacity providers in Northern Ireland based on a Net CONE estimate of €82.13/kW/year and an exchange rate of €1.1152=£1.

4.4.3 All existing capacity providers' USPCs were comfortably accommodated within this cap. The auction cleared at €41.80/kW/yr, with highest priced offer accepted being £91.37/kW/yr, i.e. approximately 83% of the Auction Price Cap.

4.4.4 In looking at the GB Capacity market the capacity price caps are fixed values within the Regulations and have the scope to be modified upon periodic review.

4.4.5 Based upon the experience outlined above in relation to the first transitional auction and the approach taken in the GB capacity market the SEM Committee is minded to keep the Auction Price Cap consistent with the level previous set i.e. €123.19/kW/year. The Sterling equivalent will be updated for exchange rate purposes and the final Euro and Sterling figures will be provided in the CY 2019/20 Initial Auction Information Pack.

4.4.6 While the SEM Committee is not minded to change the Auction Price Cap in the short term they commit to carrying out a full review in advance of the first T-4 capacity auction.

4.5 EXISTING CAPACITY PRICE CAP (ECPC)

4.5.1 In CRM Decision 3 (SEM-16-039) a suite of market power controls were set out which cap the price at which existing generators and interconnectors can offer their Qualified Volume into the I-SEM CRM auctions (whether transitional T-1 auctions, or T-4 auctions):

- The Existing Capacity Price Cap (ECPC) is a uniform (i.e. non-technology specific) cap which caps the price that existing[18] generators and interconnectors can offer volume

[18] Generators which meet the criteria for new build generation will not be subject to the Existing Capacity Price Cap and may bid at a price up to the Auction Price Cap

at, unless they apply for higher Unit Specific Price Caps (USPC)[19]. New Capacity and DSUs are not subject to the ECPC, and may bid up to the APC;
- An existing generator or interconnector which has Net Going Forward Costs (NGFCs) which exceed the ECPC can apply to the RAs to obtain a USPC[20].

4.5.2 In the CRM Parameters decision (SEM-17-022) the SEM Committee decided to set ECPC at 0.5 x Net CONE for the first T-1 auction. In the CY2018/19 T-1 Initial Auction Information Pack this was subsequently set at €41.06/kW/year and £36.8185/kW/year for the CY2018/19 T-1 auction.

4.5.3 The auction cleared just above ECPC, at €41.80/kW/year, equivalent to £38.10/kW/year at the final auction exchange rate. The clearing price was 1.6% above ECPC in Euro terms and 3.4% above ECPC in Sterling terms (due to differences between the exchange rate in the IAIP, which determined the relative Euro and Sterling ECPC values and the final exchange rate which determined clearing prices).

4.5.4 The SEM Committee remains of the view, that the CY2018/19 auction ECPC was set at about the right level:

- The level of ECPC was important in controlling market power, given the clearing price was only just above ECPC- if the ECPC had been any higher, market participants with market power could have increased clearing prices via financial withholding;
- All units which qualified with a USPC and those which were awarded out-of-merit Reliability Options in the auction were subject to regulatory scrutiny of their USPC applications;
- The workload on the RAs and the market participants resulting from the number of USPC applications, whilst challenging, was manageable.

4.5.5 In looking at the GB Capacity market the capacity price caps are fixed values within the Regulations and have the scope to be modified upon periodic review.

4.5.6 Based upon the experience outlined above in relation to the first transitional auction and the approach taken in the GB capacity market the SEM Committee is minded to keep the Existing Capacity Price Cap consistent with the level previous set i.e. €41.06/kW/year. The Sterling equivalent will be updated for exchange rate purposes and the final Euro and Sterling figures will be provided in the CY 2019/20 Initial Auction Information Pack.

4.5.7 While the SEM Committee is not minded to change the Existing Capacity Price Cap in the short term they commit to carrying out a full review in advance of the first T-4 capacity auction.

[19] or submit an Opt-Out Notification on the grounds that they are going to close before the end of the relevant Capacity Year

[20] SEM-16-039 referred to Price-taker Offer Caps, which were subsequently called Unit Specific Price Caps (USPCs)

4.6 UNIT SPECIFIC PRICE CAP (USPC)

4.6.1 The CRM Parameters decision (SEM-17-022) set out the right to apply for a USPC. Where an existing generation or interconnector is able to evidence the fact that it has higher unavoidable Net Going Forward Costs (NGFCs) than the Existing Capacity Price Cap, it will be able to apply to be allowed to submit a higher Unit Specific Price Cap– up to the level of the unit's individual Net Going Forward Costs. The SEM Committee may then set a USPC specific to that unit for that auction, at a higher level than the ECPC, commensurate with its view of the unit's NGFCs.

4.6.2 The CRM Parameters decision (SEM-17-022) stated that the RAs will calculate the Net Going Forward Costs (NGFCs) and Unit Specific Price Caps (USPCs) for generators based on the following formula:

- NGFC = Max [(Fixed operating costs – gross infra-marginal rent from the energy and ancillary service markets + appropriate proportion of unavoidable future investment),0] + Expected Reliability Option difference payments

  Where the appropriate proportion of unavoidable future investment will be determined on a case-by-case basis

- USPC: Unit Specific Price Caps will be set based upon Net Going Forward Costs (NGFCs) according to the following formula:

  Max allowed USPC bid = 110% x RAs' NGFC estimate, updated following review of USPC application.

4.6.3 In addition to the CRM Parameters decision the SEM Committee published an Information Paper on the USPC Application Process (SEM-17-090)[21]. Furthermore, a briefing note[22], (SEM-17-037) CRM Exception Application and Opt out Notification Process set out the detailed process for Exception Applications and Opt-Out Notifications, and the Excel format in which applicants should submit the data to support their applications for the T-1 CY2018/19 auction.

4.6.4 Consistent with the above decisions and publications the SEM Committee intends publishing an updated Exception Application Briefing Note in May 2018 relevant to this T-1 CY2019/20 capacity auction. This briefing note will set out the process, timelines and application template for an existing capacity provider applying for a Unit Specific Price Cap together with setting out the processes, timelines and application templates in respect of Opt-out Notifications to the RAs and New Capacity seeking a multi-year contract. The Capacity Market Code provides further detail on these within section E.3 Opt-Out Notifications and E.5 Exception Applications.

[21] https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-090%20Information%20paper%20on%20USPC%20Application%20Process.pdf

[22] https://www.semcommittee.com/publication/sem-17-037-capacity-remuneration-mechanism-exception-application-and-opt-out

4.7 SUMMARY OF CONSULTATION QUESTIONS

4.7.1 The SEM Committee welcomes views on the following consultation question:

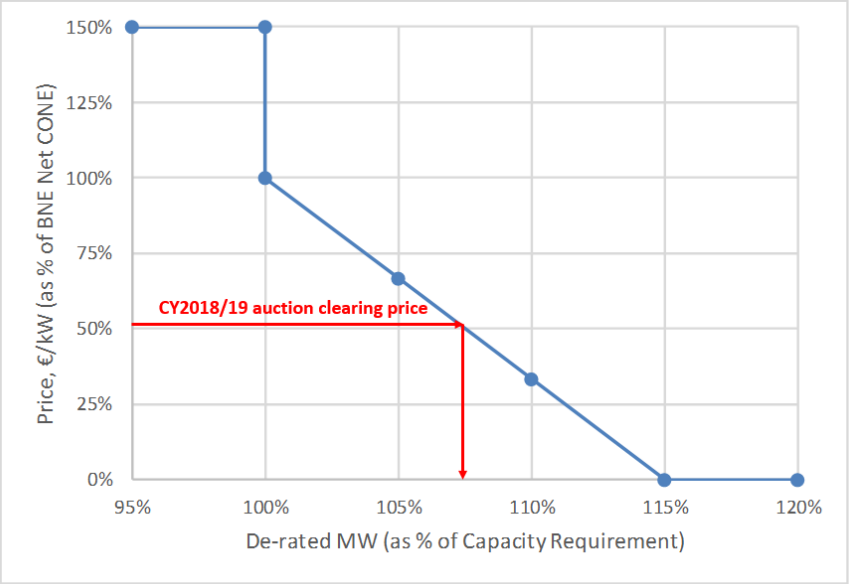
1) Do you agree with the SEM Committee's minded to position to keep the parameters (excluding capacity requirement and de-rating factors) for the CY2019/20 capacity auction consistent with the CY2018/19 parameters?

5. AUCTION DEMAND CURVE AND LOCATIONAL CAPACITY CONSTRAINTS

5.1 ALL-ISLAND DEMAND CURVE

5.1.1 The SEM Committee does not envisage making any changes to the demand curve methodology for CY2019/20. As illustrated in Figure 2, below, the demand curve (before any adjustments for non-participating capacity) is expected to remain unchanged as a function of the Capacity Requirement.

Figure 2: Unadjusted demand curve for CY2019/20 auction



5.1.2 The Capacity Requirement for CY2019/20 will be based on the TSOs latest demand forecast for the last year of the transitional period, CY2021/22, as was the approach for the CY2018/19 auction. The Capacity Requirement for the CY2018/19 was based on the TSOs' forecasts contained within the 2017GCS, and resulted in a Capacity Requirement of 7,030 de-rated MW. Following Qualification, non-participating capacity accounted for 310MW, so the adjusted Capacity Requirement was 6,720MW of de-rated capacity.

5.1.3 In the CY2018/19 auction, the auction cleared at a price of €41.80 i.e. at about 51% of Net CONE. Given the slope of the demand curve and lumpiness considerations, the demand curve formulation resulted in 7,249 MW of in-merit de-rated capacity being secured (excluding the 525MW of out-of-merit generation procured for constraint reasons, and excluding the 310 de-rated MW of non-participating capacity), i.e. about 8% in excess of the adjusted[23] Capacity Requirement.

[23] taking account of non-participating capacity

5.1.4 No multi-year Reliability Options were awarded in the CY2018/19 auction so the whole CY2019/20 Capacity Requirement (subject to adjustments for CY2019/20 non-participating capacity) remains to be procured in the CY2019/20 auction.

5.1.5 For the purposes of the CY2019/20 auction, the TSOs will re-estimate Capacity Requirement using the Least Worst Regret Cost methodology as set out in SEM-16-082[24]. In CRM Parameters Decision (SEM-17-022) confirmed that the capacity requirement for the transitional years 2018/19, 2019/20, 2020/21 and 2021/22 will be based upon the demand forecast for 2021/22. The only change will be that the demand forecast inputs into the calculation will be updated by the TSOs.

5.2 LOCATIONAL CAPACITY CONSTRAINTS AND MINIMUM MW

5.2.1 The CY2018/19 auction resulted in 399 de-rated MW being contracted out-of-merit in the Dublin area to meet the zonal minimum MW, and 126 de-rated MW being procured out-of-merit to meet the minimum MW in Northern Ireland. These results show the importance of the decision to reflect locational constraints in the transitional auctions, and the importance of managing exit.

5.2.2 The SEM Committee therefore intends that the TSOs will continue to apply the same methodology, as set out in the Locational Capacity Constraints Methodology Decision paper (SEM-17-040), for identifying locational constraints and for setting minimum MW in the CY2019/20 auction.

5.2.3 Upon request by the RAs the TSOs will carry out a reprise of the locational constraints analysis in line with the approved methodology set out in SEM-17-040 for CY2019/20. As was the case with the CY2018/19 auction the locational capacity constraints areas for CY2019/20 are expected to be Dublin and Northern Ireland. This will be confirmed as part of the SEM Committee's approval of the CY2019/20 Initial Auction Information Pack.

5.2.4 For each of the transitional years, the demand forecast applicable is year 2021/22. Indicative analysis by the TSOs with updated demand assumptions for 2021/22 show a slightly smaller load forecast in Dublin applicable for the CY2019/20 compared to CY2018/19 reflecting the slight drop in demand for Ireland. The updated forecast for Northern Ireland shows a marginally lower peak forecast for CY2019/20. This early indication of the movement in demand is still subject to more detailed analysis by the TSOs.

5.2.5 The minimum MWs for each locational capacity constraint area will be set using the updated demand forecasts and will be confirmed in the Final Auction Information Pack.

[24] https://www.semcommittee.com/publication/sem-16-082-crm-capacity-requirement-and-de-rating-methodology-decision-paper

6. DE-RATING FACTORS

6.1 INTRODUCTION

6.1.1 The RAs are responsible for calculating the interconnector de-rating factors, according to the methodology determined by the SEM Committee. In section 6.2 we discuss some refinements to inputs and the methodology for the CY2019/20 T-1 auction, and show indicative results.

6.1.2 For the CY2018/19 T-1 auction, the only storage units were the existing pumped storage units. At the request of the RAs, the TSOs have produced a paper which sets out more detail of how they propose to apply de-rating factors to storage technologies in general. We discuss this paper and the questions it raises in Section 6.3.

6.2 INTERCONNECTOR

6.2.1 The SEM Committee set out the RAs' approach to calculating the interconnector de-rating factors in SEM-16-082, and the associated appendix on interconnectors SEM-16-082b. SEM-16-082 and SEM-16-082b set out *inter alia*:

- The key inputs to be used for the CY2018/19 T-1 auction;
- The methodology, which includes the calculation of An External Market De-rating Factor (EMDF), a Forced Outage Rate (FOR) assumption, a Scheduled Outage Rate (SOR) assumption, all of which combine with system wide de-rating curves to produce Interconnector De-rating Factors. As with other technologies, the de-rating factor to be applied to any specific interconnector is a function of its Initial Capacity (i.e. its capacity before de-rating). The final de-rating factors used in the CY2018/19 T-1 auction are set out in Table 3.

6.2.2 Whilst the SEM Committee does not propose to revisit the decisions made in SEM-16-082/SEM-16-082b, in this paper we consider:

- How to generate the updated input assumptions for CY2019/20;
- A proposed refinement to the methodology to use a Least Worst Regret Cost approach to selecting which demand scenario to use for GB for CY2019/20;
- Whether adjustments need to be made to the GB EMDF to reflect the likely impact of the proliferation of smaller GB capacity units on coincident scarcity.

6.2.3 Final interconnector de-rating factors will be included in the Initial Auction Information Pack. However, we show indicative results based on the proposed inputs and methodological refinements in Table 3, and how they compare with CY2018/19 T-1 factors.

Inputs

6.2.4 For this consultation document, the assumption for the I-SEM Capacity Requirement was the same as used for the CY2018/19 auction. For the final decision, this will be updated using the TSOs 2018-2027 Generation Capacity Statement.

6.2.5 As set-out in the Capacity Requirement and De-rating Methodology Decision (SEM-16-082), the historic interconnector outage rates are determined based on the most recent 10 years of historic data. The historic determination of interconnector outage rates was updated, for this consultation paper, to include data to the end of June 2017. This is consistent with the decision to use 10 years of historic data for the Interconnector Technology Class. For the final decision, data for the whole of 2017 will be incorporation into this historical determination.

6.2.6 For this consultation document, the assumptions for GB which are derived from NGC's Future Energy Scenarios (FES) have been updated to use the 2017 FES. It is not expected that any later FES will be available for the final decision.

6.2.7 The export limit from I-SEM to GB from the Moyle interconnector has been reduced to 80MW (from the 450MW used for the 2018/19 T-1 Auction), reflecting the expected reduction in the ability of the GB transmission system to accept exports above this level. This reduces the probability of scarcity in GB driving scarcity in the I-SEM.

6.2.8 These assumptions will be refreshed prior to determination of the interconnector de-rating factors to be published in the Initial Auction Information Pack for the 2019/20 T-1 Auction.

Refinement to the Methodology for GB small scale units

6.2.9 We proposed that the methodology for determining the de-rating factors for the interconnectors will remain essentially as set out in the RAs Interconnector De-Rating Methodology (SEM-16-082b).

6.2.10 However, in updating the inputs to the model, it became clear that GB plant mix is undergoing a significant shift from large to smaller scale capacity. In particular, for all scenarios, there is a shift from large coal, gas and nuclear sets towards much smaller scale generation, e.g. batteries and gas engines. This change suggested a need to modify the methodology used to determine the probability of scarcity occurring in GB.

6.2.11 In the original methodology, an estimate of total GB demand for each half-hour is adjusted upwards for the need to hold reserve and downwards to account for the demand met by the estimated generation from wind and solar generation. The modelling then determines the probability that coincident outages of large scale capacity means that this "residual" demand cannot be satisfied. This process does not handle the contribution of small scale generation to either meeting demand or contributing to the level of coincident outage particularly well.

6.2.12 The FES does not provide a detailed breakdown of the distributed and sub-1MW generation being forecast. For capacity which successfully participated in the T-4 capacity auctions for 2019/20 and 2020/21 in GB, the average unit size was less than 20MW. It seems likely that smaller units will not participate directly in capacity auctions, so the actual average size of distributed and sub-1MW generation units is likely to be even smaller. At this scale, the variation in coincident outages between different half-hours is low and so it is proposed to apply an averaged outage rate to this small and embedded capacity when considering its contribution to meeting demand in GB. A forced outage rate of 7% was assumed: this is likely to be a conservative assumption.

6.2.13 The FES also does not provide a breakdown of which large scale units are forecasted to close or which new, large scale units are forecast to enter the market in each scenario. The only breakdown is by broad technology categories. In developing the set of large scale generation to be used to determine the probability of coincident outages for each scenario, the RAs took the generation park defined by the winners of the T-4 capacity auctions for 2019/20 and 2020/21 and adapted these by either closing capacity or adding new dummy units to broadly match the capacity by technology set out in the FES. In general, the most recent T-4 auction results would be used as the basis of the future GB generation park. A separate probability distribution for coincident outages will be generated for each FES scenario.

6.2.14 For the proposed new methodology, an estimate of total GB demand for each half-hour is adjusted upwards for the need to hold reserve and downwards to account for the demand met by the estimated generation from wind, solar and distributed and sub-1MW generation. The modelling then determines the probability that coincident outages of large scale capacity, for the relevant FES scenario, is unable to meet this "residual" demand. Otherwise, the methodology is as set out in SEM-16-082b.

Proposed Refinement to Methodology to select GB FES scenario

6.2.15 The GB FES has four different demand scenarios. In developing the EMDF for CY2018/19, we used the No Progression scenario, which we judged to be the most likely outcome for that period. However, given the relative proximity of CY2018/19, there was not much difference in GB demand in the different scenarios, and hence did not deliver materially different estimates of the EMDF.

6.2.16 While this remains true for CY2019/20 it will not always be the case, especially for a T-4 auction where the four different FES scenarios for the GB generation mix may produce markedly different values for the deliverability of GB capacity to the I-SEM at times of scarcity. Even for CY2019/20, there is a considerable spread in the GB generation mix assumed in the four FES scenarios and this has a significant impact on the determination of EMDF.

6.2.17 Rather than trying to pick a "winner" from the four scenarios, the RAs propose using a least-worst regrets analysis approach to selecting the scenario to be used to determine the EMDF for GB. This approach is consistent with the approach to setting the overall all-island Capacity Requirement. If a scenario with a high EMDF value is selected but a low EMDF scenario is the out-turn, then there will be an increase in Expected Unserved Energy and this is priced at VoLL. If a scenario with low EMDF is selected but a high EMDF scenario is the out-turn, then consumers will have purchased too much capacity through the auction and this was priced at both Net CONE and at ECPC (reflecting the broad outcome of the CY2018/19 auction). The scenario which delivers the least-worst regret cost across the full range of scenarios was selected. A similar approach is already used to set the Capacity Requirement.

6.2.18 In addition, the value of EMDF was evaluated with two different assumptions for the outage rate of large scale GB capacity: 7% as used for CY0218/19 and 10% which is more consistent with the current de-rating factors being used in GB.

Indicative results

6.2.19 The analysis produced a broad range of possible values of EMDF given the high sensitivity of the calculation to assumptions on GB generation mix and outage rate. The Least-Worst Regrets analysis selects either the Two Degrees or Consumer Power scenarios, preferring Two Degrees for most assumptions. The values of EMDF ranged from 53% to 93%.

On the basis of this analysis, and given the uncertainties involved and the volatility of the key FES assumptions from forecasting year to forecasting year, the RAs are proposing to retain the EMDF value of 60% used for the CY2018/19 auction for CY2019/20. However, this will be reviewed when the analysis is refreshed for the Decision paper based on the latest data available at that time.

6.2.20 Indicative outage rates for the GB interconnectors will be:

- Forced Outage Rate: 10.9%
- Scheduled Outage Rate: 5.2%

6.2.21 As set-out in SEM-16-082, these outage rates and the EMDF feed into the standard TSOs methodology to determine the Capacity Requirement and De-Rating Factors. Interconnectors are treated as a technology class in this methodology and are given a marginal de-rating using the same process as other generators. This marginal de-rating is then scaled by the EMDF to give the final de-rating.

6.2.22 For this consultation paper, no EMDF has been determined for markets other than GB. It is not intended to determine an EMDF for any other market for the Initial Auction Information Pack, unless a clear requirement emerges from this consultation related to a planned interconnection which will participate in the 2019/20 T-1 Auction.

Table 3: Indicative interconnector de-rating factors

	T-1, CY2018/19 Initial Auction Information Pack	**T-1, CY2019/20 Estimate with no reserve**
EMDF	60%	60%
Forced Outage Rate	6.9%	10.9%
Scheduled Outage Rate	3.7%	5.2%
Overall Interconnector De-rating (450MW unit)	48%	44%

6.3 STORAGE DE-RATING

6.3.1 As part of the Capacity Requirement and De-Rating Factor Methodology Decision (SEM-16-082), the RAs committed to consulting on the methodology used to determine De-Rating Factors (DRFs) for storage units prior to the first auction following the first transitional T-1 auction (CY2018/19), which will be the transitional T-1 auction for Capacity Year 2019/20.

6.3.2 Pursuant to the commitment to consult, Appendix A to this paper is a paper from the TSOs which sets out their proposal for the methodology to be used for determining the DRFs for storage units. This TSOs paper sets out the basic methodology and potential treatment for a number of detailed issues that arise from applying this methodology.

6.3.3 This paper introduces a number of specific consultation questions. Please note the RAs intend sharing the consultation responses to these questions with the TSOs and therefore respondents may wish to include a separate appendix which can be shared with the TSOs relating to these questions below:

A. **Do participants have any comments on the methodology for calculating DRFs for storage units as described in this paper?**
B. **In the absence of significant historical data, do participants consider it reasonable to apply system-wide outage statistics to new technologies (such as batteries)? If not, please provide alternative with justification.**
C. **Regarding Storage Units with Storage Volume sizes that are not a multiple of 30 minutes: Do participants have any comments on the TSO's preferred methodology for calculating DRFs for such storage units, i.e. interpolating between storage sizes? What other options do they believe may be more appropriate?**
D. **Should storage units be allowed to apply a DECTOL to their De-rated Capacity? Please provide arguments to support your response.**
E. **Should specific DRF values be published for units with energy storage volumes of 6.5 hours or greater? Are participants aware of potential projects that might make such a change appropriate?**

6.3.4 In addition to the methodology for storage capacity, the TSOs paper also considers other classes of capacity which give rise to similar issues i.e. that also have energy or run-hour limitations on their ability to provide reserve. As a result, the paper considers possible changes to the methodology for determining the DRFs for units with running constrained by an emission limit and for DSUs which can only deliver demand reduction for a short period, analogous to having a limited storage volume.

6.3.5 This paper introduces two specific consultation questions, as follows:

F. **Do participants consider that a unit's run-hour limitations (due to emission restrictions or otherwise) should be reflected in the Capacity Market Auction? If so, what mechanisms should be applied. If not, please provide rationale.**
G. **Do participants have any comments on the proposed approach for de-rating DSUs with limited Maximum Down Time?**

6.3.6 The RAs would be interested in responses to the specific questions asked in the TSOs paper. Where the response requires selection of an option or value, a clear justification for the suggested choice should be included in the consultation response. Where a response does not support the approach proposed by the TSOs, clear justification for a well-defined alternative approach should be included in the consultation response.

6.4 CONSULTATION QUESTIONS

6.4.1 The SEM Committee welcomes views on the following consultation questions:

1) Do you agree with the proposed modification to the treatment of outages for small and embedded capacity in GB in the interconnector de-rating methodology?

2) Do you agree with the use of a least-worst regrets approach to the choice of GB generation scenario used to set EMDF?

3) Do you agree with the approach that the EMDF need only be determined for the GB market for CY2019/20 in the absence of interconnection with other markets?

4) Do you have any response to the storage related questions raised by the TSOs in their paper, which are listed in paragraph 6.3.3 above.

5) Do you have any response to the other energy and run-hour limited generation related questions raised by the TSOs in their paper which are listed in paragraph 6.3.5 above.

7. LONG-STOP DATE AND TERMINATION OF NEW CAPACITY

7.1 OVERVIEW

7.1.1 In CRM Decision 2 (SEM-16-022), the SEM Committee made two key decisions which were designed to be appropriate for investors making a Substantial Financial Commitment and obtaining a multi-year Reliability Option in a T-4 auction.

7.1.2 In SEM-16-022, the SEM Committee:

- Set the Long Stop Date equal to 18 months after the start of the Capacity Delivery Year. The Long Stop Date is the date by which Awarded New Capacity must meet the Minimum Completion, i.e. have delivered 50% of its contracted capacity. If it fails to achieve Minimum Completion by the Long Stop Date, the TSOs terminate its contract and it must pay termination charges.
- Allowed Awarded New Capacity 18 months after the auction to achieve Substantial Financial Completion. If it fails to achieve Substantial Financial Completion within that timeframe, the TSOs terminate the contract, and may re-tender for alternative capacity.

7.1.3 The decisions were intended to apply to investors making a major financial commitment (i.e. one above the New Capacity Investment Rate Threshold) and seeking a fixed price Reliability Option of up to 10 years, in a T-4 auction. During the detailed drafting of the CMC, these long-stop provisions got applied to all Awarded New Capacity, including:

- Capacity which is deemed new because it has not previously been commissioned, but which does not meet the New Capacity Investment Rate Threshold (NCIRT), so is deemed not to be making a major financial commitment, and can only obtain a one-year Reliability Option; and
- Capacity which wins in a T-1 auction.

7.1.4 In the first T-1 auction there was a significant amount of new capacity, predominantly DSU capacity. This capacity was only eligible for a one-year[25] Reliability Option, but has an 18-month Long Stop Date, which puts the Long Stop Date for CY2018/19 after the end of the period for which it is contracted to deliver capacity, which was not the intention of the SEM-16-022 decision, and creates inappropriate incentives.

7.1.5 Whilst applying the 18-month deadline for Substantial Financial Completion to a T-4 auction is appropriate, and allows the TSOs some opportunity to remedy non-delivery, shorter timescales for meeting Substantial Financial Completion are required for T-1 auctions, if the

[25] In the first CY2018/19 T-1 auction, Reliability Options were awarded for an approximately 16-month period from the planned go-live date of 23 May 2018 to the end of CY2018/19, i.e. 30 September 2019.

TSO is to have any realistic chance of applying effective remedial action, such as reducing any risk to security of supply.

7.1.6 The SEM Committee does not believe that there is any risk to security of supply in CY2018/19 since the CY2018/19 T-1 auction ended up awarding over 1,000 de-rated MW of Reliability Options in excess of the adjusted Capacity Requirement[26] of which only 174 de-rated MW was new capacity. The SEM Committee does not propose to make any changes to the terms and conditions applicable to CY2018/19 T-1 auction winners.

7.1.7 However, the SEM Committee is of the view that it will be appropriate to make changes to the terms and conditions in future auctions. It seeks consultation feedback on the following proposals:

- For Awarded New Capacity without a multi-year Reliability Option: to set the Long Stop Date, for units which are not making a Substantial Financial Commitment, to 1 month after the start of the capacity delivery year, effective from CY2019/20; and
- To change the Implementation Agreements for new capacity not making a major financial commitment (i.e. with investment below NCIRT) so that they can be terminated (and termination fees applied) if it does not achieve Substantial Financial Completion before the start of the Capacity Year.

7.1.8 In the remainder of this section we set out further information to facilitate consultative feedback including:

- Summarising the original policy and its rationale;
- Setting out the unintended consequences of applying the same approach to all new capacity and to all auctions, including T-1 auctions; and
- Proposed refinements to the policy set out in SEM-16-022 and applied in the CMC.

7.2 ORIGINAL POLICY AND RATIONALE

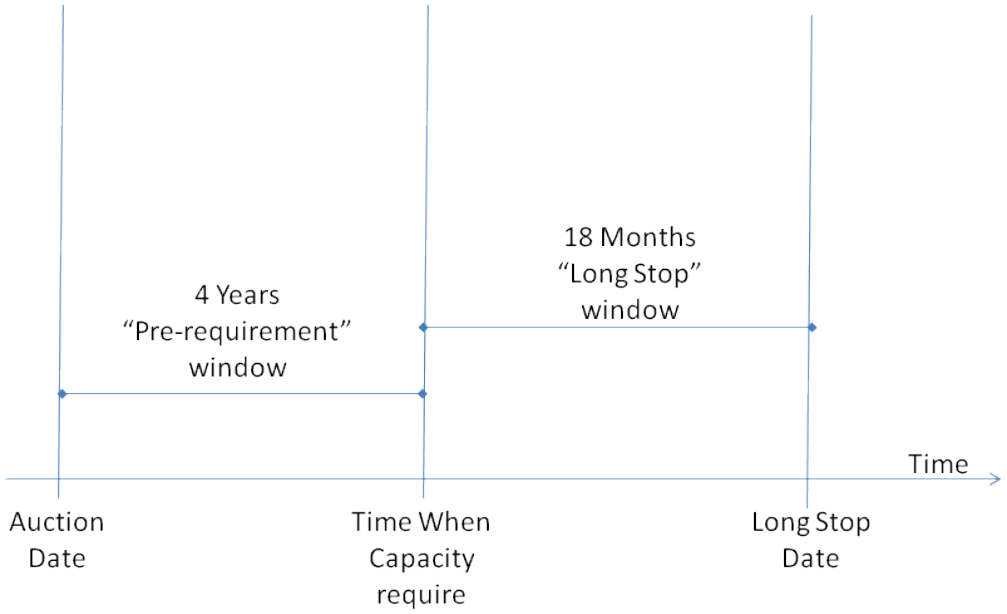
Long Stop Date

7.2.1 In SEM-16-022 the SEM Committee decided that, the Commissioning Window for new capacity should be divided into two parts:

- **"Pre-requirement"**: The period from the Auction Date until the start of the first Delivery Year under the Reliability Option; and
- **Long stop**: An additional period of 18 months after the start of the first Delivery Year to give a project time to commission. SEM-16-022 stated that this allows projects with longer construction times to participate in the capacity market, and reduces the risk for project sponsors as a delayed project will still be able to access option fees for the vast majority of the length of its Reliability Option (e.g. for the remaining 8 ½ years of a 10-year contract if 1 ½ years delayed in construction).

[26] The all-island adjusted Capacity Requirement was 6,720MW, taking account of 310MW on non-participating capacity. 7,774MW of capacity was awarded Reliability Options

Figure 3: Commissioning Window



7.2.2 The current drafting of the CMC requires the TSOs to terminate all Awarded New Capacity if it fails to meet Minimum Completion[27] by the Long Stop Date, with Minimum Completion being defined in J.6.1.1a and requiring at least 50% of the capacity to have been delivered.

7.2.3 The intent of this decision was to de-risk construction for complex projects in T-4 auctions, and ensure that such projects would be able to access the fixed price for up to 8 ½ years of a 10-year Reliability Option during which they were delivering capacity benefit. Clearly it is not beneficial to consumers if a project which is mostly complete at the start of the Capacity Delivery year, and can reasonably deliver capacity for most of ten years for which it is contracted is abandoned because the capacity contract is terminated for slightly late delivery. In the context of a 10 -year Reliability Option, in order to meet the Long Stop Date a capacity provider would have to deliver on at least 85% of its capacity delivery contract.

7.2.4 Figure 3, which is a direct lift from SEM-16-022, illustrated how the long-stop date was intended to apply in a T-4 auction.

7.2.5 SEM-16-022 did not specifically discuss how it should be applied in the context of new capacity with a one-year Reliability Option, where the Capacity Delivery period will be complete before the Long Stop Date.

Substantial Financial Completion requirement date

7.2.6 In SEM-16-022, the SEM Committee also decided that a developer will be liable for termination penalties (and have its Implementation Agreement terminated) in the event of failure to achieve Substantial Financial Completion within 18 months of contract award. In the context of a T-4 auction, this means that new capacity[28] must achieve Substantial Financial

[27] J.6.1.2b
[28] Implementation Agreements only apply to new capacity

Completion between 2 and 3 years before the start of the Capacity Delivery year[29]. In a T-4 auction, this provision strikes a reasonable balance between allowing an investor sufficient time after the auction to reach financial closure, and allowing sufficient time for the TSOs to take remedial action, replacing capacity that fails to reach financial closure.

7.2.7 However, applying the same approach in a T-1 auction, where the contract is typically awarded around 6 months before the start of the Capacity Year means that TSOs may not be able to terminate new capacity on grounds of failure to meet Substantial Financial Completion until the end of the Capacity Year.

7.3 PRACTICAL UNINTENDED CONSEQUENCES

Long Stop Date

7.3.1 The consequence is that any uncommissioned capacity that is seeking only a one year contract could potentially enter T-1 auctions and fail to deliver meaningful capacity with limited consequences.

7.3.2 The key risks in the longer term are:

- Security of supply resulting from blunt incentives to deliver on one-year contracts; and
- Creating a hole-in-the-hedge issue[30], as this capacity is not covering difference payments prior to capacity delivery.

Substantial Financial Completion requirement date

7.3.3 Clearly the way that the potential inability to terminate capacity which does not reach Substantial Financial Completion until the end of the relevant capacity year, or possibly even after the end of the year provides similar risks in terms of security of supply and hole-in-the-hedge. It removes one mechanism available to the TSOs in T-1 auctions, including the remaining T-1 transitional auctions, which the SEM Committee felt it was desirable for the TSOs to manage risk in T-4 auctions. Whilst the scale of new entry is expected to be smaller in T-1 auctions, the experience of the first auction has proven that it is non-trivial.

7.4 PROPOSED REFINEMENTS

Long Stop Date

7.4.1 Whilst the SEM Committee still thinks the balance of risk and incentives resulting from the Long Stop Date is appropriate for investors making a major financial commitment (i.e. an

[29] A T-4 auction is defined in the CMC as occurring between 3 ½ and 4 ½ years before the start of the capacity delivery year

[30] See CRM Decision 1 (SEM-15-103), for full discussion of the hole-in-the-hedge issue

investment above NCIRT) with a multi-year contract, it does not appear appropriate for market participants with a one-year contract.

7.4.2 We propose to have different Long Stop Dates for one-year contracts and multi-year contracts:

- One-year Reliability Options: Effective from CY2019/20, the Long Stop Date for a one-year Reliability Option should be one-month after the start of the Capacity Year;
- Multi-year Reliability Options: The Long Stop Date would remain unchanged.

7.4.3 These proposals mean that:

- Any new capacity contracted in CY2019/20 would be subject to termination charges of €40/kW/year, if they have not achieved Minimum Completion by 1 November 2019. This reduces gaming opportunities and the incentive to gamble on risky new projects.
- There may be possibilities, if the SEM Committee deemed it necessary, for the TSOs to run an emergency in-year auction (e.g. for capacity that qualified for the CY2019/20 auction but lost) contracting capacity for the remainder of the year, and reducing the risk of a hole-in-the-hedge.

Substantial Financial Completion

7.4.4 The Substantial Financial Completion date requirement is intended to provide an early warning to allow the TSOs to identify projects which are unlikely to deliver and to be able to take remedial action prior to it failing to meet the Long Stop Date. Whilst the current arrangements provide appropriate potential for early intervention in T-4 auctions, in T-1 auctions the current timeframe does not provide meaningful scope for early intervention.

7.4.5 In principle it would be possible to rely solely on the proposed changes to the Long Stop Date set out above, without making changes to the Substantial Financial Completion Date. In practice this would mean that in T-1 auctions, the Long Stop Date would come before the Substantial Financial Completion date. Clearly in practice, projects achieve Substantial Financial Completion before Minimum Completion, so the Substantial Financial Completion date would have no practical implications.

7.4.6 Alternatively, we could bring forward the Substantial Financial Completion date for T-1 auctions. However, there are issues with setting a Substantial Financial Completion date which works well for all cases in T-1 auctions, since:

- A T-1 auction may happen anywhere between 13 and 2 months before the start of the Capacity Year (with contract award typically about one month later); and
- Although unlikely[31] it is possible for an investor to win a contract for up to 10 years in a T-1 auction. Such projects are likely to be more onerous to complete financially, but also deliver benefits beyond the one-year timeframe.

[31] Most projects which involve substantial investment /kW are likely to have longer lead times

7.4.7 We therefore propose that the SEM Committee may set requirements for Substantial Financial Completion in T-1 auctions at less than 18 months after contract award, but that the SEM Committee should set this on a case by case basis, once the auction timetable is known, and the lead time between the contract award and the Capacity Year is fixed. This information will be communicated in the Initial Auction Information Pack. Shorter duration Substantial Financial Completion dates will only apply in T-1, T-2 or T-3 auctions, and only to new capacity awarded a one-year contract.

Table 4: Summary proposals

		RO length	
		1-year	multi-year
Auction	T-4	SFC 18 month after contract award; LSD one month after CY start	SFC 18 month after contract award; LSD 18 months after CY start
	T-1 (or T-2 or T-3)	SFC may be less than 18 months after contract award at SEMC discretion; LSD one month after CY start	SFC 18 month after contract award; LSD 18 months after CY start

SFC= Substantial Financial completion; LSD = Long Stop Date

7.5 CONSULTATION QUESTIONS

7.5.1 The SEM Committee welcomes views on the following consultation question:

1) Do you agree with our revised proposals for Long Stop Dates and Substantial Financial Completion dates as set out in the section, and summarised in Table 4.

8. NEXT STEPS

8.1.1 Interested parties are invited to respond to this consultation, including responses to the TSOs De-rating Factors Consultation paper provided as Appendix A to this paper. Please note the RAs intend sharing the consultation responses to the questions posed in the TSOs De Rating Factors consultation with the TSOs and therefore respondents may wish to include a separate appendix which can be shared with the TSOs.

8.1.2 The SEM Committee intends to make a decision by June 2018 on the matters consulted upon in this document. This subsequent decision will then be reflected within the T-1 CY2019/20 Initial Auction Information Pack due to be published by the TSOs in June 2018.

8.1.3 Responses to the consultation paper should be sent to Thomas Quinn (tquinn@cru.ie) and Karen Shiels (Karen.Shiels@uregni.gov.uk) by 17:00 on 13 April 2018.

8.1.4 Please note that we intend 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.