



**Single Electricity Market
(SEM)**

**Capacity Remuneration Mechanism
T-4 2026/27 Capacity Auction Parameters**

**Consultation Paper
SEM-22-015**

10 May 2022

1. EXECUTIVE SUMMARY

Under the revised SEM arrangements, implemented in October 2018, capacity revenues are allocated by capacity auction for a relevant capacity year. Prior to each capacity auction, a number of capacity auction parameters must be set. The list of parameters to be determined by the Regulatory Authorities is described in paragraph D.3.1.3 of the Capacity Market Code.

This paper describes the SEM Committee's proposals for the relevant parameters to apply in the 2026/27 T-4 Capacity Auction, scheduled to take place in February 2023.

Most of the parameters proposed are the same as those used in recent auctions, including the 2025/26 T-4 auction. The SEM Committee proposes to change the shape of the demand curve that is used in the auction and propose an increase in Performance Security Posting and Termination Charges. The Committee is also proposing potential changes to the treatment of deratings for Annual Run-Hour Limited Plant, as well as Energy-Limited Plant and DSUs. The TSOs have prepared a technical paper which is published alongside this document setting out their analyses and proposals in these areas.

The proposed parameters for consultation are:

Parameter	Proposed Value for 2026/27 T-4 capacity auction
De-Rating Curves, defining De-Rating Factors by unit Initial Capacity and by Technology Class (including Interconnectors)	The Initial Auction Information Pack ("IAIP") will provide the final De-rating factors. This paper contains a number of proposals relating to moving away from the 'freezing' of derating factors, as has applied in the last number of capacity auctions.
Capacity Requirement	To be determined by System Operators prior to publication of Initial Auction Information Pack.
Indicative Demand Curve	The Demand Curve for the 2026/27 T-4 auction shall be set as the following: <ul style="list-style-type: none">• Horizontal at the Auction Price Cap from 0MW to 92.5% of the adjusted Capacity Requirement.

	<ul style="list-style-type: none"> Slopes down to 115% of the adjusted Capacity Requirement. The line passes through a shallow elbow point where the volume is equal 100% of the adjusted Capacity Requirement and the price equals Net CONE (€92,300 / de-rated MW / year¹). 									
Auction Price Cap	€146,920/ de-rated MW ² .									
Existing Capacity Price Cap	0.5 x Net CONE i.e. €46,150 / de-rated MW /year.									
New Capacity Investment Rate Threshold	€300,000 /de-rated MW / year.									
Annual Stop Loss Limit Factor	1.5									
Billing Period Stop Loss Factor	0.5									
Indicative Annual Capacity Exchange Rate	To be determined by System Operators prior to publication of Initial Auction Information Pack.									
Increase Tolerance and Decrease Tolerance by Technology Class	<table border="1"> <thead> <tr> <th>Technology Class</th> <th>Increase Tolerance (%)</th> <th>Decrease Tolerance (%)</th> </tr> </thead> <tbody> <tr> <td>All Except DSUs</td> <td>0</td> <td>0</td> </tr> <tr> <td>DSUs</td> <td>0</td> <td>100</td> </tr> </tbody> </table>	Technology Class	Increase Tolerance (%)	Decrease Tolerance (%)	All Except DSUs	0	0	DSUs	0	100
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All Except DSUs	0	0								
DSUs	0	100								

¹ This value will remain at €92,300/MW unless the SEM Committee decides to implement the outworkings of the separate BNE study, in which case the new updated value for the BNE and therefore Net CONE will be set out in the Parameters Decision Paper.

² As per [SEM-21-110 Information Note on indexation of Auction Price Cap.pdf \(semcommittee.com\)](#)

Performance Security Posting Dates / Events	Date / Event	Performance Security Rate (€/MW)
	From Capacity Auction completion to 27 months prior to the beginning of the Capacity Year	20,000
	27-13 months prior to the beginning of the Capacity Year	30,000
	From 13 months to beginning of Capacity Year	40,000
	From beginning of Capacity Year	50,000
Termination Charges	Date / Event	Termination Charge Rate (€/MW)
	From Capacity Auction completion to 27 months prior to the beginning of the Capacity Year	20,000
	27-13 months prior to the beginning of the Capacity Year	30,000
	From 13 months to beginning of Capacity Year	40,000
	From beginning of Capacity Year	50,000

Full Administered Scarcity Price and Reserve Scarcity Price Curve	<table border="1"> <thead> <tr> <th>Short Term Reserve (MW)</th> <th>Administered Scarcity Price (€/MWh)</th> </tr> </thead> <tbody> <tr> <td>Demand Control</td> <td>25% of VOLL</td> </tr> <tr> <td>0</td> <td>25% of VOLL</td> </tr> <tr> <td>500</td> <td>RO Strike Price</td> </tr> </tbody> </table>	Short Term Reserve (MW)	Administered Scarcity Price (€/MWh)	Demand Control	25% of VOLL	0	25% of VOLL	500	RO Strike Price
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	0	25% of VOLL							
500	RO Strike Price								
Anticipated values to be applied in determining the Strike Price	Current inputs to be re-applied.								

Responses to the proposals within this consultation should be sent to CRMSubmissions@uregni.gov.uk and CRMsubmissions@cru.ie by 17 June 2022. We intend to publish all responses unless they have been marked as confidential.

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3. INTRODUCTION AND BACKGROUND

The SEM Capacity Remuneration Mechanism (“**CRM**”) was developed through an extensive series of consultation and decision papers. The CRM allocates capacity payments through ex-ante capacity auctions.

Before each capacity auction, the Capacity Market Code (“**CMC**”) requires a number of auction parameters to be determined by the Regulatory Authorities (“**RAs**” (the Utility Regulator in Northern Ireland and the Commission for Regulation of Utilities (“**CRU**”) in Ireland).

Parameters to be determined

Paragraph D.3.1.3 of the CMC requires the Regulatory Authorities to determine the following parameters for each Capacity Auction, and provide them to the System Operators for inclusion in the applicable Initial Auction Information Pack:

- (a) the De-Rating Curves, defining De-Rating Factors by Technology Class (including for Interconnectors);
- (b) the Capacity Requirement;
- (c) an indicative Demand Curve;
- (d) the Auction Price Cap;
- (e) the Existing Capacity Price Cap;
- (f) the €/MW rate of the New Capacity Investment Rate Threshold;
- (g) the Annual Stop-Loss Limit Factor;
- (h) the Billing Period Stop-Loss Limit Factor;
- (i) the indicative Annual Capacity Payment Exchange Rate;
- (j) the Increase Tolerance and Decrease Tolerance by Tolerance Class that may be applied by a Participant in its Application for Qualification to Capacity Market Unit de-ratings;
- (k) in respect of Performance Securities:

- (i) the final Performance Security Posting Dates/ Events applicable to Awarded Capacity allocated in the Capacity Auction; and
 - (ii) for each Performance Security Posting Date/ Event, the final €/MW rate to be applied in setting Performance Securities applicable to Awarded Capacity allocated in the Capacity Auction;
- (l) the €/MW fee rates for calculating Termination Charges;
 - (m) values for the Full Administered Scarcity Price and the Reserve Scarcity Price; and
 - (n) anticipated values for the parameters to be applied in determining the Strike Price.

The SEM Committee has agreed that efforts should be made to recalculate the Net CONE, in particular to inform new bidders, before the forthcoming T-4 Auction. The Regulatory Authorities are in the process of seeking support to perform a review of the BNE. This process is unlikely to be concluded before the IAIP, but the SEM Committee may decide to implement the results of this study for this auction once they are available. The BNE review could result in either a higher or lower Net CONE.

There is one other issue relevant to the functioning of the 2026/27 T-4 auction which is covered by this consultation in regards to the treatment of constraints. The SEM Committee proposal on this is Chapter six.

4. PARAMETERS REQUIRED BY THE CAPACITY MARKET CODE

As described, the Regulatory Authorities must determine the following parameters:

- (a) *the De-Rating Curves, defining De-Rating Factors by Technology Class (including for Interconnectors);*

A De-Rating Curve is a curve for a Technology Class that represents the De-Rating Factor applicable by unit Initial Capacity and Initial Maximum On Time to be used in a Capacity Auction. A De-Rating Factor describes the proportion of Initial Capacity of a Generator Unit or Interconnector that can contribute towards satisfying the Capacity Requirement to be used in a Capacity Auction.

The System Operators published a methodology for the Calculation of Capacity Requirement and De-rating factors prior to the 2019/20 T-1 capacity auction³. This is a least-worst regrets analysis which selects the demand forecast level to be used for the Capacity Market auction. The De-Rating Factors are those that are used to derive the Capacity Requirement selected by the least-worst regrets analysis.

New Proposals on the approach to derating Energy-Limited Units and DSUs

As set out in the TSOs' published methodology, the calculation is based on the marginal contribution of a new unit to capacity adequacy. As a result, the results from this analysis can be highly sensitive to minor changes in the input parameters, and at times, have led to the RAs being presented to with apparently unintuitive derating recommendations from the TSOs prior to recent capacity auctions. This apparent volatility, combined with a concern around the intuitiveness of the results, led the SEM Committee to freeze the derating values for all units for the last two years' capacity auctions (T-3 2024-25, T-1 2022-23 & T-4 2025-26) and to instigate a review into the derating methodology.

In these intervening auctions, the market has delivered a range of new battery units, and also, consistently delivered new demand side response capacity also.

Notwithstanding that these technologies will form a key part of the long-term solution to system adequacy on the island, as part of the TSOs' recent work assessing the wider security of supply situation in the two jurisdictions, the TSOs have identified a concern regarding the possibility of the system reaching a saturation point for units with energy and/or run-hour limitations. This concern has informed the TSOs review of the derating methodology and has led them to recommend departing from the frozen values for DSUs and energy-limited units in particular to avoid any inefficient outcomes as well as to ensure system security. These proposals are set out in the accompanying paper from the TSOs, along with further detail on the current de-rating approach and each of the above technology group level de-rating factors.

The SEM Committee seeks input from market participants on the merits of applying the TSO's proposed approach for these unit types, informed by the contents of the TSO paper.

³SEM-18-030a: <https://www.semcommittee.com/news-centre/i-sem-crm-t-1-cy201920-capacity-auction-parameters-and-enduring-de-rating-methodology>

New Proposals regarding Annual Run-Hour Limited Plant

In SEM-21-054, the SEM Committee consulted on the potential to include an additional Annual Run-Hour Limitation (ARHL) De-rating Factor in the 2024/25 T-3 and the 2025/26 T-4 auction. The SEM Committee decided against intervening in either auction directly, preferring to allow investors to judge the risk of over-promising a run-hour commitment themselves, noting the higher exposure to difference payments that might flow from imposition of limits to annual run hours.

Since that decision, the RAs have liaised in depth with the environmental and departmental bodies in Ireland and in Northern Ireland. We have also observed the outcome of the T-3 auction and decisions / bidding behaviours of participants with plant that will be capped to less than 1500 hrs running per year. The SEM Committee consider now that there is an increased likelihood of the limitations defined under the EC Implementing Decision 1442 and other instruments impacting upon security of supply on the island going forward. Further, the Committee considers that there is a need to ensure that the value such units bring to the system relative to 'all-year' units are encoded more directly on the auction settings in future.

The SEM Committee's proposal on the approach for de-rating the capacity that can be qualified for units defined as annual-run hour limited is set out below. The definition of which units are limited is to be declared by the owner of the unit that is being bid into the auction.

Warrant Framework for Qualification Applications

Within the Application for Qualification process, the applicant must provide a warrant for the Annual Run Hour Limit (ARHL) that will apply to the specific Capacity Market Unit applying to partake in the auction. Three choices will be available within the Application template:

- Warrant A: > 1500 hours
- Warrant B: >500 hours; <= 1500 hours
- Warrant C: <= 500 hours

The applicant must select one of these options for the application to be valid.

When calculating the derating factor to be assigned to each CMU, the TSOs will then apply an additional derating multiplier to units under each Category as follows:

Warrant Type	ARHLdf
Warrant A	1.00
Warrant B	0.43
Warrant C	0.14

For clarity, the ARHLdf is to be applied on top of the derating factor that would otherwise apply:

$$\text{Candidate Derated Capacity} = \text{Nameplate Capacity} \times \text{DRF} \times \text{ARHLdf}$$

The values in the table above of 0.43 and 0.14 are derived from initial analysis carried out by the System Operators in the separately published annex. There is some uncertainty as to the most optimal value to apply, because the impact on Security of Supply (i.e. LOLE) is so heavily dependent on the penetration of these units.

Giving Force to Warrants

As above the ARHLdf will be enshrined in the application process. Under the existing provisions within the CMC, the System Operator will be empowered as follows:

- For New units, as part of the checks for the award of Substantial Completion, seek reasonable satisfaction that the New unit is not limited in run hours beyond that stipulated in the relevant Warrant. Should the applicant fail to demonstrate to the reasonable satisfaction of the System Operators what is stipulated in the Warrant, then the System Operators will be empowered to terminate the Reliability Option (RO) assigned to that Capacity Market Unit.
- It may be appropriate to also include Existing units within this framework. For Existing units, the System Operators would judge the ability for the unit to operate at the number of hours that is claimed for the Capacity Year in

question in formulating a provisional qualification decision. The RAs would not generally expect any applications for Warrant A (all year running) to be granted for units operating under an existing ARHL.

For clarity, we would not anticipate acceptance of applications for Warrant A (all year running) at the expense of Grid Code compliance or of compliance with other relevant obligations on the part of the proponent or the unit (for example, it might be possible to comply with BAT requirements to allow operation all year, by increasing the level of Minimum Generation above what would be required under the relevant jurisdictional Grid Code. This would not be seen as an acceptable approach).

In early discussions with the TSOs, it was suggested that the framework above might best be delivered by creating a series of new Technology Classes – for example in place of ‘Gas Turbine’, for all auctions going forward there would now be three classes of GT, ‘Gas Turbine > 1500 ARHL’ / ‘Gas Turbine ≤ 1500 ARHL’ / ‘Gas Turbine ≤ 500 ARHL’. This would avoid the need for a separate dimension within the qualification applications to be created. We welcome views on the most appropriate way to enshrine the concept within the qualification process

We would welcome feedback on any and all aspects of these proposals:

1. Do you agree with the proposed warrant framework for treatment of ARHL within the Capacity applications?
2. Is there a more efficient way to assign additional multipliers for deratings in a transparent, fair and enforceable way to annual-run hour limited plant, for example by expanding the list of Technology Classes?
3. Do you have any view as to whether or not to apply the framework to both New and Existing units?
4. What changes if any could be made to the CMC to assist these proposals?
5. Is the choice of ARHLdf = 0.43 and 0.14 for ≤1500hrs and ≤500hrs respectively a suitable choice for run hour limited plants? If not, why not and what other values do you consider appropriate?

(b) *the Capacity Requirement;*

The Capacity Requirement is the de-rated capacity required to satisfy the SEM Security Standard for a specific Capacity Year to be used in a Capacity Auction. The SEM Security Standard is the standard specified by the Regulatory Authorities for the annual loss of load expectation to be maintained in the SEM, i.e. the number of hours per year for which load curtailment may occur due to demand exceeding available capacity. In CRM Detailed Design Decision 1⁴ the SEM Committee decided to retain the security standard at 8 hours LOLE.

The System Operators published a methodology for the Calculation of Capacity Requirement and De-rating factors prior to the 2019/20 T-1 capacity auction.

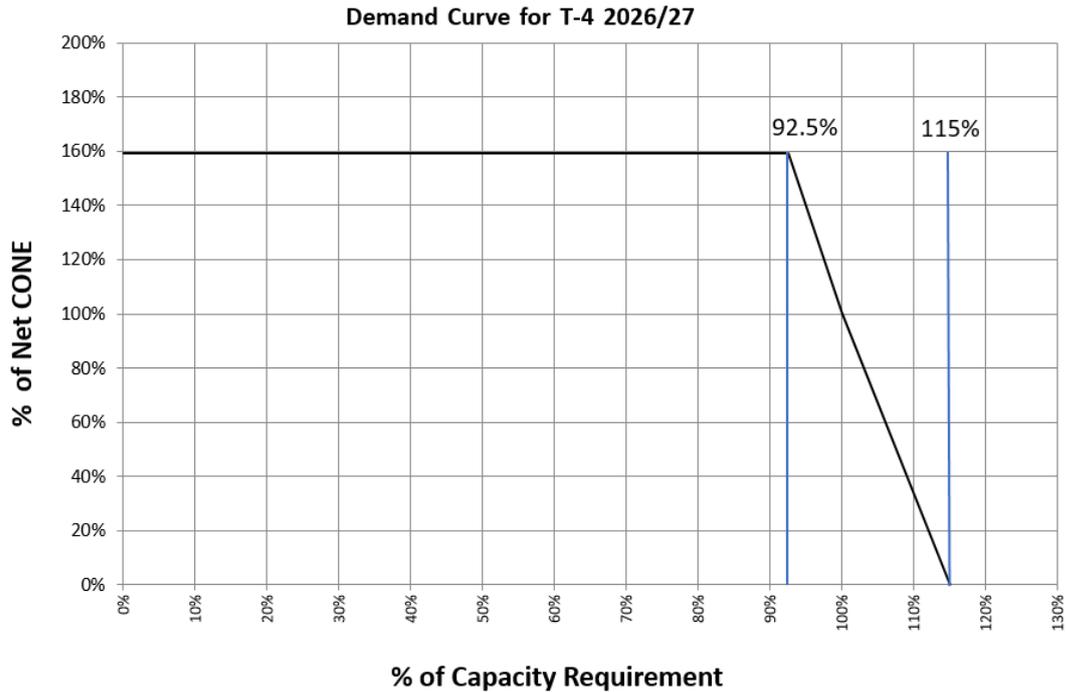
This methodology will be followed in determining the Capacity Requirement for the 2026/27 T-4 Capacity Auction.

(c) *an indicative Demand Curve;*

The Demand Curve is a curve determined by the Regulatory Authorities representing the deemed per MW value of each level of capacity that could be awarded in the Capacity Auction. The Demand Curve for the T-4 2026/27 auction will be set as the following:

- Horizontal at the Auction Price Cap from 0MW to 92.5% of the adjusted Capacity Requirement.
- Slopes down to 115% of the adjusted Capacity Requirement. The line passes through a shallow elbow point where the volume is equal 100% of the adjusted Capacity Requirement and the price equals Net CONE.

⁴ [SEM-15-103](#), section 2.2.16



The above curve has the potential to under-procure compared to the adjusted Capacity Requirement, however, any under-procurement in a T-4 auction can be resolved in a subsequent T-1 auction.

The Demand Curve cuts the Percentage of Net CONE axis at 159%. In previous auctions, the Auction Price Cap was set at 150% of Net CONE. As per SEM-21-110, there has been an uplift to APC of 6.12%⁵. As the graph shows the percentage of the current value of Net CONE⁶, the SEM Committee have decided to show this in the Demand Curve chart, by multiplying the usual 150% by the inflationary 6.12%, giving an APC of 159% of Net CONE for this auction.

The demand curve for the auction will also include adjustments for reserves and demand withholding. Decisions on these volumes will be made prior to the publication of the Final Auction Information Pack.

⁵ 6.12%=1.02³ which reflects a nominal 2% uplift until the Delivery year commences.

⁶ The RAs are planning a review of the CONE value and there may be scope for this review to feed in to this auction, the stated values are proposed to apply absent the conclusion of this review and a decision from SEMC to implement the results.

The Capacity Requirement described above will be adjusted to account for these volumes. In accordance with paragraph F.3.1.4 of the Capacity Market Code, other adjustments to the Capacity Requirement will include:

- Capacity already awarded for the 2026/27 Capacity Year in other relevant auctions;
- an allowance for changes in forecast capacity requirements (as considered appropriate by the Regulatory Authorities);
- an allowance for capacity to be procured in later auctions for the Capacity Year (as considered appropriate by the Regulatory Authorities); and
- an allowance for the de-rated value of capacity that is forecast to be operational during the Capacity Year but which will not be participating in the Capacity Auction (as considered appropriate by the Regulatory Authorities), and finally
- an allowance for the potential failure of contracted new plant in previous auctions to deliver on time.

(d) *the Auction Price Cap;*

The Auction Price Cap is the maximum bid price allowed in a Capacity Auction. For all previous auctions, this has been set at 1.5 times Net CONE.

Net CONE is currently €92,300 / de-rated MW / year, as determined in the T-4 CY2022/23 BNE Decision Paper⁷.

As per the recent SEM Committee information note on indexation of the Auction Price Cap⁸, the APC will be set to €146.92/kW, subject to the outcome to the review of Net CONE as referred to previously.

(e) *the Existing Capacity Price Cap;*

The Existing Capacity Price Cap (“**ECPC**”) is the price cap applicable to Existing Capacity in a Capacity Auction. It is a uniform non-technology specific cap on the price that Existing Generators and interconnectors can offer volume at, unless they apply to

⁷ [SEM-18-156](#)

⁸ See [SEM-21-110 Information Note on indexation of Auction Price Cap.pdf \(semcommittee.com\)](#)

the RAs for a Unit Specific Price Cap (“**USPC**”)⁹. New Capacity and DSUs are not subject to the ECPC, and may bid up to the Auction Price Cap.

ECPC performs two key functions:

- Firstly, it limits the ability of generators with market power (but low Net Going Forward Costs (“**NGFCs**”)) to exercise their market power through making high offers. Given the significant concerns about market power in the CRM (see SEM-16-010), it is important that the ECPC is not set at a level significantly above where the market is expected to clear in current market conditions.
- Secondly it provides a filter to ensure that only those USPC applications which the RAs need to scrutinise (because they may have a material impact on the clearing price or pay-as-bid prices) are scrutinised. If the ECPC is set too low, then offer prices which are below the clearing price (and therefore will have no impact on the clearing price or pay-as-bid prices) will need to be reviewed, imposing an unnecessary administrative burden on both the RAs and bidders.

In all capacity auctions to date, ECPC has been set at 0.5 times Net CONE. The rationale for this value was:

- It was estimated that the vast majority of plant required to meet the Capacity Requirement could bid at its Net Going Forward Cost without needing to apply for a USPC;
- It is consistent with relevant international benchmarks;
- It strikes an appropriate balance between the objectives of protecting consumers from the potential for bidders to exercise market power, and not placing an excessive workload on market participants and RAs from having to respectively submit and review significant volumes of USPC applications.

The SEM Committee’s proposal is to continue to set the ECPC at 0.5 times current Net CONE (€46,150 / de-rated MW / year), and the Sterling equivalent using the indicative Annual Capacity Payment Exchange Rate from the Initial Auction Information Pack.

⁹ Or submit an Opt-Out Notification on the grounds that they are going to close before the end of the relevant Capacity Year.

Any existing capacity with Net Going Forward Costs higher than the Existing Capacity Price Cap will retain the option to submit a USPC application to the RAs.

(f) *the €/MW rate of the New Capacity Investment Rate Threshold;*

The New Capacity Investment Rate Threshold (“**NCIRT**”) is an amount determined by the RAs that must be exceeded by the cost per MW of constructing New Capacity for that capacity to be eligible to be allocated Awarded Capacity with a duration of more than one year.

New Capacity is eligible to bid to fix its Reliability Option for up to ten years. In order to do so, a capacity provider must meet a substantial financial commitment threshold. This threshold is known as the NCIRT.

The intention of setting the NCIRT is to ensure that only plant making a substantial financial commitment equivalent to the commitment for a new build plant is able to obtain a multi-year Reliability Option.

Multi-year ROs should not be available to plant making a minor refurbishment. However, the threshold should not penalise investors who are able to build efficiently at low capital cost.

As described in the initial CRM parameters decision paper¹⁰, NCIRT for the first transitional auction was set at approximately 40% of the gross BNE cost, or €300,000 / de-rated MW. The BNE was re-evaluated in 2018 for the 2022/23 T-4 capacity auction. However, there was insufficient evidence to support a change in the NCIRT¹¹. The SEM Committee therefore decided to retain the NCIRT at €300,000 / de-rated MW.

The SEM Committee proposes to retain the value of NCIRT at €300,000 / de-rated MW for the 2026/27 T-4 auction.

¹⁰ [SEM-17-022](#), paragraph 7.2.18

¹¹ [SEM-18-155, CY2022/23 Parameters Decision Paper](#), paragraph 9.4.3.

(g) *the Annual Stop-Loss Limit Factor*

The Annual Stop Loss Limit is the multiplier used to establish the annual stop-loss limit for Non-Performing Difference Charges from a Capacity Market Unit.

A stop-loss is a cap on Reliability Option Difference Payments. Reliability Option Difference Payments are charges that must be paid by a generator during a scarcity event. The purpose of the cap is to limit risk on the generator and improve investability. However, a cap on RODPs means that there will be insufficient money to hedge suppliers, which has to be funded through the socialisation fund.

The stop-loss limit applies only to uncovered difference payments. It does not apply where the capacity provider has received revenue through the energy market to cover the difference payment.

Consider the example whereby a capacity provider has an annual stop-loss limit of €15,000 on an RO volume of 1MW, with the stop-loss limit based on uncovered difference payments. A RO strike price of €500/MWh is assumed. We also assume that there are two scarcity events, each of which lasts two hours, and during each the Administered Scarcity Price rises to €10,000/MWh.

During the first scarcity event, the generator has sold its 1MW of capacity in the energy market and receives €20,000 for its two hours of production.

Under the Reliability Option, it must pay back €19,000 ($2\text{MWh} * (\text{€}10,000/\text{MWh} - \text{€}500/\text{MWh})$) of this revenue in difference payments, and will therefore have net revenue of €1,000. Because the capacity provider had covered revenue from the energy market, the €19,000 does not count towards the stop-loss limit.

During the second event, the capacity provider was on forced outage, and has not sold any output. In the absence of a stop-loss, the capacity provider would have to pay the €19,000 in difference payments, without having any energy revenue to cover this cost. However, the stop-loss limit means that it only has to pay out up to a maximum of €15,000. There is therefore a €4,000 shortfall in RO difference payments. This shortfall is funded through the socialisation fund.

If the stop-loss had been based on all difference payments, the generator would have paid only €15,000 “stop-loss” on the first event and no payments on the second event. The total shortfall in RO difference payments across both events would be €23,000 instead of €4,000.

The stop-loss limit applies to the annual option fee. To date in the capacity market, the Annual Stop-Loss Limit Factor has been set at 1.5.

The SEM Committee propose to continue to apply an Annual Stop-Loss Limit Factor of 1.5 to Awarded Capacity allocated in the 2025/2026 T-4 auction.

(h) the Billing Period Stop-Loss Limit Factor;

The Billing Period Stop Loss Limit Factor is a multiplier used to establish the billing period stop-loss limit for Non-Performance Difference Charges from a Capacity Market Unit.

The purpose of stop-loss limits is described above. The purpose of the Billing Period Stop Limit Factor is to limit the level of losses in any one Billing Period (week).

If there were no Billing Period Stop Loss Limit Factor, and there were a number of scarcity events at the start of the Capacity Year so that a capacity provider reached its Annual Stop Loss Limit, that capacity provider would have a reduced incentive to maximise its availability for the remainder of the capacity year.

By limiting the losses that can apply in any one Billing Period, the incentive to remain available for the remainder of the Capacity Year is maximised.

The Billing Period Stop Loss Limit Factor is currently 0.5¹². The SEM Committee proposes to retain this value for Awarded Capacity in the 2026/27 T-4 capacity auction.

¹² Note: in the parameters decision paper for the first capacity auction ([SEM-17-022](#)), the SEM Committee decided that the Billing Period Stop-Loss Limit should be 50% of the Annual Stop-Loss Limit. Because the Annual Stop-Loss Limit Factor was set to 1.5, the Billing Period Stop-Loss Limit Factor was set to 0.75. However, because of the way the Annual and Billing Period Stop Loss Limit Factors interact within paragraph F.18.3.2 and F.18.3.4 of the Trading and Settlement Code, in order to achieve a relation of 50%, a Billing Period Stop-Loss Limit Factor of 0.5 is required.

(i) *the indicative Annual Capacity Payment Exchange Rate;*

The Annual Capacity Payment Exchange Rate is an exchange rate applicable to a Capacity Year which converts the Capacity Payment Price for a Primary Trade or a Secondary Trade from Euros to Sterling. This is determined by the System Operators using a methodology approved by the RAs.

Only the indicative exchange rate is calculated for the Initial Auction Information Pack. This will be calculated immediately prior to its publication. The exchange rate will then be updated for inclusion in the Final Auction Information Pack.

(j) *the Increase Tolerance and Decrease Tolerance by Tolerance Class that may be applied by a Participant in its Application for Qualification to Capacity Market Unit de-ratings;*

The Increase Tolerance is a percentage upwards tolerance that a Participant is permitted to apply to Capacity Market Unit de-ratings in an Application for Qualification. There may be different Increase Tolerances for different Technology Classes.

A Decrease Tolerance is a percentage downwards tolerance that a Participant is permitted to apply to Capacity market Unit de-ratings in an Application for Qualification. There may be different Decrease Tolerances for different Technology Classes.

CRM Decision 1¹³ allowed for the possibility of tolerance bands to be applied to the unit-level De-Rating Factors determined for capacity providers. These tolerance bands would allow some flexibility in the level of participation required from dispatchable plant in the auction. This allowance was made in relation to mandatory participation; although all generators would still be required to participate. It would reflect the fact that not all generators of the same technology class have the same degree of reliability.

In the CRM Capacity Requirement and De-Rating Factor Methodology Decision paper¹⁴, the SEM Committee decided that, with the exception of DSUs, the tolerance bands will be set to zero for the transitional auctions, with the decision to be reviewed for the enduring

¹³ [SEM-15-103](#)

¹⁴ [SEM-16-082](#), paragraph 4.5.1

auctions once the enduring value of Full Administered Scarcity Price has been determined.

The SEM Committee is proposing to retain this decision for the 2025/2026 T-4 auction.

Technology Class	Increase Tolerance (%)	Decrease Tolerance (%)
All Except DSUs	0	0
DSUs	0	100

- (k) *in respect of Performance Securities:*
- (i) *the final Performance Security Posting Dates/ Events applicable to Awarded Capacity allocated in the Capacity Auction; and*
 - (ii) *for each Performance Security Posting Date/ Event, the final €/MW rate to be applied in setting Performance Securities applicable to Awarded Capacity allocated in the Capacity Auction.*

A Performance Security is a security required as a condition of capacity award for Awarded New Capacity that has not reached Substantial Completion.

A Performance Security Posting Date/ Event is a date or event from which a specified €/MW rate shall be applied to Awarded Capacity in setting Performance Securities. There may be multiple different Performance Security Posting Dates/ Events.

The Performance Security Posting Dates / Events applicable to Awarded Capacity allocated in a Capacity Auction are determined by the Regulatory Authorities and provided to the System Operators.

Interested parties are asked to comment in their response, on the amounts the SEM Committee have set with regards to the Performance Security Rate and the Termination Charges (of course the Bond amount should be a one for one to the Termination amount) but also on the milestones, participants are asked to give the SEM Committee their view as to whether the number of milestones is suitable and / or whether a greater timeframe is required

Date / Event	Performance Security Rate (€/MW)
From Capacity Auction completion to 27 months prior to the beginning of the Capacity Year	20,000
27-13 months prior to the beginning of the Capacity Year	30,000
From 13 months to beginning of Capacity Year	40,000
From beginning of Capacity Year	50,000

(l) *the €/MW fee rates for calculating Termination Charges*

A Termination Charge is a fee payable by a Participant where Awarded New Capacity is terminated.

The CRM detailed design decision paper 2¹⁵ noted that it is important that New Capacity is required to pay a Termination Fee if it fails to deliver capacity. The Termination Fee will be payable if the project:

- fails to deliver the Substantial Financial Completion milestones by the given date; or
- fails to achieve Substantial Completion by the Long Stop Date; or
- submits false or misleading information in the Qualification process.

For all capacity auctions to date, the Termination Charges have been set in accordance with the following table:

¹⁵ [SEM-16-022](#)

Date / Event	Termination Charge Rate (€/MW)
From Capacity Auction completion to 27 months prior to the beginning of the Capacity Year	20,000
27-13 months prior to the beginning of the Capacity Year	30,000
From 13 months to beginning of Capacity Year	40,000
From beginning of Capacity Year	50,000

The SEM Committee seeks feedback on the changes outlined above, and also those of the Performance Security rates.

(m) values for the Full Administered Scarcity Price and the Reserve Scarcity Price; and

The Administered Scarcity Price (“**ASP**”) sets a floor on the Balancing Market price when a scarcity event occurs. The Full Administered Scarcity Price is the maximum value of the Administered Scarcity Price. The Reserve Scarcity Price Curve is a piecewise linear curve defining the relationship between the Reserve Scarcity price and the Short Term Reserve Quantity.

In the second CRM detailed design decision paper¹⁶, the SEM Committee decided that the piece-wise linear function of ASP will be static, and the price from which the function begins will be the Reliability Option Strike Price.

However, the Reliability Option Strike Price is not strictly static. As described below, it is set in relation to monthly carbon, gas and oil prices, but has a floor price equal to the theoretical price of a Demand Side Unit (which in recent years has been set at €500/MWh).

¹⁶ [SEM-16-022](#), section 6.4

The SEM Committee propose to set the price at which the piece-wise linear function of ASP begins at the floor of the Strike Price, as determined below. The Administered Scarcity Price will therefore be set in accordance with the following table:

Short Term Reserve (MW)	Administered Scarcity Price (€/MWh)
Demand Control	25% of VOLL
0	25% of VOLL
500	RO Strike Price

To clarify, ASP only applies when the available Short Term Reserve is less than the operating reserve requirement. If the operating reserve requirement is only 450MW, and the available Short Term Reserve falls to 490MW, the ASP function does not apply and prices will be market determined.

At this stage, the SEM Committee proposes to retain setting the value of Full ASP in relation to VOLL. **However, the SEM Committee requests respondents' views on whether any changes could be made to the parameters of the ASP function to encourage availability at times when system margins are tight.**

(n) *anticipated values for the parameters to be applied in determining the Strike Price.*

If the Market Reference Price exceeds the Strike Price, holders of Reliability Options must make Difference Payments.

The formula for the calculation of the monthly Strike Price ($PSTR_m$) is contained in the Trading and Settlement Code as follows:

$$PSTR_m = Max \left(\frac{1}{FTHEORYPU_y} \times Max \left(PFUELNG_m + (PCARBON_m \times FCARBONING_y), PFUELO_m + (PCARBON_m \times FCARBONIO_y) \right), PTHEORYDSU_y \right)$$

where:

- FTHEORYPU_y is the Peaking Unit Theoretical Efficiency for Capacity Year, y;
- PFUELNG_m is the Natural Gas Fuel Price for Month, m;
- FCARBONING_y is the Natural Gas Carbon Intensity Factor for Capacity Year, y;
- PFUELO_m is the Oil Fuel Price for Month, m;
- FCARBONIO_y is the Oil Carbon Intensity Factor for Capacity Year, y;
- PCARBON_m is the Carbon Price for Month, m; and
- PTHEORYDSU_y is the Demand Side Unit Theoretical Price for Capacity Year, y, d.

This formula bases the Strike Price on the cost of a hypothetical low efficiency peaking unit, and includes a floor price on the strike price at the price of a theoretical demand side unit in €/MWh; this reflects the cost incurred by the DSU in switching off, which may not be related to the cost of energy.

The values of each of these parameters for each capacity auction to date were:

Strike Price Component	Value	Unit
PCARBON _m	PCARBON _m Index	€/tCO _{2e}
PFUELNG _m	[PFUELNG _m Index (p/therm) x 0.01 (£/p) + PFUELNG _m Transport (£/therm)] x Exchange Rate (€/£) x 9.48 (therm/GJ) x 3.6 (GJ/MWh)	€/MWh
PFUELO _m	[PFUELO _m Index (\$/t) x Exchange Rate (€/£) + PFUELO _m Transport (£/t)] x 0.025 (t/GJ) x 3.6 (GJ/MWh)	€/MWh
PCARBON _m Index	ICE ECX EUA Futures – EUA - (monthly) ¹⁷	€/tCO _{2e}
PFUELNG _m Index	ICE UK Natural Gas Index (monthly)	p/therm
PFUELNG _m Transport	0.0424 ¹⁸	£/therm
PFUELO _m Index	Platt's Forward Curve (monthly) for monthly swap transactions for 1% sulphur free on board (FOB) fuel oil cargoes in North West Europe (NWE) for the relevant month (AAEGR00)	\$/t
PFUELO _m Transport	50 ¹⁹	€/t
FTHEORYPU _y	15	%
FCARBONING _y	0.202	tCO _{2e} /MWh
FCARBONINO _y	0.277	tCO _{2e} /MWh
PTHEORYDSU _y	500	€/MWh
Exchange Rate (€/£)	The Trading Day Exchange Rate as defined in the Trading and Settlement Code	€/£
Exchange Rate (€/£)	The rate set at 17:00 the day before the Trading Day, from the same source as used for the Trading Day Exchange Rate	€/£
therm per GJ	9.48 ²⁰	therm/GJ
LSFO calorific value	0.025 ²¹	t/GJ

The SEM Committee proposes to retain these parameter inputs and definitions for the CY2026/27 T-4 Auction with the exception of just one.

In terms of FTHEORYPU_x the SEM Committee wish for the views of industry in two key areas:

1. In your view, should the current value of 15% be amended to more closely reflect typical operating technologies? If so then
2. What value would be seen to capture this requirement more closely?

The SEM Committee would appreciate any feedback on the above input in the response.

¹⁷ The December price for a given year will apply to all months falling within that year.

¹⁸ NI natural gas transport adder used in I-SEM PLEXOS Forecast Model 2021-30.

¹⁹ Based on ROI LSFO transport adder used in I-SEM PLEXOS Forecast Model 2021-30

²⁰ Universal constant, utilised in the I-SEM PLEXOS Forecast Model 2021-30

²¹ Universal constant, utilised in the I-SEM PLEXOS Forecast Model 2021-30

5. AUCTION FORMAT

For the recently completed 2025/26 T-4 auction, Auction Format D was utilised. Auction Format D will also be used for the 2026/2027 T-4 auction.

6. TREATMENT OF CONSTRAINTS

For the purposes of a Capacity Auction, a number of Locational Capacity Constraints Areas (“**LCCA**”) can be determined by the System Operators. A Locational Capacity Constraint Required Quantity is the minimum de-rated capacity quantity that is required to satisfy the Locational Capacity Constraint.

For all auctions completed ahead of the CY2026/27 T-4 Auction, there were two Level 1 LCCAs (Northern Ireland and Ireland) and one Level 2 LCCA (Greater Dublin, associated with the Ireland Level 1 constraint). A Level 2 LCCA for the rest of Ireland outside Greater Dublin was included for the 2024/25 T-4 auction. **The SEM Committee seeks feedback as to whether there may be merit to the development of further LCCAs by the TSOs**, for example, by splitting Dublin further into two Level 3 LCCAs - North Dublin and South Dublin, to allow the auction to more finely reflect the constraints that exist between these two areas in reality such as the maximum capacity that can be facilitated in those areas. We would welcome feedback on this proposal.

The Capacity Auction is initially run on an unconstrained (i.e. location agnostic) basis. If following the initial solution, any of the Locational Capacity Constraints has not been satisfied, additional capacity must be procured²². This capacity will be procured on a pay-as-bid basis.

When procuring this additional capacity, New Capacity with an offered capacity duration of more than one year should be excluded. However, if there is insufficient capacity within an LCCA to allow the constraint to be met without it, this new, multi-year, Capacity must be considered.

²² Under Auction Format C and D, this constrained capacity can replace capacity that was used to satisfy the initial solution.

For the 2026/2027 T-4 capacity auction, the SEM Committee remains open to allowing the constrained element auction to solve using multi-year New Capacity. A decision on this will be made prior to the publication of the Final Auction Information Pack, after the System Operators have provided the relevant information on LCCAs.

7. NEXT STEPS

Responses to the proposals within this consultation should be sent to CRMSubmissions@uregni.gov.uk and CRMsubmissions@cru.ie, by 17 June 2022. We intend to publish all responses unless they have been marked confidential.