Integrated Single Electricity Market

(I-SEM)

Capacity Remuneration Mechanism

Reserves

Consultation Paper

SEM-18-159

05 October 2018

EXECUTIVE SUMMARY

In the recently published T-4 parameters decision paper (SEM-18-155), the SEM Committee decided to procure capacity to cover a measure of reserves in the CY2022/23 T-4 auction. The SEM Committee decided that the measure should be no less than 100MW, and no more than 500MW at the all-island level. In SEM-18-155, the SEM Committee also decided to reflect transmission constraints in the CY2022/23 T-4 auction. Following on from those decisions, in this supplemental consultation the SEM Committee is consulting on:

- **T-4 auction**: Whether reserves should also be included in the Local Capacity Constraint Area (LCCA) minimum MW in the CY2022/23 T-4 auction. If reserves are included at LCCA level, what approach should be used to determine the minimum MW in each area?
- **T-1 auction:** Should a measure of reserves be included in the CY2019/20 T-1 auction, at an all-island level, at an LCCA level or both? This supplemental consultation also explores whether there are grounds to use a different methodology for the T-1 auction from the T-4 auction.

As well as reviewing the case for including reserves in the Local Capacity Constrained Area (LCCA) minimum MW in the CY2023/23 T-4 auction, in Section 2, we review three different options for setting the level of the minimum MW, including a "bottom-up" approach (Option 1) whereby the sum of the LCCA reserves included could exceed the level included in the all-island Capacity Requirement. Option 2a is a "top-down" allocation approach whereby the all-island reserves total is allocated down to LCCAs pro-rata to the largest single infeed in that area, and Option 2b is a "top-down" allocation approach whereby the all-island reserves total is allocated down to LCCAs pro-rata to the minimum MW based on the current methodology for calculating the minimum MWs.

In Section 3 we discuss the case for including a measure of reserves in the transitional auction, including the CY2019/20 T-1 auction, both at an all-island and at an LCCA level. The key reasons are: to maintain an 8-hour standard will be achieved in LCCAs; to manage exit beyond the end of CY2021/22; and to account for T-1 specific factors. The current methodologies assume average levels of outage, and do not take account of specific information known in T-1 timescales. T-1 specific factors such as known outages, one-off upgrades to meet environmental restrictions and timing of major overhauls are more likely to be known at the T-1 stage.

The T-1 specific factors provide support for different LCCA allocations in the CY2019/20 T-1 and the CY2022/23 T-4 auction, and for requiring specific local adjustments in the CY2019/20 auction to take account of one-off factors, not fully reflected in the current methodology.

The All-Island Capacity Requirement for any given auction is fixed at the Initial Auction Information Pack (IAIP) stage. The IAIP for the CY2019/20 T-1 auction and the CY2022/23 T-4 auctions have already been published, and did not reflect any measure of reserves in the Capacity Requirement. However, as provided for under the CMC the SEM Committee would if necessary direct the TSOs to adjust the CY2019/20 T-1 and CY2022/23 T-4 auction demand curves (to be included in the Final Auction Information Pack (FAIP)) to reflect the decisions taken following this supplemental consultation. The impact on the final demand curve will be similar as if the chosen measure of reserve had been included in the IAIP Capacity Requirement.

Responses to the consultation paper should be sent to Karen Shiels (Karen.Shiels@uregni.gov.uk) and Thomas Quinn (tquinn@cru.ie) by 17:00 on Friday 2 November 2018. Please note that we intend to publish all responses unless marked confidential.

Contents

1. INTRODUCTION

1.1 PURPOSE OF THIS CONSULTATION PAPER

1.1.1 In the recently published T-4 parameters decision paper (SEM-18-155), the SEM Committee decided to procure capacity to cover a measure of reserves in the CY2022/23 T-4 auction. The SEM Committee decided that the measure should be no less than 100MW, and no more than 500MW at the all-island level. In SEM-18-155, the SEM Committee also decided to reflect transmission constraints in the CY2022/23 T-4 auction.

1.1.2 Following on from those decisions, in this supplemental consultation the SEM Committee is consulting on:

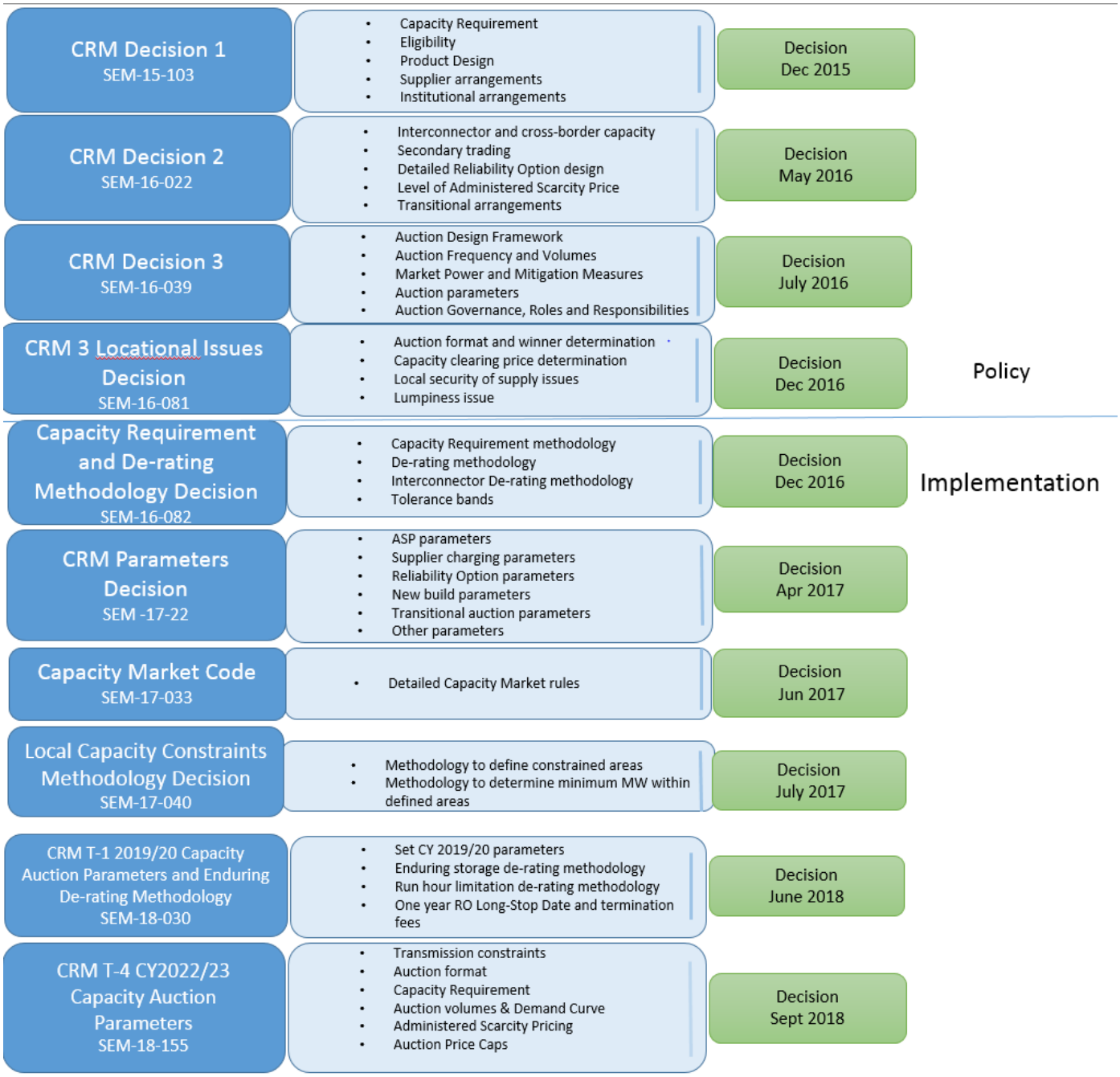
- **T-4 auction**: Whether reserves should also be included in the Local Capacity Constraint Area (LCCA) minimum MW in the CY2022/23 T-4 auction. If reserves are included at LCCA level, what approach should be used to determine the minimum MW in each area?
- **T-1 auction:** Should a measure of reserves be included in the CY2019/20 T-1 auction, whether at an all-island level, at an LCCA level or both? This supplemental consultation also explores whether there are grounds to use a different methodology for the T-1 auction from the T-4 auction.

1.1.3 The All-Island Capacity Requirement for any given auction is fixed at the Initial Auction Information Pack (IAIP) stage. The IAIP for the CY2019/20 T-1 auction and the CY2022/23 T-4 auctions have already been published, and did not reflect any measure of reserves in the Capacity Requirement. However, as provided for under the Capacity Market Code the SEM Committee would if necessary direct the TSOs to adjust the CY2019/20 T-1 and CY2022/23 T-4 auction demand curves (to be included in the Final Auction Information Pack (FAIP)) to reflect the decisions taken following this supplemental consultation. The impact on the final demand curve will be similar as if the chosen measure of reserve had been included in the IAIP Capacity Requirement.

1.2 BACKGROUND

1.2.1 The CRM has been designed over the past number of years through numerous consultations and subsequent decisions. A summary of the process is provided in Figure 1 below.

Figure 1: Overview of CRM Policy Development



1.2.2 The decisions mentioned above were all made in advance of receiving the State Aid decision and therefore the decisions were subject to the outcome of the European Commission State Aid notification process.

1.2.3 The EC State Aid decision[1] was received in November 2017 and the first Capacity Auction took place on 15 December 2017 for Capacity Year 2018/19.

[1] http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_44464

1.3 ASSESSMENT CRITERIA

1.3.1 Assessment criteria for the detailed design of the CRM are based on the same principles as those applied to the I-SEM High Level Design and as agreed with the Departments in the Next Steps Decision Paper March 2013. The assessment criteria are set out below:

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

1.3.2 All elements of the design and parameters should be consistent with any undertaking given to the European Commission as part of the State Aid approval, and any other EU regulations- all of which are consistent with meeting the EU Internal Market criteria.

2. RESERVES IN CY2022/23 T-4 AUCTION

2.1 INTRODUCTION

2.1.1 In developing the parameters for the first T-4 capacity auction (CY 2022/23) the SEM Committee recently consulted (in SEM-18-028) on the possible inclusion of reserves. The recently published T-4 parameters decision paper (SEM-18-155), set out the SEM Committee's decision to include reserves within the first T-4 capacity auction. The SEM Committee decided that the level of reserve to include will be no less than 100MW, and no more than 500MW at the all-island level. The SEM Committee also decided that:

- Given the requirement to reflect transmission constraints in the CY2022/23 T-4 auction, it is also appropriate to consider whether the minimum MWs to be procured in constrained regions (Local Capacity Constraint Areas (LCCAs) as defined in the CMC), should also include a measure of reserves; and
- The final decision on the precise measure to include in the All-Island demand curve will be taken following this supplemental consultation regarding inclusion of reserves in LCCAs.

2.1.2 The All-Island Capacity Requirement for any given auction is fixed at the Initial Auction Information Pack (IAIP) stage. The IAIP for the CY2022/23 T-4 auction was published on 28 September 2018, and did not reflect any measure of reserve in the Capacity Requirement as no final decision had been taken on the appropriate level of reserves to include. However, as provided for under the Capacity Market Code the SEM Committee would if necessary direct the TSOs to adjust the CY2022/23 T-4 auction demand curve (to be included in the Final Auction Information Pack (FAIP)) to reflect the decisions taken following this supplemental consultation. The impact on the final demand curve will be the same as if the chosen measure of reserve had been included in the IAIP Capacity Requirement.

2.1.3 Depending on the decisions from this consultation, the CMC and/or the TSOs' Capacity Requirement Methodology and LCCA minimum MW methodologies may require some updating to reflect SEM Committee decisions. Given that there may not be time to update the detailed Capacity Requirement and LCCA minimum MW methodologies (as set out in SEM-18-030a and SEM-17-040), in time for the production of the CY2022/23 T-4 auction FAIP. If necessary, the SEM Committee can make appropriate emergency CMC modifications. In this case, the SEM Committee may use its power to direct the TSOs to make adjustments to the LCCA minimum MW to include the appropriate level of reserves.

2.2 WHY INCLUDE RESERVES AT LCCA LEVEL?

2.2.1 The key reasons for considering including a measure of reserves in the LCCA minimum MWs which we discuss further below, include:

- Ensuring consistent levels of local security of supply (at LCCA and all-island level); and
- Ensuring consistency with wider European practice on the treatment of reserves in adequacy assessments.

Security of supply at LCCA level

2.2.2 As discussed in SEM 18-155, at an all-island level, it was decided to include at least 100MWs of reserves on top of the values resulting from the existing Capacity Requirement methodology in order to ensure that the 8-hour standard is met. This reflects the fact that demand control actions are likely to be taken by the TSOs when the level of available reserves falls as low as 100MW.

2.2.3 The LCCA minimum MW methodology for the Level 1 LCCAs (currently Ireland and Northern Ireland) are very similar to the all-island Capacity Requirement methodology, so we may need to include some measure of reserve on top of the existing calculated values to ensure that the 8-hour standard can be met. In part this depends on how the TSOs manage reserves across constrained areas, and whether they undertake demand control actions when there are sub-optimal levels of local reserves at times when there is no ability to increase inflows into the LCCA. For example, if at any given instant, all the reserves are held on units in Ireland and the transmission network between Ireland and Northern Ireland is already fully loaded, then those units may not effectively be providing reserves to Northern Ireland.

2.2.4 This argument would favour a "bottom-up" approach whereby the amount of additional reserves required in each LCCA which is required to achieve a consistent target security standard in each LCCA is identified. This might take account of specific local factors, such as the largest single-infeed in a given area, which at least at an all-island level, is a key determinant of the optimum level of reserves. The logic of a "bottom-up" approach is that the sum of the requirements at LCCA level might not be equal to the all-island requirement.

Wider European practice

2.2.5 To the extent that the inclusion of reserves at the all-island level is consistent with the direction of travel of EC policy, logically, it would also be consistent to include them in the local requirements too. The SEM-18-155 decision paper described how in 2017 Mid-term Adequacy Forecasts (MAF), in modelling the capacity required for capacity adequacy, ENTSO-E generally either add some measure of reserves requirement to peak demand (their preferred approach) or reduce the effective thermal generation capacity commensurately. The ENTSO-E 2017 MAF assumes very different levels of reserve requirement between countries/zones in the ENTSO-E area, in terms of MWs as a percentage of peak demand.

2.3 OPTIONS CONSIDERED

2.3.1 We are considering a number of options based on both a "bottom-up" approach, as well as different approaches for a "top-down" allocation of an all-island reserve to the different LCCAs. The key options discussed below include:

- Option 1: Bottom-up approach
- Option 2a: Top-down allocation based on largest single infeed in LCCA
- Option 2b: Top-down allocation pro-rata to minimum MW (as calculated according to the current methodology)

2.3.2 Under any of the above options the RAs envisage having the power to use their discretion to purchase less or more than the amount determined, this could be due to factors such as uncertainty about load growth, other factors such as known outages or other generic issues.

Option 1: Bottom-up approach

2.3.3 Under Option 1, in conjunction with the TSOs, the RAs would separately determine the level of reserve required to achieve the target standard in each LCCA, and at an all-island level. In this approach it is the target security standard that would be used to determine the reserves required in each LCCA and at the all-island level.

2.3.4 The sum of the LCCA reserve requirements may not equal the all-island reserve requirement. This is not a new principle- in the CY2018/19 auction, the minimum MW in Ireland plus the minimum MW in Northern Ireland summed to 180 MW more than the all-island Capacity Requirement due to diversification effects at the all-island level.

2.3.5 A benefit of Option 1 is that it provides flexibility to respond to uncertainty around factors such as load growth, outages or other possible issues (uncertainty around the timing of infrastructure development), reacting to maintain a level of reserve required to achieve the target standard in each LCCA and at an all-island level. This approach equally would adjust to purchase less or no reserves in a LCCA if not required to reach the required standard.

2.3.6 Option 1 provides flexibility to respond to different uncertainties/scenarios between the LCCAs. For example, if one LCCA requires additional reserves due to a specific issue to achieve the target standard, but the RAs and SOs consider that a different LCCA does not require any reserves to achieve the target standard, this Option 1 allows for both of these situations.

2.3.7 SEM-18-155 noted that the current All-island methodology may not lead to an 8-hour standard in practice, because it does not take appropriate account of the TSOs' demand control actions. SEM-18-155 noted that it may be necessary to add at least 100MW to the all-island Capacity Requirement in practice to reflect practical TSOs demand control actions and achieve a real 8-hour standard.

2.3.8 The TSOs may equally take demand control actions at a local level, based upon local circumstances at any given time. The RAs do not currently have data from the TSOs on how many MW would need to be added to each LCCA minimum MWs to achieve an equivalent degree of mitigation of the risk of demand control actions at LCCA level. In the longer term, such an approach may be appropriate, but given time constraints it is unlikely that much more detailed analysis can be completed before the CY2022/23 T-4 auction, and it may be necessary to implement a bottom-up type approach using some "rules of thumb".

Option 2a: Top-down based on largest single infeed

2.3.9 Under Option 2a, we would also start by making a decision on how many MW of reserve to include in the all-island Capacity Requirement. For example, we include 500MW, the top end of the potential range (between 100-500MW) set out in SEM-18-155.

2.3.10 Then the all-island 500 MW is allocated to the Level 1 areas, Ireland and Northern Ireland, based on the largest single infeed in each Level 1 LCCA. Using this apportionment approach 53% (based on 500/(450+500)) would be allocated to Level 1 Ireland (=53% x 500MW = 265MW) and 47% (based on 450/(450+500)) to Level 1 Northern Ireland (=47% x 500MW= 235 MW).

2.3.11 Secondly, since the Greater Dublin LCC Area is a Level 2 area, nested within the Level 1 Ireland area a percentage of the total Ireland allocated reserves must be allocated to the Greater Dublin LCC area. There are different ways in which this could be done. At the moment, there is only one Level 2 nested area. The largest single infeed generation unit in the Greater Dublin area is Dublin Bay at 402 MW compared with the largest single infeed in Ireland being 500 MW. One might argue on the basis that Dublin is likely to be the only constrained area within Ireland in CY2022/23, that we should allocate 402/500 x 265 MW = 212MW of the additional requirement to Dublin, leaving only a maximum of 53MW additionally in the rest of Ireland. However, this approach only works while there is only one nested Level 2 area within a given Level 1 area. An approach which is more capable of being generally applied if there are multiple nested areas within a Level 1 area is to say that the largest single infeed in Dublin is 402MWs, the largest in the "rest of Ireland" is 500 MW, so we allocate 402/(402 + 500) x 265MW = 117MWs to Dublin. If hypothetically there was a second Level 2 nested area in Ireland with a largest single infeed of 300MW, we would have allocated 402/ (402 + 300 +500) x 265MW to Dublin and 300/(402 + 300 +500) x 265 MW to the second hypothetical area.

2.3.12 We consider that any approach should be capable of a general solution, so the proposed allocation approach and impact on MW is summarised in the tables below noting that the Level 2 Greater Dublin area is nested within Level 1 Ireland. The sum of both Level 1 areas equate to the amount of reserves allocated e.g. 500 MW.

Table 1: Option 2a allocations based on 500MW on All-island reserves

Locational Capacity Constraint Area	Allocation of 500 MW
L1: Ireland	265MW (500/(500+450) x 500 MW)
L2: Greater Dublin	117 MW ((402/(402+500) x265 MW)
L1: Northern Ireland	235 MW (450/(500+450) x 500 MW)
Total All-island	500 MW

Table 2: Option 2a Allocations based on 100MW, 300MW and 500MW of reserve

Locational Capacity Constraint Area	Allocation of 100 MW	Allocation of 300 MW	Allocation of 500 MW
L1: Ireland	53 MW	158 MW	265 MW
L2: Greater Dublin	23 MW	70 MW	117 MW
L1: Northern Ireland	47 MW	142 MW	235 MW
Total All-island	100 MW	300 MW	500 MW

Option 2b: Top-Down Based on current minimum MW methodology

2.3.13 Under Option 2b, a decision is made on how many MW of reserve to include in the all-island Capacity Requirement. For example it is assumed that the maximum 500MW is included at an All-island level.

2.3.14 Then the all-island 500 MW is allocated to the Level 1 areas, Ireland and Northern Ireland, based on the current methodology for determining minimum MWs. In CY2018/19, the minimum MW were 5,260MW in Ireland, and 1,620MW in Northern Ireland. This would result in a 76% allocation of the 500 MW (382MW) to Ireland and 118MW (24%) to Northern Ireland. In CY2018/19 the Dublin minimum MW was 1,300MW- although the value is likely to be higher for CY2019/20, once estimates are updated for 2018 Generation Capacity Statement forecast. Based on the CY2018/19 auction numbers, it would result in an allocation of 1,300/5,260 x 382MW = 94MW of reserves to Dublin.

2.3.15 The allocations under Option 2b are summarised in the tables below noting that the Level 2 Greater Dublin area is nested within Level 1 Ireland. The sum of both Level 1 areas equate to the amount of reserves allocated e.g. 500 MW.

Table 3: Option 2b allocations based on 500MW on All-island reserves

Locational Capacity Constraint Area	Allocation of 500 MW
L1: Ireland	382 MW (5260/(5260+1620)) x 500 MW
L2: Dublin	94 MW (1300/5260) x 382 MW
L1: Northern Ireland	118 MW (1620/5260+1620)) x 500 MW
Total All-island	500 MW

Table 4: Option 2b Allocations based on 100MW, 300MW and 500MW of reserve

Locational Capacity Constraint Area	Allocation of 100 MW	Allocation of 300 MW	Allocation of 500 MW
L1: Ireland	76 MW	229 MW	382 MW
L2: Dublin	19 MW	57 MW	94 MW
L1: Northern Ireland	24 MW	71 MW	118 MW
Total All-island	100 MW	300 MW	500 MW

2.4 SUMMARY EVALUATION OF OPTIONS

2.4.1 Option 1, the “bottom-up” approach appears more consistent with achieving a consistent level of security of supply at LCCA level as well as all-island level. The bottom-up approach is also consistent with the way in which Level 1 minimum MW may sum to more than the All-island Capacity Requirement, so is arguably a logical extension of the current approach.

2.4.2 Options 2a and 2b may be simpler and more transparent to implement, in that the process is more rigidly defined in how the all-island reserve quantity is distributed between the LCCAs. However due to this lack of flexibility in the top down allocation approaches this may result in allocations to Level 2 areas, which do not necessarily result in equal treatment between Level 1 and Level 2 areas. The “top down allocation” approaches cannot adjust like the “bottom up”

approach in achieving the target standard in each LCCA, and at an all-island level. The "top down allocation" approaches allocate the all-island reserves according to the methodology irrespective of any underlying changes. For instance, the level of additional reserve required in a specific area to achieve a given standard does not necessarily change from year to year, if extra nested Level 2 areas are added within a Level 1 area (e.g. if a second level 2 LCCA was added to Level 1 Ireland).

2.4.3 The RAs envisage having the power to use their discretion to purchase less or more than the amount determined (be it with option 1, option 2a or option 2b), this could be due to factors such as uncertainty about load growth, other factors such as known outages or other generic issues.

2.5 CONSULTATION QUESTIONS

2.5.1 **Question 1:** Do you agree with the proposal to include reserves in Locational Capacity Constraint Area minimum MWs for the T-4 CY2022/23 capacity auction? Please explain.

2.5.2 **Question 2:** If reserves are to be included across the Locational Capacity Constraint Areas, which of the above approaches (or other approaches do you favour and why)?

3. INCLUSION OF RESERVES IN CY2019/20 T-1 AUCTION

3.1 INTRODUCTION

3.1.1 The SEM Committee also sees reasons for including a measure of reserves in the transitional auctions, including the CY2019/20 T-1 auction, both at an all-island and LCCA level. The key reasons are:

- The desire to ensure that at least an 8-hour standard will continue to be achieved through the transitional period, including in LCCAs;
- The desire to continue to manage exit; and
- To account for T-1 specific factors

Achieving an 8-hour standard

3.1.2 As discussed in SEM-18-155, the current all-island Capacity Requirement approach may not necessarily deliver an 8-hour standard, if we only procure the minimum of capacity consistent with the Capacity Requirement. At an all-island level and at Level 1 LCCA, the approach used to calculate the MW of capacity required ensures that there are only 8 hours where the available capacity is less than demand. It does not take full account of the fact that, in practice, the TSOs are likely to take demand control actions when available capacity is slightly more than demand, to manage the otherwise likely occurrence of involuntary load shedding.

3.1.3 In practice, the CY2018/19 auction delivered over 1,000MW more capacity than the Capacity Requirement at the all-island level, so the formulation of the all-island Capacity Requirement is not an immediate concern in the short term. The auction delivered 816MW more than minimum requirement in the Ireland Level 1 LCCA, but only 98MW more than the minimum MWs in Northern Ireland and only 36MW more than the minimum MW in Dublin. This indicates that there is a *prima facie* case for including a measure of reserves in these LCCA minimum MWs to ensure that the risk of localised demand control actions being required is kept to appropriate and consistent levels.

3.1.4 There may also be a case for including a measure of reserves in the all-island Capacity Requirement later in the transitional period (CY2018/19 to CY2021/22), as the interim design features fall away or diminish during the transitional period. These interim design features include the decision to procure additional capacity in respect of transmission constraints, also the effect of using the CY2021/22 demand forecast to calculate the Capacity Requirement for all transitional years will be diminished in later transitional auctions.

Continuing to manage exit.

3.1.5 The transitional approach of basing the Capacity Requirement/LCCA minimum MWs on the CY2021/22 demand forecast was based on the assumption that there was a need to manage exit up to and including CY2021/22, but that there would be limited need to manage exit beyond CY2022/23. It was assumed that the potential for new entry in CY2022/23, coupled with transmission reinforcement would limit the need to manage exit from CY 2022/23 onwards. However, a number of circumstances have changed:

- Some transmission reinforcement projects, such as the North-South interconnector have been delayed and this is now not expected to be complete until 2023;
- The new demand forecasts for Ireland, particularly relating to the Greater Dublin area, predict considerably higher growth than the old forecasts on which previous analysis was based. This is largely driven by the high predicted growth of data centre demand in some scenarios; and
- We have clearer sight of new capacity in the pipeline for the CY2022/23 auction, at least for transmission connected capacity.
- While at an All-Island level, the potential new entry pipeline looks healthy, there may be a need to continue to manage exit in certain LCCAs a little further beyond the end of transitional period. This may prove to be an unnecessarily conservative approach if there is a significant increase in the volume of embedded generation/storage in the LCCAs and/or an increase in DSU capacity in LCCAs. Indeed, if the growth in demand is driven by large data centres, it may be the case that the new load will be well placed to physically back DSU capacity, and that concerns over the continuing need to manage exit are unfounded.

3.1.6 The inclusion of a measure of reserves in the LCCA minimum MW now, would provide a further degree of insurance by managing exit of plant in LCCAs that may not be needed during the transitional period, but may be needed in CY2022/23 if transitional constraints persist.

Accounting for T-1 specific factors

3.1.7 The current Capacity Requirement and LCCA minimum MW methodology was designed to calculate the requirements, before certain specifics about a year in question are known. For example, in calculating the Capacity Requirement and the LCCA minimum MWs, the methodologies assume long-term historical averages for planned and forced outage rates. Such assumptions are appropriate in T-4 timescales, when specific details of planned outages are not predictable. However, by T-1 timescales, much more detail about specific planned outage programmes are likely to be known. This might include, for example:

- Specific one-off upgrades to meet tightening environmental restrictions;
- Timing of major overhaul in any given year;
- Uncertainty from events at short notice. These could be unknown events such as outages/faults etc, or known events but for which timing may be uncertain (e.g. delivery of planned infrastructure); and
- Other known outages which may vary from the norm;

3.1.8 The current Capacity Requirement and LCCA minimum MW methodologies do not take any of this information into account.

3.1.9 These variations from statistical norms may be more pronounced at LCC level than at All-island level. In principle, such effects could be reflected in an adapted methodology. For the CY2020/21 transitional auction, we may consider adapting the methodology to take account of all known information. However, given the imminence of the CY2019/20 auction, it may not be possible for the TSOs to adapt their models and re-run their analysis on this basis, in time.

3.1.10 Therefore, the SEM Committee may need to make some ad hoc adjustments to take account of specific factors which may affect particular LCCAs.

3.2 CALCULATING RESERVE REQUIREMENTS FOR CY2019/20 T-1 AUCTION

All-island level

3.2.1 The SEM Committee have stated above and in SEM-18-155, the reasons for including a percentage of the largest single infeed in the T-4 Capacity Requirement. Substantially different circumstances apply in CY2019/20, where we know that we have significant excess capacity at all-island level, and that the auction is likely to deliver more than sufficient capacity (including reserve) across the island without the need for significant further adjustments. Including significant additional reserves at an all-island level could add to cost (by pushing the demand curve out) without significant benefits in terms of reduced unserved expectation.

3.2.2 As discussed above, many of the reasons for the inclusion of a measure of reserve in the CY2019/20 auction relate to security of supply at LCCA level rather than all-island level. This contrasts with the T-4 auction timeframe where specific detail will not yet be available to determine exactly what reserves are required at the LCCA level.

3.2.3 If the principle is to achieve the optimum trade-off between the cost of incremental capacity, and the reduction in the value of Expected Unserved Energy (EUE), this will result in a significantly lower level of all-island reserve in the CY2019/20 T-1 auction than CY2022/23 T-4 auction.

3.2.4 The SEM Committee may choose to include a measure of reserves in the CY2019/20 demand curve at all-island level, but if it does, this measure is likely to be lower than the amount employed for the CY2022/23 T-4 auction.

LCCA level

3.2.5 The SEM Committee sees a strong case for using a "bottom-up" approach in CY2019/20, which may also need to be subject to further adjustments for LCCA T-1 specific factors, which are not taken account of in the current LCCA minimum MW approach. This means employing a version of Option 1 as set out in Section 2, with the potential for additional adjustments to take account of known variations in outage patterns from the norm.

3.2.6 As discussed above, the case for the inclusion of significant additional reserves at all-island level is weak, and a "top-down" approach is unlikely to deliver the optimal allocation to LCCs.

3.3 IMPLEMENTING THE DECISIONS FOR CY2019/20

3.3.1 The CY2019/20 T-1 FAIP is due to be published on 30 November 2018. It is anticipated that the FAIP will reflect any decisions which materialise from this consultation. For example, if reserves are to be included in the T-1 CY2019/20 auction the demand curve can be adjusted to

reflect that decision. Also, if it is decided that some level of reserves was to be allocated to the LCC area this will be reflected in the LCC minimum MWs set out in the FAIP.

3.4 CONSULTATION QUESTIONS

3.4.1 **Question 3:** Do you agree with the proposal to include reserves in the forthcoming T-1 capacity auction for CY2019/20? Please explain.

3.4.2 **Question 4:** Do you agree with the view that the case for including significant reserves in the all-island demand curve is relatively weak?

3.4.3 **Question 5**: If reserves are to be included across the Locational Capacity Constraint Areas, which of the above approaches (or other approaches do you favour and why)?

3.4.4 **Question 6:** Are there reasons to use different approaches for the CY2019/20 T-1 auction and the CY2022/23 T-4 auction? If yes, please explain.

4. NEXT STEPS

4.1.1 Interested parties are invited to respond to the consultation, presenting views on the proposals set out in this paper. The SEM Committee would particularly want to receive evidence supporting any alternative to the proposals, where possible supported by quantitative analysis.

4.1.2 The SEM Committee intends to make a decision in late November 2018 on the approach to reserves in the all-island demand curve and across the locational capacity constraint areas for the T-1 Capacity Year 2019/20 auction and the T-4 Capacity Year 2022/23 auction.

Responses to the consultation paper should be sent to Karen Shiels (Karen.Shiels@uregni.gov.uk) and Tom Quinn (tquinn@cru.ie) by 17.00 on Friday, 2 November 2018.

4.1.3 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.