

I-SEM

Capacity Remuneration Mechanism, Locational Issues **SEM-16-052**

If you have any questions in relation to our response, please don't hesitate to contact Connor Powell (connor.powell@sse.com)

Executive Summary

Thank you for giving SSE the opportunity to comment on the SEM Committee's supplementary consultation on locational issues under the new I-SEM CRM.

While SSE welcomes the opportunity to comment on the RAs proposals, we believe that the 4 week period allocated to consultation is insufficient. The issues under consideration in the paper radically alter the design of the capacity mechanism and will have a major commercial impact on a number of generation licence holders. This paper has also been published in parallel to a number of other I-SEM consultations. The compressed timescale and clear minded-to position does not suggest that these issues¹ are being given adequate consideration or that the SEM Committee is following best regulatory practice.

The paper notes that:

"[This paper] addresses issues raised by respondents to the CRM consultations to date which are related to the location of capacity resources, in particular during the transition to I-SEM"

Given that the I-SEM CRM will be fiercely competitive for the first number of years of operation, it is unsurprising that some capacity providers would like a mechanism for allocating annual contracts without price competition. However, SSE believes that the I-SEM CRM is the wrong place to resolve local transmission constraints. In every other European electricity market, transmission constraints are resolved through energy or ancillary service markets. This is because:

- TSOs must retain a clear and accurate pricing signal that captures the cost of missing transmission infrastructure in order to effectively perform their network planning and development functions.
- Capacity Mechanisms require State Aid clearance justified on narrow grounds relating to purchasing units that suit total system adequacy needs, whereas local transmission constraints do not relate to unserved total system demand.
- The three EU energy packages have introduced a number of protections that ensure TSOs do not discriminate between producers or suppliers of electricity. All TSOs have implicitly or explicitly allocated network access to their customers on terms that ensure equal access to their electricity market, including both energy and capacity.
- The TSO, acting as a CRM delivery body to change a customer's market access through positive/negative discrimination would represent a change of terms under existing connection agreements.

The RAs seem to have given little consideration to developing a solution to locational constraints as an alternative to pricing them into unconstrained markets. The reason for locational constraints in the majority of the areas identified can be directly linked to physical system constraints. These can be relieved through an effective infrastructure development programme.

¹ These decisions may determine multi-million € contract awards and will have a bearing on licence holders ability to finance their activities

In 2008 EirGrid published its 'Grid 25 Strategy' which drove transmission system planning in Ireland. Delivery of grid infrastructure has proven difficult over the past few years with little overall additional system capacity being realised. In 2015 EirGrid began a consultation on transmission development strategy, but it has yet to publish a decision.

The delivery of transmission infrastructure is directly linked to operational constraints. There is no firm approach or strategy in place to alleviate the constraints that the SEM Committee is proposing to price into what should be an unconstrained CRM. In effect the SEMC is attempting to address the RAs failure to properly monitor the TSOs in their infrastructure delivery responsibilities by penalising market participants that should have equal access to all segments of the wholesale market.

Therefore, we do not believe that introducing a form of 'transitional' locational signal outlined under Options A to E in the Capacity Remuneration Mechanism is justified on economic or legal grounds. Each approach will unnecessarily:

- Reduce incentives to compete within the I-SEM CRM
- Discriminate between different licence holders
- Increase long-term customer costs for securing reliable capacity
- Lock-in uncompetitive generation capacity
- Lock-out competitive generation capacity

Each approach outlined also creates two major risks for the I-SEM Market – **State Aid Approval** and **Bidding Zone Approval**. The I-SEM High Level Design stated that:

"The I-SEM will include an explicit capacity remuneration mechanism (CRM)."

*"The explicit CRM would work **alongside** any targeted contracting mechanisms that are put in place as a back stop measure to address specific security of supply concerns."*

*"The I-SEM HLD can work with one or many zones. **It will therefore be able to accommodate any future decision to divide or not divide the all island market into more than one bidding zone.** Any such decision would be taken as part of the zonal reviews required by the EU Target Model."*

TSOs, RAs and Market Participants have assumed that a CRM will be in place for go-live and that the I-SEM will go live with a single bidding zone. **If one of the options in this paper is selected by the SEM Committee as part of the CRM design, both of these assumptions will be at major risk.** These are unnecessary risks to take with I-SEM delivery as mechanisms for resolving locational issues already exist.

SSE's clear recommendation would be for the temporary and quasi-permanent locational transmission constraints to be resolved through the appropriate markets. If the TSO needs MWh of production in a given area then they should constrain on plant in that location. If the TSO needs voltage support in a region then they should purchase MVar capability. This is the approach every other European market has taken – no other European Market has attempted to procure locational services or energy through their CRM.

If the issue is temporary, it can be managed through day-to-day balancing market operations. If the issue is transitional, it can be managed through short-term service contracts. If the issue is quasi-permanent, then it can be tendered for through a longer-term

contract. **This allows innovative providers to target the constraint by bringing forward innovative solutions** – voltage or frequency services rather than expensive, bundled capacity.

Bringing energy and ancillary service constraints into the CRM will pay for the wrong service (MW, as opposed to MWh or MVar) and contract over the wrong period (year(s) as opposed to days or months). By forcing the CRM to resolve these issues, the RAs will create distortions in long-term investment signals and short-term energy markets. Both generators and customers will be worse off as a result. **SSE would strongly recommend that the transitional locational issues are resolved through energy payments made through imperfections² or through service contracts³ (as in SEM).** This is much more likely to deliver competitive energy, capacity and service pricing, while avoiding any distortion of cross-border trade.

The rest of our response covers the areas and questions raised in the consultation paper in brief.

Outline of Issue and Proposed Solution

Grid Code Requirements

Under the Planning Code, the Grid Code does state:

“Any User proposing to de-rate, close, retire, withdraw from service or otherwise cease to maintain and keep available for Dispatch in accordance with Good Industry Practice any Generation Unit or Generation Units or Controllable WFPSs with Registered Capacity greater than 50 MW in aggregate shall give the TSO at least 36 calendar months notice of such action”

However, this is clearly inappropriate under the new I-SEM arrangements. As economic regulators, both RAs have obligations to ensure that licence holders are capable of financing the undertakings that they are licenced to operate. All licences contain conditions that require revocation if Licensees are no longer able to carry on their generation businesses. A generation plant with no revenue stream will be unable to finance continuing operation in a secure, safe manner and therefore cannot be expected to remain available in response to a clear exit signal.

The Grid Code requirements must be aligned with the CRM 2 and CRM 3 decisions on auction flexibility, which we assume were designed with timely entry and exit signals in mind. **If the RAs believe that the TSO requires more notice of closure, then they must create more notice prior to delivery of an exit signal under the CRM arrangements.** If the auction is going to be designed in such a way that ‘T-1’ auction results may deliver an exit signal three months in advance of capacity delivery, then generation licence holders must have a notice period aligned with that timeline under the Grid Code.

The CRM should already be designed to effectively manage exit and notice – there are penalties in place for those that do not remain open to deliver on contracts they have

² As per the constraint payments made to units across the market required for system security

³ As per the temporary contract awarded by SONI for capacity in Northern Ireland

received and there is flexibility to procure additional capacity afforded to the TSO through a sloping demand curve. With these measures in place SSE believes that the TSO should be able to prudently manage the transition with either lower notice periods under the Grid Code or a new conditional clause that releases CRM auction losers from that requirement.

Operational Constraints

The paper suggests that there is a difference between local ancillary service provision and local capacity deliverability; however we do not feel that the SEM Committee has clearly distinguished between total system constraints and locational energy/services. We have set out the constraints against the targeted solutions below:

Transmission Constraint	SSE
Northern Ireland to Ireland	Locational Energy
System Stability	Total System Capacity
North West Generation	Locational Services
Belfast Generation	Locational Services
Dublin Generation	Locational Energy and Services
Southern Generation	Locational Energy and Services
400kV Network	Locational Services

Only one of these constraints could possibly be considered as a binding constraint for the I-SEM capacity auction – the System Stability constraint that requires a certain number of large units in NI and RoI. Every other constraint is temporary and can be resolved through locational energy or services procured by the TSO. The paper also notes that:

“It is important to recognise that transmission constraints will evolve as, inter alia, the network develops and demand patterns changes for example through the development of data centres in specific locations across the island. These operational constraints will continue to be a mix of capacity constraints and ancillary service constraints.”

After acknowledging the temporary, shifting nature of these constraints, it is difficult to see why the SEM Committee would see the CRM design as an appropriate solution, given the risk of locking in locational capacity at uncompetitive prices.

Do you agree with the assessment for the potential for exit and lack of new entry during the transition period set out in this section, and do you think that the potential for exit creates a security of supply issue given locational constraints?

The CRM has been explicitly designed by the SEM Committee to produce strong exit signals. There is a lead-time for any new entry. Therefore, there is likely to be a reduction in the de-rated capacity margin within I-SEM.

However, the potential for exit should not create a security of supply issue – while some plant will be needed to provide locational energy and services, a competitive, unconstrained CRM auction can help to reveal their costs. If the TSO requires locational energy or services, it can then contract with plant at competitive prices for the correct duration and the correct service, rather than allocating them untargeted one year capacity contracts at uncompetitive prices. This is how locational constraints are managed in every other European electricity market.

Do you agree that locational constraints should be incorporated in the CRM? Please elaborate your rationale in your response.

No. The CRM is pricing a total system requirement for capacity. The only relevant system capacity constraint is System Stability which requires a minimum number of units available within NI and RoI. By introducing locational constraints into the CRM, the RAs will be reducing the efficiency of the auction, discriminating between licence holders and creating State Aid and Bidding Zone issues for the all-island market.

No comparable markets have attempted to incorporate locational constraints into zone-wide CRMs – they resolve requirements for locational energy and services through targeted tenders or balancing market operation.

Feedback in relation to the specific Grid Code requirements are sought in respect of the following:

- **The extent to which the Grid Code requirements can be relied upon to manage exit of plant which does not obtain a Reliability Option**

The Grid Code requirement is unlikely to be binding or efficient way to manage exit – the RAs have a duty to ensure that licence holders can finance their activities. The TSO cannot implement or enforce a requirement to remain open and available without the necessary revenue to operate – for portfolio generators this would threaten the safe, reliable operation of plant and for single generators this would guarantee insolvency.

- **Whether it is appropriate to provide assurances that generators which do not obtain a Reliability Option in the transitional auctions (which happen on a T-1 basis) be released from their obligations to give 3 years notice in accordance with the Grid Code; and**

The Grid Code must be updated to reflect the CRM design. The SEM Committee has designed a mechanism that produces a strong exit signal 3 months prior to delivery – generators must be allowed to respond to this signal. The TSO has a number of tools available to manage exit – penalties for contracted plant and a sloping demand curve.

- **Whether the Grid Code requirement should be extended from 3 years notice, to say 3 years 6 months to align with T-4 auction timings**

No – the RAs and TSO cannot enforce requirements for licence holders to operate at a loss. An extension of the Grid Code requirement is also likely to increase prices in the auction, as competitive generators discount their likely inframarginal rent to account for capacity above that contracted for through the auction.

Do you agree with the key principles proposed for any locational capacity framework within the CRM?

No. By introducing locational constraints into the CRM, the RAs will be reducing the efficiency of the auction, discriminating between licence holders and creating State Aid and Bidding Zone issues for the all-island market. The key principles outlined cannot be met under any solution that gives ‘out-of-merit’ reliability options to hand-picked providers.

Do stakeholders agree with the high level proposed solution for dealing with locational capacity issues?

No. The RAs have already identified and dismissed the correct solution, which is already facilitated through existing TSO licences without consideration:

“The SEM Committee notes that bi-lateral contracts to support localised ancillary service requirements are a feature of a number of electricity markets, and that the TSOs’ licences obligates them to secure necessary ancillary services on an economic basis”

There are a number of very good reasons that other markets use bilateral contracts and that no other comparable market has introduced locational constraints into a single zone capacity auction – the RAs should consider those reasons and solutions fully, before attempting to modify the I-SEM CRM.

If you do not agree with or have further views on any of the proposals or assessment set out in this section, please outline why and where relevant suggest alternatives.

These have been outlined under the sections Grid Code Requirements and Operational Constraints on pages 4 and 5.

Auction Design Framework

Auction Format and Winner Determination

The distinction drawn by the SEM Committee between different forms of in-merit bid is not robust – it could introduce discretion for the CRM Delivery Body to discriminate between different generators. The TSO could not create an ex-ante rule set which would distinguish between:

- In-merit bids on grounds of lumpiness/inflexibility
- In-merit bids on grounds of locational constraints

Many situations might cover both with no clear distinction to justify a contract award, any ex-post judgement would be vulnerable to challenge by parties under or outside the Capacity Market Code.

We have reviewed the 5 different options outlined by the SEM Committee using the assessment criteria set out by the SEM Committee and the State Aid guidelines on Generation Adequacy. Each option has substantial flaws that clearly rule them out as a solution:

Option	SEM Committee Comment	SSE Comment
Option A Ex-Ante Constrained Capacity Auction	<i>There is a precedent for Reliability Must Run solutions in a number of international markets including North America in particular.</i>	North America does not have State Aid guidelines or harmonised energy market arrangements enforced through Federal (EU) legislation. No comparable European Market has included locational constraints in their bidding zone wide CRM.
	<i>Any such RMR units could be awarded a Reliability Option with the option fee set at its regulatory-determined Net Going Forward costs, which by definition, should be sufficient to incentivise it to keep operating.</i>	No CRM proposals include administered pricing for capacity, because Section 3.9.5 of the State Aid Guidelines favours a competitive bidding process.
	<i>A particular disadvantage with this approach is that it might distort long term investment signals, especially for any constraints that are expected to be solved in the short to medium term.</i>	This does not meet proportionality or avoidance of undue negative effects on competition and trade tests under the State Aid guidelines. It would reduce incentives to invest in interconnection, undermine market coupling, strengthen market dominance and undermine investment decisions on generation which preceded the measure.
Option B Purchasing Capacity beyond Total System Requirement	<i>There are disadvantages to such approach on the basis that it could lead to inefficiently securing too much capacity, to the detriment of consumers [and generators].</i>	Explicitly procuring excess capacity for reasons outside the ‘ <i>precise objective</i> ’ of the CRM i.e. situations that are not consistent with the generation adequacy analysis carried out by ENTSO-E and EirGrid are not provided for under the State Aid guidelines. Option B also removes any incentive for units with binding locational constraints to effectively compete in the CRM.
	<i>[T]his approach would not displace from the unconstrained merit order any winning capacity that might be expected to be competitive in future auctions if or</i>	While this approach would not allow the TSO to discriminate between producers of electricity, it is difficult to see how it would not impact on market dominance or distort price signals in the

	<i>when the constraint has been removed e.g. via a new transmission investment.</i>	single energy and capacity zones in I-SEM.
Option C Ex-Post Constrained Capacity Auction	<i>Option C would not necessarily find the overall optimal solution, since it does not necessarily consider all combinations of options to solve the locational constraint.</i>	Option C cannot find the optimal solution for the <i>precise objective</i> of the CRM and therefore cannot produce the correct incentive effect or ensure that the aid is proportionate. Option C does not provide any incentive for units behind binding locational constraints to effectively compete in the CRM.
	<i>An advantage to this approach is that it is relatively transparent (depending on the complexity of the heuristic). In any event, any out of merit capacity secured and in merit capacity removed due to binding locational constraints can be clearly seen by reference to the unconstrained solution from Step 1</i>	Although there is an unconstrained solution as a reference point, the solution is still removing inframarginal bids in long areas on grounds of locational constraints – these may also be inflexible. This is vulnerable to challenge.
Option D Complex Constrained Capacity Auction	<i>Essentially, the auctioneer would choose the optimum combination of bids to meet the capacity requirement, subject to the applicable locational and inflexibility constraints. The optimum would be that which has the highest level of social welfare.</i>	The Auctioneer is not procuring capacity to meet a <i>precise objective</i> . They cannot include locational and inflexibility constraints that ensure no detrimental impacts on market coupling, investment in interconnection, market dominance and protection for investment decisions that preceded the mechanism. Welfare is calculated by reference to capacity offers only – there is no incentive for generators in binding constraints to compete.
Option E Unlimited TSO Discretion	<i>Option E has the attraction at face value that it only introduces complexity (i.e. Step 2) to the extent there is actually a locational problem to solve. It also has the considerable advantage that it is the option that performs best on the criterion of ensuring system security.</i>	The TSO is effectively being given blanket discretion to modify the auction results. They can adjust the auction results for constraints that have not been foreseen at the point at which the auction is run. It is difficult to see how this does not contradict their existing licence conditions with regards to non-discrimination and equal access for producers and suppliers of electricity.

	<p><i>For example, a large number of new plant or DSUs might bid to build in a location that is currently unconstrained, but if they were all accepted in the auction would cause new constraints</i></p>	<p>This is a Connection Policy issue, not an issue that should be resolved through Capacity Remuneration Mechanism design. The TSO should not be given discretion to revisit the network access they have already granted.</p>
	<p><i>In the event Option E is not selected some form of failsafe will exist in any event – meaning that security of supply will still be ensured.</i></p>	<p>The TSOs already have broad powers to contract for locational energy and services. It is not clear why they should be granted additional powers through a CRM, particularly given the conflicts between their role and incentives as TSO and their role and incentives as CRM Delivery Body.</p>
	<p><i>A concern with Option E is that the system security analysis could yield results with commercial significance for market participants, yet the analysis is likely to be somewhat opaque. The analysis will rely on a complex set of models, for which parameter changes or methodological tweaks could result in different answers. Market participants would only be able to observe the consequences after the auction was run and the analysis performed.</i></p>	<p>There is no way for CRM participants to accurately account for the ex-post distortions to the CRM results in their capacity offers. There is also no clear incentive for generators in binding constraints to accurately reflect their true costs. This will distort both pricing and allocation of capacity contracts. It is difficult to see how an effective or proportionate incentive effect can be achieved that would meet the State Aid guidelines.</p>

Given these fundamental flaws, we cannot see how any of these options can be pursued if the SEM Committee intends to deliver an efficient State Aid compliant CRM solution. While the paper suggests that a number of the Options meet **Competition** and **Efficiency** criteria, it has not demonstrated why plant sitting behind a locational constraint would face any incentives to compete on the same terms as unconstrained plant, particularly given clear concentrations of ownership in the two identified constraint areas⁴. **SSE could not support any of the proposed solutions.**

Clearing Price Determination

We do not believe that locational constraints should be resolved through a zone-wide CRM. Both Option 1 and Option 2 are effectively setting a capacity price that may or may not reflect the underlying allocation of contracts *and* may or may not reflect the underlying costs of participating units.

⁴ Local concentration or the broader market dominance criterion under the State Aid guidelines has not even been considered within the consultation paper.

Missing money is composed of a number of elements that cannot be precisely or formulaically pre-determined i.e. system services, volumes, dark or spark spreads and the allocation of fixed costs over these volumes is also very imprecise. No market monitor could be expected to credibly enforce a bidding code that would generate a proxy for competitive capacity market bids for units in locational constraints.

This is also acknowledged in the paper – both Option 1 and 2 create the wrong bidding incentives for participants and the wrong long-term incentives for participants.

Unsuccessful In-Merit Bidders

While we appreciate the attempt to ensure that discrimination between licence holders is limited and the unconstrained nature of the I-SEM markets are maintained there are some issues with compensation:

- Costs for maintaining mothballed capacity are still very high – there is limited flexibility to reduce many fixed costs at generation plant. Option 2 wouldn't give a strong enough signal for plant to remain open until the transmission constraint was resolved.
- Without the allocation of a Reliability Option there is no clearly defined service that customers are paying for under either Option 2 or 3. The procuring of additional capacity beyond that required under the Security Standard is likely to further distort incentives for generators to compete.

As the paper notes:

Another key issue with Options 2 and 3 is State Aid. This option might face significant difficulties regarding compliance with State Aid restrictions. Effectively it could be construed as payment for a service which the generator is then not able or obligated to provide.

While SSE believes that the principle of unconstrained energy and capacity markets must be maintained, we believe that they are better maintained by adopting a standard approach to locational constraints outside the I-SEM CRM.

Which option do you prefer for the Auction Design Framework and why?

We do not believe any of the options outlined are appropriate.

Should the capacity price be set equal to: a) the highest-priced bid accepted in the unconstrained merit order; or b) the highest-priced bid which is both: accepted in the unconstrained merit order; and selected as a winning bid after lumpiness and locational considerations have been resolved?

Both Option a and Option b are setting a capacity price that may or may not reflect the underlying allocation of contracts *and* may or may not reflect the underlying costs of participating units – neither is appropriate.

Should a bidder that would have been accepted in an unconstrained auction but which is not awarded an RO receive a “constrained-off” payment in the CRM? If yes, how should the constrained-off payment be determined?

The principle of unconstrained energy and capacity markets should be maintained, however Option 2 will not secure sufficient revenue for plant to remain open and Option 3 does not appear to provide a clear service.

How should local capacity deliverability constraints be defined?

Each option either:

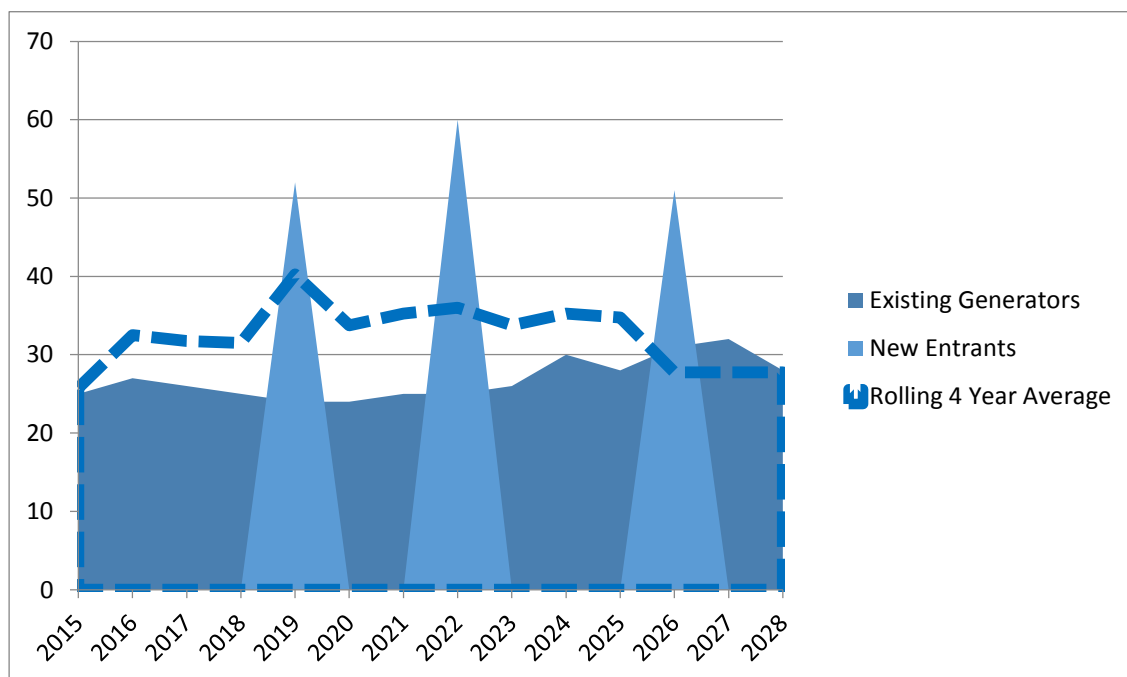
- Uses reference markets with radically different legal and commercial structures (Option 1)
- Does not have any international precedent because it creates multiple capacity zones within an artificial ‘single zone’ that is not fully linked to auction outcomes (Option 2)
- Is designed to over procure capacity and again creates multiple capacity zones within an artificial ‘single zone’ that is not fully linked to auction outcomes (Option 3)

Local capacity deliverability should be defined by the TSO as currently, and resolved through non CRM arrangements.

Longer Term Considerations

T-1 and T-4 Auctions

Attempting to incorporate locational constraints into T-4 auctions creates even more serious issues. Under a typical CRM auction, clearing results would follow a sawtooth pattern as in the stylised example below:



New Entrants would set the clearing price for capacity, bringing up the rolling average capacity price to a closer approximation of the true long run marginal cost of capacity on the

system. Under any option in which locational constraints are brought into allocation and pricing, this signal is removed as prices for new entrants are ‘tagged’ out.

Every participant in the CRM will have to account for this, further distorting the offers for capacity and energy to take account of any assumed local constraints. Given that these local constraints will not be explicitly known under the auction format options, the only conceivable outcome is that participants operating under major uncertainty in the I-SEM CRM will misprice their capacity offers.

In addition, the award of a 10 year capacity contract at an out-of-merit price clearly does not meet the requirements of the European Commission’s State Aid Guidelines.

Should the inclusion of locational capacity delivery constraints in the CRM occur in T-1 auctions, T-4 auctions, or both?

They should not occur in either.

What circumstances or criteria should be considered in relation to the T-4 auctions being conducted without explicit consideration of locational capacity delivery constraints?

The T-4 auction should not include locational capacity delivery constraints. The award of a multi-year capacity contract on the basis of location rather than price does not meet a simple efficiency or competition test, nor does it meet the State Aid Guidelines.

Are there any further considerations that should be taken account of regarding the longer term management of locational capacity delivery constraints? If so, please detail your rationale for these.

Long term locational constraints are primarily an issue for connection policy and network charging. The unconstrained energy and capacity markets should not be expected to resolve issues that the TSO should be managing through the allocation of connection offers and the development and planning of network infrastructure.

Local Security of Supply and Market Power

Existing Plants

The paper states that:

“The application of a Price-taker Offer Cap to all existing generators set out in CRM Decision 3 (SEM-16-039) goes a long way towards mitigating the market power of all generators in the capacity market. Any generator required for local capacity deliverability reasons which seeks a higher capacity payment than the Uniform Price-taker Offer Cap will have its application for a higher unit specific bid limit closely scrutinized.”

This is not sufficient for two reasons:

- Either setting the clearing price for the whole auction at the uniform price-taker offer cap or individual contracts at the cap is effectively setting an administered price for capacity.

- As stated previously, no market monitor could be expected to credibly enforce a bidding code that would generate a proxy for competitive capacity market bids for units in locational constraints – there is simply too much uncertainty regarding many of the building blocks.

Further bidding restrictions as outlined in the paper are also not viable – the SEM Committee would effectively be moving to a series of bespoke contracts with providers under what should be a multilateral code and a uniform auction.

New Plants

As previously stated, the T-4 auction should not include locational capacity delivery constraints. The award of a multi-year capacity contract on the basis of location rather than price does not meet a simple efficiency or competition test, nor does it meet the State Aid Guidelines.

The paper clearly identifies a number of major market power concerns for new plants in constrained locations – these cannot and should not be resolved through a CRM auction, particularly given that they will inevitably overlap with transmission planning and development.

Do you believe that the suite of market power controls set out in CRM Decision 3 are sufficient to address any additional market power issues raised by local security of supply considerations? If not, what additional measures would you propose and why?

The market power controls are designed for a single capacity zone – they do not and cannot resolve local market power issues. **This is another reason why locational constraints should not be brought into Capacity Remuneration Mechanism design.**

What does a solution to locational issues look like?

Targeted Solutions

At this point, we would refer back to our general recommendation: **temporary and quasi-permanent locational transmission constraints need to be resolved through the appropriate markets.** Those markets are not the I-SEM CRM. If the TSO needs MWh of production in a given area then they should constrain on plant in that location. If the TSO needs voltage support in a region then they should purchase MVar capability.

The unconstrained CRM will be a useful tool if a constraint is likely to be binding for a longer period of time. The competitive clearing price set in an unconstrained auction and the cost information revealed through offers to provide generation capacity will inform the TSO when it procures locational energy or locational services on a medium or long-term basis.

This will retain a clear incentive for these units to compete in the CRM, because as the paper acknowledges: *“transmission constraints will evolve as, inter alia, the network develops and demand patterns change”*. Failure to secure a year-long capacity contract would leave out-of-merit units with an uncertain commercial future that is dependent on the TSO separately contracting for only the locational energy and capacity that they need.

The contracts allocated to these plants can be specifically tailored to their circumstances i.e. linking specifically to Balancing Market Operation or System Service volumes with clawback or contract cap provisions, rather than using the standard Reliability Option which is designed to provide suppliers with a price hedge up to a defined unconstrained Reliability Standard only.

The cost of these locational issues can be clearly identified and the TSO can be held to account for Transmission Planning, Network Delivery and day to day Constraint Management. **This is how locational issues are resolved in every other comparable market:**

- In GB, National Grid issue tenders for Constraint Management Requirements ranging from short-term transmission outage requirements to solutions for ***Security of Electricity Supply in Scotland***⁵. These are targeted and specific contracts that cover operation in the Balancing Market and System Services.
- In France, locational issues have been clearly separated from the national market-wide capacity mechanism, with an individual tender to support the construction of a new gas-fired power plant in Brittany⁶.
- In the Netherlands, TenneT has resolved locational issues near Maasvlakte through a targeted bidding process until the necessary transmission infrastructure was delivered.
- In Germany, Amprion, 50Hertz, Transnet BW and Tennet have managed locational capacity constraints through a mix of cross-border coordination and real-time congestion management through balancing markets, short term contracts and long term development of transmission infrastructure.
- Italy resolves locational capacity issues through bidding zone configuration using the PUN to apply a single price to customers with differential pricing for generators. We do not believe that Ireland is large enough to support bidding zone reconfiguration.

We are not aware of a single European example of a market-wide capacity mechanism either in operation or in development that attempts to incorporate locational constraints. We would strongly recommend that the SEM Committee does not proceed with any of the options in this paper.

If the SEM Committee would like further information on how locational issues can be resolved in a targeted and competitive manner outside of a market-wide CRM, we would be happy to provide clear and detailed evidence from our experience under the closely comparable GB market outside of this consultation.

⁵ See TCMRN Scotland 01-04-16 to 30-09-2017

⁶ See SA.40454 (2015/C)(ex 2015/N). The European Commission notes that with locational specific CRMs *“there is a risk of creating a subsidy dependent market, where investors will develop projects only on the basis of public tenders granting State aid. Therefore, the tender could risk exacerbating the adequacy problem in the long term”*