

27 October 2022

Re: SEM-22-054 Call for Comments on EY Review of the Performance of the SEM Capacity Remuneration Mechanism

Dear SEM Committee,

Thank you for the opportunity to comment on the EY report “*Performance of the SEM Capacity Remuneration Mechanism*”. This response is on behalf of Mutual Energy, owner of the Moyle Interconnector, a 500MW high-voltage direct current electricity link between the SEM and Great Britain. Mutual Energy also own the high-pressure gas pipeline between Scotland and Northern Ireland, and as a gas TSO own much of the onshore NI gas transmission network. The Moyle Interconnector currently holds capacity contracts under the SEM CRM.

This report is a very welcome step in reform of the CRM to ensure that it is delivering as it was intended. The CRM as it is currently designed and operated has clearly not delivered sufficient capacity for the SEM. Amber alerts are a frequent occurrence in the market, and the Generation Capacity Statement is clearly highlighting that there will be likely electricity shortfalls in both Ireland and Northern Ireland over the coming years.

Our thoughts on the future design of the capacity market arrangements are broken down below, based loosely around the headings in the EY report.

Was sufficient capacity procured in capacity auctions?

Overall, it is clear that sufficient capacity has not been procured to date. SONI/Eirgrid have become reliant on unilaterally restricting export capacity on the Moyle and EWIC interconnectors in order to ensure that they avoid amber alerts in SEM. Such actions are commonplace and occur on an almost daily basis, even in summer months when system conditions should not be tight. These sorts of restrictions are a ‘race to the bottom’ and make it more likely that connecting TSOs will reciprocate in kind, potentially threatening the SEM’s ability to access capacity from GB and, once the Celtic Interconnector becomes operational, France.

LOLE standards and increased transparency

The first sub-question relates to whether the SEM reliability standard of 8 hours LOLE per annum is adequate. It is important to note that Northern Ireland actually has a LOLE standard of 4.9 hours

set by the NI Department for Economy¹. A previous SEM Committee decision means that this lower figure for Northern Ireland has historically not been factored into the Target Volumes for procurement in the capacity auctions². This decision should be reconsidered as a simple way to tighten the overall LOLE standard feeding into the Target Volumes, as it is entirely within the SEM Committee's remit to do this, rather than relying on wider policy decisions from government, which can take additional time.

There should also be increased transparency around the process by which GCS forecasts are translated to Target Volumes. We note that this is included as a potential remedy for the second question relating to the quality of TSO forecasts, alongside the establishment of a panel of technical experts (PTE) to assess TSO recommendations. We believe that the publication of more detail on the determination of Target Volumes should progress regardless of whether or not a PTE is established. Not only would the transparency allow additional scrutiny of TSO recommendations, but it would also potentially make capacity auctions more efficient as it would allow developers earlier assessment of likely Target Volumes and locational constraints, thereby potentially creating more competition in the auctions. From a gas TSO perspective, it would also allow improved analysis of potential future gas demand to be undertaken, ensuring that gas system planning can be conducted more efficiently.

Since the publication of the EY report and associated consultation, we note that the SEM Committee has published *SEM-22-075 Consultation on the proposed enhancements to the methodology for determination of the CRM Capacity Requirement and Associated De-Rating Factors*³. This consultation includes an information paper prepared by the SOs which covers a lot of what we would expect to be published ahead of each auction, as referred to in sub-question 1.2. However, we feel that this paper should be expanded further to include reference to how the locational constraints and differing LOLE standards in NI and Ireland would be taken into account in determining Target Volumes.

Additionally, in order to ensure that this analysis is replicable, assessments of forced outage rates used in calculating the Target Volume should be based on publicly available information. Currently it is based on EDIL data. Either the assessment should be changed to use REMIT data (which may be less accurate), or EDIL data should be published. We note that the *Eirgrid Monthly Availability Report*⁴ does contain a summary of this EDIL data, however this appears only to be published sporadically – the last publication being in July 2022 relating to May 2022, and there seems to be no equivalent from SONI covering Northern Ireland.

Panel of technical experts

¹ <https://www.eirgridgroup.com/site-files/library/EirGrid/208281-All-Island-Generation-Capacity-Statement-LR13A.pdf>

² As per [SEM-17-040](#).

³ <https://www.semcommittee.com/publications/sem-22-075-consultation-proposed-enhancements-methodology-determination-crm-capacity>

⁴ <https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-Monthly-Availability-Report-May-2022.pdf>

As a participant in the electricity capacity market in GB, which does use a PTE in the process of determining some auction parameters, we have found that it can act as a useful sense check on recommendations arising from vast quantities of model data so could potentially have detected the ‘blind spot’ regarding growing data centre demand. The panel does use subjective judgement so care would be needed to ensure the panel’s remit, processes and recommendations are transparent.

Whole-system planning

We do agree that there is a ‘challenge function’ required to investigate and recommend adjustments to the TSOs’ recommendations and believe that whilst it could be informed by PTE recommendations, should still ultimately rest with the Regulatory Authorities.

The RAs have a key role here which a PTE might be unable to execute, as the RAs should have oversight of both the gas and electricity systems. In the interests of whole-system efficiency, the process for developing the electricity Generation Capacity Statement needs to change, alongside the process through which gas TSOs develop their forward-looking capacity statements⁵.

Both the Generation Capacity Statement and the Gas Capacity Statement require forecasts of demand for electricity and gas to be developed. To date, there has been a one-directional relationship between the two: electricity demand forecasts have informed gas demand forecasts via estimates for power station use. However, there is an ongoing policy debate about electrification of heat and transport, and the ultimate policy decisions from this debate may be different in Ireland and Northern Ireland. Because of this, there is a clear risk of ‘double-counting’ if consistent assumptions and scenarios are not used across the respective statements e.g. where electricity TSOs assume that heat demand will be met via electricity, and gas TSOs assume it will be met via decarbonised gas (for example hydrogen).

Ultimately, this could lead to inefficient build-out of the electricity and/or gas networks. As such, there needs to be an agreed set of scenarios and central assumptions regarding how heat demand in particular is likely to be met going forward. This could either be achieved through a single joint capacity statement between the electricity and gas TSOs, or by maintaining the current dual statement approach and the Regulatory Authorities acting as a central co-ordinating body, with oversight of both systems and determining a central set of assumptions and scenarios that feed into both.

Did capacity auctions attract sufficient participation and was capacity procured of sufficient value?

Problems with existing auction processes

The EY report states that competitive capacity auctions mean that “*the most efficient and lowest cost capacity is likely to be successful*”. This is only true from a very narrow analysis. We have

⁵ In Northern Ireland, this is the ten-year [Northern Ireland Gas Capacity Statement](#)

observed that the capacity auctions reward types of unit with the lowest up-front capital costs. This is different from the most efficient capacity, or the lowest *overall* cost capacity.

The capacity market to date has primarily awarded contracts to open cycle gas turbine (OCGT) units. From a gas use perspective, these are actually very inefficient units, using almost twice as much gas as a more efficient closed cycle gas turbine (CCGT) to produce the same electrical output. While this might lead to lower spend via the capacity market, it may lock in much higher wholesale prices in the long-term if these OCGTs have high running hours, as well as more CO₂ emissions.

As well as higher electricity prices in the future, favouring OCGTs is also putting more pressure on the gas network. If more capacity contracts are awarded to new OCGT units in Northern Ireland, the gas transmission network will possibly require physical works to increase its capability, with a further increase in its operating costs. These costs will ultimately be borne by consumers, but capacity auctions do not take these second-order costs into account, simply awarding contracts to the capacity with the lowest direct capital cost.

Internalising gas network costs

Sub-question 2.3 refers to requiring new build capacity to have all-necessary consents to pre-qualify for an auction. We understand that this refers to planning permission and environmental consents for example. We would be supportive of extending this proposal to ensuring that new gas generation providers have a gas connection offer (or at least a reasonable indication that they will be able to get a suitable connection) prior to participating in the auction. We made this point in our response to the consultation on the Capacity Market Code Modification *CMC_10_22: Introduction of New Remedial Action in the Event of Third Party Delays*.

The current capacity market design does not sufficiently disincentivise speculative behaviour when it comes to gas connections. There is currently no requirement for a participant in the capacity auction process to even assess whether or not they are likely to receive a gas connection before being awarded a contract under the capacity market.

Gas TSOs generally have a licence obligation to connect parties who request a connection. However, where this would cause system issues, or where there is insufficient gas capacity, requests can be refused.

It may be expected, therefore, that a developer of new gas fired generation would approach the relevant gas TSO and request a connection prior to participating in a capacity auction. However, some developers might choose not to request a gas connection prior to participating in the capacity auction given (in Northern Ireland at least) submitting a gas connection request means that the developer is then responsible for certain costs associated with design works etc. Instead, new generators may be awarded Capacity Market contracts in auctions sometimes little more than 3 years before delivery date, and only then approach gas TSOs for a connection.

If gas TSOs are unaware of the prospective connection, it will not have been factored into network development planning and there is no guarantee that gas capacity is available. Not only would this increase costs for consumers, as the work has to be done on shorter timescales (reducing opportunities to minimise cost), but it also exposes the developer to risk in terms of a gas connection not being available or prohibitively expensive if deep reinforcements are needed, and ultimately this risks future security of supply for electricity if the project ends up not being viable. By requiring prospective gas generators to have evidence that a gas connection will be available by the commencement date of the Capacity Market contract in order to participate in an auction, estimates of relevant second-order costs associated with strengthening the gas network can potentially be factored into the participant's bid in the auction.

We appreciate that this has the potential to increase costs for gas units relative to other technology types, however gas units are fundamentally different to other technology types in that they rely on a regulated network for delivery of their fuel.

Incentivising an efficient generation mix

While the EY report does recognise that more efficient technologies have not been rewarded via the CRM in sub-question 4.3, we are not sure that the potential remedies outlined would prove sufficient. For example, it is not clear that awarding a 15- rather than 10-year contract will sufficiently incentivise CCGTs over OCGTs. That said, we would be supportive of allowing 15-year contracts for new units, noting that the EY paper identifies a potential disadvantage being that gas generation might be locked in well into the future. We believe that this would be mitigated by decarbonisation of the gas network and plant conversion given the likely need for (green) gas-fired generation in the medium to long term (e.g. National Grid ESO's FES see significant growth in hydrogen generation capacity in GB from 2030-2050). As an immediate step, there could be a condition in the capacity contracts that all new gas plant must be hydrogen-ready, or at least capable of requiring a minimum blend of hydrogen within natural gas. Many turbine manufacturers are already producing hydrogen-ready equipment⁶, so this should not be overly onerous on developers.

There are other options that could be considered to incentivise different types of units. For example, auctions could be changed to consider the wider costs of different capacity providers. This could be achieved through auction participants providing information about ongoing costs in the future (perhaps using a standard set of input data provided by TSOs, such as future fuel price assumptions). This would allow a *total* cost to be calculated for each option, consisting of the *capacity* cost and the likely wholesale costs.

The auction would look to choose the most efficient capacity based on these total costs. The auction clearing price could still be based on the bid reflecting the *capacity* cost as is currently submitted, but the merit order might be different using this approach. This approach would be similar in design to SONI and Eirgrid's proposed approach for procuring Low Carbon Inertia

⁶ <https://www.ge.com/gas-power/future-of-energy/hydrogen-fueled-gas-turbines>

Services⁷, where the contracts awarded are intended to cover the capital costs of inertia-providing technology, but there was an awareness that an auction that cleared based on this alone would not account for the energy usage of the machines in question.

Note that relevant costs associated with second-order capital works on the gas network could be internalised into participants' capacity bids via our proposal to require evidence of likely awarding of a gas capacity offer for prequalification into the auction. However, this would be a policy question that the regulatory authorities would need to determine and would depend on whether the costs of deep reinforcement to the gas network in order to connect a new power station would be covered solely by that party connecting or spread across all users of the gas network.

Another approach that might be considered is an additional de-rating factor being applied to different technology types based on how much capacity is already provided through that technology. This 'diversity of supply' de-rating could be 1 for first-of-a-kind technologies and tend towards 0 the more saturated the generation mix became with the particular technology. This would have the effect of automatically promoting a wider variety of different technology types and would recognise the inherent value of having a wide range of generation technologies, reducing the systemic security of supply risk associated with one fuel/technology type dominating the generation fleet.

Did new capacity procured in auctions get built?

Sub-question 3.1 refers to increasing the lead time to at least four years from the announcement of auction results to the start of the capacity delivery year. We are supportive of this proposal; however, we are keen that it is not seen as an alternative to requiring new build units to have consents and evidence that they will be able to get a gas connection in order to pre-qualify. These two proposals should be seen as complementary, rather than competing approaches.

We also do not understand why the feasibility of this potential remedy is only given as 'medium'. Forecasts for Target Volumes should – in theory – be available up to ten-years out if they are based on the Generation Capacity Statement, although we appreciate the level of uncertainty that far out is relatively high. Given that, it should then simply be a case of moving when the auction is undertaken. We would therefore envisage that the feasibility should be either high or very high.

For some first-of-a-kind technologies, or larger capital-intensive projects such as new pumped hydro storage, four years before delivery might still be insufficient time to deliver the capacity. As such, even longer lead times might be worth considering ensuring that potentially valuable projects which are critical to ensuring that net zero targets are delivered are not disincentivised. Similarly, contracts in excess of 15-years might be cost-efficient for these types of projects.

7

<https://consult.soni.ltd.uk/system/files/materials/366/LCIS%20Consultation%20on%20requirements%20and%20procurement%20version%20for%20publication.pdf>

Summary of recommendations:

- 1) Require new gas units to provide evidence that they will be able to get a gas connection prior to participating in a capacity auction to minimise the risk of non-delivery of awarded capacity.
- 2) Consider changing the capacity auction clearing algorithm to consider more than just direct costs of delivery so that, for example, additional gas network costs associated with a project may be factored into the electricity capacity auctions.
- 3) The RAs should review the process for both electricity Generation Capacity Statements and Gas Capacity Statements to ensure that they are aligned going forward, avoiding potential over-procurement of capacity or infrastructure in either the electricity or gas sphere.
- 4) Electricity TSOs and RAs should publish detail behind how Target Volumes for capacity auctions are arrived at.