Response to Integrated Single Electricity Market (I-SEM) Capacity Remuneration Mechanism Consultation on Locational Issues

SEM-16-052

On behalf of
AES Kilroot Power Ltd and AES Ballylumford Ltd

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Capacity Remuneration Mechanism
Locational Issues

Introduction

AES welcomes the publication of the consultation document on I-SEM Capacity Remuneration Mechanism (CRM) (SEM-16-010) and the opportunity to provide comments on the issues raised. AES would like to submit the following consultation response to the Regulatory Authorities.

AES is a global energy company with assets in the all island market consisting of CCGT plant, coal and gas fired conventional units, additional distillate fired peaking gas turbine plant and new technology Battery Energy Storage Array (BESA). AES is a non-vertically integrated independent generator which owns and operates Kilroot and Ballylumford power stations in Northern Ireland with a combination of merchant and contracted base load, mid merit and peaking plant. The responses to this consultation are therefore conditioned by the nature of our current position and portfolio of assets operating in the SEM.

CRM LOCATIONAL ISSUES – HIGH LEVEL MESSAGES

This response is submitted with reference to the specific questions raised in the consultation paper and based on our current knowledge of the detail that is available on the design of the I-SEM. The answers requested to the questions set out in the relevant sections in the consultation paper are set out below and AES would also like to submit the following high level messages.

AES welcomes the clear view from the SEM Committee that locational issues need to be addressed and fully agrees that the CRM is the right place to do this.

AES supports the key preliminary conclusion around the merits of the 'Option C' heuristic Auction Design Framework however there are a number of key points we feel are not fully addressed in the paper and the proposals presented, and which should be considered in the final design decision:

- Locational constraints have the potential to be an enduring problem – not because any one constraint necessarily is persistent, but as the SEM Committee indeed say themselves in para 2.3.9 (and we quote): "It is important to recognise that transmission constraints will evolve as, inter alia, as the network develops and demand patterns change 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."
- As a result it seems clear that locational considerations should be a feature of the interim, T-1 & T-4 auctions on an ongoing basis and that new entrant capacity can play a role in resolving these constraints where cost effective.
- A two stage approach should present no issue as, if at any point in time locational constraints are not present, then there is no need to apply any subsequent steps beyond the unconstrained solution. There is no need for the additional complexity of

rules to determine what circumstances would be required to remove this – as it simply becomes academic (but remains there if required).

Locational constraints associated with ancillary services, as well as capacity, must be considered

AES acknowledges the concern expressed by the SEM Committee over complexity and practicality however, the SEMC identifies that there is no clear separation between Ancillary Services and capacity and as a result, it ***reduces*** transparency if these are split such that:

- An artificial modelling process may be required to determine the conceptual 'capacity only' constraints for the CRM auctions
- Opaque 'side contracts' may be needed in order to handle the remaining AS issues

In addition separation is likely to lead to over-procurement – since by definition the need to sign side contracts with plant that did not clear in the auction will add capacity beyond the requirement. Consumers would thus face unnecessary additional costs from both from over-procurement and lack of competition in side-contracts. AES supports the position that it is much more transparent to:

- Use the existing 'real' set of constraints that is published (or the equivalent as projected for the delivery year) – albeit converted to refer to 'generic' units and MWs rather than specific plant
- Resolve jointly in a heuristic second stage process – which need be no more complex (or less transparent) than the one described for Option C (a point which we have validated through our own worked examples)
- This does not affect the fact that the procured product in the auction is uniform (i.e. 'pure' capacity) (per 2.4.1), and there is no suggestion that incorporating AS-oriented constraints means the product or obligations associated with it are different – it just reflects the fact that the value of that capacity to the system varies by location – which is already recognised in encompassing thermal constraints.

SECTION 2 AUCTION FREQUENCY AND VOLUMES

2.6.1 Do you agree with the assessment of 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?

In implementing the CRM 1 decision that the capacity requirements should be determined for the I-SEM as a whole, and thus implying a single zone for capacity AES agrees that there is the potential for exit and a lack of new entry during the transition period. AES agrees that the system is not indifferent to the location of the capacity that is procured and that constraints must be considered in the practicalities of implementing the CRM. AES believes that the disconnect between the design of the capacity auction and the physical constraints of the system will result a demonstrable security of supply issue due to in inappropriate exit and fail to provide the necessary price signals for new entry.

The consultation paper identifies a potential 2600MWs of capacity exiting the I-SEM following the initial unconstrained auctions with no consideration of plant that may be required for local security of supply during the transition period or for longer. AES believes

this is not, however, solely an issue for the transitional period, as locational constraints have the potential to be an enduring problem, and an enduring CRM solution is required

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

AES supports the position that locational constraints should be incorporated in the design of the CRM for the transition phase auctions and also for the subsequent T-4 and T-1 auctions in the enduring phase of the CRM. As acknowledged in the consultation paper section 2.3.9. "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". Therefore the delivery of the second north south tie line should not be seen as the mechanism to resolve the need for all local capacity requirements as plant exits and new plant enters the market.

2.6.3 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;
- 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
- 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.

AES views that the Grid code requirement for generators to give 3 years notice of their intention to close capacity is entirely unacceptable and not feasible in the context of capacity auctions. Losing generators would be able to sustain operation uncompensated having failed to secure the missing money element of their revenue requirement and in all likelihood leading to insolvency as recognised in the consultation paper. Therefore AES supports the view that the grid code requirements cannot be relied upon to manage generator exit and therefore a generator that is unsuccessful in the relevant auction should be released from the requirement to provide 3 years notice of intension to close capacity. Again as this is an enduring issue, AES does not see any logic in extending the time period to align with the auction timeline as we believe that the requirement is not sustainable in any case and would only exacerbate the issue.

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

The consultation paper presents the list of operational constraints categorised into (i) Local capacity deliverability requirements and (ii) Ancillary Services requirements and states that it is difficult to categorise a constraint as fully being caused by the deliverability issue or the ancillary service issue. In practice there is overlap and AES supports the position that it is not necessary to restrict the number of constraints for consideration to only the 2 proposed. While the North South and the Dublin Area constraints are recognised as deliverability constraints, the restriction on export from the south west could also lead to additional capacity being required north of this constraint that would otherwise not have cleared in an unconstrained auction.

Other constraints represented as ancillary service requirements in the form of voltage support in certain areas also constitute load flow and inertia requirements which also require the capacity to be located in those areas.

DS3 revenue streams alone are insufficient to keep plant in place which fails to secure a capacity contract and as It is combined CRM and DS3 revenue which needs to be sufficient It is therefore very difficult to split off system services locational constraints and deal with these separate to the CRM. A commercially cohesive solution would be to include system services locational constraints in the CRM.

The lack of clear separation between AS and capacity results in reduced transparency if these are split:

- An artificial modelling process may be required to determine the conceptual 'capacity only' constraints for the CRM auctions
- Opaque 'side contracts' may be needed in order to handle the remaining AS issues

This is likely to lead to over-procurement – since by definition the need to sign side contracts with plant that did not clear in the auction will add capacity beyond the requirement and thus consumers would face unnecessary additional costs from both from over-procurement and lack of competition in side-contracts
AES believes It is much more transparent to use the existing 'real' set of constraints that is published (or the equivalent as projected for the delivery year) with adjustment to refer to 'generic' units and MWs rather than specific plant and resolve jointly in a heuristic – which need be no more complex (or less transparent) than the one described for Option C.
AES agrees that it is likely that even when the 2nd north south tie line is built that this constraint will not completely be removed and therefore it is likely that evolving constraints will be an enduring part of the ongoing capacity auctions and should be accommodated into the design of the auction process.

2.6.5 Do stakeholders agree that clear and large existing capacity delivery constraints should be reflected within the CRM auction, for example limiting this to the North-South constraint and the Dublin area constraint?
Due to the overlapping nature of a majority of the existing published constraints and considering the evolution of the network, generator and demand profiles, AES supports the position that all published constraints should be reflected in the CRM auction design. Our analysis suggests inclusion of the North-South constraint and the Dublin area constraint alone may not be sufficient to avoid local security of supply issues

There are requirements in a significant number of the constraints for an identified number of units from a specified localised selection of units and indicates that there is therefore also a capacity requirement that if not addressed in the auction design could lead to under procurement in those areas and a capacity deficit.
AES understands the consequential increase in complexity of including all constraints in the auction process but does not agree that this would be impracticable. Inclusion of ancillary services and more than two large constraints appears in the paper to be ruled out purely on the grounds of practicality, which is not satisfactory as our analysis suggests the additional complexity is not insurmountable

We believe there is a risk of overestimating the difficulty and complexity of including more constraints. Our own internal analysis and worked examples, using a 'heuristic' approach similar to Option C, demonstrates that inclusion of more constraints is feasible and not unduly complex

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

AES supports the proposal of an out of merit reliability option as a mechanism to ensure sufficient capacity is available to deal with specified local capacity delivery constraints. In the interests of transparency AES believes that the constraints impacting on the capacity auction should be published and that plant required in the constrained auction that was not required in the unconstrained auction should be awarded a pay – as – bid auction fee. The proposed deterministic rules associated with the out of merit bid payment but not defined in the consultation paper, should also be published.

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

SECTION 3 AUCTION DESIGN FRAMEWORK

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

AES believes that all of the options described in the consultation paper contain deficiencies in their design.

Option A – ex-ante identification of "must not exit" units – deals with locational issues outside of the auction. Due to the nature and number of the constraints in the system it would be difficult to identify particular "must not exit" units and remove them from the auction process as a significant number of the system constraints are defined by requiring a specific number of units from a selection of units relevant to an identified area. The subsequent reduced capacity requirement in a residual auction would not be desirable. With the option fee being set to the regulated net going forward costs of the reliability must run unit, AES sees potential risk of market power abuse and distortion of long term investment signals

Option B – Additional capacity – This option results an inefficient outcome due to the potential over procurement of capacity not required for system security as a result of the unconstrained nature of the auction. The resulting reduction of the exit signal would also blunt the investment signal, although this option has the advantage of being transparent and ensuring that plant required for subsequent auctions is able to remain in in operation for the interim period. AES accepts that this provides additional costs to consumers

Option C – Heuristic Approach – Initial unconstrained auction followed by an adjustment to satisfy the locational and inflexibility constraints and find the best solution in terms of

highest social welfare. This option adopts a capacity areas approach with the acceptance of additional out of merit capacity in short areas and rejection of potentially in merit capacity in long areas in a transparent process and keeps all units in the market and avoids significant over procurement. The nature of the heuristic approach for the second stage is still to be designed and questions remain as to the delivery of this option in the go live time frame but it is critical that the framework is transparent.

Option D – Combinatorial approach – Initial unconstrained auction run with and additional MIP solver run to find the optimal solution based on highest social welfare. This option has the advantage of being transparent in the addition and removal of capacity after the initial auction due to binding constraints and is more consistently replicable with the clearing price set by the marginal plant in the initial auction. Howe4ver the RAs have stated that this option may be suitable as an enduring solution due to a belief that it is not deliverable in the I-SEM Go live time frame.

Option E – Ex post TSO System Security Analysis to identify Must Not Exit Units – This option features an unconstrained initial auction followed by TSO analysis of system security to identify must not exit plants and designate them as must not exit, pay as bid, required units. As with option A mentioned above, the difficulty in identifying which units are must not exit given the nature of the published constraints is not simple at the second stage allows the TSO to take over from the market to determine the outcome in a non-transparent process. AES would have concern regarding the potential conflict of interest issues of the TSO in this option.

Therefore AES favours an auction format similar to option C but which incorporates all the system constraints, including capacity delivery and ancillary services, and which identifies capacity requirement areas identifying a combination of a capacity requirement and minimum number of units for those identified areas as part of the second stage heuristic adjustment to the initial auction to satisfy any remaining locational issues.

3.6.2 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?
As stated in the consultation paper the CRM 3 decision paper determined that the auction would be a pay as clear auction for in merit bids and pay as bid for any bids accepted out of merit either for locational issues or lumpiness in the context of transitional transmission constraints. In relation to setting the clearing price AES supports option 1 – the highest price bid accepted in an unconstrained merit order as this provides the realistic exit/entry signal and reduces the potential for market power abuse

3.6.3 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, and why?
AES supports the position that in order to maintain the clarity of the exit signal and subsequent investment signals that unsuccessful in merit bidders should not receive compensation. It is important that the CRM is able to provide appropriate locational exit

signals for uncompetitive plant and payment of compensation either based on 'lost profit' or 'pay-as-bid' risks unduly supporting uneconomic plant, to the detriment of social welfare

3.6.4 How should local capacity deliverability constraints be defined?

AES prefers an approach similar to Option 2 – a separate capacity requirement for each area measured in units as the current TSO Operational constraints are generally defined on a unit basis. However, AES proposes an adjustment such that a unit and MW requirement is defined for each capacity area to ensure locational capacity requirements can be met.

SECTION 4 LONGER TERM CONSIDERATIONS

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

AES strongly supports the inclusion of locational capacity delivery constraints in both the T-1 and T-4 auctions as locational capacity issues are is not merely a transitional or short-term issue. It is likely that there will be material and evolving locational constraints into the long term – albeit their nature and location may change. It is important that the CRM framework can provide locational signals for new build and investment, and this is only possible with the access to long-term RO contracts in the T-4 auctions – T-4 auction is the only entry signal for the market

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

See response to 4.4.1

4.4.3 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.

SECTION 5 LOCAL SECURITY OF SUPPLY AND MARKET POWER

5.1.1 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 measure would you propose, and why?

AES considers that the market power controls set out in CRM Decision 3 are already sufficiently robust to deal with any additional local market power issues for existing plant. The decision to set a price taker offer limit in the auction for existing units establishes the requirement to offer detailed evidence for bids above the price taker offer limit, so it is important that this is set at an appropriate level as a high burden of proof is placed on participants that require to bid above this level.