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Subject: CRM T-4 Capacity Auction for 2022/23, Best New Entrant Net Cost of New Entrant (BNE Net CONE), Consultation, SEM-18-025 (the “Consultation”)

Dear Kevin and Karen,

Bord Gáis Energy (**BGE**) welcomes the opportunity to respond to the above Consultation. Our views outlined below are put forward from the perspective of a supply business with an existing CCGT unit as well as that of a potential investor in new capacity in the I-SEM.

1. Introduction

The role of the BNE in I-SEM is to set price caps as opposed to the actual price for capacity as it does in the current SEM. The outcome of the first T-1 in December 2017 has made it clear that there is considerable competition amongst existing capacity to put downward pressure on auction prices. However, the BNE remains important to ensure that there is sufficient headroom in the capacity market to attract new investors if needed. The process of selecting the BNE is important for investor confidence and therefore we are eager to ensure that the precedence from each annual review reinforces regulatory certainty and transparency in the market process.

We believe that there are a number of elements of Poyry’s proposals which are inaccurate and have resulted in a proposal which creates a dangerous precedent for the market:

- i. The assumptions behind the IMR calculations for the CCGT are far removed from the realities of the overall market design;
- ii. The use of EirGrid’s DS3 analysis as a basis for appraising the likely level of DS3 revenues for a BNE, is inappropriate and can lead to inaccurate outcomes;
- iii. Moving from an OCGT to a CCGT as the reference technology is not justifiable. Allowing the choice of BNE to change from one technology type to another year on year, without sufficient justification, will undermine investor confidence with knock on impacts on entry signals and possibly security of supply;
- iv. The WACC does not reflect the increased riskiness of the overall market that the BNE would be competing in.

We expand on each of these points below in further detail by section before drawing conclusions on each matter in section 6.

BGE also wishes to point the SEMC to the Frontier Economics review of the Consultation that was done on behalf of the EAI. BGE was a contributing party to this report and believes that insightful analysis and rationale is put forward by Frontier to support the proposition to re-consider the OCGT as the BNE in I-SEM.

2. IMR

Poyry’s report suggests that the IMR per MWh outside Administered Scarcity Periods (**ASPs**) will rise from €7.4/MWh to €10/MWh of production over the first ten years of the CCGT’s operation and will only decrease by 5% year on year post 2031 to reflect the entry of newer efficient units. BGE believes that it is inappropriate to form a view on possible CCGT IMR earnings without at least considering:

- a. that if increasing IMR will be incurred due to uplift, then a view is required of the effect of that increased cycling on the efficiency and load factors of units. Widely available research

determines that the more cycling a unit suffers, the more its efficiency is negatively affected with knock on negative impacts on its load factor;

b. the changing market environment:

- increasing renewables and SNSP levels can erode anticipated revenues of CCGTs, particularly as levels grow and the CCGT moves into mid-merit operation;
- the BM and DS3 provides signals for increasing installed levels of flexible generation pointing to a need more for OCGT than CCGT capacity;
- the recent T-1 2017 I-SEM capacity auction results evidence clear exit signals for CCGTs;
- the type of capacity incentivised under ECP-1 and DS3 volume capped processes is smaller, flexible capacity – not capacity such as a ~500MW CCGT (the proposed BNE).

The above all serves to undermine the ability to earn increasing IMR as newer, more efficient, fast-acting and less costly capacity comes into the mix.

Ultimately, we believe that the approach taken by Poyry to calculate potential IMR earnings of a CCGT risks heavily over-estimating the potential IMR earnings. This could incentivise a plant to enter I-SEM that cannot ultimately commercialise and provides the wrong entry signal. Given that the IMR calculations for the CCGT had a key role to play in determining that it was the cheaper alternative to an OCGT, and given the unreasonable approach applied as outlined above and key market environment indicators overlooked, we urge the SEMC to re-visit this aspect of the Consultation as a priority. With displacement of in-merit capacity a probability with the T-4 2019 auction, and expected plant closures over the coming years, it is critical that correct and robust assumptions support the chosen BNE, lest it provide signals for unintuitive investment decisions.

3. DS3

BGE questions the suitability of using EirGrid analysis from 2017 with regard to the DS3 framework considering the change in DS3 rules that have materialised since. The EirGrid analysis referenced by Poyry in our view was carried out with the key aim of determining possible tariffs such that the DS3 revenue cap was not breached. Moreover, rules have evolved since which should be captured if a real-world view on revenues is to be ascertained. For example, the temporal scarcity scaler will not apply to constrained-on units which could greatly impact a unit's earnings depending on its running.

While Poyry recognise the real difficulty in forecasting expected DS3 revenues for a unit, we do not agree that taking the average of earnings across a technology is the right approach to address the difficulty. It does not adequately reflect a rational view on prospective earnings of a newer plant.

If the SEMC truly wants to reflect that the purpose of the BNE has changed, and that there is a need to step into the shoes of a rational investor, then a more subjective view on the prospects of the various potential BNE CCGT/ OCGT DS3 revenue earnings is required. This requires a view on a reasonable strategy such a BNE might take in the early years of a market which can only be properly informed by modelling performance of units, such as:

- How the unit runs in the energy market;
- The unit's availability and actual performance in the energy market;
- SNSP levels;
- Scaler applications to revenues where relevant.

A concern that arose for us on review of the Consultation was the apparent siloed view of a unit's revenue earnings as between the energy and DS3 system services markets. Little or no consideration seems to be given by Poyry to the potential bid level impacts in either the energy or DS3 markets as a result of the interaction between the two. Ultimately a more accurate view on prospective revenues across both energy and DS3 would be better informed by modelling.

Additionally, whether it is a CCGT or OCGT, in order to maintain provision of the range of services required under the DS3 framework for at least 10 years (the duration of the RO) it is becoming apparent that investment in units will be required to simply maintain that capability. This is a further cost that is overlooked in the calculations for the potential DS3 earnings outlined in the paper.

In conclusion, a revision of the interaction of revenues earned between energy and DS3 is required, as is a view on the ongoing investment costs required to maintain performance over the course of an RO. As it stands, the former revenues have been over-estimated, and the latter costs under-estimated.

4. Choice of Technology

As noted in our introduction above, BGE believes that the Consultation's proposals do not sufficiently take into account the fact that the investment environment for capacity has radically changed from SEM to I-SEM. We understand the objective of assessing an array of technologies for the BNE including a CCGT, but strongly believe that taking historical investment decisions as a partial guide to future decisions is incorrect. As the SEMC notes, a whole market view is required – this implies an informed view of the approach a rational investor might take to operating across the energy, capacity and DS3 markets in the future.

In terms of the change in market design and influence on BNE technology choice, those factors that affect technology choices that we believe Poyry has given insufficient weight to, include:

- i. The introduction of balance responsibility: moving from socialised balancing costs in SEM to unilateral balancing responsibility in I-SEM places more emphasis on the role of the balancing market (**BM**). Investors in I-SEM would be keen to capitalise on the sharper prices expected in the BM. The BM is a short-term market in which the most flexible and fast-reacting plants should thrive;
- ii. With increasing renewables, and an expansive DS3 programme that will eventually see SNSP hitting 75%, the load factors of current mid-merit (where most current CCGTs in SEM sit) plants will deteriorate. Again, those fast-reacting, more flexible plants with lower load factors would be expected to better succeed in such an environment;
- iii. The evolving nature of the I-SEM design and DS3 programme will likely see rules and process changes associated with the bedding-in period at least in the short term. This will have a knock-on impact on the revenue expectations of prospective investors. PJM¹ has recently explicitly recognised that the use of a peaking unit as a reference is preferable for reasons that include its minimisation of exposure to short term energy revenue volatility (given that peakers are less reliant on energy revenues, for example, than a CCGT).

All of the above point towards the preference of using an OCGT as a BNE reference plant over a CCGT, from a market design perspective.

In terms of the actual technology choice, BGE has the following views:

- a. The proposed BNE CCGT GE 9F.05 turbine has a combined cycle net output of ~500MW,² bigger than any CCGT currently installed on the island. The addition of a unit of this size carries with it “lumpiness risk”, with consequential security of supply and N-1 standard implications. From a consumer perspective, the unit size raises concerns about possible dispatch balancing cost (**DBC**) increases in circumstances for example where the unit goes on outage;
- b. The current evidence of investment choices in Ireland (e.g. two OCGTs have contracted connections/ completed applications, 101MW MEC³ and 115MW MEC⁴, no CCGT appears on the connection contracts or applications completed lists), points to the fact that a rational investor is more likely to choose an OCGT over a CCGT even before we move to a more dynamic energy market;
- c. Finally, if the SEMC is committed to applying a reasonable investor perspective to the choice of BNE technology, we believe that consideration must be given to the reality of being able to deliver a CCGT on time for CY2022/23. Given the planning and grid connection delays that can occur, if a CCGT is used as a BNE it is likely to face an accelerated programme of development which would increase its investment cost. By comparison, an OCGT would be more capable of being delivered under a 2-year timeframe.

One can also look to the GB market for insight on a rational investor's decisions. One of the GB government's stated objectives was to attract new entry CCGTs to the market to bolster the capacity margin at a reasonable cost to consumers. Notwithstanding a capacity market designed with this type of

¹ Please see Frontier's report appended to the EAI response for further information

² www.ge.com

³ [http://www.eirgridgroup.com/site-files/library/EirGrid/Contracted-TSO-\(Non-Wind\)-Generators-30-January-2018.pdf](http://www.eirgridgroup.com/site-files/library/EirGrid/Contracted-TSO-(Non-Wind)-Generators-30-January-2018.pdf)

⁴ <https://www.esbnetworks.ie/docs/default-source/publications/dso-completed-applications-list-31-05-2018e4ad602d46d164eb900aff0000c22e36>

objective behind it, the results of their auctions held to date point to the move away from larger units. The recent T-4 2018 capacity auction out-turned unexpected results where interconnectors and small embedded generation won a large number of contracts. ~400MW of OCGT and reciprocating engines cleared the auction, mostly sub-100MW in size and the only CCGTs to clear were refurbished units. The success in the auction of small OCGT and decentralised capacity, points to the growing role for smaller sized units in systems needing increased flexible capacity. It is not unrealistic to assume that this pattern will continue in GB and will gradually become the norm in I-SEM too.

In conclusion, BGE does not believe that sufficient evidence has been put forward by Poyry to justify moving away from a peaker as the reference BNE. Indeed, the 1) evolving market design; 2) Irish contracted generation evidence; 3) tight turnaround build-times for delivery in 2022; and 4) UK capacity market results all point to retaining a OCGT as a suitable reference technology for the BNE for 2022. Not departing from precedent BNE decisions will also bolster investor certainty as the prospect of the SEMC's view as to the ideal BNE changing year on year, could undermine investor confidence.

5. WACC

The final key area of weakness in terms of a realistic view of investor decisions, relates to the level of WACC proposed. We agree with the SEMC's acknowledgement that WACC parameters are difficult to set for a merchant generating unit. While Poyry has used a wide range of regulatory and market evidence however, it consistently chooses low value inputs that result in a proposed WACC that is bordering the lower end of the range Poyry determined. This in our view is an arbitrary reduction of the investment risk a prospective investor would attach to an I-SEM environment. Not only do we believe that a more balanced and equitable approach would be to use a WACC at the mid-point or above, we also believe that in the case of a CCGT in particular, the choice of WACC must reflect the risky nature of forecasting IMR and DS3 revenues, as well as the overly optimistic view on load factors for the CCGT BNE that has been taken, as discussed above. The evolving nature of the I-SEM and DS3 which is likely to see considerable regulatory intervention in the early years of the design as it beds-down, should also be captured in the risk profile of investors.

All of this points to a revision upwards in the proposed WACC.

6. Conclusion

In conclusion, the key role of the BNE has changed from effectively determining the revenue stream in SEM, to setting price caps in I-SEM. The BNE in I-SEM will also heavily influence the level of entry and should be set at a level that provides sufficient headroom for new investments.

The Consultation's proposal to use a CCGT as the BNE sets a dangerous precedent for the market. As has been recently recognised in PJM, it is not good regulatory practice to move away from the use of an OCGT as the BNE without good reason or justification. The assumptions used to justify the choice of a CCGT in this Consultation are flawed; thus, BGE urges the SEMC to re-consider the assumptions and the need to avoid undermining investor certainty by switching from one type of BNE to another, year on year. This will not bode well for entry signals or investment, and ultimately the end consumer will be negatively impacted if the capacity is not forthcoming.

We have expanded in sections 2-5 above, on the key elements of the consultation in which we see major flaws. Our views on the key shortcomings, and our key asks in summary are:

- i. **IMR:** the approach to calculating IMR revenues over-estimates the load factor of a CCGT and by corollary potential IMR levels. It fails to take into account the fact that increasing renewables and SNSP will increase a unit's cycling, reduce its market running and erode its load factor. No consideration seems to have been given either to a change in capacity entry or demand levels which would also impact the simplistic view that a CCGT's IMR will increase linearly over a 10-year economic life. BGE suggests that the IMR calculation approach for CCGTs is re-visited. The best method of doing so would be to model expected revenues. We anticipate that the IMR levels of a rational investor in a CCGT would be much less once all of these issues are considered;
- ii. **DS3 revenues:** the approach to estimating the DS3 revenues for a CCGT is too simplistic. While a forward view of such revenues is difficult, use of the average revenues of a technology class (which includes existing units), as a guide to potential earnings risks over-

estimating DS3 revenues. The use of EirGrid's DS3 analysis as a basis for appraising the likely level of DS3 revenues for a BNE, is inappropriate and can lead to inaccurate outcomes. Given the key role the level of DS3 revenues has in determining the cost of the CCGT, we believe that a more accurate approach to ascertaining potential revenues is necessitated. Similar to our IMR suggestion, modelling of a rational investor's choice of running across the energy and DS3 markets; a unit's availability and performance; as well as SNSP levels and applicable revenue scalars, should be undertaken;

- iii. **Technology choice:** the market environment in which investors are making decisions, changes greatly between SEM and I-SEM. Past experience of investor decisions is an insufficient guide to future decisions. Market realities such as the new BM, DS3 and increasing renewables all point to the preference for an OCGT over a CCGT. Furthermore, the current contracted generation in Ireland, tight turnaround build time required for a BNE between 2019-2022, exit signals for CCGTs from the I-SEM T-1 2017 auction and GB capacity market outcomes, all also point to the preference for units smaller than CCGTs as the appropriate BNE in I-SEM. We ask the SEMC to consider these realities and experiences before finalising their BNE decision;
- iv. **WACC level:** we submit that Poyry's proposal for a WACC level that is well below the mid-point of the range determined is arbitrarily reducing the risk that an investor would perceive in an evolving market environment. In particular, in the case of a CCGT the risks it faces with uncertain IMR and DS3 revenues, as compared to an OCGT, prompts the need for a revision upwards of the proposed WACC.

BGE understands the desire for a decision to be made on the BNE as early as possible and is certainly not in favour of any delay to the March 2019 T-4 capacity auction. We urge the SEMC to achieve their objective of balancing the expectations of a rational investor with consumer protection by ensuring that robust assumptions back up the chosen BNE. As it stands, they do not and they raise concerns about appropriate entry signals and possibly security of supply. Critically, the move away from the OCGT as the BNE technology is a dangerous precedent in BGE's view and risks undermining investor confidence and potential entry of efficient capacity.

As the Frontier Economics review highlights, addressing the shortcomings in Poyry's assessment imply that the choice BNE technology, at least for T-4 2019, should be an OCGT. Qualitatively, the PJM offers support for an approach that does not deviate greatly from prior BNE technology decisions, unless the evidence demands so. BGE does not believe that sufficient evidence has been provided that justifies a departure in the BNE technology choice, from an OCGT.

I hope that you find the above comments and suggestions helpful. If you wish to discuss any of these further, please do not hesitate to contact me at any time.

Yours sincerely,

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Bord Gáis Energy

{By email}