By email to: mjoseph@cru.ie and Donna.Maye@uregni.gov.uk

30th Nov 2022

Re: Best New Entrant Net Cost of New Entry (BNE-Net CONE) Consultation Paper SEM-22-076

To whom it may concern,

I am writing to you on behalf of Echelon Data Centres (EDC). EDC is an international infrastructure developer with a focus on providing large-scale sustainable assets, supporting the growing demand for data and computing capacity in the global economy, while being responsible to the environment and the communities in which we operate.

Our corporate vision is to provide integrated power and data centre infrastructure for immediate requirements while providing the space to grow the future data economy. EDC has a major focus on renewable energy and sustainable solutions and is making significant investments in these areas.

We are a responsible developer, developing sustainable solutions while also pioneering new approaches (e.g. Hydrogen based electrical generation, elimination of Diesel as a fuel source for data centre back up). In addition to delivering renewably and sustainably powered data centre infrastructure, EDC are developing significant on-site generation that will provide vital Grid support services.

Our current Irish Data Centre and Power Generation projects include:

- Dub10 – construction in progress on a 220,000 SQFT energy centre with a 50MVA import capacity together with associated grid infrastructure and onsite power generation (40MW).
- Dub20 (Arklow) – fully consented 580,000 SQFT energy centre scheme with an export capacity of 190MW.
- Dub30 (Kish) – a 660,000 SQFT energy centre development, currently in planning with an export capacity of 120MW.
- Dub40 (Grange Castle) – a 440,000 SQFT energy centre facility with onsite generation of 105MW.

EDC have through their subsidiaries qualified and have been awarded capacity in previous Capacity market auctions and intends to qualify additional projects for the upcoming auction i.e. T-4 2026/27. EDC welcomes the opportunity to respond to the SEM Committee's consultation paper on Best New Entrant Net Cost of New Entry (SEM-22-076) and trust that you will consider it in your deliberations. We would be happy to provide further clarification on the points made below as may be required.

Regards

David Murphy
Programme Manager
Echelon Data Centre

Overview

As rightly cited in the report by CEPA (SEM-22-076a), the Capacity Market addresses the 'missing money' issue where the revenues from the wholesale energy market and system services market are insufficient to attract the necessary investment to maintain system integrity and avoid curtailment. Given the security of supply issues in Ireland[1], we consider it essential that the government and agencies attract investment in power generation infrastructure into the country over this decade. This investment could be in conventional technologies or newer storage technologies like batteries and will support the electricity networks in integrating high levels of RES on the system, as is anticipated between now and the end of this decade.

There are several initiatives in this regard taken by the government[2] and the CRU[3]. These include a direction to system operators (ESB, EirGrid and GNI) to prioritise the granting of connection offers and advance investment in the gas network to reducing timeline-related risks, providing appropriate market signals to developers etc. We, therefore, find this study and the assumptions made in the report somewhat counterintuitive from the information published by the government and the regulatory authorities.

BNE Technology

The BNE, based on this study, is the 450-500MW single shaft CCGT plant would require a very large connection to the grid and we suspect will have an effect on the transmission constraint group. A single shaft design, though less expensive, would fail to capture all system service revenues owning to the fact that it will simply be inflexible to respond to dynamic needs to of the Irish electricity system in the future. The hot start time of 30 mins assumed for CCGT thermodynamic modelling and performance is not necessarily in line with what we have observed and appears to be unrealistic.

Overestimation of Market Revenues

IMR Revenues

The CEPA report mention's Ireland's ambition to expand power generation from RES by targeting 7 GW of Offshore wind and 5.5 GW of solar by 2030. While these targets might increase the flexibility requirement for the power system, higher volumes of RES should lead to lower operating hours for thermal generation technologies which should impact the Inframarginal rent. The report has used estimates from a previous study done for CY 2025/26 on Inframarginal rents for the BNE. This previous report would have been compiled at a time where the wholesale market prices were rising. We have recently seen the cost of gas futures go down significantly from Aug 2022. While the outlook for future power prices still appears high, it is arguably less severe than from what we have seen in the previous months.

The study also assumes that the IMR revenues are maintained for a 10-year period which is quite optimistic given the relatively lower power price outlook and the lower operating hours expected for thermal technologies in the future. Another approach suggested by CEPA to estimate the IMR is for a linear reduction of IMR to zero. This approach although better, we believe is too simplistic for a dynamic electricity system such as the SEM. As examples, the impact of changes to the electricity network and the market such as network reinforcements, interconnectors, offshore wind, changes in dispatch rules etc. would need to be considered.

In our opinion, a full-scale modelling exercise which considers the changes in wholesale market revenues over this decade and beyond would be required to increase the accuracy of the estimations. A 'fixed IMR approach' (as assumed in this report) or a 'linear decline in IMR' approach over 10 years does not fully reflect the complex changes that SEM and the Irish electricity system will undergo over this decade. As acknowledged by the report itself, there is significant uncertainty around some

[1] CRU Publishes Security of Supply Information Note
[2] National Energy Security Framework
[3] Security of Electricity Supply – Programme of Actions

parameters used in cost estimations throughout this report. In addition to this, the timing of the consultation is not ideal as investors prepare to finalise their bids towards the auction in March 2023.

DS3 Revenues

The CEPA report based their price assumptions on existing 2021/22 values by applying a 20% discount on tariffs from 2021/22. The annual cap for DS3 System Services expenditure is €235M as set by the Regulatory Authorities (Ras) (with an additional €20M in a high-wind year). Eirgrid and SONI recently put out a consultation where they highlight that the cap is likely to be breached for the 2022/23 tariff year as the number of new technologies providing system services is likely to significantly increase [4]. The consultation paper proposes various options for rate cuts to avoid breaching the cap with the least severe being 10% and most severe being 35% for all fast-acting technologies. We certainly expect this trend in rate cuts to continue as a larger volume of fast-acting technologies like batteries energise through the decade. The system operators also held a similar consultation of DS3 tariff rates last year[5].

Also, the current tariff arrangements are set to expire by April 2024, post which we will be moving towards more competitive arrangements (daily auctions) which are expected to reduce the per KW income for developers. In our opinion, the estimates around tariffs do not adequately reflect this trend of reduced revenues for developers.

Costs Underestimated

Capital Fixed Costs

The consultation paper compares the 2022/23 capitalised cost to a 2018 Poyry study. The table below highlights the figures for the capitalised costs and Gross CONE of a CCGT and OCGT plant in Ireland from the consultation paper.

	CCGT (450 – 500 MW)		**OCGT (200 MW)**	
	2018 Poyry	**2022 CEPA/Ramboll**	**2018 Poyry**	**2022 CEPA/Ramboll**
Capitalised Costs (€m)	380.0	395.3	129.8	108.1
Capitalised cost derated (€/kW)	993.8	1019.5	719.0	616.4

These figures represent **4%** increase and **16%** decrease in capitalised costs for a CCGT and an OCGT plant respectively. To contrast this with an infrastructure project in Europe between Ireland and France, a joint decision was published recently by the CRU and Commission de régulation de l'énergie (CRE, French Energy regulator) on cross border cost allocation for the CELTIC Interconnector [6]. The latest cost estimate for the Celtic Interconnector including contingency is forecast at **€1,623** million for delivery in 2027. This represents a **74%** increase in cost when compared to the 2019 estimates done by the regulators **(€930 million**). It is difficult to see the rationale behind the cost estimates made by the CEPA report for all reference technologies when the cost associated with actual projects has risen by such a scale . We hope to get additional clarity on the estimates when SEMC comes to a decision on this consultation.

Site Procurement Costs

The price of land assumed **(€35,898/acre)** is based on the value of agricultural land in the Irish farmer's Journal and applying a 100% uplift to that price. While we don't necessarily have a view on the

[4] DS3 System Services Tariffs Consultation Document – Sept 2022
[5] DS3 System Service Tariff Rate Review - May 2021
[6] https://www.cru.ie/wp-content/uploads/2022/11/CRU2022976-Celtic-Electricity-Interconnector-Joint-RA-CBCA-decision-reaffirmed.pdf

approach, we expect significantly higher prices **(€400-600k/acre)** would be encountered in the Dublin region. Given the security of supply concerns particularly around Dublin, we think that its relevant that the land prices in the Greater Dublin area be considered for estimating the site procurement costs.

Electricity Connection Costs

The report estimates the cost of an electrical connection at **€6.75 million** for connecting into an existing 220 KV outdoor substation. In a recent workshop hosted by SEMO on the capacity auctions, EirGrid presented an overview of generation opportunities at different voltage levels on the grid[7]. It highlighted that there were limited opportunities on the existing 220 KV network. While there might be certain opportunities arising from generators retiring in the future, the incumbent parties might look to develop newer projects on those sites and hold onto their grid connection.

To develop any of the referenced technologies in the report, it is likely that a new 220 KV substation would have to be built. Based on our experience, a new substation will incur an additional expense which would be **3-4 times** the cost of connection estimated in the report. This increases the electricity connection costs significantly for the project and therefore recommend that the estimates be revised.

Cost of Finance

We would question the assumptions used about risk-free rates and cost of capital. We have seen a number of increases in central bank rates both in Europe and abroad in the last twelve months; however, the risk-free rates expressed in the study do not seem to align with these increases and reflect materially out of date bond rates. A Higher risk-free rate will necessitate a higher rate of return required on both debt and equity and therefore a higher WACC than is used in calculations.

Further to this, there is relationship between the level of CONE and therefore capacity payment and the risk of the overall project delivery. Where there is a lower CONE, but the actual costs are higher than this as outlined above, then the risk of the project will increase significantly as cost recovery cannot be guaranteed over the 10-year duration of the fixed capacity contract. This increased risk will also increase the required rate of return on the project and hence also contribute to an increased WACC.

Inflation while Estimating CONE

As per data from the Central Statistics office (CSO), the consumer price index rose by 9.2% between Oct 2021 and Oct 2022 [8]. The CSO also noted that Oct was the 13th straight month where the annual increase for the CPI has been at least 5.0%. The report seems to have accommodated an 8.4% inflation rate on EPC costs in 2022 which aligns with CSO figures. Though inflation might slow down over the coming months and years, it is difficult to see how a low annual rate (2%) assumed in the report accurately reflects reality. The European Commission predicts that inflation may remain high for Ireland at 6% in 2023 before dropping down to 2.8% in 2024[9]. High inflation has a significant impact on costs going forward which the assumption in the report fails to consider.

[7] https://www.sem-o.com/documents/general-publications/InfoSession2627T-4.pdf
[8] https://www.cso.ie/en/releasesandpublications/ep/p-cpi/consumerpriceindexoctober2022/#:~:text=Key%20Findings,has%20been%20at%20least%205.0%25.
[9] https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/ireland/economic-forecast-ireland_en