LUMCLOONENERGY

Lumcloon Energy Limited
Parson's House
Axis Business Park
Tullamore
Co. Offaly

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EirGrid/SONI
The Oval
160 Shelbourne Road
Ballsbridge
Dublin 4

Consultation on DS3 System Services Enduring Tariffs

Dear DS3 Project,

Lumcloon Energy Limited (LEL), new entrant developer of a new 300MW flexible CCGT near Tullamore Co. Offaly and a new parallel proposal for utility-scale Energy Storage Systems with a view to providing DS3 services, welcomes the opportunity to respond to consultation on the form of the **DS3 System Services Enduring Tariffs**.

Key Messages

Contract Duration

We welcome and support the TSOs' recommendations that clarity and certainty is required urgently. It is essential if new investment is to take place and new plant providing system services is to be built in time to help support and enable the additional renewable generation needed for Ireland to meet its 2020 renewable electricity target of 40%. In particular we welcome the explicit recognition of the need for clarity in relation to contract duration and revenue certainty for new investment.

Our view is that a contract or tariff for a duration of at least 6 years is required to source the debt funding needed to build a plant relying solely on DS3 revenues.[1] Market practice is to fund such plants on a highly-leveraged basis to take advantage of lower cost debt. Minimum debt levels are expected to be at least 50%; although even with 50% debt, equity investors willing to fund the remainder of a plant will be in short supply, putting the financeability of new projects at risk.

The crucial issue here is that a short-term contract or tariff will create very significant annual debt service commitments. These will result in Debt Service Coverage Ratios (DSCRs) that do not meet the minimum targets required by the financial markets (1.25 – 1.30 are the current market target DSCRs).

[1] Plants built to provide EFR in Britain have additional revenue streams such as Triads and "Capacity", the latter being a completely different market to the capacity market in Ireland.

The only way to improve the project DSCRs is to reduce the proportion of debt, thereby introducing a requirement for high levels of equity (with higher return requirements).

Investment in a long-life asset such as a plant for DS3 service would be expected to be substantially recovered over a period shorter than the technical life of a plant. However, 4 years is too short a contract period, given the minimum expected 10-year technical life, and it creates a requirement for higher annual revenues in the short-term. A 6-year contract period, depending on revenue levels and certainty, gives a reasonable prospect of achieving debt levels of over 50% and minimum DSCR of 1.25 – and thus a viable project.

Revenue Certainty

Revenue certainty (subject to meeting performance targets) is also essential in order to attract debt funding. The Temporal Scarcity scalar with no revenue for FFR when SNSP < 60% introduces significant risks outside of the control of the system service plant which investors (debt and probably even equity) will be unwilling to take. This is particularly true in the first few years. There is no history of SNSP > 60% (for good reasons) and, while TSO engineers with internal system insights may expect the SNSP to exceed 60% for a reasonable number of trading periods, it is almost impossible to convince bankers that there is a sufficiently high probability of such an outcome that they would be willing to risk loaning money. Lumcloon proposes three alternative solutions in order of preference.

a. Lumcloon offers a FFR temporal scarcity scalar structure that moderates early-year new entrant risks and moves towards the TSO recommendation over time. We propose that when SNSP < 60%, the scalar value is 0.75 for year one, 0.5 for year two, 0.25 for year three and then zero from year four onwards. In each of these years the corresponding scalars for 60% < SNSP < 70% and SNSP > 70% would be adjusted downward to yield a revenue neutral result for the New Providers Base Case. See the table under the answer to Q3 for details. We believe that the FFR capability estimates the TSO used for the existing resources is significantly overstated and encourage the TSO to review a few unit's actual performance. This means that if the Lumcloon FFR temporal scalar proposal were adopted, the TSO goal of incentivising new entrants and not overly compensating existing units would be significantly satisfied.

b. For FFR only, the Temporal Scarcity Scalar of 8.5 would apply to the 50 hours in each month with the highest SNSP and the scalar of 6.2 would apply to the 50 hours with the next highest SNSP. The number of hours chosen roughly equate to the % time with SNSP>70% and 60%<SNSP<70% in the New Providers base case.

   This provides certainty to FFR providers that the revenue is fair and secure (subject to maintaining high levels of availability), protecting against:
   - Low wind years
   - Lack of potential success of the DS3 programme to reach 70% SNSP
   - Low wind quarters (creating cash-flow issues for debt servicing more generally)

   It provides greater certainty to the TSOs that their budget is not going to be significantly exceeded in an exceptionally windy year

c. There could be a floor on FFR revenues of, say, 80% of the New Providers Base Case scenario. This could be calculated on a quarterly basis.

Tariff Review

A tariff review protects the end consumer but adds risk to new build investors. Whether or not it is acceptable depends on how "bounded" it would be and the conditions under which it could be triggered. The proposed boundary conditions look reasonable except that some over-expenditure in the early years should be accepted if it is due to the build of new plant. This will provide confidence that there will be sufficient new DS3 plant by 2020 to help enable Ireland to meet its renewable electricity targets and not be penalized by the EU.

In summary, in order to attract new investment , the revenue and contract structure proposed for plants relying solely on DS3 revenues will need to be acceptable to the funding markets in terms of overall revenue levels, revenue certainty (adequately catering for revenue risk factors) and (revenue) contract duration. Without adequate revenue certainty and contract duration, lenders will not engage in the Irish market and will focus their efforts elsewhere; as a consequence, equity players will not come into a market that is unable to attract substantial lender interest to leverage their equity investment.

Here are the detailed answers to the individual TSO questions:

Question 1: *Have you any comments on the proposed tariff rates for the Enduring Regulated Tariff arrangements?*

The relative differences between the rates look reasonable when all the scalars are applied. However the proposed rates are low. Under the base case scenarios with their predicted SNSPs, and using the "full spend" Temporal Scarcity scalar, the revenues may not be sufficient to support new build. The high volatility of revenues being based on SNSP would add to the concerns of investors.

Question 2: *Have you any comments on the TSOs' recommendation that the regulated arrangements be put in place for a minimum defined time duration until such a time as there is greater information available on the timeline for implementing a long-term market mechanism for System Services?*

We agree with this. New investments will simply not be made without a known, fixed duration. This should be a minimum of 6 years and importantly, should start from when the plant begins commercial operation and not from a fixed date. The arrangements must be allowed to continue through their term, even if a long-term market mechanism is able to start during the term.

Market practice is to fund such plants on a highly-leveraged basis to take advantage of lower cost debt. Minimum debt levels are expected to be at least 50%; although even with 50% debt, equity investors willing to fund the remainder of the plant will be in short supply, putting the financeability of new projects at risk.

The crucial issue here is that a short-term contract or tariff will create very significant annual debt service commitments. These will result in Debt Service Coverage Ratios (DSCRs) that do not meet the minimum targets required by the financial markets (1.25 – 1.30 are the current market target DSCRs).

The only way to improve the project DSCRs is to reduce the proportion of debt, thereby introducing a requirement for high levels of equity (with higher return requirements).

Investment in a long-life asset such as a plant for DS3 service would be expected to be substantially recovered over a period shorter than the technical life of a plant. However, 4 years is too short a contract period, given the minimum expected 10-year technical life, and it creates a requirement for higher annual revenues in the short-term. A 6-year contract period, depending on revenue levels and certainty, gives a reasonable prospect of achieving debt levels of over 50% and minimum DSCR of 1.25 – and thus a viable project.

Question 3: *With respect to contract certainty, are there other considerations which we should take account of or other options that we should explore further?*

Revenue certainty, subject to meeting performance targets which are under the control of the DS3 plant, is also essential. The Temporal Scarcity scalar with no revenue for FFR when SNSP < 60% introduces significant risks which investors (debt and even many equity providers) will be unwilling to take. This is particularly true in the first few years of operation.

SNSP > 60% has not happened yet, and for good reasons. While TSO engineers with detailed and confidential system information and forecasts might predict that SNSP will exceed 60% for a reasonable number of trading periods, there is no existing historical data or equally sophisticated independent analysis to convince traditionally conservative bankers of this. There must be a high probability of such an outcome for debt to be willing to risk lending money.

Lumcloon proposes three alternative solutions in order of preference.

a. Lumcloon offers a FFR temporal scarcity scalar structure that moderates early-year new entrant risks and moves towards the TSO recommendation over time. We propose that when SNSP < 60%, the scalar value is 0.75 for year one, 0.5 for year two, 0.25 for year three and then zero from year four onwards. In each of these years the corresponding scalars for 60% < SNSP < 70% and SNSP > 70% would be adjusted downward to yield a revenue neutral result for the New Providers Base Case. See table below.

70% SNSP step	60% SNSP step	<60% SNSP step	Relative to Consultation Paper
3.61	2.63	0.75	42%
5.27	3.84	0.50	62%
6.87	5.01	0.25	81%
8.50	6.20	0.00	100%

We believe that the FFR capability estimates the TSO used for the existing resources is significantly overstated and encourage the TSO to review a few units' actual performance[2]. The implication of this is that considerably less of the FFR pot would go to the incumbents than assumed by EirGrid. This means that if the Lumcloon FFR temporal scalar proposal were adopted, the TSO goal of incentivising new entrants and not overly compensating existing units would be significantly satisfied.

b. For FFR only, the Temporal Scarcity Scalar of 8.5 would apply to the 50 hours in each month with the highest SNSP and the scalar of 6.2 would apply to the 50 hours with the next highest SNSP. The number of hours chosen roughly equate to the % time with SNSP>70% and 60%<SNSP<70% in the New Providers base case.

   This provides certainty to FFR providers that the revenue is fair and secure (subject to maintaining high levels of availability), protecting against
   - Low wind years
   - Lack of potential success of the DS3 programme to reach 70% SNSP
   - Low wind quarters (creating cash-flow issues for debt servicing more generally)

   It provides greater certainty to the TSOs that their budget is not going to significantly exceeded in an exceptionally windy year.

c. There could be a floor on FFR revenues of, say, 80% of the New Providers Base Case scenario. This could be calculated on a quarterly basis.

Question 4: *Have you any comments on the TSOs' recommendation to replace an annual tariff review with a conditional tariff review**, or are there alternative approaches that you think are better?***

An annual tariff review might protect the short term interests of the end consumer but adds significant risk to new build investors. Whether or not a conditional tariff review is acceptable depends on how "bounded" it would be and the conditions under which it could be triggered. The proposed boundary conditions look reasonable except that some over-expenditure in the early years should be accepted if it is due to the build of necessary new plant. This will provide confidence that there will be sufficient new DS3 plant by 2020 to help enable Ireland to meet its renewable electricity targets and not be penalized by the EU.

Question 5: *Are there other considerations on the conditions under which a conditional review would be triggered?*

Please see the answer to Q4 above.

[2] Our analysis of actual response from a CCGT indicates that the FFR contribution is only about 20% to 25% of the POR contribution, not the 50% to 60% contribution assumed by EirGrid.

Question 6: *Have you any comments on the proposal to exclude a high annual wind capacity factor as a consideration for triggering a conditional tariff review?*

We agree that a high or indeed low annual wind capacity factor should not trigger a conditional tariff review.

Question 7: *Have you any comments on the TSOs' recommendation to use the 'Stepped' scarcity scalar design rather than the 'Linear' scarcity scalar design?*

We agree with the "stepped" scarcity scalar design as it reduces slightly the revenue volatility risk.

Question 8: *Should we decide to use a 'Stepped' scarcity scalar, are there other considerations which we should consider in its design?*

Not that we can think of.

Question 9: *Do you agree with the TSOs' recommendation on the method by which to mitigate over-expenditure as a result of potential overinvestment by high availability technologies?*

It depends on whether or not the over-expenditure is due to timing of new build which would be a temporary condition and actually provide assurance that the 2020 targets can be met. If the over-expenditure is long term, some mitigation would be justified. However, we agree with the TSO's assessment that a redefinition of "availability" or a volume scalar on a trading period basis would be very problematic for investors. The former would be unacceptable as this would fundamentally change the commercial conditions under which a plant had contracted and been built. The latter would also be a serious problem for investors as it would introduce a new risk after the investment is made and the plant built. This risk would be very difficult to quantify and lead to higher costs of debt and equity or no investment at all.

If the 2020 binding renewable energy targets are to be met and related EU fines avoided, it is essential that the Electricity industry plays its part by ensuring that 75% SNSP is achieved. To do this new investment in system services plant is essential. This new investment is required urgently and any reliance on speculative or early-stage developments at this time should be avoided. To be most effective, we suggest the enduring tariff arrangements be implemented in stages. Stage One should be targeted at "shovel ready" projects. To qualify as "shovel ready" projects should have (a) Planning permission (b) a Grid Connection offer and (c) be a qualified technology. With a DS3 enduring tariff contract, those projects can then put the necessary financing arrangements in place and plants can be in commercial operation before 2020. If these Stage One conditions are imposed it is most unlikely that over-investment will occur before 2020. When key milestones in Stage One are clear (like plant construction commencing), the contracted volumes can be reviewed in relation to the volume of systems services still required and a further Stages can be implemented

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Question 10: *Have you any comments on a preferred method to implement a procurement based volume limit on the level of high availability technologies to obtain system service contracts?*

Option (i) applying a 2020 "volume cap" would be the least worst mitigation alternative. Option (ii) a "glide path" volume limit between now and 2020 would be difficult to implement as this is already mid-Q3 2017 and it will take some time before plants can be funded and built. Option (iii), bidding into a competitive arrangement could be complex and run into the same difficulties as the long term competitive arrangement which has foundered due to its complexity. It is not clear what is meant by option (iv) a separate tender process. However new plant is required urgently and developing a new tender process could take some time which would seriously delay new projects.

Question 11: *Do you agree with the TSOs' recommendation to delay the implementation of taking the higher of a service provider's market position or physical dispatch, to determine the available volume of a service, for a minimum of 12 months post I-SEM go-live?*

Yes, it is more important to get the system services market up and running fully as soon as possible.

Question 12: *Do you have any comments on the method by which a resettlement between market and physical dispatch could occur following the 12 month delay?*

No comments on this, as long as it does not trigger a retrospective budget review due to breach of the allowed cap.

If you have any queries in relation to our response, please contact us by return.

Yours faithfully,

Nigel Reams
Director
Lumcloon Energy Ltd.