

21 May 2021

Jim Betts  
Secretary  
Department of Planning, Industry and Environment  
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Parramatta NSW 2124

Submitted online: [Electricity.Roadmap@dpie.nsw.gov.au](mailto:Electricity.Roadmap@dpie.nsw.gov.au)

Dear Mr Betts

### **NSW Electricity Infrastructure Roadmap (Tranche Two Regulations) – Issues Paper**

Origin Energy Limited (Origin) welcomes the opportunity to provide comments on the NSW Department of Planning, Industry and Environment's Tranche Two Regulations Issues Paper.

A key objective of the Electricity Infrastructure Roadmap is to facilitate the development of dispatchable capacity (i.e. long duration storage and firming capacity) in a manner that balances the benefits of reliability with overall costs for consumers. Ensuring the Energy Security Target (EST) is consistent with consumer expectations of reliability will be essential to achieving this objective. It will also be important to ensure the framework allows the Consumer Trustee (CT) to consider all potential resource solutions in response to an identified reliability need.

The effectiveness of deterministic reliability standards is dependent on a number of inherently uncertain factors and assumptions, such as an appropriately defined reserve margin and estimated output of renewables during peak demand periods. The regulations should provide scope to review the EST in the future to ensure it is meeting the stated objectives of balancing reliability with costs, and allowing for alignment with the broader NEM-wide reliability standard where appropriate.

Origin is supportive of requiring the Consumer Trustee (CT) to address the list of matters set out in the Issues Paper when preparing the Infrastructure Objectives report. This includes consideration of alternate scenarios for developing firming and storage infrastructure and an assessment of resultant costs for consumers. A mix of flexible dispatchable resources that allows for rebalancing of renewables across multiple timeframes will ultimately be required to facilitate a least cost transition. It is therefore prudent to require the CT to consider all potential resource solutions when determining investment needs.

Origin has provided further feedback on the specific questions raised by the Department in Attachment 1. If you wish to discuss any aspect of this submission further, please contact Shaun Cole at [REDACTED] or on [REDACTED].

Yours Sincerely,



Steve Reid  
Group Manager, Regulatory Policy

Questions	Feedback
<b>Chapter 4 – Energy Security Target</b>	
<b>Question 1:</b> Should the Energy Security Target Monitor define the method to determine the derating factor or should the method be defined in the regulations? If not by the derating factor, how else should the regulations address the probabilistic nature of semi-scheduled generators in the context of the deterministic Energy Security Target?	<p>Origin considers the EST should ultimately be aligned with the probabilistic NEM-wide reliability standard with a view to balancing the benefits of reliability with cost to consumers. Where a NSW specific deterministic standard is to be pursued, we are supportive of prescribing the methodology for determining derating factors in the regulations to provide stakeholders with certainty around how the EST will be determined. With respect to the proposal to develop derating factors for individual technologies based on their output in specific intervals over the past three financial years, Origin considers this may not provide an adequate statistical distribution of generation levels, particularly if it is used to estimate expected output over a 10-year outlook period. Subject to data availability, a longer sample period than three years should be considered.</p> <p>In setting out the parameters that will be evaluated when determining the level of any breach, the Issues Paper notes consideration will only be given to the level of maximum demand within NSW, which will be based on 10 per cent probability of exceedance (POE) forecasts. Consistent with AEMO's approach as part of the ESOO, the expected level of reliability breach should be based on a weighted average of potential demand outcomes (e.g. 10 POE and 50 POE demand). Measuring supply relative to 10 POE demand levels further increases the level of conservatism in the EST.</p>
<b>Question 2:</b> Should the regulations prescribe any other matters for inclusion in the Energy Security Target Monitor's report? If so, what are they?	<p>To assist with understanding the level of uncertainty and potential implications of meeting the proposed EST over a 10-year outlook period, in reporting on any forecast breach of the target, the EST Monitor's report should include:</p> <ul style="list-style-type: none"> <li>▪ a comparison with the forecast level of breach (if any) relative to the NEM reliability standard and Interim Reliability Measure (if applicable for the relevant period); and</li> <li>▪ an assessment of whether the breach would potentially be resolved if capacity proposed in the region and/or expected to be delivered through the NSW Roadmap in the intervening period is developed.</li> </ul>
<b>Chapter 5 – Electricity Infrastructure Investment Safeguard</b>	
<b>Question 3:</b> To what extent are the requirements for carrying out competitive tenders of Long Term Energy Service agreements appropriate? Are there any other requirements that should be considered?	<p>Origin is broadly supportive of the proposed set of principles the CT would be required to adhere to when setting rules relating to the administration of the competitive tender process. However, the regulations should also explicitly require the CT to consult on the development of such rules.</p> <p>We also support further consideration being given to the design of long term energy service agreements (LTESAs) and the associated tender process as part of Tranche Three regulations. An additional issue that should also be addressed through that process is the potential interaction between the LTESA auctions and the allocation process for access rights within the NSW renewable energy zones when designing requirements for competitive tenders. For example, it is unclear if a</p>

	project located within a REZ would be able to participate in an LTESA auction process without first having procured access rights.
<b>Question 4:</b> Do you agree with the matters the Consumer Trustee must take into account when preparing the Infrastructure Investment Objectives Report? Are there any other matters that should be taken into account?	The regulations should require the CT to explicitly address the list of matters outlined by the Department when developing the Infrastructure Investment Report, rather than simply have regard to them. Further, in outlining its assessment of forecast delivered electricity costs for consumers under preferred and alternate scenarios, the CT should also be required to estimate the level of financial exposure for consumers under each scenario based on the form and range of LTESAs that would need to be entered into.
<b>Question 5:</b> In what circumstances should the Consumer Trustee prefer long duration storage over firming infrastructure to meet the reliability standard?	<p>A mix of flexible dispatchable resources that allows for rebalancing of renewables across multiple timeframes will be required to facilitate a least cost transition. The relative proportion of each resource type will be influenced by both the nature of the asset replacement task and the differing characteristics (and economics) of the dispatchable technologies. Key considerations in this respect are noted below.</p> <ul style="list-style-type: none"> <li>▪ Storage (batteries and pumped hydro) is expected to play a significant role in balancing the system by shifting energy from periods of oversupply to when it is needed. The amount and type of storage required will be dependent on the duration of oversupply events, which will vary across different timeframes (e.g. hourly, daily, weekly and seasonal).</li> <li>▪ Demand response can be used to manage tight supply-demand conditions and reduce the need for involuntary load shedding. Over the longer term, greater demand side participation could also improve the efficiency of dispatch by better revealing the price responsiveness of loads and facilitating the lowest combination of resources to achieve the desired level of reliability.</li> <li>▪ Gas power generation, including open cycle gas turbine (OGCT) and combined cycle gas turbine (CCGT) is expected to be needed to support higher levels of storage and renewables across multiple timeframes through the provision of both peak capacity and energy. As with storage, there are trade-offs associated with the different technologies. OCGT is more suited to providing capacity at peak periods while CCGT is more cost effective when running at higher capacity factors.</li> </ul> <p>Noting the above, it would be prudent to require the CT to consider all potential resource solutions when evaluating the need for investment in dispatchable capacity. To the extent some level of investment in long duration storage is considered preferable, it would be prudent for the CT to undertake modelling to determine the optimal timing of that investment with a view to minimising any associated costs.</p> <p>Clarity around the timing and scale of investment in long duration storage will also be essential to ensure prospective firm capacity providers are able to make an informed view of future market outcomes when participating in firming auctions.</p>

## Chapter 6 – Classification of REZ network infrastructure

**Question 6:** Are there any other considerations that should be taken into account in classifying REZ network infrastructure in regulations, including the need for, and scope of, sub-classifications?

**Question 7:** What types of network infrastructure could be subject to economic regulation under Part 5 of the EII Act?

Origin supports an approach that mirrors the existing NER requirements when it comes to economic regulation and the service classifications of network assets. Maintaining consistency across NSW REZs and the broader shared network will promote certainty and avoid additional complexity. Generally, the REZ shared network should be regulated, while private connection assets needed to connect to the REZ should remain unregulated. Sub-stations at hubs should be regulated and form part of the REZ shared network and be appropriately sized to cater for multiple connecting parties. DPIE should mirror existing arrangements regarding pathways for unregulated connection assets to become regulated where it is appropriate and efficient to do so.