



21 May 2021

Liam Ryan  
Department of Planning, Industry and Environment  
GPO Box 39  
Sydney NSW 2001  
Lodged via email: Electricity.Roadmap@dpie.nsw.gov.au

Dear Mr Ryan

## RE: Tranche two regulations to support the Electricity Infrastructure Roadmap issues paper

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the New South Wales (NSW) Government's issues paper (the Paper) on the second tranche of regulations to support the Electricity Infrastructure Roadmap (the Roadmap).

### About Shell Energy in Australia

Shell Energy is Australia's largest dedicated supplier of business electricity. We deliver business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers. The second largest electricity provider to commercial and industrial businesses in Australia<sup>1</sup>, we offer integrated solutions and market-leading<sup>2</sup> customer satisfaction, built on industry expertise and personalised relationships. We also operate 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and are currently developing the 120 megawatt Gangarri solar energy development in Queensland. Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy.

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### Overview

Shell Energy commends the NSW Government for undertaking early stakeholder engagement on the regulations subordinate to the *Electricity Infrastructure Investment Act 2020* (the EII Act). Broadly speaking, Shell Energy considers many of the Department of Planning, Industry and Environment's (the Department's) positions in the Paper to be sensible. However, we believe there are several issues that deserve further consideration.

On the Energy Security Target (EST):

- To increase certainty for market participants, the NSW Government should provide additional clarity around the definition of 'reserve margin'.
- More work is required to characterise how storage assets of different durations will be treated when calculating 'firm capacity'.

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<sup>1</sup> By load, based on Shell Energy analysis of publicly available data

<sup>2</sup> Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2020.



On the Electricity Infrastructure Investment Safeguard:

- A principle should be added to the regulations that links the process to allocate long-term energy service agreements (LTESAs) with the process to acquire renewable energy zone (REZ) access rights.
- It is critically important for the Consumer Trustee to consider likely technology cost improvements – particularly in relation to storage – in its Infrastructure Investment Objectives report.

On REZ network infrastructure:

- It would be useful for the NSW Government to provide more detail on the specific sub-classifications it is intending to implement for REZ network infrastructure, and how economic regulation may vary for these different classes.
- We suggest a high-level set of principles to ensure the transparency and fairness of any economic regulation of REZ network infrastructure.

To holistically gauge the impact of the regulations, we recommend circulating a complete set of draft regulations for public comment after the tranche three consultation process.

The remainder of this submission provides additional feedback, including more detail on these points.

## Timeframes

The Paper states that “the Department will recommend regulations be made on [tranche two] matters before July 2021”. While we understand the NSW Government’s desire to expedite the regulation-making process, we query whether pursuing such an ambitious timeline will deliver the best outcomes. Given there is likely to be overlap between the tranche three regulations and the tranche two regulations canvassed in the Paper, it seems prudent to hold off on finalising subsets of regulations until stakeholders have been given an opportunity to consider them all holistically. This approach would be consistent with the indicative timeline presented in the Paper’s Figure 3 (page 6), which suggests that there will be consultation on a complete set of draft regulations in Q3 2021, before final regulations are made.

## Energy Security Target

Section 12(1) of the EII Act defines the EST as follows.

*“[EST] = maximum demand + reserve margin*

*where—*

*maximum demand* is the forecast peak demand for megawatts of electricity used by NSW electricity customers, based on a 10% probability of exceedance (POE) forecast methodology.

*reserve margin is* the sum of the amount of megawatts of electricity capable of being produced by the 2 generating units in the State that are capable of producing the largest amounts of megawatts of electricity according to AEMO for the financial year or a different amount prescribed by the regulations.”

The EST can therefore be thought of as the target capacity required to satisfy: a conservative probabilistic demand estimate and a deterministic ‘buffer’ (that, by default, accounts for the unexpected loss of NSW’s two largest generation units).

Each year, the EST Monitor compares the EST with its expectation of firm capacity for the next 10 financial years. If the EST Monitor believes that there is unlikely to be sufficient firm capacity to meet the EST, this is deemed a



'target breach', which may trigger additional action (e.g. the Minister may direct the Consumer Trustee to tender for LTESAs for firming infrastructure).<sup>3</sup>

### *Reserve margin*

As discussed above, the default definition for the reserve margin is the size of NSW's two largest generating units. The Paper states that "the Department does not intend to recommend prescribing a different amount for the reserve margin at this time". However, the Paper also flags that this may change in the future if a variable renewable energy (VRE) or storage project becomes one of NSW's two largest generating units.

We recommend that the NSW Government consults on detailed draft regulations that stipulate how the definition of reserve margin is defined, including if/how the definition will change in the future depending on the specifications of NSW's two largest generating units. This is different from the Department's preference to consider "regulations on how the [EST Monitor] is to treat capacity from large [VRE] units and utility-scale batteries... at a later date".

Our rationale is that investment decisions are aided by long-term regulatory certainty. A lack of clarity on how reserve margin will be defined in the future (which will impact the likelihood and extent of the Minister intervening in the market due to a target breach) represents a source of uncertainty.

### *Maximum demand*

Given that the EII Act legislates the maximum demand to be a POE10 estimate, Shell Energy understands the Department's view that calculating maximum demand based on AEMO's most recent forecast for 'as generated' maximum summer operational demand is appropriate. We consider that using AEMO forecasts is more appropriate than introducing a new modelling and forecasting process.

### *Firm capacity*

The Department proposes to calculate firm capacity based on the sum of the components described on pages 10-11 of the Paper. We offer observations relating to:

- the consideration of storage assets and demand response
- AEMO's ongoing work to model the firm contribution of VRE.

The Paper proposes that the component of firm capacity attributable to scheduled generators should be defined as:

*"...the summer scheduled capacities of Scheduled Generators in NSW as published on AEMO's Generation Information Page, which are derated for expected conditions<sup>4</sup>".*

While this appears appropriate for scheduled generation capable of sustained dispatch, it does not capture how firmness varies for storage or demand response of different durations. For example, the capacity provided by a 100MW battery energy storage system (BESS) with 15 minutes of storage should not be considered as firm as the capacity provided by a 100MW BESS with 6 hours of storage.

At the same time, it is important to recognise that the purpose of defining 'firm capacity' is so it can be compared with the EST, which is a conservative (one-in-ten year) estimate of peak demand, plus a buffer. By definition, POE10 peak demand events don't continue indefinitely – the demand peak occurs for a limited period (typically 30 to 60 minutes) before subsiding. As a result, when calculating the firm capacity, it is not necessary for all the assets to be able to generate indefinitely. Instead, the generation (or storage) assets need to be able

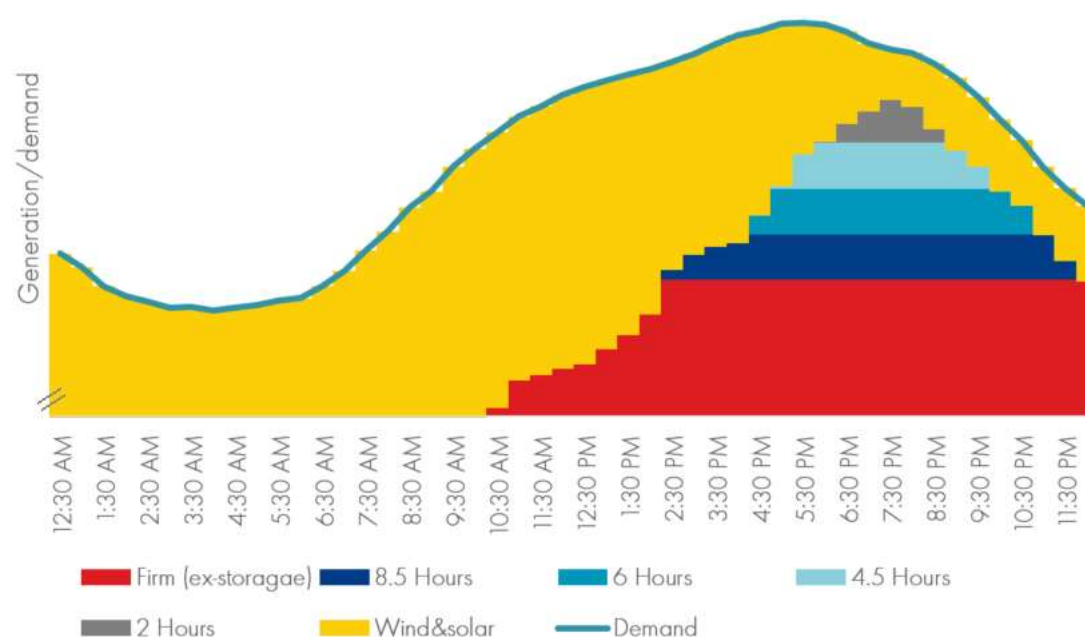
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<sup>3</sup> See Part 3 and Part 6 of the EII Act

<sup>4</sup> In accordance with rule 3.7F of the National Electricity Rules

to collectively match the requirements of the demand profile in the time before, during, and after the peak demand interval. This might require some assets to only be dispatched for a short time during the peak, with other assets to dispatch for longer periods. For example, the actual peak demand interval might require 1GW of storage/demand response to be dispatched for an hour, whereas the second hour might only require 800MW, and the third hour 600MW. Figure 1 below provides a stylistic example that illustrates how storages with different durations could all play a valuable role during a peak demand event (noting that coordinating the storage dispatch may be challenging).

Figure 1: Stylistic example of potential storage output during a peak demand event



Ideally, the EST would be a conservative 'peak demand shape' that could be compared against the expected 'firm capacity shape' that could meet it. However, given that the EII Act defines the EST as a number (not a shape), it follows that firm capacity also needs to be calculated as a single number.

Shell Energy recommends that the Department outlines a detailed methodology for how duration-limited storage or demand response will be treated when calculating firm capacity. We consider it unlikely that simply applying a 'derating factor' for storage/demand response of different durations will be the best solution. After the Department formulates a proposed methodology, it is important for there to be meaningful public consultation to test its workability.

We note that AEMO is currently consulting<sup>5</sup> on how it will model the 'firm contribution' of both VRE and storage with different durations. We encourage the Department to engage with AEMO as part of developing regulations for how the EST Monitor will consider VRE derating factors and storage duration. We advocate for as much consistency as practical, noting that the way AEMO applies 'firm contribution' in its modelling is different to how the ESTM will compare firm capacity with the EST.

<sup>5</sup> AEMO, *Draft ISP Methodology*, 30 April 2021, pp 47-49. Accessed from: [https://www.aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/nem-consultations/2021/isp-methodology/draft/draft-isp-methodology.pdf?la=en](https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2021/isp-methodology/draft/draft-isp-methodology.pdf?la=en)



## Electricity Infrastructure Investment Safeguard

### *Reliability standard referenced by long-term objectives in the EII Act*

In Shell Energy's view, there was no need for the (then) COAG Energy Council to implement the stricter interim reliability measure (IRM) of 0.0006% unserved energy (USE). Notwithstanding, we consider that it is reasonable for the 'reliability standard' referenced by the EII Act to refer to the IRM until it ceases to apply on 30 June 2025, followed by the reliability standard defined under clause 3.9.3C(a) of the National Electricity Rules (NER).

We agree with the Department's position that this definition will provide consistency with the NER. It will also provide the private sector with certainty, transparency, and less regulatory burden compared with if there was a different definition whose form and level may be periodically reviewed<sup>6</sup>.

### *Requirements for competitive tenders for LTESAs*

The principles listed on pages 16-17 of the Paper for the Consumer Trustee to follow when carrying out competitive tenders for LTESAs appear sensible.

However, as outlined in Shell Energy's submission to the recent consultation on the Central-West Orana (CWO) REZ access scheme<sup>7</sup>, we believe that the process to allocate LTESAs should be linked with the process to acquire REZ access rights. We suggest adding an additional principle to this effect.

We acknowledge that this may pose administrative challenges, as the body responsible for allocating access rights (previously termed the REZ Administrator by the Department<sup>8</sup>) may be different from the Consumer Trustee, which has responsibility for LTESAs. However, it is crucial that these challenges are overcome, because the interaction between access rights and LTESAs could have a material impact on the efficient coordination of generation and transmission investment for any REZ.

In addition to the principles on pages 16-17 of the Paper, we note that later in 2021, the Department will be considering additional 'tranche three' regulations under section 47 of the EII Act. We consider that there may be overlap between the tranche two and the tranche three regulations. As discussed in the 'timeframes' section above, after the tranche three consultation is completed, we recommend circulating a complete set of draft regulations for public comment.

### *Infrastructure Investment Objectives Report*

In both the EII Act (e.g. s44(2)) and the Paper (e.g. on page 17), the term 'firming infrastructure' appears to exclude long-duration storage. Conversely, page 18 of the Paper gives "short duration storage" as an example of firming infrastructure. In the webinar on 11 May 2021, the Department indicated that 'firming infrastructure' is effectively another term for scheduled generators, including long-duration storage. We consider it would be useful for the NSW Government to formally clarify (in writing) the definition of 'firming infrastructure' in the context of the Roadmap, given that storage (of various durations) is commonly considered to be capable of provide firming services.

The matters listed on pages 19-20 of the Paper for the Consumer Trustee to consider when preparing the Infrastructure Investment Objectives Report appear broadly sensible. We would particularly like to highlight the

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<sup>6</sup> For example, via a process similar to the Reliability Standard and Settings Review conducted every four years by the Reliability Panel.

<sup>7</sup> Shell Energy. *RE: Central-West Orana RE Access Scheme Consultation*, 30 April 2021, pp 2, 8, 13-14, 16-17. Not yet published at time of writing.

<sup>8</sup> NSW DPIE, *Renewable Energy Zones - Access Scheme: Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 7. Accessed from: <https://energy.nsw.gov.au/sites/default/files/2021-03/Renewable%20Energy%20Zones%20-%20Access%20Scheme.pdf>



importance of the Consumer Trustee having regard to how changes in technology costs may impact the most efficient pathway to meet the infrastructure investment objectives.

One way that this may affect the Consumer Trustee's advice is with respect to s44(3)(b) of the EII Act, which legislates a minimum objective for 2GW of  $\geq 8$ -hour storage before 1 January 2030. For example, if an 8-hour storage project needed to be built today, a pumped hydroelectric energy storage (PHES) asset may be the cheapest option. However, BESS costs are improving such that they are likely to compete in the  $\sim 8$ -hour range by  $\sim 2030^9$ . Further, the major civil works required to develop PHES come with substantial risks and challenges (e.g. locational restrictions, environmental impacts, water allocations, social licence, long lead time, cost and time overruns, financing challenges). Given these issues, the best strategy to minimise the cost to consumers of achieving 2 GW of 8-hour storage before 1 January 2030 may be to facilitate the installation of 8-hour BESS (or increase the storage duration of already-installed BESS) relatively close to the 2030 deadline. This gives substantially more flexibility and scope for cost reductions than contracting with a PHES proponent with sufficient time for their project to be developed and commissioned prior to 2030. The ability to strategically locate BESS in key parts of the network may also deliver greater transmission benefits than PHES (which is unlikely to be optimally located in the network).

Given these issues, it may be worth amending the proposed regulations to more heavily emphasise the importance of the Consumer Trustee considering likely technology cost improvements in its Infrastructure Investment Objectives Report.

## Classification of REZ network infrastructure

The Paper explains that the Department is considering regulations to define various classes and sub-classes of REZ network infrastructure. The Paper goes on to ask stakeholders for feedback on what classes/sub-classes would be useful.

In reviewing the classes set out in Table 1 of the Paper (page 22), it is unclear where network infrastructure that falls under the Roadmap, but which does not form part of a REZ network infrastructure would reside. We recommend Table 1 is amended to include Roadmap regulated and non-regulated network infrastructure that does not directly form part of a REZ. Similarly, it should be clear that where the existing NSW shared network infrastructure is upgraded to facilitate establishment of a REZ, this should form part of the designated REZ shared network infrastructure.

While Shell Energy appreciates the Department's early-stage consultation, it is difficult to recommend additional sub-classifications for REZ network infrastructure without a clear understanding of how the NSW Government plans to regulate each class/sub-class. To this end, we recommend that the Department conducts another round of consultation after it provides details on the purpose of each proposed class and sub-class in relation to economic regulation under Part 5 of the EII Act. This could be as part of the tranche three consultation, or consultation on a complete set of draft regulations (see the 'timeframes' section above).

Notwithstanding the need to consult on the specific regulations that would apply to different classes/subclasses of REZ network infrastructure, we recommend the following general principles when considering economic regulation under Part 5 of the EII Act.

- For any given network infrastructure project, including augmentation or modification to the existing shared network, the NSW Government should clearly articulate:
  - the extent to which it intends to recover costs (c.f. directly subsidising the project)

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<sup>9</sup> AEMO, *2020 Inputs and assumptions workbook*, 11 December 2020. Accessed from: <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp/current-inputs-assumptions-and-scenarios>



- o the mechanism by which any cost recovery will take place
  - o how it will apportion costs to different parties.
- When the regulator conducts the Transmission Efficiency Test under s38(4) of the EII Act, it should assess the proportion of benefits that would accrue to different parties (e.g. consumers, existing generators, and new-entrant generators). This is crucial to the next principle.
- If the government chooses to recover costs, the cost recovery should be apportioned to different parties relative to the benefits they receive.
  - o For example, consider a scenario where the government wanted to equitably recover costs from a \$100 million transmission augmentation. Assume 70% of the benefits accrue to new-entrant generators, 20% accrue to existing generators, and 10% accrue to consumers. If the government sought to recover the entire \$100 million, then it should seek to recover \$70 million from new-entrant generators, \$20 million from existing generators and \$10 million from consumers. Alternatively, if the government sought to explicitly subsidise one group (e.g. consumers), then it could internalise the costs for that group (\$10 million for consumers in this example), and seek to recover the rest. Alternatively, if the government sought to explicitly subsidise the project (e.g. by half), but not a specific party/group, then the costs to be recovered from each party would all reduce proportionally (\$35 million for new entrants, \$10 million for existing generators and \$5 million for consumers in the above example). As per the first principle, it would be important for the government to communicate its cost recovery objectives prior to committing to the augmentation.

The intent of these principles is to ensure any economic regulation is transparent, fair and in the best interests of consumers.

## Conclusion

Shell Energy thanks the NSW Government for the opportunity to provide early-stage feedback on the draft regulations that will accompany the EII Act. We consider many of the Department's positions in the Paper to be sensible. However, this submission highlights several issues we believe deserve further consideration.

We look forward to engaging further as part of future consultation processes – for both the tranche three regulations, and the full set of draft regulations.

If you would like to discuss this submission further, please contact Matthew Ladewig, Policy Adviser at

[REDACTED] or on [REDACTED]

Yours sincerely

Libby Hawker  
GM Regulatory Affairs & Compliance

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