30 April 2021

Chloe Hicks
Department of Planning, Industry and Environment
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Parramatta NSW 2124

Lodged by email: rez@planning.nsw.gov.au

Dear Ms Hicks

RE: Central-West Orana REZ Access Scheme Consultation

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 access scheme options for the Central-West Orana (CWO) Renewable Energy Zone (REZ).

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 gas, electricity, environmental products and energy productivity for commercial and industrial customers. The second largest electricity provider to commercial and industrial businesses in Australia[1], we offer integrated solutions and market-leading[2] 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.

www.shellenergy.com.au

General comments

As the electricity system transitions to a higher proportion of remotely located variable renewable energy (VRE), the National Electricity Market (NEM) will need more transmission infrastructure to achieve emission reduction targets whilst ensuring reliable supply to consumers. Shell Energy is supportive of the NSW Government facilitating the transmission infrastructure required for the CWO REZ.

The attachment to this letter responds to each of the questions raised in the Paper. The following general comments highlight key points from the attachment. Please refer to the attachment for further details.

Assessing the NSW Government's proposed access options

The Paper shortlists three potential access regimes for the CWO REZ. Of the three options put forward, Shell Energy considers that Option 2B has the most merit, however it has a range of weaknesses that would need to

[1] By load, based on Shell Energy analysis of publicly available data

[2] 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.

be addressed before it would be useful and workable. We believe that an alternative model that allocates firm physical access rights would be better than all the Paper's options.

Although our preference is for this alternative model, we have done our best throughout our submission to provide constructive answers to the questions relating to other options. This should not be taken as our endorsement of these options. However, in case Option 1, Option 2A or Option 2B end up as the government's preferred option, we are keen for each of them to be as well-developed as possible.

Shell Energy's proposed alternative access regime

We outline an alternative REZ access scheme in our response to Question 5. It is effectively a hybrid of several models considered in the Paper. Our proposal would use the concept of tiers to allocate firm physical access to Tier 1 rights holders, which would deliver the benefits of the 'limited NEM bidding model' that the NSW Government chose not to progress (see Question 20). However, unlike the limited NEM bidding model, our proposal could be implemented via AEMO's existing dispatch engine. This avoids the major drawbacks of the limited NEM bidding model, which would require bespoke software to be developed and implemented.

Question 5 also flags the potential for a different alternative access regime, which would require REZ participants (as a contractual connection condition) to agree not to bid any Tier 2 capacity at less than $0/MWh. This may effectively prevent Tier 1 VRE output being constrained by Tier 2 access rights holders. We have not developed this concept in as much detail as the first alternative access regime. However, we believe it warrants further consideration due to its simplicity and potential efficacy.

Interaction between access rights and Long-Term Energy Service Agreements (LTESAs)

The Paper states that "the NSW Government is undertaking further design work on the process for allocating access rights and setting access fees, including integration with the process for allocating LTESAs" and that this is "out of scope for the purposes of [the Paper]". These issues warrant consultation, and are relevant to a number of the Paper's questions. For example, at the time proponents are applying for them, the value of access rights depends on the available information on how the REZ will be utilised (e.g. the caps on different tiers of access rights for different intervals), which may impact on LTESA costs (see Question 4). Similarly, if access rights are allocated based on the highest bidder for any given interval, some projects may be less able to acquire all the access rights they need to be commercial (see Question 7). This is an example of where the process to allocate access rights impacts on the overall efficacy of the access scheme design elements (in this example, granularity of access right intervals). These issues may result in inefficient allocation of access rights, higher LTESA costs to the NSW government, and ultimately higher costs to consumers.

It is possible that the advice we have provided in this submission will change once there is more detail on how access rights would be allocated and integrated with LTESAs. As a result, we recommend that the next round of consultation includes holistic discussion of how the REZ Administrator will allocate and price LTESAs and access rights for successful REZ proponents.

With regards to costs for consumers, the Paper sets out that the access framework will ensure "electricity consumers only pay the efficient costs" of the network infrastructure required to support the REZ (the "REZ Shared Network"[3]). However, we note that there is little detail on this, including how costs may be apportioned to connecting parties or consumers. We consider that further details on this topic should be provided as soon as possible.

[3] As explained further in our response to Question 1, the term 'REZ Shared Network' should not be confused with the commonly used terms 'broader shared network' or 'shared transmission network', which typically describe the regulated transmission network that is funded solely by consumers. We use the term 'REZ Shared Network' to be consistent with the Paper, and do not intend to imply that the REZ network infrastructure should be funded solely by consumers.

Interaction with ESB reforms

The Energy Security Board's (ESB's) February 2021 REZ consultation was largely intended to develop what REZ access rights could look like in practice. Unfortunately, at the time of writing, it is not clear whether the ESB will recommend a sensible REZ framework. This is because the ESB currently views REZ access rights as a 'stepping stone' to broader transmission access reforms dependent on locational marginal pricing (LMP) and financial transmission rights (FTR). This type of regime has strong negative impacts on investment and the key financial contracts markets. As a result, it has been comprehensively rejected by stakeholders (including investors, generators, retailers and consumer groups).

We commend the NSW government for discontinuing its consideration of a potential access framework based on LMP and FTR.

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
[redacted]

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Attachment: Answering the specific questions raised in the Paper

Shell Energy has not used the NSW Government's submission template due to restrictive formatting options. However, to assist the NSW Government to consider our submission, this appendix replicates the questions and structure of the submission template.

Table 1: Objectives and evaluation

Question 1: If the CWO REZ Access Scheme delivers on the proposed objectives and benefits, how would connecting projects value connecting under this Scheme rather than elsewhere under current NEM network access arrangements? Should proposed benefits be given weightings, and if so, what should these be?	This depends a lot on the boundary connection point(s) (i.e. where the REZ Shared Network[4] connects with the rest of the transmission network) and the spare capacity between the REZ connection point and the consumer load centres compared to spare transfer capacity at alternative locations in the broader network. The value of access rights to the CWO REZ will be comparatively higher if the REZ Shared Network connects to a strong part of the existing NSW network that has sufficient thermal capacity available to support the REZ generation projects. Generally speaking, the closer the boundary connection point is to the regional reference node (RRN), the higher the value of the rights (due to the greater certainty of stable loss factors and access to the regional load centres). We recommend that, when designing the REZ network infrastructure (and its connection point to the broader transmission network), the NSW Government consults with industry on appropriate boundary connection points.
Question 2: What, if any, additional benefits should the CWO REZ Access Scheme deliver to provide value to connecting generation and storage projects?	If the REZ and accompanying connection and access schemes were designed and implemented appropriately, they would deliver a range of benefits to REZ participants including certainty of access to REZ network infrastructure, improved certainty around connection times and technical requirements, the opportunity to share the cost of system strength solutions (if required) with other REZ participants, and the opportunity to share connection assets (potentially at lower cost than if proponents separately paid for multiple standalone connection assets).

[4] Throughout this submission, we have adopted the NSW Government definition of the 'REZ Shared Network' to be the new network infrastructure in the REZ where access rights would apply (defined on page 6 of the Paper). We use this language so our meaning is clear to NSW policymakers. However, we add the following caveat to clarify our intentions.

We understand that the word 'shared' in 'REZ Shared Network' is intended to reflect that the new infrastructure would be shared by (and therefore benefit) generation and storage projects that connected to the REZ However, we note that 'shared' could be misinterpreted to mean that all costs should be shared amongst consumers, as per the common use of 'shared' when talking about the broader regulated transmission network that is solely funded by consumers (who 'share' the costs). To be clear, our use of the term 'REZ Shared Network' does not imply that consumers should bear any costs of REZ network infrastructure in excess of the benefits they would receive from it. As a result, we do not suggest that it should form part of the normally understood 'shared transmission network' that is funded solely by consumers.

	In general, we do not consider that the access scheme needs to deliver further benefits beyond those listed above. However, there is potential to encourage in-REZ flexible load (e.g. hydrogen electrolysers, storage charging) to operate in a way that reduces spilled energy, and ultimately reducing costs to consumers (see Question 26).
Question 3: Do you agree with the proposed evaluation criteria? What, if any, additional criteria should be considered?	<u>The REZ is not necessarily the optimal location for storage</u> One of the proposed criteria is that the access framework "incentivises storage capacity to connect within the REZ". However, it may not always be in the best interests of the electricity system (or the REZ itself) for storage to connect within the REZ. For example, storage may deliver greater value if it is located outside of the REZ such that it relieves congestion between the REZ and the RRN, or (for a REZ with multiple connection points to the broader transmission network) relieves in-REZ constraints by impacting power flows elsewhere in the broader network. We understand that the intent of the proposed criterion is to improve the utilisation of the REZ Shared Network by reducing the amount of 'spilled' energy from REZ generators, and increasing REZ generator (or storage) output when the REZ Shared Network is not congested. The first issue (reducing spillage) could be addressed by the location of any load (not just storage) within the REZ. The second issue (increasing REZ Shared Network utilisation when not congested) is already addressed by other criteria in the Paper's Table 2 (e.g. "[incentivising] efficient use of capacity on the REZ Shared Network for each trading interval"[5]). With this in mind, a better version of the above criterion could be: "incentivises storage and load to locate in a way that facilitates the most efficient use of REZ infrastructure and the broader shared network". <u>Criteria weighting</u> It is important that some criteria are weighted more heavily than others. For example: • The 'timely implementation' criterion makes sense, but should be weighted less than other criteria. To understand why, consider a scenario where a particular access framework took an extra six months to implement, but delivered substantially better outcomes. Given the long-lived nature of the shared REZ infrastructure and associated generation/storage, it would be ill-considered to choose an alternative access regime that delivered sub-optimal outcomes, but was marginally faster to implement.

[5] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, Table 3, pp 17

	• Another criterion is "minimal interference with the NEM bidding or other central dispatch processes operated by AEMO". As for the 'timely implementation' criterion discussed in the previous dot point, any impact on AEMO processes should be considered relative to the overall benefit of the access scheme. In our response to Question 5, we suggest an alternative REZ access framework whereby AEMO would constrain output from 'Tier 2' access holders (if they would have otherwise negatively impacted Tier 1 access holders) by placing Tier 1 access holders on the uncontrolled right-hand side of constraint equations used in the NEM dispatch engine (NEMDE). This would provide the benefits of the 'limited NEM bidding model' the NSW Government chose not to progress, without requiring the development of a bespoke software system (see Question 20). In Shell Energy's view, the minor impact on AEMO's constraint formulation processes would be justified by the benefits. Integration with ESB reforms The ESB's recent REZ consultation[6] was largely intended to develop what REZ access rights could look like in practice. Unfortunately, at the time of writing, it is not clear whether the ESB will recommend a sensible REZ framework. This is because the ESB currently views REZ access rights as a stepping stone to broader transmission access reforms dependent on locational marginal pricing (LMP) and financial transmission rights (FTR). This type of regime has strong negative impacts on investment and the key financial contracts markets. As a result, it has been comprehensively rejected by stakeholders (including investors, generators, retailers and consumer groups) as part of the Australian Energy Market Commission's (AEMC's) COGATI consultation[7], as well as the aforementioned ESB REZ consultation. Shell Energy strongly recommends against criteria that requires the NSW REZ access framework to enable broader access reform based on LMP and/or FTR. We support the NSW government for not progressing an access framework based on LMP and FTR. Consistent with this view, we suggest removing or modifying the criteria that relate to integrating with potential ESB reforms.

[6] ESB, *Stage 2 REZ Consultation - Energy Security Board*, February 2021. Accessed from: http://www.coagenergycouncil.gov.au/publications/stage-2-rez-consultation-energy-security-board

[7] AEMC, *Coordination of generation and transmission investment implementation – access and charging*, November 2020. Accessed from: https://www.aemc.gov.au/market-reviews-advice/coordination-generation-and-transmission-investment-implementation-access-and

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Table 2: Access scheme models

Question 4: Which of the shortlisted models presented is preferred? Which best balances the need to deliver value to investors with the need to maximise utilisation of the REZ, and together achieve the access scheme's objectives? In particular, does the 'non-firm' connection right, under Option 1 provide sufficient certainty to investors to be of value? If it does not, is this outweighed by the increased utilisation of the REZ that would result under such non-firm connection rights?	General comment Of the shortlisted access models presented in the Paper, our preference is for Option 2B, noting that it has a range of weaknesses that would need to be resolved in order to make it useful and workable. Shell Energy believes an alternative access model (that incorporates the tiers of Option 2B, but firm physical access rights like in the 'limited NEM bidding model' the NSW Government chose not to progress) would be substantially better than Option 2B. We discuss this alternative further in Questions 5. Although our preference is for this alternative model, we have done our best throughout our submission to provide constructive answers to the questions relating to other options. This should not be taken as our endorsement of these options. However, in case Option 1, Option 2A or Option 2B end up as the government's preferred option, we are keen for each of them to be as well-developed as possible. Specific question relating to Option 1 The value of the non-firm connection right under Option 1 depends on the details, availability and quality of the REZ design available to investors at the time physical access rights are made available to the market. Note that this is true for all options (not just Option 1), although some of the following rationale is specific to Option 1. • Details: The amount a proponent is willing to pay for physical access rights will depend on the level of in-REZ congestion to which they will be exposed. This will be impacted by the mix of generators in the REZ, and the level of 'designed' congestion (flagged in the paper as "access rights allocated at an efficient level above the export capacity of the REZ Shared Network"[8]). • Availability: For proponents to make an informed bid/offer for access rights, the NSW Government would need to release detailed information about the REZ design (including planned access rights caps) well in advance of the auction/tender taking place. If the auction/tender process had multiple stages, this information may need to be updated at each stage. It is crucial that this information is available far enough in advance for proponents to factor in the impact of potential curtailment on their projects' business cases.

[8] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, Table 3, pp 20

- Quality: The amount a proponent is willing to pay for physical access rights will depend on their confidence that the REZ Shared Network has been well-designed, such that that power transfer capability in practice will be as promised during the design process. This relates to both the 'details' and 'availability' points above.

The above points mention an 'auction/tender' and 'bid/offer' to describe how a proponent might secure access rights. However, we note that this process is unlikely to (and should not) occur 'in a vacuum', and would likely require the REZ Administrator to have regard to a range of other factors including Long Term Energy Service Agreements (LTESAs) and REZ utilisation. Unfortunately, the process for allocating access rights and how this would relate to the process for allocating LTESAs was out of scope of the Paper. This should be consulted on in detail, as it has the potential to substantially impact the efficacy of different access right regimes (discussed further at Question 7).

Overall, Shell Energy acknowledges that there may be an efficient level of congestion within and of the REZ Shared Network (that would make the access rights non-firm) that would provide for optimal utilisation of physical infrastructure. However, the higher the level of 'designed' congestion, the less valuable the access rights will be. Similarly, the more 'designed' congestion there is, the higher cost to the NSW Government for LTESAs necessary to incentivise generators to connect to the REZ compared with elsewhere in the network (also discussed at Question 11).

Regardless of the level of designed congestion, it is important that quality information is made available to proponents prior to requiring an investment decision and/or bids for access rights. If it isn't, then the access rights would likely have limited (or at least hard-to-define) value at the time of offer.

Option 2B compared with Option 1

As discussed above, Option 1 requires the REZ Administrator to allocate a capped amount of access rights, which will dictate the amount of in-REZ generation to which the rights holders will be exposed. Conversely, the tiered framework of Option 2A and 2B allows the market to explicitly value (financially) firm access using Tier 1 rights. It also allows the market to place a value on non-firm (Tier 2) access that would be exposed to congestion. This is likely to deliver more efficient outcomes (e.g. improved utilisation, greater cost recovery from the sale of access rights) than forcing all REZ generators to be exposed to a level of in-REZ congestion decided by the REZ Administrator.

Although we consider Option 2B to be preferable to Option 1 as described in the Paper, it is worth noting that physically firm access rights (if the Option 1 access rights were capped at the capacity of the REZ Shared Network for any given interval) would provide greater certainty than Tier 1 financial access rights under Option 2B (see Question 17). If this were the case, then Option 1 may be preferable.

	Benefits of Option 2B compared with Option 2A Question 13 outlines our rationale for why we prefer Option 2B to Option 2A
Question 5: Are there other access models that you consider would be superior to the shortlisted models in this paper? If so, what are these models, and what are their strengths in comparison to the shortlisted models?	Outline of an alternative model Yes. Shell Energy recommends a firm physical access (FPA) model, which is effectively a hybrid of several models considered in the Paper. The FPA model uses the concept of tiers (consistent with Options 2A and 2B) to allocate firm physical access to Tier 1 rights holders (consistent with the 'limited NEM bidding model' that the NSW Government chose not to progress). Given the multi-circuit nature of the proposed REZ network, it could be implemented using AEMO's NEMDE (i.e. without new software being developed), and/or by the connection network service provider facilitating tripping or runback schemes for Tier 2 access holders. We envisage the FPA scheme working as follows. • All generators connected to the REZ would be required to have enough Tier 1 and/or Tier 2 access rights to cover their nameplate capacity for all intervals.[9] • The REZ Administrator would allocate Tier 1 access rights up to the capacity of the REZ Shared Network for all 5-minute intervals during the day. The REZ Administrator could also allocate an uncapped amount of Tier 2 access rights if proponents sought them (noting that, as explained in footnote 9, Tier 2 rights are effectively an accounting term to describe generation capacity that is not firm (i.e. does not have Tier 1 rights). • Tier 1 access rights would provide firm physical access. This would be achieved by AEMO preferentially constraining down/off output from Tier 2 access holders if their dispatch would have resulted in network congestion and reduced the dispatch of a Tier 1 operator(s). AEMO could do this using its existing systems by placing Tier 1 generating units on the uncontrolled right-hand side of constraint equations used in the NEMDE, and Tier 2 generating units on the controlled left-hand side of the relevant constraint equation. As an illustration: (REZ generator MW) ≤ (REZ powerline limit) would become (Tier 2 REZ generators) ≤ (REZ powerline limit – Tier 1 REZ generators). Alternatively, the network service provider could facilitate automated runback or tripping schemes for Tier 2 generators as a condition of connecting to the REZ Shared Network.

[9] Note that Tier 2 access rights are unlikely to be materially valuable in this model, so this step could be removed such that any generator could have any amount of (Tier 1) access rights, and there are no Tier 2 access rights (which would be replaced with the concept of having no access rights). However, to allow easy comparison with the options flagged in the Paper, we have retained the Tier 1 and Tier 2 terminology. To be clear, the Tier 1 rights are the only ones that 'matter'; the Tier 2 rights can be thought of as an 'accounting term' used to describe generation capacity that does not have Tier 1 rights.

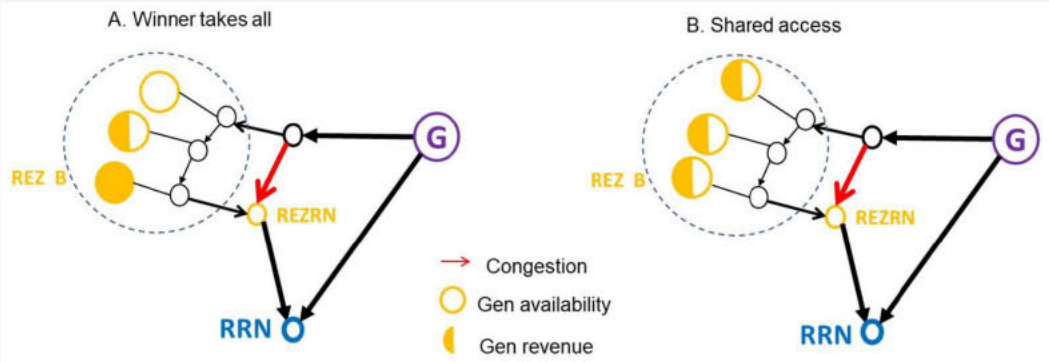
	• All generators, including Tier 1 generators, would still be subject to AEMO's security constraints and directions. Strengths of an FPA model The FPA model has a range of benefits compared with the three options presented in the Paper. For simplicity, the following points compare the FPA model with only Option 2B because we (and the NSW Government[10]) consider it to be more preferable than Options 1 and 2A (discussed further in Question 4). • One of the drawbacks of a financial compensation model (e.g. Option 2B) is the need to implement a workable settlement process. This introduces a range of risks and potential administrative challenges (see Questions 17, 18 and 20). The FPA model we are proposing does not require a mechanism to facilitate compensation. • As discussed in Question 17, under a financial compensation model, there are scenarios where compensation from Tier 2 generators may be capped below the loss of income they caused for Tier 1 generators. The proposed FPA model avoids this issue by automatically constraining Tier 2 generators before they negatively impact Tier 1 generators. • As discussed in Question 20, our proposed FPA model would deliver a higher degree of access certainty for Tier 1 rights holders whilst allowing Tier 2 generators to access the REZ Shared Network to the maximum output possible without causing congestion. Note that Questions 13 to 20 discuss Options 2A and 2B in more detail, and provide comparisons with our proposed FPA model. Potential for modifications Note that the details for an FPA model need further refinement and consultation before they could be implemented. However, we believe that this is warranted, based on the model's promise. We have identified several areas for further consideration. • The 'firmness' of the FPA model comes from the REZ Administrator capping Tier 1 access rights at the capacity of the REZ Shared Network for any given 5-minute interval. A variant of the model would be to reduce the firmness (but potentially increase network utilisation) by allowing the REZ Administrator to allocate Tier 1 capacity at a level above the capacity of the REZ Shared Network. However, as noted elsewhere in this submission, this would reduce the value of each access right.

[10] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 37

	• In our view, Tier 1 access rights should be capped at the capacity of the REZ Shared Network for any given 5-minute interval. However, if the NSW governments chose to cap Tier 1 access rights above the capacity of the REZ Shared Network would, there would need to be a 'revenue sharing' scheme for Tier 1 access holders, (as proposed by the ESB) to avoid 'winner takes all' outcomes (i.e. some Tier 1 access holders being constrained off ahead of others due to their physical connection location in the REZ Shared Network, discussed further in Question 6)[11]. The revenue sharing scheme would need to be carefully designed to minimise incentives for disorderly bidding within the REZ. Even if the Tier 1 access rights are capped at the capacity of the REZ Shared Network, network flows on the broader transmission system may result in some (but not all) Tier 1 generators being constrained down/off, despite bidding at under the regional reference price (RRP). This is another reason for the FPA (and the other models) to incorporate a revenue sharing arrangement for Tier 1 generators. Shell Energy would be pleased to assist the NSW Government as it considers these issues. <u>A different alternative access model</u> Another, simpler alternative access regime could be to require REZ participants (as a contractual connection condition) to agree not to bid any Tier 2 capacity at less than $0/MWh. This may effectively prevent Tier 1 VRE output from being constrained by Tier 2 access rights holders (assuming the Tier 1 generators had a short-run marginal cost of zero, and were willing to bid below zero (e.g. at the negative LGC price)). The bidding behaviour of REZ participants would be reasonably easy for the REZ Administrator to monitor (and therefore enforce compliance via the contractual arrangements agreed as part of connection). We have not developed this concept in as much detail as the first alternative access regime. However, we believe it warrants further consideration due to its simplicity and potential efficacy. One issue that would require further analysis is the likelihood and extent to which this access model would impact the RRP in periods where the REZ was uncongested. In this scenario, it is possible that a Tier 2 generator may be the marginal generator, and bid in at zero, rather than at (for example) the negative LGC price. However, the risk of this occurring may be outweighed by the regime's benefits.
Question 6: How could the characteristics of either Option 1, 2A or 2B be adjusted to	<u>Option 1</u> In Option 1, "overall storage capacity connected the REZ Shared Network is capped"[12]. This is a relatively inflexible condition that may result in inefficient levels of storage. An alternative would be to allow unlimited amounts of 'Tier 2' generation or

[11] ESB, *Stage 2 REZ Consultation - Energy Security Board*, February 2021, pp 39-40. Accessed from: https://energyministers.gov.au/publications/stage-2-rez-consultation-energy-security-board

[12] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 21

improve them in a manner that achieves the access scheme's objectives?	storage to connect, under the condition that it is constrained off/down in situations that benefit the 'Tier 1' rights holders (i.e. the only rights holders under the Paper's vision for Option 1). We expand on this concept in our response to Question 5, which outlines our suggested alternative access regime. The Paper does not address how constraint risk should be shared between access rights holders. As explained by the ESB, there may be situations where a generator's connection location in the REZ Shared Network dictates whether it is constrained off compared with an identical generator connected elsewhere in the REZ (that has the same access rights)[13]. To prevent a 'winner takes all' outcome (see Figure 1), we recommend some type of revenue sharing scheme access rights holders. The revenue sharing scheme would need to be carefully designed to minimise incentives for disorderly bidding within the REZ and avoid gaming. If revenue sharing was based on same kind of availability metric, then it should be based on maximum bid reported availability for scheduled generation and the Unconstrained Intermittent Generation Forecast for semi-scheduled generation; and a generating unit with a non-zero volume dispatch offer at a price greater than the RRP should not be allocated part of the revenue, despite being available. Figure 1: ESB visualisation of a winner takes all vs. revenue sharing arrangement during congestion[14] 

[13] ESB, *Stage 2 REZ Consultation - Energy Security Board*, February 2021, pp 39-40. Accessed from: https://energyministers.gov.au/publications/stage-2-rez-consultation-energy-security-board
[14] ibid, pp 40

	Option 2B In Option 2B, Tier 2 access rights are allocated up to a capped level above the Tier 1 access rights[15]. Given that Tier 2 access rights are always dominated by Tier 1 access rights, the main rationale for capping Tier 2 access rights appears to be imposing scarcity in order to increase the value of Tier 2 access rights. When determining what the Tier 2 cap should be, the NSW government should carefully consider the extent to which varying the Tier 2 cap impacts the value of Tier 2 access rights. This should be compared against the value to the system of greater utilisation of the REZ Shared Network that may occur with uncapped Tier 2 access rights.
Question 7: Characteristics such as more granular access rights (for example, rights defined in five-minute intervals) and tradeable rights can provide flexibility to access right holders, but also make the access scheme more complex. How should the trade-off between flexibility for access right holders and simplicity of the access scheme be assessed? Which better achieves the access scheme's objectives?	Shell Energy sees there is a trade-off between complexity and granularity in this area. Whilst we see potential value in more granular access rights (e.g. 5-minute trading intervals) rather than combinations of generic average shapes (e.g. solar shape, wind[16] shape, flat shape) this must be balanced against the complexity required to achieve this. We have a similar view (i.e. the need to balance complexity against potential benefit) for shapes that vary by period (e.g. each month or quarter of the year). We also note that that to a degree, the actual output from wind and solar generating units will not be known until Dispatch. Depending on how the access rights are allocated, there may be unintended consequences. For example, when bidding for access rights, proponents will likely want to acquire rights to fit a specific generation profile. Allocating access rights to solar generators for daylight hours may result in wind generators having a shortfall in network access rights if their generation output aligns with output from solar generators. Depending on the process to allocate access rights (see Question 4), it is also plausible that proponents may be the highest bidder for some, but not all the 5-minute intervals within their target generation profile. If access rights were awarded based on the highest bidder for each 5-minute interval, this could lead to a perverse scenario where projects are less able to acquire all the access rights they need to be commercial. Similarly, some proponents may seek to gain a monopoly on the intervals expected to correspond with the highest prices, which may result in the REZ ultimately being underutilised. As discussed in Question 4, the auction/tender/other process to allocate access rights and its interaction with the process to allocate LTESAs for REZ generators will need to be carefully designed to mitigate these issues. We note that "the NSW Government is undertaking further design work on the process for allocating access rights and setting access fees, including

[15] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 20

[16] Note that average wind shapes mask substantial variability, which impacts on the applicability (and therefore value) of an average wind-shaped access right. This is discussed further at Question 12

	integration with the process for allocating LTESAs" and that this is "out of scope for the purposes of [the Paper]"[17]. However, we think that this issue warrants further detailed thought and consultation. We discuss the value of being able to trade access rights in in Question 21. Allowing participants to trade access rights with 5minute granularity may be beneficial, because it allows for participants to define bespoke shapes of value when making future trades. However, as we alluded earlier in our response to Question 7, it is important that the access rights aren't granted based on the highest bidder for individual 5-minute intervals. In addition to making the auction/tender process excessively complex for participants, it may also result in unintended outcomes. If there is some version of an auction/tender, we consider that larger access rights blocks of (say) one or two hours (made up of 5-minute intervals) would be more workable. As a final comment, it is possible that various advice we have provided in this submission will change once there is more detail on how access rights would be allocated and integrated with LTESAs. As a result, we recommend that the next round of consultation includes holistic discussion of how the REZ Administrator will allocate and price LTESAs and access rights for successful REZ proponents.
Question 8: If not nameplate capacity, what is the appropriate level of capacity that should be used to determine requirements for access rights coverage that would better achieve the scheme's objectives? If a Probability of Exceedance (POE) value is used, what process should be used to verify this?	Shell Energy considers that nameplate capacity is an appropriate requirement for total access rights coverage, noting that this is the sum of both Tier 1 and Tier 2 access rights. However, as discussed in Question 18, this becomes complex for Option 2B. In our view, a POE value may introduce unnecessary uncertainty, for limited benefit. This uncertainty may flow through to higher project financing costs. To some extent, this may be avoided if a very high POE value is used. A POE50 a proposed in the Paper would fall well short of this level. A POE in the order of POE02 may strike a balance between efficient REZ utilisation and the certainty required to lower financing costs. However, more much work would be required to understand what an appropriate POE would be, and if the benefits it would deliver would justify the additional complexity and uncertainty. This work would likely require the forecast individual and combined output from solar and wind farms to be compared with their nameplate capacity, based on the proportion of different types of generation expected to connect to the REZ. We note that the alternative access model we proposed in Question 5 would avoid this issue, because generators would be able to acquire firm access for any level of capacity up to and including the nameplate.

[17] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 9

Question 9: How should the allocation of access rights to hybrid (storage plus generation) assets be approached? What 'shape' of access rights would suit a hybrid asset? How could projects which use some of their maximum capacity 'behind the meter' be accounted for in determining the appropriate level of capacity for access rights coverage?	A hybrid asset should be able to elect the volume of access rights (A) it would like, within a range (the minimum being the VRE generating units' capacity (G_{VRE}) less the load (storage) capacity (L) (i.e. G_{VRE} – L), the maximum being G_{VRE} + generating capacity of the storage (G_{ESS}). If the hybrid asset had access rights such that $A < G_{VRE} + G_{ESS}$, then the asset could have a physical or financial arrangement to ensure that other REZ participants weren't disadvantaged by the hybrid asset generating above its access rights. This could take the form of a runback scheme, and/or a financial agreement with an effect similar to Tier 2 rights as described in Options 2A and 2B. Note that this issue would be simplified if there was a mechanism to physically constrain generators with insufficient access rights. The alternative access model we propose in Question 5 provides a practical, implementable framework to this effect.
Question 10: Is there a minimum term (in years) for which access rights would need to apply to benefit project finance?	Yes. In general, the longer the access rights apply, the greater their value. A minimum of at least 25 or 30 years would be useful to acquire project finance of most VRE projects. In our view, access rights should be linked to the lifespan of the physical transmission infrastructure. This would increase the value of the access rights because of the certainty it would provide to the rights holder, and the value of being able to trade the access rights for a long time into the future. Any concerns related to 'stockpiling' access rights could be addressed via an appropriate 'use it or lose it' policy (see Questions 34 and 35).

Table 3: Option 1: Limited physical connection model

Question 11: Under Option 1, connected generation capacity could be capped above the capacity of the REZ Shared Network. How should generation and storage capacity be set or capped to optimise REZ Shared Network utilisation without introducing too much constraint risk?	Ultimately, this is a question for the NSW Government to answer as it decides on how much REZ expenditure it is trying to recover from the sale of access rights. From a consumer's perspective, the major benefit of a REZ lies in the presupposition it has been identified and designed such that it is along the optimal path for minimising total system costs over the long term. Ideally, the Energy Corporation of NSW (Energy Corporation) and/or the REZ Administrator should work with AEMO to 'size' each REZ and facilitate appropriate non-REZ transmission augmentation such that any congestion (in either the REZ itself, or in the wider network impacted by the REZ) is at an optimal level (for the system) over the long term. The 'efficient' level of REZ congestion (and therefore the volume of REZ access rights) should be determined based on this analysis. However, the higher the amount of 'designed' congestion, the less valuable the access rights will be. Indeed, too much 'designed' congestion will likely increase the cost to the NSW Government of LTESAs necessary to incentivise generators to connect to the REZ (c.f. elsewhere in the network, if proponents could connect elsewhere with less congestion risk). This

	highlights a degree of tension between the access scheme objectives to "provide greater investment certainty", while "promoting efficient utilisation of REZ infrastructure"[18]. In our view, facilitating "active coordination of investment"[19] by providing access certainty (i.e. low or no 'designed' congestion) should be prioritised ahead of perfectly efficient utilisation of REZ infrastructure. It is crucial that the level of 'designed' congestion is clear to proponents well before they bid/tender for access rights. If it is not, then the uncertainty will decrease the value of the rights at the time of bid/tender, and may increase project financing costs.
Question 12: How could network capacity be allocated between different generation types? Should it, for example, be based on a particular, pre-defined generation profile ("shape") for different types of generation technologies?	Question 12 is closely related to Question 11. The Energy Corporation and/or the REZ Administrator should design the REZ infrastructure such that it facilitates the amount and type (i.e. time of day) of generation that would provide the greatest benefit to the system. This would require modelling that would likely make use of generic REZ-specific generation shapes for different VRE generation options. The REZ Administrator should then allocate capacity so it delivers on the intent of the REZ design. One way to do this would be to offer capped capacity for pre-defined shapes (e.g. average solar shape, wind shape, flat shape, or combinations of the three (e.g. flat subtract solar)). Another would be to conduct a market-led process whereby proponents would bid for access rights for any shape, and the REZ Administrator would 'piece together' the different shapes to deliver an optimal outcome for utilisation and access rights revenue. Each of these approaches has its own strengths and weaknesses. • Allocating a known amount of pre-defined shapes would help to provide proponents with certainty around how in-REZ congestion is likely to impact their projects. This would allow them to more-easily value the access rights. However, this approach relies on perfect central planning, and does not facilitate innovative generation profiles (e.g. from energy storage system (ESS) or hybrid assets). Additionally, while it is possible to construct an average wind shape, it has limited utility. This is because the averaging masks substantial variability in day-to-day wind generation. As a result, wind proponents may prefer access rights that are different to the average shape. • Facilitating bids for non-standard shapes may allow for the market to provide more efficient options to utilise the REZ Shared Network infrastructure compared with a centrally planned approach. However, it may be difficult for the REZ Administrator to align non-standard access shapes with LTESAs (assuming these are linked) in a way that maximises infrastructure utilisation. It would also be difficult for proponents to place a value on access rights if the in-REZ

[18] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 16
[19] ibid

	congestion risk was unclear at the time of the access right auction/tender process. This could be somewhat mitigated by the REZ Administrator defining a target level of access rights oversubscription before the auction/tender process (e.g. 105% of the REZ Shared Network's capacity for all five minute intervals). However, as discussed elsewhere in this submission, the higher the level of 'designed' congestion, the less valuable the access rights. As discussed in Questions 4 and 7, we note that "the NSW Government is undertaking further design work on the process for allocating access rights and setting access fees, including integration with the process for allocating LTESAs" and that this is "out of scope for the purposes of [the Paper]"[20]. Consequently, we recommend that the next round of consultation includes holistic discussion of how the REZ Administrator will allocate and price LTESAs and access rights for successful REZ proponents. As it stands, we are only able to speculate on the NSW Government's plans to optimise REZ utilisation, while maximising access rights revenue and minimising the cost of LTESAs.

Table 4: Option 2A and 2B – Financial compensation models

Question 13: How would 24-hour access rights impact the value and efficiency of a financial compensation model? If access rights were defined as flat, 24-hour, access rights, would access right holders be incentivised to firm up their generation to make efficient use of the access rights (either technically, or commercially with sharing arrangements)? If not, what adjustments would need to be made to the access scheme design to incentivise this?	Shell Energy prefers Option 2B to 2A. Flat access rights appear overly restrictive without good reason. A flat shape does not reflect how most proponents will seek to generate, nor does it reflect when the access rights are of most value (i.e. during times of day when market prices are expected to be higher). The REZ Shared Network would likely be underutilised under Option 2A. Increasing utilisation would likely require access rights holders to enter into bilateral deals with counterparties to create access rights for non-flat shapes. This would likely be a more complicated and less efficient process than if the REZ Administrator allowed proponents to bid for non-flat shapes in the first place. The only other way to increase utilisation would be to preference proponents that were able to deliver projects with multiple generation types, but this would reduce competition within the REZ, and increase generation development costs.
Question 14: Would currently available information, including solar and wind forecasts for corresponding Tier 1 generators, be sufficient for Tier 2 access right holders to make a reasonable assessment of the risk of being constrained off?	Even with excellent data on solar and wind forecasts for Tier 1 generators, it would be challenging for Tier 2 access right holders to make a reasonable assessment of constraint risk unless they have certainty around how Tier 1 rights have been allocated. This includes the volume and shape of Tier 1 rights that have been allocated, and details of the proposed projects of Tier 1 rights holders (e.g. capacity and technology type of generation/storage). Addressing this issue may require a staged auction/tender process for access rights.

[20] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 9

Or would additional data need to be available to achieve this?	
Question 15: With reference to Appendix B, to what extent should curtailment (and therefore the compensation mechanism) take bid price or market settlement price into account? In particular, what would be the downside to limiting compensation to only the bids from Tier 1 access right holders that are below the market settlement price?	Appendix B considers three different constraint definitions to determine when Tier 1 access right holders would be entitled to compensation under Option 2A and 2B: "constraints based on volume", "constraints based on volume and settlement price" and "constraints based on volume and [bid] price". Shell Energy agrees that the "constraints based on volume and settlement price" definition is most appropriate. I.e. Tier 1 access right holders should be compensated if they offered capacity that would have been dispatched on price merits, but was constrained off due to a shortfall in available REZ Shared Network export capacity due to output from Tier 2 generators. Our rationale is broadly the same as what is presented in Appendix B.
Question 16: In what ways could the proposed models and compensation mechanism design result in changes to the bidding strategies of Tier 1 and Tier 2 access right holders? Would this be expected to have a material impact on the NSW market?	Our response to Question 17 links back to this question by providing examples where bidding behaviour from Tier 2 access right holders may negatively impact Tier 1 access right holders. Changes in bidding strategies would depend on the definition of when Tier 1 access right holders were entitled to compensation (see Question 15). Our comments assume the "constraints based on volume and settlement price" definition, for which the NSW Government has indicated its preference[21].
Question 17: There could be circumstances in which the revenue earnt by Tier 2 access right holders will not equal the revenue lost by the Tier 1 access right holders through subsequent curtailment. This includes instances of intra-REZ constraints, and when MLFs for Tier 2 generators are systematically lower than for Tier 1 generators. What are the other circumstances, if any, in which potential 'compensation inadequacy' may occur? How material is this risk	There are a range of situations where Tier 1 access right holders under Option 2B could be worse off due to the behaviour of Tier 2 access rights holders. We consider that this presents a material risk for Tier 1 access right holders (which would lower the value of the access rights). Further, we consider that these risks would be eliminated or greatly reduced by the alternative access scheme we have presented in Question 5. We give several simplified examples to highlight specific issues. We have not considered more complex scenarios where the issues in the different examples interact. Note that our scenarios use 30-minute intervals for simplicity, but the concepts remain the same for 5-minute intervals. <u>Example 1: Impact of PPAs and LGCs</u> The compensation calculations outlined on page 31 of the Paper are based on the spot price. However, REZ generators' bidding strategies are likely to be heavily influenced by power purchase agreements (PPAs) or LTESAs and

[21] NSW DPIE, Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme, March 2021, pp 64

for Tier 1 access right holders in comparison to the open-access regime?	the price of LGCs. There are scenarios where these factors would cause Tier 2 generators to bid in a way that negatively impacts Tier 1 generators. This is because PPAs for VRE generators are metered output hedge contracts that rely on generation output to calculate contractual payments. Consider a 30-minute interval where: • there are two 50MW generators in the REZ – one with Tier 1 rights, and one with Tier 2 rights • the REZ has an export capacity of 50MW, and the Tier 2 generator is physically located within the REZ such that NEMDE dispatches it ahead of the Tier 1 generator if the REZ Shared Network is at capacity • both generators have a contract for difference PPA with a strike price of $70/MWh • the regional reference price is $30/MWh • both generators bid in their entire capacity at a price below the RRP for that trading interval • the LGC price is $25/MWh. In this scenario, cashflows for that interval would be as follows: • The Tier 2 generator would: o earn spot revenue of 50MW × $30/MWh × 0.5 hours = $750 o earn CFD settlement of 50MW × $(70-30)/MWh × 0.5 hours = $1000 o earn LGC revenue of 50MW × $25/MWh × 0.5 hours = $625 o pay compensation of 50MW × $30/MWh × 0.5 hours = $750 which would result in a net revenue of $750 + $1000 + $625 - $750 =$1625. • The Tier 1 generator would not be dispatched, and would only earn $750 in compensation from the Tier 2 generator. No CFD settlement is payable as the Tier 1 generator did not generate. However, if the Tier 2 generator wasn't dispatched, the Tier 1 generator would have earned $2375 (spot revenue + CFD settlement + LGC revenue). This means that the Tier 2 generator caused a negative impact of $1625 on the Tier 1 generator. This is a risk that the Tier 1 generator cannot control.

	This example was for a specific RRP. However, the Tier 2 generator would be incentivised to operate in this manner whenever it expected the RRP to be below $95/MWh, which is the price at which CFD settlement is the negative of the LGC revenue ($625), so the Tier 2 generator would lose money if it was dispatched. This may result in bidding strategies that result in inefficient market outcomes (e.g. if the Tier 2 generator doesn't bid in its capacity during a high price event, but the Tier 1 generator is unexpectedly offline). This negative impacts to the Tier 1 generator in this example would not occur under the alternative access framework we have suggested in Question 5, because the Tier 2 generator would be physically constrained off by the operation of the NEMDE constraint equations. Example 2: Negative "gatekeeper" generators Because of the physics of power flows in a network mesh, there may be situations (depending on network topology) where a given amount of output from a Tier 2 generator results in a greater amount of curtailment for Tier 1 generators within the REZ Shared Network. Given that compensation due from Tier 2 rights holders is capped at the revenue they earned from the spot market[22], this would result in Tier 1 generators being compensated for less than they would have earned had the Tier 2 generator not been dispatched. Consider a 30 minute interval scenario where: • there are three 50MW generators in the REZ – two with Tier 1 rights, and one with Tier 2 rights • power flows in this interval mean that, for every 1MW dispatched from the Tier 2 generator, both of the Tier 1 generators are constrained by 1MW; but if the Tier 2 generator wasn't dispatched, there would be 100MW of REZ Shared Network capacity available to the Tier 1 generators • the regional reference price is $40/MWh • all generators bid in their entire capacity at a price below the RRP for that trading interval.

[22] NSW DPIE, Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme, March 2021, pp 31

	In this scenario, cashflows for that interval (based purely on spot price compensation, excluding LGCs and PPAs) would be as follows:
	• The Tier 2 generator would:
	  ○ earn spot revenue of 50MW × $40/MWh × 0.5 hours = $1000
	  ○ pay compensation of the lesser of:
	  ▪ the spot revenue it earned ($1000)
	  ▪ the amount the Tier 1 generators lost as a result of the Tier 2 generator operating would have earned ($1000 for Generator 1A + $1000 for Generator 1B = $2000)
	which would result in a net spot income of $0.
	• The Tier 1 generators would not be dispatched, and would therefore earn no spot revenue. Because both Tier 1 generators bid in their entire capacity, the compensation from the Tier 2 generator would be split equally between them. I.e. both would receive $500.
	The compensation earned by each Tier 1 generator would be $500 less than the $1000 in spot revenue it would have earned had the Tier 2 generator not been dispatched. Cumulatively, this represents the Tier 1 generators being $1000 worse off due to the Tier 2 generator. This is a risk that the Tier 1 generators cannot control.
	As long as the Tier 2 generator had zero (or very low) operating costs, it may be incentivised to bid to get dispatched ahead of the Tier 1 generators. This is because the compensation cap means that the Tier 2 generator is no worse off compared to not generating (from a spot market settlement perspective), but being dispatched disadvantages its Tier 1 competitors.
	The negative impacts to the Tier 1 generators in this example would not occur under the alternative access framework we have suggested in Question 5, because the Tier 2 generator would be physically constrained off ahead of the Tier 1 generators by operation of the NEMDE constraint equations.

Question 18: Does this Issues Paper identify the key risks associated with the Financial Compensation Models? Can the risks be sufficiently managed through the design features of the models and the proposed compensation mechanism referred to in this Issues Paper?	General comments As demonstrated by the examples in Question 17, we consider that the Paper understates the risk of financial loss to Tier 1 access right holders for both Options 2A and 2B. This risk may impact project the value of the access rights, and therefore bankability. With regard to counterparty risk borne by Tier 1 generators, if Tier 1 and Tier 2 generators are direct counterparties, we require more detail on the security required from Tier 2 generators to determine the impact on Tier 1 project bankability. These risks would be eliminated if the REZ adopted the alternative access regime we have proposed in Question 5. Potential complication for Option 2B For Options 2A and 2B, "the compensation owed to Tier 1 access right holders would be collected from all relevant Tier 2 access right holders required to pay compensation"[23]. However, because the access rights aren't flat, it appears as though generators aren't required to hold access rights for their nameplate capacity at all (any?) times. This is shown in Figure 2 below (noting that it is a stylised example, and a solar asset would not be generating at times of darkness, as depicted). Using Figure 2 as an example, it is plausible that an asset may generate above its (Tier 1 + Tier 2) access rights (the gap between the grey columns and the blue line in intervals 5 and 20). If this caused a Tier 1 access holder to be constrained, then the intent appears to be for the generator without access rights to compensate the Tier 1 access holder. However, as currently drafted, it appears as though Option 2 only collects compensation from Tier 2 access holders, not from generators that don't have sufficient access rights to cover their output from that period. This issue could be resolved by requiring generators without sufficient access rights to pay compensation, but this calls into question whether Tier 2 rights would have any value at all. Alternatively, generators could be constrained down to their (Tier 1 + Tier 2) access rights for any given period. This would be achieved by the physical access protection we describe in our alternative access framework (see Question 5).

[23] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 31

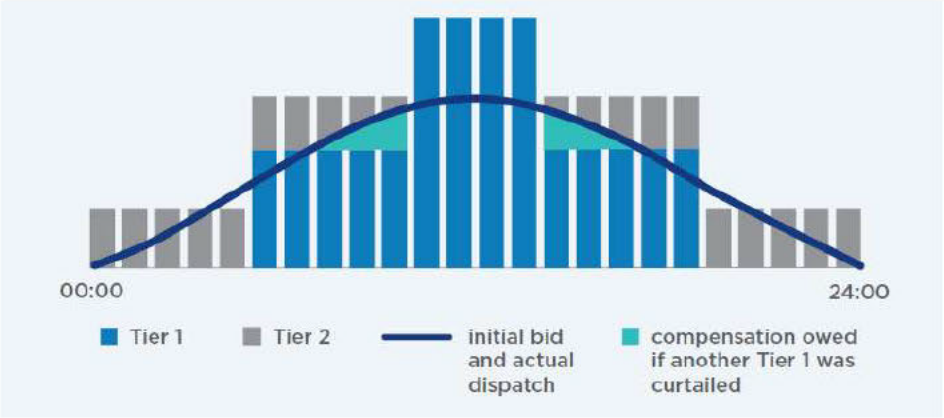
	Figure 2: DPIE illustration of compensation under Option 2B[24] 
Question 19: How would the implementation of the financial compensation models impact existing contracts, such as PPAs? Could the compensation mechanism be appropriately accounted for in the design of new contract structures?	See Question 17 for an example of where the financial compensation models would interact with PPAs to have unintended negative consequences for Tier 1 access holders. The proposed financial compensation models would have no interaction with existing PPAs (metered output edge contracts), so the PPAs would not require contract amendments. However, the financial compensation model could be amended to take into account revenue received by a Tier 2 generator under its PPA with regards to compensation payable to Tier 1 generators.

Table 5: Other models the NSW Government considered, but chose not to progress

Question 20: The NSW Government is not proposing to progress the Limited NEM Bidding and REZ Locational Marginal Pricing models further at this time. Are there elements unique to these two models which should be considered for	<u>LMP model</u> We strongly discourage the NSW Government from adopting any part of the LMP model. As outlined in Question 3, we (along with most other industry and consumer stakeholders) strongly oppose an access framework based on LMP due to negative impacts on investment and the key financial contracts markets.

[24] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 30

integration into the models that have been shortlisted?	Limited NEM bidding The alternative access model we propose in our response to Question 5 has many similarities with the Limited NEM Bidding model. The key difference is that our proposal would not require a bespoke software system to be developed. Instead, the existing NEMDE (with additional constraints added) could be utilised to constrain down/off Tier 2 generators if they were having a negative impact on Tier 1 rights holders. This avoids the major drawbacks the Paper identified with the Limited NEM Bidding model, namely[25]: • the complexity and risk associated with bespoke software development and implementation • the risk that efficient market outcomes won't be achieved, "particularly when market conditions change between the time initial bids are made and the start of the relevant dispatch interval", due to AEMO not having visibility of the full REZ Shared Network bid stack. The limited NEM bidding model has key strengths (which our alternative access model shares) that are not provided by the three main access options presented in the Paper. • Physically firm access offers the highest degree of certainty to investors. • Unlike the 'financially firm' options presented in the paper (see Question 17), there would be very few (if any) situations where Tier 2 generators would be dispatched to the detriment of Tier 1 generators. • "There would be no need to implement an ex-post enforcement regime or payment system to retrospectively reallocate revenue between access right holders."[26]

Table 6: General questions relating to access scheme design

Question 21: How valuable is the ability to trade access rights, and in what circumstances would this be useful?	We consider the ability to trade access rights to be important under the Paper's three main options, as well as the alternative access regime we propose in Question 5. There are a range of situations where trading access rights would be useful.

[25] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 39-40
[26] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 39

	• Selling physical assets: The value of a generator/storage asset connected to the REZ is inherently linked to the firmness of access it has to the REZ Shared Network. Therefore, it is important to be able to include the access rights as part of the asset's sale to another party. If access rights could not be traded in this manner, the value of the asset (and the access rights) would be substantially diminished. • Change of circumstance: Circumstances may change such that a project ends up needing more or less access rights than it is originally allocated. For example, it may be beneficial for a proponent to add or remove capacity as project development progresses or market conditions change. Allowing trades would help to facilitate more flexible project development, and more efficient utilisation of the REZ infrastructure. • Temporary trades: There may be periods where a project is temporarily not making full use of its Tier 1 access rights (e.g. if an asset is offline for maintenance), or if there are delays in commissioning. Allowing for the temporary trade of access rights may deliver value for the access rights holders in these circumstances. However, in our view, the primary purpose of access rights is to provide investor certainty (not to achieve perfect operational efficiency), so this is a second-order issue compared with the previous dot points.
Question 22: To what extent would flexibility to trade access rights increase the value of access rights for their holders? How flexible and unrestricted would access rights trading need to be to provide value?	In our view, the situations where being able to trade access rights would deliver the most value would be during an asset sale, or due to a change of circumstance (see Question 21). Therefore, the minimum threshold for trade flexibility is to be able to bilaterally trade access rights during these situations. If there was limited administrative costs to facilitate more flexible trading, then that should also be allowed.
Question 23: Would the introduction of a central access rights trading platform be of benefit to access right holders? If so, why? If beneficial, then which party would be best placed to design, maintain and operate this trading platform?	It seems unlikely that there will ever be a liquid market for REZ access rights, because project owners will want to use them. This is consistent with their primary purpose – providing investor certainty that physical projects will have firm access. As a result, a central register of access rights (as flagged in the Paper[27]) should be sufficient to facilitate the trades that are of the greatest benefit. In the future, should it be determined that a purpose-built trading platform may provide additional benefits, the costs of developing and maintaining the platform can be weighed against the benefits at that time.
Question 24: For generation projects connecting to the REZ, how important is it that storage is	In order to provide investors with certainty, it is very important that any ESS (or indeed any type of generation) is not allowed to connect and operate in a way that reduces network access for Tier 1 access right holders. If an ESS was

[27] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 41

required to purchase access rights (i.e. that total connecting storage capacity is limited)? If storage was not to be required to purchase access rights, how high is the risk of storage competing with (i.e. curtailing) generation dispatch?	allowed to connect and operate without access rights, then the value of the access rights would be substantially reduced. The risk of ESS competing with other REZ generators depends on the makeup of the generators within the REZ and how access rights have been allocated. However, in general, we see the risk to be high, because ESS operators will likely want to dispatch their assets during high price periods (e.g. during the evening peak), which are likely to correspond with intervals where access rights are in high demand.
Question 25: Would proponents of storage projects value firm access rights? In the financial compensation models, how would storage operations differ under Tier 1 versus Tier 2 access rights? How could an access scheme provide sufficiently flexibility for storage to connect in future as technology costs come down and the market evolves?	<u>Would storage proponents value firm access rights?</u> We consider that proponents of storage projects will strongly value firm (Tier 1) access rights (for discharging) during certain hours of the day (e.g. the evening peak). Without firm access to the REZ Shared Network during expected high price periods, it would be difficult for the storage to include arbitrage as part of its business case. <u>How could an access scheme provide sufficient flexibility for storage to connect in the future?</u> A core principle should be that no future generation or ESS asset should be able to 'free ride' and operate in a way that reduces the access of proponents that have paid for firm access rights. The alternative access framework proposed in our response to Question 5 is consistent with this principle, and compatible with storage connecting to the REZ Shared Network in the future as technology costs come down. Given that the access rights would be tradeable, future ESS proponents could negotiate with existing rights holders to secure firm access rights. If an ESS (or any other generating unit) proponent didn't want firm access, then they could connect, but take on the risk of being constrained.
Question 26: Would prevailing market signals provide sufficient and appropriate incentive for storage to operate in a manner that is aligned with the needs of the REZ? If not, then what REZ-specific types of incentive mechanisms should be considered to incentivise load and storage to consume electricity when the REZ Shared Network is congested?	<u>Incentivising charging during times of congestion</u> We see merit in a scheme that incentivises ESS located in the REZ Shared Network to charge during times that the REZ is congested and VRE is being 'spilled'. The incentive scheme could be designed so that, during times of in-REZ congestion where VRE would normally be spilled, the ESS is able to charge at the lower of zero and the RRP. The level of 'special condition' charging would be limited to the level of energy that would otherwise be spilled. This would provide an obvious benefit to ESS, and facilitate their efficient location. Given that VRE assets do not generate LGCs when their energy is spilled, decreasing the amount of spilled energy would also result in a benefit (the LGC value) to the VRE assets that would otherwise spill energy. In-REZ charging during times of high VRE output would also marginally improve MLFs for the REZ generators.

	This arrangement would not impose any additional costs on REZ generators, and therefore would not need an additional mechanism to recover costs. However, due to the potential for 'winner takes all' outcomes, this incentive mechanism would make most sense if there was some kind of generation output sharing scheme between access rights holders of a given tier (see Questions 5 and 6). Note that this issue would not be relevant to Tier 1 holders if the allocation of Tier 1 access rights for any given 5-minute interval was capped at the REZ Shared Network capacity (because generation covered by the Tier 1 rights would never result in spilled energy). There are a range of issues that would need to be worked through before implementing the incentive scheme. For example, AEMO should be able to facilitate it via NEMDE, by setting the overall dispatch targets to the scheduled load component of the ESS(s) to match the forecast level of spilled energy during times of in-REZ congestion. Allocation of storage injection to individual ESS would be based on each individual ESS's dispatch bids. Given that assets like batteries are sensitive to how they are operated (e.g. high usage can increase degradation), AEMO would need to comply with dispatch bids as submitted by the individual ESS operators. This may result in a level of spilled energy which is unable to be absorbed by the available ESSs. Although this concept requires further development, we believe that the potential upside warrants it. Ultimately, more efficient use of energy that would otherwise be spilled would flow through to lower prices to consumers. <u>Storage as a non-network option</u> In addition to 'soaking up' excess VRE, an ESS can be a non-network option (NNO) to deliver system benefits that have traditionally been delivered by network solutions. As it currently stands, Transmission Network Service Providers (TNSPs) can be reluctant to consider the flexible operating capability of ESSs compared with more traditional network infrastructure. For example, TNSPs may preference synchronous condensers or additional transmission lines over strategically located flexible ESSs with appropriate technical specifications. We recommend that, during the REZ design process, the NSW Government engages with the market to identify opportunities for flexible ESSs to improve REZ utilisation and/or reduce capital costs. The NSW Government could then assess the merits of storage on a case-by-case basis, and engage in bilateral deals with storage proponents when they can provide a net-benefit to the REZ.

	Another benefit of battery energy storage systems (BESS) is that they can often be installed much faster than many traditional network solutions. This may be attractive to the NSW Government as it looks to reduce REZ delivery timeframes.
Question 27: If an incentive mechanism for storage is implemented how should the costs of this arrangement be recovered?	The 'charging during congestion' incentive mechanism described in Question 26 would not require any changes to cost recovery. A VRE generator whose energy would otherwise have been spilled would receive a modified settlement value for the trading interval which reflected the level of 'special condition' energy provided for ESS charging provided by each individual VRE generator. Payments to an ESS in return for providing system services as an NNO should be recovered via whatever mechanism the NSW Government uses to fund the rest of the physical REZ infrastructure or other contracting mechanism linked to actionable ISP projects under consideration by TransGrid and AEMO.
Question 28: How should the treatment of storage under the CWO REZ Access Scheme account for differences between long-duration storage and fast-firming technologies?	If the REZ Administrator allocates access rights based on REZ Shared Network capacity for each five-minute interval in the day, we see no need for the access scheme to have different rules for different technology types (e.g. short-duration vs. long-duration storage). If the NSW Government wants to incentivise a particular technology or duration of storage, the LTESA process appears to be a more appropriate mechanism than the access regime. The Paper suggests that, if there is sufficient certainty around storage charging/pumping, "it may be appropriate for storage to create additional Tier 1 access rights if charging or pumping at particular times creates additional export capacity on the REZ Shared Network"[28]. In our view, this would be inappropriate unless: • the storage made a firm commitment to always charge/pump at particular times of the day, with appropriate compensation payable to REZ Tier 1 access rights holders if the storage does not operate as it has committed • the additional Tier 1 access rights were linked in real time to when the storage was charging/pumping. We think it is unlikely that ESS proponents would commit to the degree of inflexibility required in the first point (as this would limit their ability to implement a flexible charging regime), but this could be explored in the future. If Tier 2 access rights capacity was high or uncapped (as per our suggested access regime in Question 5), ESS additions could potentially facilitate additional Tier 2 generation, which would take on the risk of the ESS not charging/pumping as planned.

[28] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 42

Question 29: How should load be integrated into REZs and what types of incentives (if any) would be needed to attract load to connect to the REZ Shared Network?	The Paper observes that "the approach developed for the treatment of load may also be applied to the treatment of charging or pumping for storage, given the system-wide benefits it may offer a REZ are the same"[29]. We consider this to be a sensible principle. With this in mind, the 'free charging during congestion' concept explored in Question 26 could be applied to flexible scheduled load (i.e. not just charging) within the REZ. Similarly, our response to Question 28 (with respect to the potential for in-REZ scheduled load to enable additional Tier 1 access rights) is relevant to Question 29. Modified transmission use of system payments could also apply to scheduled loads to recognise that additional network investment has not been required to allow the scheduled load to connect to a REZ Shared Network infrastructure.
Question 30: Would additional incentives be necessary, beyond market-based commercial incentives, to encourage storage/load to increase their electricity use during periods of REZ network congestion?	Given the similarities between load and storage charging, see Questions 26 and 29.
Question 31: If an incentive mechanism for load is implemented how should the costs of this arrangement be recovered?	Given the similarities between load and storage charging, see Questions 26 and 27.
Question 32: How should the potential impact of changes in distribution load and embedded generation on the CWO REZ hosting/export capacity be incorporated into the REZ Access Scheme design and implementation?	Generation from paying access right holders (either Tier 1 or Tier 2) should be prioritised over exporting embedded generation from the distribution network into the REZ Shared Network, unless the embedded generators had paid for REZ access rights (which seems unlikely). I.e. energy export from any bulk supply points (that connect the distribution network with the REZ Shared Network) into the REZ should be physically constrained if they would disadvantage the access of paying access rights holders. This is consistent with the alternative access model presented in Question 5. It is guided by the general principle that: the access of generation/storage proponents that pay for transmission infrastructure (either directly or via REZ access rights) should not be disadvantaged by stakeholders who have not paid.

[29] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 43

Question 33: Should non-scheduled generation and exempt generators be required to hold access rights under the CWO REZ Access Scheme, and/or should the total capacity of non-scheduled generation or generation from exempt generators permitted to connect be capped? Is there an alternative approach to the treatment of non-scheduled generation or generation from exempt generators which should be considered?	Consistent with our response to Question 32, we believe that non-scheduled and exempt generators should be constrained off if they do not hold access rights, and by generating would have otherwise disadvantaged an access rights holder(s).
Question 34: If 'use it or lose it' provisions were introduced, how should the utilisation requirements be set/measured? What exemptions or concessions should be considered?	The Paper states that the intent of 'use it or lose it' provisions is to "ensure the efficient utilisation of the REZ Shared Network and meet the objective of delivering cheap, reliable and sustainable energy"[30]. While we are supportive of this objective, there is a risk that 'use it or lose it' provisions are excessively restrictive. In our view, if implemented, they should be targeted primarily at preventing proponents from stockpiling rights to frustrate the access of their competitors. If the NSW Government proceeds with some form of 'use it or lose it' provisions (whether a sunset period, minimum utilisation, or some other mechanism), then they need to be designed with enough flexibility to account for a range of legitimate scenarios. For example: • A project may get delayed due to circumstances outside of the proponent's control. • A proponent's risk management strategy may involve acquiring Tier 1 access rights for a VRE asset's (say) POE05 output for any given time of the day, as opposed to their expected (POE50[31]) output. This is a legitimate way to manage risk, and minimum utilisation requirements should not remove this as an option. Tier 2 rights are a mechanism to improve utilisation for proponents willing to take on congestion risk. • A proponent might intend to develop a project in multiple stages, which causes utilisation of total access rights to be initially relatively low but then increase in steps until final stages are commissioned. Given that project staging is used to manage risks, removing the option to stage projects could increase financing costs and/or shrink the pool of potential REZ projects.

[30] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 46

[31] As set out earlier in the submission, access rights to a POE50 level would be insufficient to facilitate financial approval. Access rights equivalent to (say_POE05 (95th percentile of expected output) levels may be required to achieve finance approval.

	To reduce the likelihood of needing to enforce 'use it or lose it' provisions, it is important for the REZ Administrator to only award access rights to proponents whose projects have a strong likelihood of proceeding within a predefined and acceptable timeframe. Given that the Paper contained less than half a page on the potential for 'use it or lose it' provisions, it would be useful if the NSW Government undertook further consultation after providing additional detail on its proposed provisions.
Question 35: If an access right holder was required to return some or all of its access rights under the 'use it or lose it' provisions, how should these provisions be structured?	The Paper flags two options for a proponent to dispose of its access rights if it fails to comply with 'use it or lose it' provisions: selling the access rights, or returning them to the REZ administrator (for compensation). Both options have drawbacks. • If the access rights are returned to the REZ Administrator, then the REZ Administrator would have to go through a process to reallocate them. If this requires a new auction/tender process, then this is likely to be administratively burdensome for both the REZ Administrator, as well as proponents seeking access. The relative burden would be worse for ad hoc reallocations c.f. the original allocation process because of the smaller volume of available access rights. This could be potentially avoided if the REZ Administrator could reallocate access rights based on a merit list of proponents that missed out on access rights when they were originally allocated. However, proponents that sought access rights when they were originally allocated may no longer be in a position to bid for them on the same terms. Similarly, there may not be a proponent on the merit list that wants the same 'shape' of access rights being surrendered. • If the access rights are to be sold to another proponent, then the REZ Administrator would likely need to 'sign off' on the transaction to satisfy itself that the new proponent could develop a project within a reasonable timeframe (the reason the original proponent is losing the rights). Setting this precedent could restrict the tradability of access rights more broadly (see Question 21), which could reduce their value. Additionally, if the original access rights holders are able to sell the rights for a profit after failing to meet 'use it or lose it' requirements, then it may incentivise proponents to 'bank' access rights rather than develop their physical projects. For both options, there is no guarantee that the new access rights holder would be able to develop a project faster than the proponent that had to surrender the rights. To the contrary, if the original rights holder had been working to develop its project (but had been delayed, for whatever reason), then it may be further along the project development pathway than a new proponent that had ceased project development when it wasn't awarded access rights.

	Our preference is for any 'use it or lose it provisions' to be 'light touch', and apply only to particularly egregious instances of proven access rights 'banking', or similar anti-competitive behaviour. As for Question 34, we consider it would be useful if the NSW Government undertook further consultation after providing additional detail on its proposed 'use it or lose it' provisions.
Question 36: What impact do you consider capping of connection in a REZ, and the proposed access scheme models, will have on reducing the risk of volatile MLFs? Are additional measures warranted? If so, what measures?	If a REZ is appropriately planned and Tier 1 access rights are appropriately capped (ideally at the REZ Shared Network capacity for any given interval, discussed in Questions 4 and 11), then the risk of volatile MLFs due to the behaviour of REZ participants is greatly reduced. We do not consider any other in-REZ mechanism is necessary to manage MLF degradation for REZ participants. It is important to acknowledge that MLF risk for REZ participants is also impacted by generation and load located elsewhere in the network. As discussed in Question 1, the location of the REZ boundary connection point will also impact on MLFs, as will facilitating geographically distant transmission augmentation (and choice of augmentation sizing) to improve REZ transfer capacity. With this in mind, we believe all network infrastructure constructed or upgraded to facilitate a REZ, for which connecting participants would contribute to the costs (e.g. via paying for access rights), should be included when defining the boundary of REZ access rights. This would prevent generators from 'free riding' and connecting (without access rights) to any part of the broader shared transmission network which has been upgraded to facilitate the connection of the REZ Shared Network.
Question 37: What are your views on the appropriateness of the principles for managing the interface between the CWO REZ Access Scheme and common DCAs/DNAs? How could consistency between the CWO REZ Access Scheme and access policies on DCAs and DNAs best be achieved?	The Paper's suggestions appear reasonable.

Table 7: Other coordination initiatives

Question 38: Would a process to coordinate connection assets for multiple projects be of interest? If so, what	Yes. One type of coordination initiative would be for the Energy Corporation or the REZ Administrator to proactively identify where multiple REZ projects are in close proximity, and would likely benefit from a shared connection asset. This could potentially take place as part of a staged process to allocate access rights, or after the access rights were allocated. If multiple proponents

coordination initiatives would be of interest?	were interested in sharing a connection asset, there may then be opportunities for the Energy Corporation and/or the REZ Administrator to facilitate the asset's construction and/or connection. Another potentially useful initiative would be the coordination of control system response behaviour – particularly as it relates to generator performance standards (GPS) registration requirements. The intent would be to prevent different projects from impinging on each other's capacity to supply power. Relevant coordination activities could include: • tuning of control system responses • appropriate allocation of grid forming and grid following devices • system strength remediation schemes • provision of reactive power at key locations in the REZ • fast runback or tripping schemes.
Question 39: Given the unique nature of connecting to coordinated REZs, such as the CWO REZ, the barriers to coordination of connection assets may be reduced. What further barriers to coordination will still need to be overcome, and how could this be achieved?	The most problematic interface for project developers in recent years has been with the TNSP/AEMO. For individual projects, this is typically a single interface point between a small number of parties (usually three). There is a possibility that a REZ model would greatly increase the complexity of this interface if all project developers were to attempt coordination of their negotiations. Whilst this is the case, we believe that the overall complexity of negotiating ten projects coincidentally should be less than negotiating with each independently, so long as all parties acted in good faith. Jointly coordinating on technical issues would forestall the possibility of over investment in system strength remediation measures and reactive power support. We believe this is best achieved by using a steering committee of prospective project developers to coordinate their approaches. The committee would be best facilitated by the NSW Government.
Question 40: What opportunities exist for the NSW Government to improve connection processes in the CWO REZ? What improvements would deliver greatest value?	To improve the connection process for the CWO REZ, the NSW Government could: • assist in the coordination of multiple project connections • reduce the risk of under- or over-investment in network assets such as transmission and project provision of reactive power • reduce the likelihood of congestion due to system strength concerns.

Question 41: What, if any, additional connection challenges could be created under the CWO REZ Access Scheme? How could these be mitigated?	In addition to challenges within the CWO REZ, it is important to consider the wider network external to the REZ. Key issues include the ability to transfer power from the REZ to load centres elsewhere on the grid, and the interaction of power flows from the REZ affecting inter-regional or intra-regional flows in NSW, Queensland and Victoria. This will likely impact on the ability to define the generating capacity of the REZ under different system operating conditions, and the degree to which dispatch of generation or scheduled load external to the REZ will affect the ability of Tier 1 and Tier 2 generation to access the REZ network. Similarly, dispatch of generation or scheduled load within a REZ may impact the dispatch of generators or scheduled load connected external to the REZ Shared Network. Design of the REZ Shared Network connection points should be undertaken to ensure that access available to existing generation as well as generation connection to the REZ Shared Network is not subject to routine congestion under system normal conditions. This may require that upgrades to the broader shared transmission network are scheduled and completed in a timely manner to facilitate connection of generation to the REZ Shared Network. REZ network requirements should be designed on a whole-of-transmission-network approach, as opposed to simply concentrating on what is required for the REZ Shared Network infrastructure in isolation.
Question 42: What value could be delivered to generation and storage projects through centralised approaches to connection and system services, and what are the trade-offs? For example, would projects be willing to forego optionality around aspects of their project through requirements like minimum equipment standards, to reduce costs and the risk of potential delays to commissioning?	Power system studies are required to assess the risks and opportunities for REZ-located generation and its interaction with the wider network. Currently there exists substantial information asymmetry between the market operator and TNSP, and project developers. Pooling resources and sharing technical information between developers may assist in addressing some of those issues. Additionally, adequate reserves of controllable reactive power are required to ensure that power can be delivered reliably from generation to load, however it is typically non optimum for reactive power to be located at individual generation nodes. Rather, it is preferable that reactive power be located at strategic network locations to ensure that the grid can reliably transmit power without risk of voltage collapse. Accordingly, there is an opportunity for substantial cost savings in equipment capital expenditure by coordinated design efforts. This in turn would lead to reductions in commissioning delays and a more streamlined generator registration process. The setting of minimum equipment standards may facilitate faster approval of generator/scheduled loads by the NSW TNSP and AEMO; however, this should not require performance from a connecting party above what is specified in the Rules. In setting minimum equipment standards, this must be undertaken in such a way so as to avoid unnecessary additional costs, which will invariably flow through to consumer prices.

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Table 8: Open comment

Question 43: Are there any other matters you wish to raise relevant to this issues paper?	Do no substantive harm We strongly support the concept that additional connections to the REZ should 'do no substantive harm' to existing participants. This concept is well articulated as follows. *"Under all models in this Issues Paper, additional connections beyond the initial upfront cap would only be permitted in circumstances where the connecting party fully funds the network augmentation required to ensure that they do not adversely impact the access of any existing connected project. These augmentations would need to be designed such that they integrate effectively with the strategic planning of the REZ, the administration of the access scheme, and the commercial arrangements for the ownership and operation of the REZ Shared Network."*[32] However, as an alternative (or in addition to) funding network augmentation, we recommend that new entrant connections should also be given the choice of operating in a way that does no substantive harm (e.g. using a tripping or runback scheme) to existing connected generators. This is consistent with our suggestion to implement a firm physical access model (see Question 5), but is also relevant if the NSW Government adopts a different access scheme. Allocation of access rights to a portfolio of assets If a registered participant owns a certain amount of Tier 1 access rights, but multiple REZ-connected generation assets, it is worth considering whether the participant's access rights should be applied over the portfolio of assets for any given trading interval (as opposed to being allocated on an individual generation facility basis). Consider a scenario where: • one registered participant owns two 100MW wind farms (A and B) that are connected to the same REZ Shared Network by different connection assets • both connection points have the same impact of network congestion within the REZ Shared Network • the participant has 100MW of Tier 1 access rights allocated to wind farm A and 100 MW of Tier 2 access rights allocated to wind farm B • for a particular trading interval, both wind farms are producing 50MW (100 MW in total)

[32] NSW DPIE, *Renewable Energy Zones – Access Scheme; Issues Paper on Central-West Orana Renewable Energy Zone Access Scheme*, March 2021, pp 23

	• the available generation within the REZ (that would be dispatched based on price merit) is above the REZ Shared Network's hosting capacity. If the Tier 1 access rights were linked to a particular asset (wind farm A in the scenario above), then the participant would only have firm Tier 1 access for 50MW of generation. However, if the access rights were allocated on a portfolio basis, (across both A and B), then the registered participant would have firm access for 100MW. Now consider an identical scenario where the participant had a single 200MW wind farm, but 100MW of Tier 1 access rights, and the wind farm was producing 100MW. In this scenario, the proponent would have firm access for 100 MW, regardless of whether access rights were linked to a particular asset or allocated on a portfolio basis. It seems perverse that a participant with multiple smaller generation facilities would be disadvantaged compared to a participant with a single larger project with the same cumulative capacity, given that both would presumably have paid the same costs to secure these Tier 1 access rights. As a result, the concept of allocating access rights across multiple generators owned by the same participant (where the portfolio of generators have the same impact on the access rights of other generator connected to the REZ Shared Network) deserves detailed consideration. Such an outcome could be beneficial when the portfolio of generating assets includes a mixture of scheduled generation/load as well as wind and solar farms. It would allow proponents to optimise their procurement of access rights during the planning and development stages of the individual projects.