

April 30, 2021

Ms Chloe Hicks  
Director, Energy Infrastructure and Zones  
NSW Department of Planning, Industry and Environment  
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Lodged by email: [rez@planning.nsw.gov.au](mailto:rez@planning.nsw.gov.au)

**RE: Renewable Energy Zones – Access Scheme**

*Issues Paper on Central West Orana REZ Access Scheme*

Dear Chloe:

Canadian Solar would first like to commend the NSW Government for their leadership facilitating renewable energy investment in a well-planned and very cost-effective fashion thereby maintaining downward pressure on electricity prices while also reducing greenhouse emissions. Canadian Solar Australia (CSAU) welcomes the opportunity to provide comments on the referenced paper above.

By way of introduction, Canadian Solar (CSIQ:NASDAQ) is the third largest manufacturers of solar PV modules in the world and a leading developer of utility scale solar farms having successfully developed over 5000MW of solar farms worldwide. In Australia, CS has developed and constructed five operating solar farms with a further two projects under construction---the 110MWac Gunnedah and 150MWac Suntop Solar Farms in NSW. CSAU have a broad portfolio of utility scale solar farm development projects across Australia including a number of significant projects in NSW.

CSAU strongly supports the development of Renewable Energy Zones and considers your Department has done an excellent job identifying some of the key questions, issues and challenges of successfully implementing this important energy market reform. Please find below our responses to most of the detailed questions in the Issues Paper. Questions where we consider the NSW Government's approach was correct and/or CSAU did not have specific input have been omitted.

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## 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?

CSAU considers there are substantial benefits to connecting in the CWO REZ including significantly reduced curtailment within the REZ and hopefully less volatility with regards to MLF. In addition, the ability to access Long Term Energy Service Agreements is a significant advantage.

**Question 2:** What, if any, additional benefits should the CWO REZ Access Scheme deliver to provide value to connecting generation and storage projects?

As discussed in response to question 36, there would be significant additional benefit if a scheme could be implemented to reduce the potential for curtailment or plunging MLFs due to new connections outside the CWO REZ.

In addition, the REZ should include the provision of sufficient, but not excessive, system strength remediation for the new generation as procurement by the REZ would be far more efficient than each generator procuring their own system strength remediation. CSAU would also suggest the NSW Government consider modern system strength solutions, such as Grid Supporting Inverters and BESS, as opposed to 1950's technology synchronous condensers.

**Question 3:** Do you agree with the proposed evaluation criteria? What, if any, additional criteria should be considered?

CSAU considers the evaluation criteria to be appropriate.

## 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?

CSAU considers that Option 2b would be the option that maximises utilisation of the REZ while providing connection certainty for the Tier 1 access right holders. Maximising utilisation of the REZ

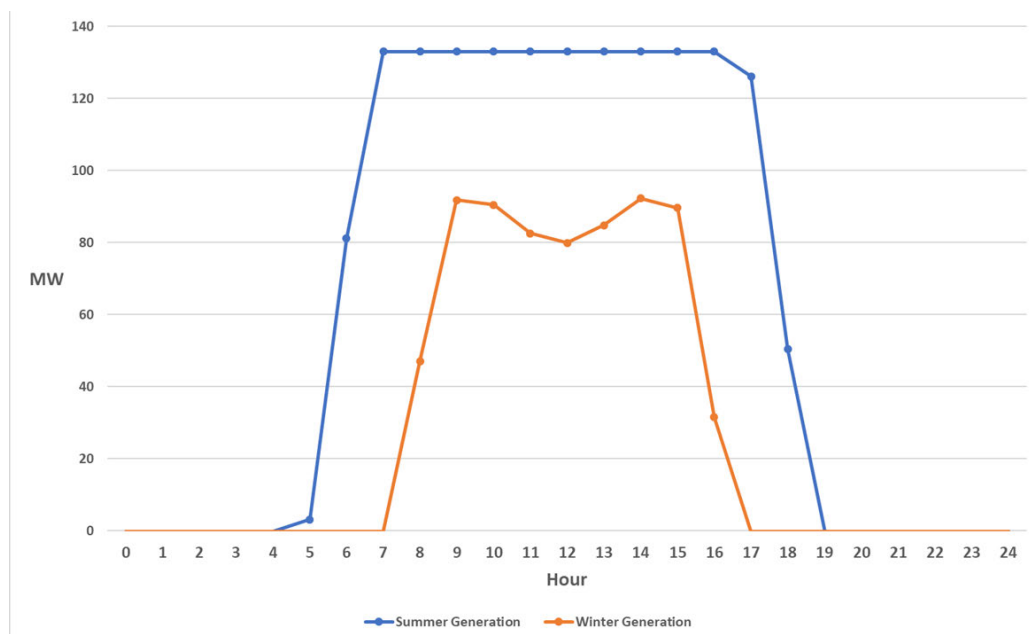
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should bring the most cost efficient outcome for consumers (and generators).

While we appreciate the simplicity of administering Option 1, it does not provide certainty for generators as they can still be significantly curtailed within the REZ without compensation. In addition, Option 1 is very unlikely to match the REZ utilisation of Option 2b (or 2a) without significant, and counterproductive, curtailment of generators caused by ‘oversubscribing’ of connections within the REZ.

**Question 6:** How could the characteristics of either Option 1, 2A or 2B be adjusted to improve them in a manner that achieves the access scheme’s objectives?

While we appreciate this would involve additional complexity, CSAU considers there should be seasonality---at least quarterly, if not monthly, for generators to ‘own’ Tier 1 (and Tier 2) access for particular time intervals. A solar farm generates about half of the energy in winter than it does in summer, and the solar farm generates this electricity over a shorter time period in winter as shown in the figure below. As an example, a solar farm would want to buy Tier 1 access from 6-7pm in the Summer, but such access would be worthless in the winter. It is also possible that wind farms would appreciate this flexibility as their typical generation varies depending on the season.



Typical Sunny Day Generation for a 135MW<sub>AC</sub> Solar Farm (all times AEST)

On a separate topic, we note that in Table 5, it is stated that Tier 2 access right holders may be required to meet credit requirements and/or post “appropriate security to minimise risk of payment shortfalls”. The compensation owed by Tier 2 access holders is the same amount of money they will receive from AEMO. Therefore, CSAU considers the risk of a generator defaulting is much smaller than the cost of Bank

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Guarantees, Letters of Credit etc. and urge the NSW Government to further explore settlement of compensation to be made through AEMO's NEM settlement systems (e.g. as reallocations of market revenue) or other options that do not require expensive bank guarantees of similar mechanisms.

**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?

CSAU considers that should a hybrid generator purchase 100MW of Tier 1 access, they would be entitled to uncurtailed export of 100MW of solar, 50MW of Solar and 50MW ESS, 100MW of ESS...or any values in between that add up to no more than 100MW. Likewise, a behind the meter generator (or ESS) purchasing 50MW of Tier 1 access could export up to 50MW uncurtailed and should have no limit on the amount that is generated and utilised behind the meter.

**Question 10:** Is there a minimum term (in years) for which access rights would need to apply to benefit project finance?

While the typical tenure of PPAs is ten years, the typical tenure of connection agreements is 30 years---and there are often options to extend these contracts by another 5 or 10 years. Therefore, CSAU would consider a tenure of 20 years to be the absolute minimum with a strong preference for 30 years.

## Options 2A and 2B

**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?

CSAU favours Option 2B and considers sharing arrangements successfully negotiated between competitors before, or after, the access rights are sold to be problematic.

**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?

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CSAU considers that stipulating Tier 1 access right holders bid below the settlement price in order to receive compensation could be a reasonable requirement. This should occur as a matter of course unless prices are very low (or negative) in which case the compensation would be minimal (or zero), in any case. However, not having this requirement could incentivise Tier 1 access holders to bid high prices, as correctly pointed out in the Issues Paper, which would obviously be an undesirable outcome for consumers.

CSAU does not support the concept that Tier 2 access right holders could avoid compensation by underbidding Tier 1 access right holders. This would likely result in most Tier 1 and Tier 2 access holders bidding the floor price only to be tempted to change their dispatchable volumes when prices are negative. This sort of disorderly bidding is not beneficial to the market, or consumers, and should not be encouraged.

**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?

While difficult to predict, CSAU would not expect to see drastic changes in bidding behaviour of generators because they are in a REZ.

**Question 17:** There could be circumstances in which the revenue earned 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 for Tier 1 access right holders in comparison to the open-access regime?

CSAU considers the risk to Tier 1 access right holders from this circumstance to be far less than the risks of curtailment in the current market.

**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?

New generators connecting to the REZ are unlikely to have an executed PPA in their ‘back pocket’. Therefore, the impact of the REZ on existing PPAs with new generators is unlikely to be significant. New PPAs negotiated for projects in the REZ will now likely have new clauses to deal with compensation paid to, and from, generators now there is some clarity as to how the REZ will operate. One would not be surprised if offtake parties negotiate to receive some of the compensation payments.

One issue that does not appear to be addressed with regards to compensation are Green Products. While Tier 1 generators are compensated for lost energy revenue, they receive no compensation for

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lost LGC (or other Green Product) revenue. Such compensation would further complicate the scheme, but historically, there have been times when renewable generators earned over half their revenue from Green Products, and this could happen again.

## Other models considered but not progressed

**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 integration into the models that have been shortlisted?

CSAU is very pleased that FTRs and Locational Marginal Pricing have been shelved.

## Access scheme design issues

**Question 21:** How valuable is the ability to trade access rights, and in what circumstances would this be useful?

CSAU is not opposed to the trading of access rights; the Issues Paper provides some good examples of when such trading would be reasonable and desirable. However, we would urge the Government to make sure the trading rights are not so flexible to enable large companies to ‘game’ the access market by purchasing access rights with no intention of using them and then selling these access right later at a profit. Such access arbitrage would not benefit the market or consumers.

**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?

**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?

As stated in our response to question 21, it is important that actual generators purchase and utilise the access rights the great majority of the time. Flexible and unrestricted trading of access rights could well bring unintended and undesirable consequences.

**Question 24:** For generation projects connecting to the REZ, how important is it that storage is 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?

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CSAU considers that storage capacity should be required to obtain access rights; however, as mentioned below, we believe there should be significant incentives and/or free access rights for ESS that operate in a manner to minimise curtailment, and maximise generation, in the REZ consistent with whatever obligations the ESS has to the FCAS market as well as network support agreements with AEMO/NSPs.

**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?

CSAU considers that ESS would value access rights, but not as highly as generation projects.

**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?

While there could be some correlation between market signals (i.e. high prices) and curtailment in the REZ, this correlation will be far from perfect. There will definitely be times when pool prices are high and the REZ is near, or past, its capacity.

As mentioned in our response to question 24, the most simple incentive mechanism would be for ESS to be provided free Tier 2 access rights which they could augment by the purchase of some Tier 1 access rights.

Another related issue concerns BESS' ability to provide FCAS, Fast Frequency Response, synthetic inertia (potentially) and other network services. If a BESS is bidding into the FCAS market and/or has a contract with the NSP/AEMO to provide network services, and these services are dispatched to keep the network stable, it will be important that the BESS is not forced to pay compensation to access right holders to 'keep the lights on'.

**Question 27:** If an incentive mechanism for storage is implemented how should the costs of this arrangement be recovered?

The provision of free Tier 2 access rights for ESS who operate as described above would not require explicit cost recovery. Another option would be to have an ESS receive a portion of the additional revenue earned by Tier 2 access right holders enabled by the ESS charging as mentioned in the Issues Paper. The details of such a mechanism would require further consideration.

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**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?

CSAU considers that loads, particularly predictable 24x7 loads or dispatchable loads, should receive some incentive for moving into a position in the REZ that enables more generation. Having loads next to generation is the ideal circumstance for networks.

The NSW Government may want to consider additional incentives/grants for Hydrogen generation to locate in the REZ as such a facility would have large dispatchable loads that would benefit the REZ while providing new jobs and a new industry for NSW.

**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?

Yes, as discussed in response to question 26.

**Question 31:** If an incentive mechanism for load is implemented how should the costs of this arrangement be recovered?

As locating new loads in the REZ would result in substantial increases in new permanent jobs in regional areas, it would seem the NSW Government is best placed to incentivise new, and re-located, enterprises in the REZ.

**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?

CSAU considers that all generators > 5MW should have to hold access rights as well as <5MW generators aggregating together to effectively 'form' larger generators. Free-riding in the REZ should not be allowed.

**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?

Conceptually, CSAU agrees with use it or lose it provisions; however, the deadlines and sunset dates need to be carefully considered. Huge delays in finalising grid connection agreements and plant commissioning are very common, and the Government needs to make allowances for these genuine, long and increasingly 'routine' delays.

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**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?

CSAU considers that MLFs within a REZ are likely to be somewhat more stable than elsewhere in the NEM. However, there will still be MLF volatility, and it will be a very unfortunate for generators in the REZ to pay millions of dollars for access rights only to have their MLFs nose dive a few years later. While this can, and does, happen to other generators in the rest of the NEM, these generators are not paying millions of dollars to access a 'special' network.

Further consideration is needed with regards to this potential issue of large future generators connecting between the REZ and the Regional Reference Node (RRN) causing curtailment and plunging MLFs in the REZ.

A related issue not raised in the Issues Paper is the impact of the REZ on existing generation within, or near, the REZ. CSAU considers that the CWO REZ should not have a material impact on existing generators to avoid sovereign risk and damaging NSW's reputation as a stable place to invest. While generators today accept the risk of a new generator locating nearby lowering their MLF and increasing curtailment, this is far different from a Government sponsored and subsidised 3000MW Renewable Energy Zone causing an existing generator's MLF to plunge 5% or experience increased curtailment. CSAU suggests that the NSW Government, in collaboration with the industry, undertake studies by Baringa, or another consultant, to demonstrate the new REZ will have a negligible detrimental impact on existing generation projects near, or within, the REZ.

## Other coordination initiatives

**Question 38:** Would a process to coordinate connection assets for multiple projects be of interest? If so, what coordination initiatives would be of interest?

CSAU considers such coordination initiatives negotiated between competitors are unlikely to succeed. The failure of past attempts of generators 'cooperating' on new connections substantiates this view.

**Question 40:** What opportunities exist for the NSW Government to improve connection processes in the CWO REZ? What improvements would deliver greatest value?

There are most definitely opportunities to improve the connection process in NSW. The challenge of assessing connections of many generators in the same area at the same time is a real issue. AEMO may want to sequence connections, but this would not be the best way forward. The best approach is more likely to be a grouping of grid connection assessments in area(s) of the REZ and having TransGrid and AEMO assess them together. While this approach is not without its challenges, it should be a quicker and more cost effective outcome.

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**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?

As stated in our response to question 40, we consider a centralized approach of some sort to be preferable. While not easy, it is likely that agreement on minimum equipment standards would be helpful.

## **Conclusion**

CSAU commends the NSW Government for the steps it has taken to progress REZ development, as well as other initiatives in its innovative Electricity Infrastructure Roadmap, and we look forward to contributing to the resultant new jobs, new investment and cleaner energy generation in NSW. We welcome the opportunity to discuss our specific recommendations to quickly and cost effectively deploy new clean generation in the Central West Renewable Energy Zone in the coming weeks.

Please do not hesitate to contact the undersigned if you have any questions or require more information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jon Upson', written in a cursive style.

Jonathan Upson  
Director Project Development & Origination