Chairman: Warren McNabb,
warren.mcnabb@altimarloch.com
Secretary: David Inch, david@nzenergy.co.nz

INDEPENDENT ELECTRICITY GENERATORS ASSOCIATION

8 April 2021

New Zealand REZ Consultation
Transpower New Zealand Limited
P O Box 1021
Wellington

By email: REZ@transpower.co.nz

Dear team,

Re: New Zealand REZ Consultation

The Independent Electricity Generators Association Incorporated (IEGA) welcomes the opportunity to make this submission on Transpower's investigation into whether Renewable Energy Zones are right for New Zealand. [1]

The IEGA suggests that further careful thought and work is required before implementing a Regional Energy Zone (REZ) process (and associated timeframes).

While the consultation paper highlights potential regions with renewable resource potentially suitable for a REZ, there are equally other regions in New Zealand that have high renewable energy potential and are at the 'edge' of the transmission grid. We query whether introducing a new concept and process is the best solution when the underlying issues could be addressed directly and therefore benefit new renewables investment across New Zealand.

The REZ concept appears to be trying to solve for connection issues for generation projects:

- with a range of sizes: eg a 400MW wind farm in Northland alongside a number of say sub-30MW solar farms;
- with different connection infrastructure needs: eg a 400MW wind farm probably requires a GIP at 110kV when a sub-30MW solar farm could connect to a 33kV substation; and
- with the market for the generation output being different: eg output from a 400MW wind farm is very unlikely to be consumed within an area deemed a REZ and therefore must be exported/transported over the transmission grid to other load areas while

[1] The IEGA Committee has signed off this submission on members' behalf.

geographically dispersed solar farms within a REZ can meet increasing local demand due to decarbonisation.

Is it appropriate or economically efficient to treat all of these different generation opportunities the same or impose higher costs on some opportunities because they are artificially grouped together ('dragged in')? Is a REZ concept being proposed for only transmission grid / utility scale generation projects (or should it be)?

A distribution network is already physically constructed to reliably deliver electricity at all locations in the network when demand is at its highest at any point in time (Anytime Maximum Demand AMD). New embedded generation plant will serve local demand first. The generation profile of a new sub-30MW solar farm may be different from the demand profile (with generation peaking in the middle of the day) but a solar farm owner is incentivised to use a battery to shift this generation to peak demand periods. The amount of electricity sourced via (constrained) transmission assets will go down as more embedded generation is built.

At the same time demand is forecast to increase due to decarbonisation. Small scale commercial distributed generation can incrementally increase electricity supply within the network as AMD increases. This means there is no additional volumes needed to be supplied via the (constrained) transmission connection. It is only when embedded generation output exceeds AMD that this electricity needs to be transported out of the network. Small scale commercial distributed generation may be incentivised to not reach this point. The question is what is the capacity of networks to absorb small scale commercial distributed generation up to the level of AMD?

The IEGA is concerned that this proposal will:

- delay small scale commercial distributed generation projects that are currently near financial close and just need the network company to make a decision about connection
- result in a scale of transmission and distribution network investment to ensure connection of the large scale generation projects in a REZ when a small incremental investment in an area of the network would be sufficient for small scale commercial distributed generation
- crowd out small scale commercial distributed generation projects both due to the network companies and Transpower focusing on planning and investment scale to accommodate the large scale generation projects in a REZ; and due to the requirement to pay a contribution to this 'oversized' investment, relative to the requirements to connect small scale commercial distributed generation projects, which will make these projects uneconomic.

Further, Transpower and network companies are already required to analysis alternatives to network infrastructure investment. Small scale commercial distributed generation is an Alternative. We are not aware this process of calling for and analysing Alternatives has been

undertaken by Transpower, NorthPower or Top Energy for the incremental network investment that is being considered in the Northland Pilot. We could suggest that there is a conflict of interest between promoting / supporting the new idea of a REZ and the current requirement on the same parties to consider network Alternatives / non-network solutions.

We suggest the REZ in Australia looks like a specific new area of land for massive quantities of new generation plant remote from demand and with no pre-existing network infrastructure. This is substantially different to New Zealand where this concept in being proposed to overlay on existing infrastructure, existing boundaries of distribution networks, existing rules and Code and existing local (and growing) demand.

The IEGA suggests everyone would benefit if there is more detailed and transparent information available to everyone that forms the 'planning' part of the REZ proposal, such as information about:

- where are the current and expected constraints on Transpower's interconnection and connection grid: Transpower's Planning Report is a valuable resource
- where are the current and expected constraints on network companies' infrastructure: via improvements to the Information Disclosure requirements for Asset Management Plans. The Code also already requires network companies to publish maps of DER congestion on their network – this could be used more widely to encourage / inform decisions on new generation capacity connections
- what transmission and distribution investment would be required to connect proposed generation projects: using information from MBIE's generation stack analysis
- assumptions about growth in electricity demand within networks: for example, Top Energy revealed at the 31 March webinar that their long term strategy assumes their network demand will double by 2050. Northpower's 2021-2031 Asset Management Plan[2] forecasts network peak demand to continue linear growth of ~1.1%pa; 30% of capital expenditure is to be spent on growth related projects; and:

> **Connecting customers**
>
> We expect approximately $48m total investment (customer and network funded) to enable new house and business connections.
>
> New services aimed at 'active' homes and businesses connected to our low voltage network are expected to grow as more people purchase EVs, solar and battery systems. We are building readiness to support these types of services, helping our customers and Northpower control costs and mitigate network risks.

We suggest network companies and Transpower could undertake the planning, analysis and forecasts and publish this information demonstrating where there is (or is not) capacity for new generation and load. Generation developers would use this information to determine location of new renewable generation capacity or connections and opt-in.

[2] https://northpower.com/media/documents/Asset-Management-Plan/Northpower-Asset-Management-Plan-2021.pdf.pdf Page 7, 10 and 11

The IEGA suggests a working group be established to further develop this concept. Submissions on this consultation (and the Northland Pilot) will help guide who might be interested and the IEGA would like to participate.

Our response to the specific questions in Appendix 1 supplements our feedback in this cover letter. The IEGA would welcome the opportunity to discuss this submission with you in more detail.

Yours sincerely

Warren McNabb
Chair

Appendix 1: IEGA response to questions

Q1. Do you agree that the first mover disadvantage and high connection costs can be challenges for connecting new renewable generation and/or large electricity loads to the electricity network?

We assume this question is about connection to transmission assets. The Code stipulates that network companies' connection charges recover incremental costs. Distributed generation can be connected on the distributor's side of a Transpower GXP and incur incremental costs associated with any change to that GXP for energy exports.

In relation to connection to transmission assets: yes, the first mover disadvantage and high connection costs can be a challenge. However, the Electricity Authority (Authority) is proposing a methodology in the TPM for allocating costs to minimise the first mover disadvantage. The IEGA's preference is to understand this TPM proposal before progressing any further work on a REZ.

The IEGA suggests more information should be made available about how recovery of the costs of new transmission investment within a REZ will, or will not, be different from the proposed new TPM (one obvious difference is that the Benefit-Based Charge is based on energy flows while the REZ proposal discusses cost recovery on the basis of capacity).

Q2. Do you think the concept of a Renewable Energy Zone could be beneficial in a New Zealand context?

See answer to Q1. Also, as discussed in our cover letter, there are many areas of New Zealand that have high renewable energy potential and are at the 'edge' of the transmission grid. We query whether introducing a new concept and process is the best solution when the underlying issues could be addressed directly and therefore benefit new renewables investment across New Zealand.

The REZ concept appears to be trying to solve for connection issues for generation projects:

- with a range of sizes: eg a 400MW wind farm in Northland alongside a number of sub-30MW solar farms;
- with different connection infrastructure needs: eg a 400MW wind farm probably requires a GIP at 110kV when a sub-30MW solar farm could connect to a 33kV substation; and
- with the market for the generation output being different: eg output from a 400MW wind farm is very unlikely to be consumed within an area deemed a REZ and therefore must be exported/transported over the transmission grid to other load areas while geographically dispersed solar farms within a REZ can meet increasing local demand due to decarbonisation.

Is it appropriate or economically efficient to treat all of these different generation opportunities the same or impose higher costs on some opportunities because they are

artificially grouped together ('dragged in')? Is a REZ concept being proposed for only transmission grid / utility scale generation projects (or should it be)?

The underlying issues appear to be:

- inexperience and / or risk aversion by network companies in assessing the impact of network connections on their system
- may be insufficient information/data about the performance of specific parts of the network which makes a decision difficult
- having the capacity and capability to assess multiple applications at the same time and evaluate the cumulative effect of the proposals
- understanding the cumulative impacts of actual growth in electricity demand and connections as well as behind the meter DER impacts on the network system, at the same time assessing specific generation and load connection proposals.

Q3. What region(s) do you think would be suited to Renewable Energy Zones?

As discussed in our cover letter, there are many areas of New Zealand that have high renewable energy potential and are at the 'edge' of the transmission grid. We query whether introducing a new concept and process is the best solution when the underlying issues could be addressed directly and therefore benefit new renewables investment across New Zealand.

Q4. What benefits do you think should be considered in the decision-making process for Renewable Energy Zones in New Zealand?

We suggest the REZ concept only brings benefits to our net zero carbon target if it brings forward actual generation investment as all known generation project proposals already use renewable fuel.

We are sceptical that a REZ will bring forward investment. The concept of an auction on a specific day for investment ready generation projects is significantly different from NZ's current competitive market approach. While there are concerns about if the current approach is delivering timely investment (or enables incumbents to perpetuate tight supply conditions) the current market approach sees new investment across different regions of NZ spreading the impact on wholesale market prices. If all the REZ generation plant is required to be commissioned by a particular date this may have such a significant impact on the wholesale price for this generation (and region) that investment does not proceed.

Other questions we have are:

- will generation investors include the economic benefit of lower connection costs because of the REZ in their forecast spot market returns on the investment?
- because of a REZ, will generation occur in Northland, or a REZ region, that might otherwise have happened in other regions of NZ – making other regions energy constrained as demand increases?

- Is there a public good benefit to the incremental investment proposed for a REZ? The consultation paper refers to social and economic benefits of facilitating substantial generation in a particular region.

If a REZ can facilitate resource consenting processes for transmission, network and generation investment this would be a major positive. We are unclear if this is possible given our understanding of the Resource Management reforms and proposed spatial planning legislation.

Q5. Do you agree with the proposed guiding principles? Are there any that you would change or add?

In order to be able to apply the guiding principles there must be a decision making entity. It is not clear from the consultation papers who that entity is and the authority they have to be able to determine where a REZ is located or to undertake and determine the results of an auction or tender process. Further work on roles and responsibilities of this entity is required.

The guiding principles commit this entity and organisations involved in a particular REZ to actions or outcomes that may currently be beyond what the industry delivers individually under current arrangements to NZ society.

Q6. Do you agree with the proposed criteria for selecting suitable regions for REZ development? Are there any that you would change or add?

The criteria for selecting regions for a REZ include a mix of benefits that accrue to the different entities involved in or impacted by the REZ. How will these different benefits be prioritised?

The first criteria of 'significant numbers of renewable generation developers seeking to build in the area' will be a function of the other criteria 'access to good renewable resources'. It is not clear what "significant' means in terms of MWs of new generation capacity.

The criteria ensuring 'economically efficient network investments' is critical. However, the comparison described in this criteria between connection to a distribution network being lower cost than connecting to the transmission grid is too narrow and depends on the size of the proposed generation plant. As discussed in our cover letter, network companies and Transpower are required to consider non-network solutions when analysing new investments. Small scale commercial distributed generation can delay or avoid infrastructure investment. Further, distributed generation can improve the resilience of a network with or without a REZ.

Q7. Do you agree with using a tender process for committing projects in a REZ? Are there alternative processes that could be considered?

With the information currently available the IEGA does not support a tender process for committing projects in a REZ. We are sceptical that a tender process would be successful with the practicality of achieving financial close on a generation project. The REZ is likely to crowd out small scale distributed generation which could provide a number of the local benefits regardless of a REZ.

Q8. Who should be involved with co-ordinating and undertaking the various steps within a REZ development process?

This requires serious consideration. The IEGA suggests a working group be established to further develop this concept. Submissions on this consultation (and the Northland Pilot) will help guide who might be interested and the IEGA would like to participate.

Q9. Do you agree with the proposed project criteria? Are there any that you would change or add?

Project financing is the key to progressing to construction. If a REZ introduces uncertainty about the likely timing of construction (success or not in a tender process) this may introduce a virtual circle that is never resolved.

Another important consideration for the generation developer is the likely cost of connection (and when costs start to be charged) – is there sufficient information about this cost before the tender process?

Q10. Do you agree with the challenges we have identified?

Access and firm capacity rights is an important issue – the proposal is for the REZ generators to incur all the costs of the new investment, allocated on the basis of capacity. This implies a guaranteed capacity right or privately owned connection. This is a substantial change from our open access regime and would be difficult to manage over a distribution network. If open access continues to apply this has consequences for the commitment made by the REZ generators.

The IEGA agrees finalising funding and cost recovery is a significant challenge.

Right-sizing and oversizing is related to the issue of open or private ownership of these connection investments.

Q11. What are some of the ways to overcome these challenges and who should be involved?

The IEGA suggests a working group be established to further develop this concept. Submissions on this consultation (and the Northland Pilot) will help guide who might be interested and the IEGA would like to participate.

Q12. Do you see any other potential challenges that need to be considered?

The IEGA suggests detailed analysis of the challenges currently being experienced by all parties (Transpower, network companies and generation developers) might reveal that changes to the existing regulatory framework could unleash / accelerate new renewable generation development (without a new REZ process).