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New Zealand REZ Consultation
Transpower

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Transpower's Renewable Energy Zones and Northland Pilot consultation

Meridian welcomes the opportunity to comment on Transpower's Renewable Energy Zones (REZ) consultation and the accompanying Northland Pilot Concept paper prepared with Northpower and Top Energy. This submission can be published in full.

Responses to the specific consultation questions on the REZ consultation are included as Appendix A of this submission. Responses to questions on the Northland Pilot Concept are included as Appendix B.

Meridian strongly supports the rapid decarbonisation of energy use in Aotearoa to meet our national emissions targets. The widespread electrification of transport and industrial process heat will necessitate increased renewable generation development.

Meridian supports Transpower's existing work programme to enable this increase in generation development including the Net Zero Grid Pathways programme, which covers investments on the backbone of the electricity grid to 2050. Transpower regularly asks generation investors and electricity customers to indicate areas of future growth, undertakes detailed scenario modelling, and receives customer enquiries for new connections. Meridian supports Transpower using this information to upgrade the grid in anticipation of increased grid use and new generation especially on the grid backbone. Meridian also supports Transpower's consideration of ways to improve and streamline the connection process for

grid customers. These are critical components of Transpower's business-as-usual management of the transmission grid and its development into the future. Transpower's processes to date have been carefully developed to ensure that:

- Transpower is ready to invest in time to efficiently upgrade the grid; and
- the national grid provides an open access platform upon which generation investors can compete to deliver the least cost generation for consumers.

Transpower as the open access platform provider must be careful to remain impartial and not pick winners or deprioritise some connections or grid investments relative to others (i.e. those within REZ). Open access to the grid is a key enabler of competition and innovation in new generation development. It is not clear that Transpower is well placed or an appropriate agency to determine what are the "best" generation options.

Ultimately, Meridian believes that competitive markets for generation investment are in the best interests of consumers and a key tool to enable New Zealand to meet its emissions targets. In the competitive market, potential generation investors are weighing up a number of sites and the business cases for each must consider a range of factors including:

- access to land;
- ease of consenting;
- extent of civil works required;
- suitable technology options for the site and associated costs;
- quality of the renewable resource;
- expected nodal prices; and
- connection costs and any wider transmission constraints.

These are complex decisions, and every investor is competing to develop generation more efficiently and ahead of others. The result is the least-cost generation options are built in the timeliest fashion. In contemplating REZ, Transpower will appreciate that transmission costs are just one piece of the puzzle and whether investments go ahead or not is always determined based on a range of factors, including transmission related factors. The scale of new generation investment required to meet emissions targets is significant – the Climate Change Commission's demonstration path indicates that around 10 TWh of new renewable generation needs to be built between now and 2035 at a cost of billions of dollars. Consumer outcomes will be improved if those investments are made efficiently. The REZ proposal risks prioritizing efficient network infrastructure planning at the expense of efficient renewable generation investment.

Meridian is concerned that:

- Transpower has not established a problem definition or intervention logic that justifies establishing REZ in New Zealand – the proposal seems to be a solution that has been imported into New Zealand and it is not clear what problem it seeks to address here that is not already being addressed through the new Transmission Pricing Methodology (TPM);
- the potential benefits of a REZ have been overstated – most of the benefits described in the consultation paper are the benefits of increased renewable generation development generally;
- the process to implement a REZ would be administratively difficult and expensive; and
- the REZ process would seem to inevitably involve Transpower exercising its judgement to pick winners and decide which generation gets built – this is not conducive to efficient outcomes for consumers.

Each of these concerns are addressed in further detail in the sections of this submission that follow.

Meridian believes there may be some merit in Transpower considering REZ arrangements for regions where there are groups of existing industrial consumers that have a known location and decarbonisation need. This demand side REZ concept is also discussed further below.

The REZ proposal lacks a problem definition or intervention logic

First mover disadvantage is already being addressed

Transpower has identified first mover disadvantage as a challenge that it thinks could be addressed by the proposed REZ. According to Transpower, first mover disadvantage arises in a situation where the first customer incurs the full costs of a larger asset and bears the risk of subsequent customers not eventuating or not being able to recover costs from subsequent customers. Meridian expects these problems to be addressed by the new TPM. In the final round of the Electricity Authority's consultation on the TPM, solutions were proposed for both kinds of first mover disadvantage:

- Type one – where the initial transmission customer that is charged for a connection investment (the first mover) continues to bear the full cost of the connection even if other customers later connect to the asset.

- Type two – where an initial connecting customer must carry the full cost of connection capacity in excess of its own requirements, until subsequent movers connect.

The Authority’s proposed TPM will:

- Address type one first mover disadvantage through “a mechanism to collect a financial contribution from second and later connecting parties towards the capital cost of the connection investment that was funded by a first mover customer. The contribution would occur via a component added to the connection charges, paid by second and later parties, and rebated to the first mover”.¹
- Address type two first mover disadvantage through a mechanism that would recover from the first mover only costs relating to the capacity the first mover actually needs, with the costs of any additional anticipatory capacity allocated to other customers that are expected to benefit rather than to the first mover, until subsequent movers connect.²

Given the Authority’s TPM proposal will address first mover disadvantage it is difficult to understand what problem REZ are intended to solve.

High connection costs

Transpower has also identified high connection costs as a challenge that it thinks could be addressed by the proposed REZ. However, high connection costs seem to be a symptom of first mover disadvantage and not a separate problem. This seems to be confirmed on page 7 of the consultation paper where Transpower states that a REZ has the potential to enable lower connection costs to individual generators “because costs are shared”.

Overseas examples of REZ are solutions in search of a problem – the New Zealand context is different

Transpower provides examples of REZ used in other jurisdictions, namely Texas and Australia. Both jurisdictions are notable for how dissimilar they are to New Zealand. Both are starting from a very low base of renewable investment and more importantly, both are large land masses with more scarce renewable resources and often in areas that are a long way from population centres and transmission infrastructure (meaning even more significant

¹ <https://www.ea.govt.nz/assets/dms-assets/29/Proposed-Transmission-Pricing-Methodology-Consultation-paper-v2.pdf> at page 15

² Ibid at pages 16-17.

transmission costs to expand the grid into those areas). The grid scale of generation capacity built in these countries is also generally very large, commensurate with higher national demand. By comparison, New Zealand is a small land mass and is blessed with rich renewable generation resources all over the country. We have a strong grid backbone spanning the country and a long history of efficient investment in renewable generation.

In jurisdictions with low renewable penetration and scarce renewable options in locations a long way from transmission infrastructure, REZ might be an appealing option to facilitate generation investment and extend the grid into new areas. However, in New Zealand REZ seem like a solution in search of a problem.

The potential benefits of a REZ have been overstated

Most of the potential benefits of a REZ identified by Transpower are in fact the benefits of increased renewable generation. For example:

- supporting the achievement of a net-zero carbon economy;
- increasing electricity system resilience and reliability through diversified electricity sources and generation locations;
- increasing competition in the wholesale market;
- wider social and economic benefits beyond the energy system such as enabling regional economic development and job creation.

The consultation paper does not establish that REZ will in fact result in more renewable generation being built than Transpower's existing connection processes and wider grid investment plans. There is only one potential benefit unique to REZ (as opposed to generation investment in general). That is the potential for transmission investments to be "right sized" and costs shared amongst a group of investors. However, that potential benefit is already being realised through the proposed TPM.

In Meridian's opinion, increased investment in renewable generation will occur regardless of whether REZ are implemented. While there is a possibility a REZ could result in increased generation investment within a REZ, that effect would be hard to establish given the TPM will likely provide the same private benefits to investors. If a REZ did incentivise investment with the REZ somehow, it could also result in an opportunity cost if other connections and grid investments outside of the REZ were deprioritised. In short, Meridian does not consider it likely that a REZ would increase investment in renewable generation. It could influence where generation was built (and perhaps when). Whether or not that would be an efficient

outcome is debatable. In the worst case scenario *inefficient* investment could be prioritised ahead of other options purely to meet Transpower's timing and location specifications and because of a potential benefit in terms of transmission costs that is already addressed by the TPM.

Meridian expects that, should the REZ proposal progress further, Transpower would need to undertake more robust cost benefit analysis to understand the impacts of the proposal. A REZ would entail easily quantifiable administrative costs to implement and manage as well as potential opportunity costs if work outside of a REZ was deprioritised. If these costs are significant then coupled with a lack of identified benefits (for example is all benefits would be delivered regardless by the proposed TPM), it seems unlikely that the cost benefit analysis would be positive overall.

The process to implement a REZ would be administratively difficult

Meridian has some doubts about the practicality of REZ. As outlined earlier in this submission, there are many factors that a generation investor must consider and there are a lot of ducks to line up before an investment commitment is made. It seems unlikely that timing of a commitment decision will align with the timing Transpower wants to see for a REZ commitment. Generation projects are complex, time-consuming, and risky. The practical realities of trying to coordinate several generation projects at once, around a transmission-driven timeframe, should not be underestimated, nor should the potential anti-competitive effects of such coordination.

When scoping any REZ, Transpower would also need to indicate to potential investors the likely size and location of generation that it will tender for. The scale of expected generation will have an impact on expected nodal prices and therefore the business case of each investor. There would be risks to Transpower in the way it represented the end state through the tender process given the extent of uncertainty. It seems an odd position for Transpower to put itself in to be telling potential investors how much generation will be built so they can decide whether to build. Normally this risk and uncertainty is entirely managed by investors on their own and knowledge of expected investments and their effects on nodal prices grows organically and incrementally as more is discovered through the competitive processes of the market.

Meridian's expectation is that many investors will want to participate in a REZ purely to secure an option to see if any material benefits are in fact achievable and to stay within the

selected group of investors whose projects might be given connection priority. Whether or not the projects eventuate would be a different story. It is not clear to Meridian how much commitment Transpower would require or put another way, how easily potential investors could renege on their commitment. It will be difficult for Transpower to plan for all contingencies and the supposed benefits of a REZ would alter with each new configuration of investors as some opt out and others perhaps opt in to replace them. Given initial commitments would perhaps have been made on a different set of assumptions to what eventuates – there would be a risk of a domino effect of investors exiting the REZ. This would especially be the case if the number of investments decreased and therefore the supposed benefits from sharing transmission costs also decreased (if they exist at all over and above the benefits derived from applying TPM processes).

If REZ processes were to be run beyond a one-off pilot, Transpower would need to consider the impact on investment certainty. Investors in generation need to have clear processes to connect to the grid and understand the costs involved. If REZ became a feature of the New Zealand electricity industry, there would in effect be permanent uncertainty regarding whether a REZ tender process applied to a project (and when) or whether business-as-usual Transpower connection processes applied. Uncertainty of this kind is not conducive to investment in general. There is also a real risk investment signals could be distorted, and investments delayed, if one process is seen as favourable to the other and investment timing altered to enable access one process over the other.

Transpower would also need to very carefully manage Commerce Act risks associated with any REZ proposal. Investing in generation is a competitive process and a REZ proposal risks undermining this competition to the extent it involves coordination of and between competitors.

Any REZ process would inevitably require Transpower to pick winners and could lead to inefficient outcomes for consumers

The REZ proposal risks prioritizing efficient network infrastructure planning at the expense of efficient renewable generation investment. The transmission investment need could become the determining feature in deciding what generation gets built and when. Meridian doubts that REZ will result in efficient generation investment and is mindful of the risk that consumers will be harmed by the proposal in the long term. What Aotearoa needs most to meet growing electricity demand at least cost is efficient generation investment and efficient

transmission investment, not an optimized grid investment at the expense of all other considerations.

Meridian's primary concern is that REZ could become widely used and effectively become a centrally planned approach to generation investment with Transpower picking winners (both in terms of locations and projects). Neither Transpower nor anyone else is well placed to do this. The many considerations that go into an investment decision are well known only to the individual investors themselves and competition amongst them ensures outcomes that are overall efficient for consumers. Meridian is worried that these market signals will be undermined by REZ, particularly if REZ become the norm and the assumption of open access to networks becomes a thing of the past. Meridian firmly believes that Transpower and other network providers have a role to offer an open network platform for all customers to compete on equally.

While it is not discussed explicitly in the consultation paper, Meridian sees a potential risk in the link between the Transpower REZ proposal and the idea of spatial planning for resource management planning and consenting purposes. If these proposals eventuated together, it would dramatically undermine competitive markets, and generation investments would become planned by parties other than investors. In that future, REZ and any spatial planning that went with it would cease to have the effect of enabling renewable generation and instead the effect would be to prevent generation development outside of a REZ.

De-prioritisation of other Transpower work

Meridian's other key concern is that Transpower will prioritise its work around REZ such that individual connections and interconnection upgrades will be prioritised for projects within a REZ and other Transpower work will be deprioritised and put on a slower timeframe (even if the other work is more economic or applications were made earlier).

Meridian would appreciate Transpower clarifying the impact of REZ on the rest of its work programme and how priorities might change if REZ become more widely implemented. The opportunity costs of any such reprioritisation by Transpower would be significant. Meridian appreciates Transpower's efforts to remain objective and unbiased in providing open access to the grid – we would not want to see that position change.

A demand side REZ process could be beneficial

Meridian sees a greater opportunity for REZ on the demand side. Unlike renewable generation that can compete nationally and connect to the national grid anywhere in the country (wherever is least cost overall considering all factors), industrial consumers are in established locations and cannot easily produce their goods elsewhere without considerable expense. The existing locations would make it easier to identify potential regions for any demand side REZ and there is less risk of undermining competitive processes.

Also, unlike renewable generation development, switching industrial process heat from fossil fuels to electricity is not something that will necessarily happen regardless of any interventions. In Meridian's experience, for a number of businesses, it remains uneconomic to make these conversions at current emissions prices. Given the scale of the industrial decarbonisation opportunity and the imperative to reduce emissions now rather than later, the Government has established the GIDI fund to help with up front capital costs. Meridian's Process Heat Electrification Programme has also been offering industrial consumers certainty of electricity price with contracts of up to ten years at very sharp prices, exclusively for projects that are converting from fossil fuel use. The key remaining barrier to industrial decarbonisation in the short term is network connection and upgrade costs. A demand side REZ could help with cost sharing, as should the proposed TPM (at least at the transmission level – however, many industrial consumers are connected to distribution networks).

EECA, together with Transpower, local electricity distribution business and other regional stakeholders is already piloting a Regional Energy Transition Accelerator Pilot in Southland to identify opportunities for process heat decarbonisation. This pilot shares some similarities with the REZ proposal in that both could facilitate regional collaboration to help spread network upgrade costs among groups of offtake customers. We would be interested in Transpower's views on how the two projects fit together and whether Transpower thinks coordination efforts or a formal REZ tender process with set timings would be more beneficial for industrial consumers.

Conclusion

In Meridian's view, and at least on the supply side, a problem has not been identified that would not already be addressed by the proposed TPM. In the absence of a problem to address, we consider it likely that a REZ would not result in net benefits to consumers. It may in fact result in net costs. The only clear benefits would be to Transpower as its own

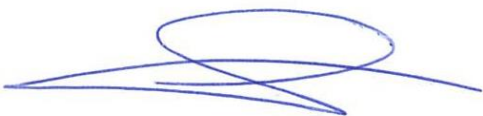
investment planning would be simpler. REZ would result in significant administrative costs and could risk undermining competitive market processes – in effect, the significant investment in renewable generation that is required could be compromised in the interests of simplifying grid investment planning. Meridian doubts that consumers would be better off as a result and considers it likely that the opposite would be true in the long term. If REZ are to proceed at all, Meridian suggests Transpower should better identify a problem to be solved and subject the proposal to more rigorous cost benefit analysis.

Meridian's preference would be for Transpower to focus on its existing Net Zero Grid Pathways programme and ways to improve and streamline the connection process so that Transpower can process the increased number of connection enquiries from all prospective customers. We would like to see Transpower remain fiercely impartial when it comes to what generation gets built, including when and where – those decisions are best made by generation investors.

Meridian sees a potential role for REZ on the demand side. This option would need to be developed further prior to any implementation. EECA has already commenced work in Southland and we understand that Transpower may play a role in the Southland pilot.

Please contact me if you have any queries regarding this submission.

Nāku noa, nā



Sam Fleming
Manager Regulatory and Government Relations

Appendix A: Responses to REZ consultation questions

| | Question | Response |
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| 1. | 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? | Yes, particularly for industrial consumers that are electrifying their process heat. However, we expect that first mover disadvantage will be addressed by the proposed TPM. |
| 2. | Do you think the concept of a Renewable Energy Zone could be beneficial in a New Zealand context? | Meridian thinks the concept of a REZ may have merit to help coordinate the electrification of industrial load. Meridian does not see any potential benefits for REZ in New Zealand in respect of generation investments. |
| 3. | What region(s) do you think would be suited to Renewable Energy Zones? | Existing clusters of large industrial process heat users where there is a known desire to electrify. |
| 4. | What benefits do you think should be considered in the decision-making process for Renewable Energy Zones in New Zealand? | <p>The only potential benefits (if any) of a REZ in New Zealand are an estimated reduction in transmission costs for projects within a REZ relative to transmission investments under the normal process. However, it is unclear whether those benefits would result given the mechanisms in the proposed TPM are intended to deliver similar benefits.</p> <p>All the other benefits identified in the consultation paper are the benefits associated with increased renewable generation development. It has not been established that REZ would result in more renewable generation development. In Meridian's experience national generation supply will expand to meet national electricity demand, and we expect this to occur regardless of whether one or more REZ are in place.</p> |
| 5. | Do you agree with the proposed guiding principles? Are there any that you would change or add? | Meridian has no comment on the guiding principles at this stage. The overriding principle should be that REZ should not be implemented unless there will be a net benefit to consumers. |
| 6. | Do you agree with the proposed criteria for selecting suitable regions for REZ | Meridian thinks the region selection criteria should be targeted to demand side connections by industrial |

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| | development? Are there any that you would change or add? | consumers. We have no other comment on the proposed criteria at this stage. |
| 7. | Do you agree with using a tender process for committing projects in a REZ? Are there alternative processes that could be considered? | <p>We think Transpower should closely follow the Regional Energy Transition Accelerator Pilot in Southland and take learnings from that process regarding whether a formal tender process has merit or networks could informally help to connect and coordinate consumer that are considering investments.</p> <p>Meridian doubts there would be any significant benefits from a tender process for generation projects in a REZ. The better alternative is for Transpower to focus on its existing Net Zero Grid Pathways programme and ways to improve and streamline the connection process for all grid customers, while the new TPM will address first mover disadvantage.</p> <p>Improvements to Transpower's business as usual connection processes will better ensure impartiality and an open platform on which generation investors can easily compete nation-wide to deliver the most efficient outcomes for consumers.</p> |
| 8 | Who should be involved with co-ordinating and undertaking the various steps within a REZ development process? | A collaborative approach could be best for industrial demand side REZ development, similar to what is occurring in Southland. Transpower, local distributors, EECA, retailers, and consumers all have vital roles to play. |
| 9. | Do you agree with the proposed project criteria? Are there any that you would change or add? | Meridian thinks the project selection criteria should be targeted to demand side connections by industrial consumers. We have no other comment on the proposed criteria at this stage. |
| 10. | Do you agree with the challenges we have identified? | Transpower has identified some of the challenges involved. This submission highlights other challenges – practically, and in terms of the impacts on competitive markets and Transpower's impartial position as an open platform provider. Perhaps the biggest challenge is the lack of an identified problem not already addressed by the TPM and the apparent lack of net benefits to consumers. |

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| 11. | What are some of the ways to overcome these challenges and who should be involved? | Meridian's preference would be for Transpower to not implement REZ or to only implement a REZ focussed on demand side electrification of industrial process heat. |
| 12. | Do you see any other potential challenges that need to be considered? | See above response to question 10, and the body of this submission. |

Appendix B: Responses to Northland Pilot consultation questions

| | Question | Response |
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| 1. | Do you support the development of a pilot REZ in Northland? Please provide your reasons as to why or why not. | No, for the reasons given in the body of this submission. |
| 2. | What potential benefits of a REZ are important to you? Consider economic, social, cultural and environmental factors. | <p>The only potential benefits (if any) of a REZ in Northland are an estimated reduction in transmission costs for projects within the REZ relative to transmission investments under the normal process. However, it is unclear whether those benefits would result given the mechanisms in the proposed TPM are intended to deliver the same benefits.</p> <p>All the other benefits identified in the consultation papers are the benefits associated with increased renewable generation development. It has not been established that a REZ would result in more renewable generation development. In Meridian's experience national generation supply will expand to meet national electricity demand, and we expect this to occur regardless of whether one or more REZ are in place.</p> <p>Given the range of renewable options being considered in Northland, the region will see significant economic, social, and cultural benefits regardless of whether a REZ is implemented.</p> |
| 3. | What potential costs of a REZ are important to you? Consider economic, social, cultural and environmental factors. | It is important to consider the costs of administering a REZ process but also the opportunity costs for projects outside of a REZ that may be de-prioritized. There are also significant potential costs in terms of undermining competitive market processes and jeopardizing the impartial position of network companies as open platform providers. |
| 4. | Do you support enabling developments through upgrades to existing lines and substations as demand for connections to the networks emerge? If not, what alternatives would you propose? | Yes. However, Meridian does not support this happening through a REZ tender process where network companies pick winners. |

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| 5. | If new lines needed to be built to connect resources, where should they be constructed/not constructed? | This will depend on the circumstances. It is up to networks to weigh the costs and benefits of options and select the best for consumers under the Commerce Commission's investment test. Meridian does not have any comment at this stage. |
| 6. | Are there alternative proposals that you think we should consider? | Meridian does not have any comment at this stage. |
| 7. | Do you have development projects that a REZ might assist you to construct and connect? | Meridian has development options in Northland but we do not think a REZ will assist us to construct and connect those options. |