Submissions
Electricity Authority
PO Box 10041
The Terrace
Wellington 6143

30/09/2019

Dear Sir / Madam,

Submission on Transmission Pricing Methodology 2019 issues paper

Tilt Renewables Limited ("**Tilt Renewables**") owns and operates seven wind farms across Australia and New Zealand totaling 636MW, as well as having a further 469MW under construction across two large wind farms in each of Australia and New Zealand. Tilt Renewables' electricity generation infrastructure in New Zealand includes the Tararua Wind Farm (161 MW) in the Manawatu and the Mahinerangi Wind Farm (36 MW)[1] in Otago. Consented wind farms not yet constructed include the Kaiwera Downs Wind Farm (up to 240 MW) and the remaining consented portion of the Mahinerangi Wind Farm (up to circa 180 MW), both located in the lower South Island. Tilt Renewables is also continuing to explore and develop other wind farm sites throughout the country. We thank the EA for the opportunity to comment on this important proposal.

In New Zealand, Tilt Renewables is currently constructing the $277M 133 MW Waipipi Wind Farm near Waverley. This will be the largest generation investment undertaken in New Zealand by an independent generator in a considerable time. The Waipipi Wind Farm reached financial close in September 2019.

The continued entry of new wind and geothermal projects is key to NZ meeting its decarbonisation targets; however, Tilt Renewables has serious concerns that the Transmission Pricing Methodology (**"TPM"**) as proposed by the EA would make it significantly more difficult to bring a project like Waipipi to market due to uncertainty related to transmission charges. In addition, Tilt Renewables sees that an enduring peak-use charge, proposed to be removed by the EA, is essential to the efficient development of transmission in NZ.

[1] It is noted that the resource consent held for the Mahinerangi Wind Farm allows for a development with an installed capacity of up to 200 MW.

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In this submission we also comment on smaller technical issues with the proposal and suggest as an alternative to the EA's proposal potential modifications to the existing TPM.

Transmission charging uncertainty

Access to a low cost of capital is a key factor that has enabled Tilt Renewables to successfully bring the Waipipi Wind Farm to market. The cost of capital (i.e. the cost of both debt and equity) is directly related to the level of perceived risk associated with large scale infrastructure projects. Key factors that influenced the recent Waipipi Wind Farm investment decision included:

- Long term revenue certainty - achieved via an offtake agreement with Genesis; and
- Long term operational cost certainty – achieved via long term O&M agreements with the wind turbine and balance of plant suppliers and the perceived risk relating to other key operational expenses (including those related to transmission and participation in the electricity market).

Under the TPM proposed by the EA it will be difficult to provide potential debt providers or equity investors any degree of certainty around transmission costs over the life of a project. Transmission costs will be subject to risks around:

- The timing of transmission investments that may affect a project location;
- The cost of that transmission investment; and
- The allocation of the transmission costs to a project, which for the benefits-based allocation could be substantial.

These risks will be very difficult to assess at project inception for the life of a project and in our opinion will result in an increase in the overall cost of capital given the uncertainty in, and potentially large changes to transmission charges, translating to an increase in the Long Run Marginal Cost (**"LRMC"**) of projects. There is a risk of large step changes in transmission charges at individual connection points, which is likely to be riskier to small players with few connection points (due to a smaller and less diversified asset portfolio) than more well-resourced market participants.

Tilt Renewables notes that the proposed TPM will result in significant wealth transfer. Tilt Renewables considers that the wealth transfers that have already occurred under the changes to the ACOT regime and that are foreshadowed in this TPM proposal may have a detrimental effect on future investment certainty.

Tilt Renewables anticipates significant difficulty for new and existing participants and projects in forecasting likely transmission costs in the future due to the complexity of the benefits-based charging process. Even with knowledge of likely future transmission upgrades in an area, the

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application of the benefits-based charge is not clear. The specific complexities Tilt Renewables foresees are:

- There is fundamental difficulty in assessing and allocating the benefits of new transmission in a highly meshed system. In some ways it is like trying to assess the benefits of individual members in a structural system. All occupants benefit if the structure is weathertight and sound, just like all transmission consumers benefit from a robust transmission system that enables competition between generators;
- It is unclear how benefits will be calculated for points that would otherwise face disconnection (either generation or load). In an extreme case, the benefits, and hence transmission changes, would appear to be the entire generation revenue from a generation asset[2]. The possibility of such extreme outcomes will pose significant challenges to asset owners. This is likely to lead to parties having to investigate counterfactual alternatives, like those required for notional embedding now, in order to avoid excessive costs. This could also lead parties to invest in otherwise inefficient meshed connections simply to mitigate transmission price risks;
- The benefits assessments are unlikely to be robust over time. For example, the benefits assessment for the HVDC upgrade at the time the investment decision was made (prior to the shutdown of Southdown and Otahuhu B and before the North Island and Wairakei upgrades) would likely be very different from an assessment made now in terms of the main beneficiaries. In Tilt Renewables view the long-term benefits to consumers as a whole are likely to be more stable and enduring than the benefits to individual parties, which will evolve over time with changes to the transmission and generation systems and demand patterns; and
- The benefits assessments are unlikely to be robust to different groupings. The grouping of projects has been largely to enable efficient delivery by Transpower, however breaking the projects up or aggregating them may lead to different benefit assessments. For example, a HAY – BPE 1 reconductoring assessed separately to HAY – BPE 2 reconductoring would likely lead to a different outcome to the HAY – BPE 1 & 2 reconductoring assessed as a single project. Or the reverse, the Wairakei and North Island grid upgrades bundled together would likely have different benefits than the benefits of the separate projects. This lack of robustness may encourage lobbying efforts by affected participants, reducing the efficiency and timeliness of decision-making.

[2] In a SPD like benefit calculation where the counterfactual was disconnection the benefit would appear to be the difference between the cleared price minus the offer price multiplied by the cleared volume. If the offer price was at or near zero this would be the entire or almost the entire generation revenue.

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Peak-use charging

Tilt Renewables believes that an enduring transmission charge that is based on some measure of peak offtake is key to efficient transmission investment in the long term. Tilt Renewables considers that as transmission investments are lumpy by nature, by the time high nodal prices signal congestion at the peak, it is too late to act.

Under the EA's proposal, transmission users will only face costs associated with transmission congestion in the real time market. Transmission investments are long term and take several years to implement, so prudent transmission owners will invest several years in advance to make transmission available when it is required. Under the proposed TPM users at peak times will not face a cost signal associated with the real costs that they are imposing on the system for these transmission investments, as the benefits-based charge is not directly related to actual peak time usage.

In this regard Tilt Renewables agrees with the main points made by Transpower in their document "The role of peak pricing for transmission" dated 2 November 2018, specifically:

- Peak pricing flattens load profiles;
- Removal of peak charges would bring forward transmission investments;
- Peak pricing is a vital component of the TPM now and for the future; and
- Nodal energy pricing is not a substitute of network peak pricing.

Technical concerns

Tilt Renewables has identified other technical concerns in the proposed TPM:

- Bias in the calculation of benefits under the Scheduling Pricing Dispatch (**"SPD"**) methodology. The SPD methodology for calculating benefits and hence transmission costs may result in higher benefits/costs for low Short Run Marginal Cost (**"SRMC"**) generation, even where the LRMC of the generation is the same. This could mean that fossil fuel generators face lower transmission charges than renewable generators for the same transmission service; and
- Given that many parties are controlling peak load by more than 10% there is a significant risk that the increase in peak usage (and hence the transmission investment required to support that usage) has been underestimated by the EA.

The way forward

The EA has identified several issues with the current TPM which Tilt Renewables agrees would be valuable to address including the volatility of transmission charges, over-signaling of peak charges and the inequitable HVDC charging to SI generators only.

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Tilt Renewables considers that many of these issues could be successfully addressed through adjustments and refinements to the current TPM - a measured and gradual evolution of the current TPM is preferable to the revolution of a new TPM. Tilt Renewables recommends the following adjustments to the TPM for further investigation and consideration:

- Adjusting the number of peaks comprising Regional Coincident Peak Demand (**"RCPD"**), and/or averaging this over several years to reduce the year-to-year volatility in charges;
- Adjustment of the regions for the RCPD to better align with transmission congestion and investment needs to reduce the over-signaling; and
- Charging part of the HVDC costs as an interconnection charge rather than solely to SI generators to increase fairness in HVDC charging.

Tilt Renewables again thanks the EA for the opportunity to comment on this important proposal.

Should you have any questions please contact Philip Wong Too on +64 27 809 6283 or Philip.wongtoo@tiltrenewables.com. Tilt Renewables would be happy to discuss this submission further with the EA.

Regards,

Nigel Baker

Executive General Manager Generation and Trading

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