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Bryan Leyland submission on reference case assumptions and sensitivities for the 2024 Security of Supply Assessment

Transpower received the following submission by email from Bryan Leyland:

> *Q1. Do you agree with the proposed assumptions used for the reference case? If not, please provide further details and what you consider would be reasonable alternate assumptions.*
>
> *Regarding Fig one I am comfortable with the demand assumptions but I think that some of the supply submissions are questionable. The last 4 assumptions are definitely questionable. Delayed build times are definitely likely given the fact that a surplus of wind and solar power will result in prices crashing when wind and solar is in surplus and going very high when it is not available. This means that wind and solar power will earn much less than the average wholesale price. Given that overseas it only survives on subsidies it seems to me that an organisation would need to be quite foolish to contemplate investment much beyond what is already committed.*
>
> *Q2. Do you agree that the proposed sensitivities represent the key security of supply uncertainties facing the New Zealand electricity sector over the assessment horizon (2024-2033)? If not, please provide further details and which of the above-described sensitivities you would replace with alternatives or remove (if not needed).*
>
> *Given that an increased amount of wind and solar power will markedly increase the risk of short-term shortages when the wind isn't blowing and the sun isn't shining, this should be included in the assessment. This is a new risk and should be rated alongside the traditional dry year risk.*
>
> *Increasing wind and solar power will make it more difficult to manage system frequency and voltage. This could become a constraint on the amount of power available. It is a new risk and it should be covered in the report.*

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Q3. Do you have any thoughts on our proposal to include a section in the Security of Supply Assessment report looking at the implications of increasing the proportion of renewable generation on security of supply margins?

This is essential. It must cover the need for massive amounts of storage for days and weeks to cover wind droughts and the like. It should also include an assessment of what storage technologies could fill the gap and how much they will cost. My information is that the ones currently available such as batteries are impossibly expensive and there is no long-term low-cost storage technology available. It should also cover frequency and voltage stability.

Kind regards,

Bryan Leyland