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## Improving information on high-voltage network capacity

Transpower welcomes the opportunity to submit on the Electricity Authority's (Authority's) consultation *Improving information on high-voltage network capacity* published 5 May 2026.

We consider visibility of high-voltage network capacity in a visual format should support information to access seekers for potential connections. We support an aim for standardisation in the derivation of hosting capacity data for it to be comparable across networks.

### The definition for "network hosting capacity" has been modified

The Authority describes its meaning for "hosting capacity" as follows:<sup>1</sup>

*In New Zealand, 'network hosting capacity' has traditionally referred only to the capacity of a network to accommodate distributed generation. However, for the purposes of this work, we refer to 'network hosting capacity' as an estimate of the amount of load, generation and DER (both controllable load and controllable distributed generation) that can be accommodated anywhere on the distribution network, without adversely impacting power quality or reliability under existing control configurations and without requiring infrastructure upgrades.<sup>2</sup>*

The Authority has modified the previous concept of hosting capacity<sup>3</sup> to reflect the increasing complexity of distribution network operation. The prior description did not capture that the hosting capacity is about locations where no upgrade would be the consequence. The definition helps focus connection indications on genuinely available capacity. In our view it also means that estimates of current and forecast hosting capacity is not consistent with also needing to indicate capacity mitigation measures as those listed in the proposed Code drafting.<sup>4</sup>

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<sup>1</sup> Consultation paper paragraph 1.7

<sup>2</sup> Electric Power Research Institute, *The Hosting Capacity Process*, October 2020, 2. Accessed via [Program 200: Distribution Operations and Planning | Product Abstract](#)

<sup>3</sup> [Improving network capacity to the host distributed energy resources](#) para. 1.5

<sup>4</sup> (2) (dg) (iii) [to derive] an estimate of remaining circuit capacity for each of the next 5 years...Each estimate under subparagraph (2)(dg)(iii) must...indicate the extent to which the distributor reasonably expects to need to use, as an alternative to network reinforcement, any of the following: (i) demand-side response: (ii) energy efficiency: (iii) energy storage facilities: (iv) other resources

The Authority references its definition for hosting capacity from the linked resource (footnote 2). This resource prefaces its content with:

*"Hosting capacity is not just an analysis, but a complex process that combines the collection of input data and the selection of analytical parameters that ultimately define how the results can be applied..."*

The resource concludes:

*The hosting capacity process is constantly evolving and becoming more complex to keep up with the pace of change in the industry. The primary goal of hosting capacity is to provide additional insight on distribution system impacts that were not available a few years ago. While informative, hosting capacity results are an estimation and have limitations in how they should be applied. By understanding its limitations and focusing on the resulting applications, utilities can ensure that the hosting capacity process is implemented in an effective and efficient manner."*<sup>5</sup>

## We support a principles-led approach to mapping information

With the framing above, we consider the Authority's mandated approach to the map's information requirements may involve material costs, through the additional complexity in producing the underlying information and in presenting it through a map interface. We are concerned that the Authority considers it necessary to move to mandated prescription at this stage, rather than through previous principles-based approaches via guidance that the Authority can monitor and assess. Imposing uniform and detailed requirements may exceed what is useful in some EDB areas. A more principles-based or guidance-led approach would better preserve room for innovation, allow practices to mature, and reduce the risk of inefficiently imposing costs on all EDB consumers.

For example, the Authority could issue standard guidance that helps access seekers ask targeted questions, such as which circuits have the strongest or weakest reliability performance. This approach would likely be more efficient than requiring access seekers to interpret disaggregated SAIDI/SAIFI data themselves.

The most effective result of the visual (locational) and numerical information is to serve as an initial input to support access seekers with necessary engagement with the relevant EDB. We consider this is the most efficient basis for assessing connection / flexibility options.

If map production is mandated, we suggest the publication process should be annual to provide time to understand the effort involved in creating the map information, and consistent with the established updating frequency for publishing forecast investment and performance information under the Commission's Part 4 regulation. A quarterly updating frequency would impose more cost on an EDB's consumers and create high and varying opportunity costs across all Distributors.

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<sup>5</sup> Electric Power Research Institute, *The Hosting Capacity Process*, October 2020 (see footnote 2)

## Network alternatives valuation requires bespoke consideration

We do not support the requirement for publishing *"the price that the distributor may be willing to pay for alternatives to network reinforcement, for the relevant high-voltage network circuits."*<sup>6</sup> In our view, this requirement misunderstands the level of consideration, time and analytical resource to understand what the alternatives might be and how they might be valued. For Transpower non-transmission solutions (network alternatives) are considered where a network capacity upgrade is investigated, these investment processes require bespoke specification for each investment context and targeted consultation with connected parties and potential providers. We consider flexibility services are more likely to be developed efficiently directly at consumer end-use, or through case-specific engagement between the relevant distributor, Transpower, and flexibility providers when assessing alternatives to investment in an EDB's high-voltage connection assets.<sup>7</sup> That said, there may be an alternative, more straightforward way to create a "price" signal, such as through a standard approach to indicating a deferral value for any circuits where expenditures on capacity upgrades are being contemplated.

As we have previously submitted,<sup>8</sup> network data generally requires supporting context to allow users to interpret the underlying value or cost signals associated with network conditions. Without that context, the risk is published visual information will be technically detailed but could be of limited practical use.

## Operational visibility of increased DER is needed for system security

Finally, as DER and DER uptake increases, the System Operator (and Distribution System Operators) will need sufficient operational visibility – to observe, in near-real time or real time, the state, and behaviour of assets and connected resources across the network – to maintain safe and secure power system operation. If capacity maps accelerate the uptake of DER then improved information sharing among the operational actors within the power system will also need to accelerate. This may require Authority effort to be achieved.

Although hosting capacity is defined as DER that can be accommodated *"without adversely impacting power quality or reliability under existing control configurations,"* DER at scale will impact on operational activities such as outage planning, load forecasting, and system restoration irrespective of whether local congestion or power quality has been impacted.

We have responded to some of the questions posed in the consultation in the Appendix.

Yours sincerely,

**Joel Cook**  
**Head of Strategy and Regulation**

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<sup>6</sup> Proposed Code 6.3 (3B) (e)

<sup>7</sup> [Western Bay of Plenty](#) Non-transmission solutions

<sup>8</sup> [Transpower Submission Network Visibility 17Oct25.pdf](#)

## Appendix – Transpower response to questions

Question	Comment
Q1. Do you agree with our assessment of the current state of the information and capabilities needed to inform network hosting capacity? If not, please explain why.	No comment.
Q2. Do you agree the issues identified by the Authority are worthy of attention? If not, please explain why.	We consider there is good evidence that EDBs are already producing capacity maps for their networks. We support an aim for standardisation in the derivation of hosting capacity data for it to be comparable across networks.
Q3. Do you agree with our assessment that now is the time to regulate for network visibility? If not, when do you consider would be the right time?	No. We consider it is not demonstrated that immediate regulation is warranted. Many EDBs appear to be progressing network visibility initiatives already, and further time would allow practices to mature before prescribing a common regulatory approach. Regulation would be better considered if there is clearer evidence of persistent inefficiency for access seekers, material inconsistency across the country, and benefits that outweigh implementation and compliance costs.
Q4. Do you agree with our assessment of the outcomes that network visibility supports? If not, why not?	We consider the main function of the map information is to support access seekers' locational connection decisions and provide the impetus for a connection conversation with the EDB.
Q5. Do you consider the proposed amendments to Part 6 of the Code would promote the Authority's statutory objective? If not, why not?	See question 3.
Q6. Are there any matters you believe are missing from the proposed Code amendment? Please specify.	No comment.
Q7. Is the indicative timeframe for implementing the proposed Code	No comment.

Question	Comment
amendment likely to be adequate? If not, please provide information supporting a different timeframe, including identifying cost savings from a later implementation date.	
Q8. What are your views on the proposed approach where detailed information about the data sets captured within the definition of network capacity information would be contained in technical specifications?	No comment.
Q9. Do you consider that the proposal to develop network visibility specifications in consultation with interested parties would be effective? If not, why not?	No comment.
Q.10. Is the proposed timeframe for developing the specifications likely to be sufficient?	No comment.
Q11. Do you agree with the proposal to start with high-voltage network visibility? If not, please share your perspectives on where best to start.	No comment.
Q12. Do you agree with the assumptions the Authority has made? Why/Why not?	<p>Assumption b) agree, and EDB submissions may reveal the extent of these (currently unfunded) costs.</p> <p>Assumption c) needs to be true for any consideration of regulatory intervention to have a basis: that a capacity map will improve efficiency for the connections process for an access seeker. An effective use is as impetus for a conversation with the EDB.</p> <p>Assumption d) is the same as c). The intervention rests on the premise that the enquiry process for an actual connection will be more efficient because</p>

Question	Comment
	the access seeker can better target areas of the network.
Q13. Have we correctly identified the benefits of network visibility?	We agree there should be benefits of standardisation in deriving capacity information across EDBs.
Q14. Do you have any information that might help quantify the value of these benefits? If so, please provide this information.	No comment.
Q15. Have we correctly identified the costs of network visibility?	In our view, the cost assessment may be underdone. It appears to understate both the ongoing operational burden of maintaining robust and interpretable network visibility information and the opportunity cost of redirecting scarce engineering and digital capability towards frequent map production activities.
Q16. Do you have any information that might help quantify the costs? If so, please provide this information.	No comment.
Q17. Have we correctly identified the regulatory overlaps?	No comment.
Q18. Do you agree with our assessment that there is a net benefit notwithstanding any regulatory overlap? If not, why not?	<p>We consider the compliance costs are likely to outweigh the benefits of information provision. Reducing the updating frequency and detail would reduce cost for little loss in benefit, because the primary effect of the visual map is to provide a more efficient basis for the access seeker to engage with the EDB for likely connection locations.</p> <p>In any case, we expect every map will be caveated by disclaimer provisions about non-reliance on the information, such that the most efficient process for truly understanding connection opportunities, is direct engagement with the EDB.</p>

Question	Comment
Q19. Do you have any information that might help quantify the costs and benefits associated with the regularly overlap? If so, please provide this information.	No comment.
Q20. Do you agree that the Authority should consider reducing the regulatory overlap as the proposed specifications are developed?	No comment.
Q21. Do you agree with our assessment that there will be net benefit from the proposed amendments? If not, why not?	<p>Net benefits may arise in some EDB areas where capacity information is not already available and <i>many</i> access seekers (potential connecting parties) face difficulty obtaining it. However, for other EDBs, the costs of providing visual information may outweigh the benefits to those few looking to connect, particularly where direct engagement could be a simpler and more effective approach.</p>
Q22. Do you agree the proposed amendment is preferable to the other options? If you disagree, please explain your preferred option in terms consistent with the Authority's statutory objective in section 15 of the Electricity Industry Act 2010.	<p>No. We are concerned that the Authority considers it necessary to move to mandated prescription at this stage, rather than through previous principles-based approaches via guidance that the Authority can monitor and assess. In our view, imposing uniform requirements may exceed what is useful in some EDB areas. A more principles-based or guidance-led approach would better preserve room for innovation, allow practices to mature, and reduce the risk of imposing costs on all EDB consumers.</p> <p>For example, the Authority could issue standard guidance that helps access seekers ask targeted questions, such as which circuits have the strongest or weakest reliability performance. This would likely be more efficient than requiring access seekers to interpret disaggregated SAIDI/SAIFI data themselves.</p>

Question	Comment
Q23. Do you agree the Authority's proposed amendments comply with section 32 of the Electricity Industry Act?	No comment.
Q24. Do you have any comments on the drafting of the proposed amendment?	<ul style="list-style-type: none"> <li>- Remove quarterly updating, the cycle should be annual to align with existing information provision processes and reduce compliance costs</li> <li>- Remove requirements for SAIDI and SAIFI figures (see answer to Q22 above). These are expressions of what a consumer might, on average, experience for interruptions and their duration for a year. Network-wide SAIDI/SAIFI are standardised and comparable across EDBs, but circuit-level metrics are not.</li> <li>- Remove the requirements to indicate EDB capacity mitigation intentions clause 3B(d); this information does not accord with the definition for hosting capacity.<sup>9</sup></li> <li>- Remove proposed clause 3B (e) "willingness to pay" for non-network solutions. It is a context specific concept. There may be alternative, more straightforward ways to create a "price" signal, such as through indicating deferral value only for circuits where capacity upgrades are being contemplated.</li> </ul>

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<sup>9</sup> Hosting capacity is defined by the Authority as load and generation *that can be accommodated anywhere on the distribution network, without adversely impacting power quality or reliability under existing control configurations and without requiring infrastructure upgrades*. Including demand-side response and other alternatives as an alternative to network reinforcement, means that accommodating load/generation is thought to necessitate reinforcement such that alternatives are needed i.e. the hosting capacity IS contingent on intervention, contrary to the definition for it.