



TRANSPOWER

Keeping the energy flowing

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29 September 2023

Electricity Authority Te Mana Hiko

By email: OperationsConsult@ea.govt.nz

Dispatch notification enhancement and clarifications

Transpower welcomes the opportunity to respond to the Electricity Authority's (Authority's) consultation paper *Dispatch notification enhancement and clarifications* published 1 September 2023. This submission is from Transpower as the System Operator.

We appreciate the Authority's intention to allow the System Operator to have flexibility to decide the most practical and efficient way to implement Dispatch Notified Load (**DNL**) participation. As an interim measure, we agree in some circumstances allowing participation at a nominal GXP could be of benefit to participants and the System Operator, as it would reduce the onboarding/registration workload.

However, we expect the scope for this type of implementation would be limited before it begins to have negative impacts on our ability to manage system security risks (i.e. meeting our principal performance obligations), particularly around modelling transmission constraints. This is an outcome of the nodal market design. As the Authority has articulated, this presents a first-mover advantage and uncertainty around the durability of the solution, which ultimately could come as an additional cost.

The answers to the questions are provided in the appendix.

Please contact me at joel.cook@transpower.co.nz.

Kind regards,

Joel Cook
Head of Regulation

Appendix – responses to questions

Questions	Comments
<p>Q1. Do you think the current requirement to bid at each GXP where resources are located imposes material costs on load aggregators and do you think this may cause a potential barrier to entry? Please provide details.</p>	<p>We are uncertain on the materiality of the costs to participants of nodal bidding. However, we do think nodal bidding is likely to be a more durable solution given the existing market design and that preserving the existing nodal market design lowers costs for participants in the long-term.</p>
<p>Q2. Do you agree with our framing of the problem?</p>	<p>We agree with the framing of the problem. However, while the system operator would enjoy a small operational benefit in only modelling load aggregation at a single nominal GXP, this benefit does not outweigh the operational risk of misrepresenting the location of dispatch notification load (DNL) within the nodal pricing/powerflow solution. The benefits of per-GXP (nodal) bidding are explained below.</p>
<p>Q3. Do you agree with our proposed solution? If not, why not? Are there other solutions you consider would better solve the problem?</p>	<p>While we appreciate there is an opportunity for small-scale participants to benefit from the proposed solution, we believe the scope is very limited.</p> <p>We operate a nodal (individual GXP) energy market (i.e. a locational marginal pricing model). This market design means electricity is valued according to its physical location, accounting for the capacity of the grid. The System Operator’s tools to maintain system security are designed around the nodal market model. Because of this, enabling aggregation of nodes into a nominal GXP is likely to lead to workarounds within our tools and processes, which comes with associated costs in implementation and increased operational risk. This is because aggregation across multiple GXPs does not reflect how we model the power system, which is on a nodal basis. Applying aggregation across multiple GXPs as a workaround will almost certainly cause confusion for both the System Operator and load aggregators, which could ultimately create operational risk, if the level of misallocation of aggregated load becomes significant. Because load aggregated to a nominal node is not necessarily representative of where that load is located physically, the SPD solution may calculate a reduction in load inefficiently which could lead to local or regional power system issues, depending on where constraints bind within the network. It is not unusual for supply transformers to limit the flow of electricity at a particular GXP, which means making</p>

	<p>assumptions about the physical location of aggregated load could result in operational risk for the power system. The outcome of this could be a significant increase in System Operator engineering assessments to determine the impact on system security, real-time workarounds and confusion for both the System Operator and load aggregators.</p> <p>If the potential issues outlined above manifest, then the System Operator would need to restrict the levels of participation and potentially increase discretionary action to maintain system security. While restricting participation is recognised within the proposed solution, the limit for aggregated bidding at nominal GXPs is likely to be very low before the current nodal model is compromised (i.e. the point at which the System Operator cannot accurately determine transmission constraints). It is not possible to accurately assess the risk of a nominal GXP approach, as there is uncertainty around future connections in terms of both size and location.</p> <p>From an aggregator’s perspective, under the proposed solution there is always a risk that the System Operator will restrict participation. This reduces the durability of the solution from an aggregator’s perspective. A durable solution means aggregators can invest with greater certainty.</p> <p>For the System Operator, GXP bidding reduces the risk of workarounds and is durable. It would likely remove the need for any System Operator limits on participation and would provide the required level of accuracy for the market to operate efficiently, as long as participation levels remain manageable within the System Operator’s current resources and toolset (elaborated below).</p>
<p>Q4. Do you agree with the proposed solution to clarify that obligations relating to dispatch notification purchasers should only impact trading arrangements, which are covered in Part 13?</p>	<p>No comment.</p>
<p>Q5. Do you agree with our proposed solution to ensure dispatch notification participants provide the Authority with appropriate data for compliance monitoring purposes?</p>	<p>The System Operator agrees with this aspect of the proposed solution.</p>

<p>Q6. Do you agree the benefits of the proposed amendments outweigh its costs? If not, please explain.</p>	<p>The System Operator does not think the benefits of the proposed amendments outweigh the costs if the Authority's proposed solution for aggregation is implemented, due to the operational risk it would introduce. However, if the alternative solution(s) outlined below is implemented, then the System Operator is supportive of the notion.</p>
<p>Q7. Do you consider there are any other options that better meet the objectives? If so, please explain your preferred option in terms consistent with the Authority's statutory objectives in section 15 of the Electricity Industry Act 2010.</p>	<p>For the System Operator, accurate GXP bidding reduces the risk of workarounds and is future proof. It would likely remove the need for any System Operator limits on participation and would provide the required level of accuracy for the market to operate efficiently. However, as participation increases it will become increasingly difficult for the System Operator to absorb the increased modelling and commissioning time associated with each new participant, and eventually increased participation will require investment in the dispatch toolset to be able to handle many more dispatch nodes.</p> <p>The System Operator could consider potential variations on how GXP-based dispatch could be achieved, such as:</p> <ol style="list-style-type: none"> 1. Require all dispatch notification purchasers to bid at a nodal level irrespective of size. Dispatch would be GXP-level dispatch. This is the System Operator's preferred solution. 2. Require all dispatch notification purchasers with a size ≥ 1 MW at a single node to bid at that single node. For dispatch notification purchasers with a size < 1 MW at a single node(s), permit aggregation of those nodes at a nominal node up to an aggregated total of 5MW and with a region-to-node allocation factor (for peak and off-peak) which enables better modelling of power flow at the nodal level. The dispatch notification purchaser would need to provide quarterly reports to the Authority and System Operator on the accuracy of its region-to-node allocation factors (which must be within accuracy thresholds specified by the System Operator). This option would require more development than Option 1, but would reduce some barriers of dispatch notification uptake, without significantly impacting system security. <p>Both of the above options would require some level of investment in additional resources and enhanced tools.</p>

<p>Q8. Do you agree the Authority's proposed amendment complies with section 32(1) of the Act? If not, please explain.</p>	<p>No comment.</p>
<p>Q9. Do you have any comments on the drafting of the proposed amendments?</p>	<p>The System Operator notes that the proposed clause 13.3E(2A) and the existing clause 3(2) of Schedule 13.8, both require input from the Authority. However, the timeframe in clause 8 of Schedule 13.8 does not account for this if the Authority does not provide its input within the System Operator's timeframe set out in clause 8.</p> <p>Similarly, the System Operator notes that the existing clause 13.3F does not prescribe any timeframe for System Operator approval. The proposed clause 13.3F(3A) includes Authority input into the process. The System Operator wonders whether a timeframe should be prescribed into clause 13.3F and, if so, it should account for Authority input.</p>