

23 August 2024

Electricity Authority

By email: operationsconsult@ea.govt.nz

Consultation paper - Instantaneous reserve cost allocation to groups of generating units

Nova agrees that there is sufficient cause to review the allocation of IR cost allocations, and a simple and expedient change to the Code is appropriate. However it does not agree the proposed reserve allocation methodology is equitable on a risk adjusted basis for wind and solar farms with multiple generation units and a single transformer. When depicting the system risk of a component trip of a wind or solar farm generation unit, the risk materially decreases from left to right as depicted below:

Gen Unit CB >> MV Feeder CB >> MV incomer CB > HV Transformer CB = Grid CB

As opposed to a single large generation unit connected to the grid via a dedicated unit transformer, where the system risk of a component trip is largely unchanged from left to right:

Gen Unit CB = Unit HV Transformer CB = Grid CB

The Authority's proposal, as it stands, will increase the barriers for certain types of generation investment.

If the 'benefactor pays' principle of the TPM was similarly applied to IR cost allocation then the demand-side should also pay an appropriate equitable share. This is supported by the accepted material differential between the value of lost load (VoLL, circa ~\$20,000/MWh) and value of lost generation (VoLG, circa ~\$200 MWh). Clearly the demand side receives significantly greater benefit from the level of IR procured and hence the Authority's proposed 'causer pays' approach is inequitably biased against the supply side.

Should the demand side object to an equitable IR cost allocation, then the Authority's generator unit grouping proposal should only be applied against an ECE IR assessment and associated cost allocation.

And to this end, the current 'event causer' penalty regime would be sufficient to incentivise generation investors to undertake a more equitable and objective risk (reliability) vs. cost trade-off assessment for asset configuration decisions. E.g. increasing the number of MV feeders (ie. reduce the number of generation unit inverters connected to each MV feeder) to reduce both risk and probability that they could incur a penalty through a generator failure. The Authority could further incentivise by increasing the current penalty rate (of \$1250 per MW lost), further reducing the residual IR cost allocation. Though acknowledging the Authority's view ECE considerations and event causer costs are out of scope.

The EA's current proposal also cuts across the grid reliability standards. For example, the Authority proposes to group generation units that are connected to a single point of connection to the grid. And for the example given (para 4.26), the only way for a participant to avoid that group of units being classified as a CE would be to "invest in more than one connection line" to that grid POC. But if that POC is on the non-core grid and inter-connected via a single transmission line (ie. transmission only needs to meet the 'N' grid reliability standard) then that places an inefficient and largely pointless investment burden on the generator group, especially if that connection line is short and hence of much lower risk than a longer connection (or single grid transmission) line. This also highlights that the Authority's proposal is too broad-brush, rather than taking the intended risk-based approach.

The proposal appears based on subjective expediency over objective substance. Should the Authority proceed with proposal largely as it stands following the cross consultation period, Nova proposes that the capacity factors applied to lines and transformers servicing BESS, wind and solar farms when calculating contingent event (CE) charges should be discounted by 50%.

Nova's proposal is discussed in detail in the **attached** Appendix.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'P. Baker', is positioned above the typed name.

Paul Baker

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Nova submission: Instantaneous reserve cost allocation to groups of generating units

Q.	Question	Response
1.	Do you agree with the description of the issues identified by the Authority? If not, why not?	<p>Risk needs to be considered in two dimensions, the magnitude of impact and the probability of occurrence. The proposal to amend the definition of contingent event being to be related to the size of the connection assets is a radical shift in emphasis in the Code.</p> <p>The analysis should include consideration of the probability of asset failure. The description of the issues in the Consultation Paper does not differentiate between generation units that are at risk of failure due to fuel, control systems and a multitude of moving parts; and transformers and lines connections which have a very low failure rate.</p> <p>Transformers have a lower risk of failure than turbines and generators and when they do fail, it is unusual for the failure to occur instantaneously without warning. Applying the risk against the total output of a wind or solar farm is akin to applying the CE charges against the total output of a hydro power station with multiple generation units, on the basis that the whole dam could fail. Clearly the risks of that occurring are even lower than a transformer failure (fortunately), but the principle is not dissimilar.</p> <p>The proposed Code change also refers to failure of the connection assets.</p> <p>A simple and expedient way of recognising the differences between generator risks and the risk of transformer failure would be to reduce the rating of transformers for CE purposes in proportion to the comparative risk they create.</p> <p>As a proposed solution, the allocation of IR cost should be based on: the greater of ((a) [50%*] of the throughput of the connected transformer and (b) the capacity of the largest generation unit at the connection) less 60MW. This could be consistently applied across all generation stations without differentiating between different types of generation.</p> <p>* On a purely risk adjusted basis the proportion should be smaller than 50%, but 50% would at least result in a far more equitable sharing of CE charges than what is proposed in the Consultation Paper.</p>
2.	Do you agree with the objectives of the proposed amendment? If not, why not?	Nova agrees that there is sufficient cause to review the allocation of IR cost allocations, and a simple and expedient change to the Code is appropriate.

Q.	Question	Response
3.	Do you agree the benefits of the proposed amendment outweigh its costs?	<p>Nova agrees that spreading the costs of IR wider is appropriate and will reduce the current disincentive on building larger dispatchable generation units. But allocating costs against the size of every large transformer does not achieve an appropriate balance either.</p> <p>The proposed amendment results in an over-allocation of costs to wind and solar projects in proportion to the risks they create, and it will incentivise overinvestment in smaller projects or transformers, even although large transformers do not add a significant additional risk to the spot market. As such, it is not clear that the benefits of the amendment as presented outweighs its costs.</p>
4.	Do you think there are any other costs or benefits for the proposed amendment that have not been identified?	Yes, as above. Incentivising investment in smaller connection sizes will offset some of the usual advantages of economies of scale of larger projects.
5.	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.	The proposed amendment is preferable to the other options presented in the Consultation Paper, but Nova advocates amending the preferred option as described above as it meets all the same criteria, but with less distortion on the cost of generation.
6.	Do you agree the Authority's proposed amendment complies with section 32(1) of the Act?	Nova agrees, subject to its proposed amendment to the proposal.
7.	Do you have any comments on the drafting of the proposed amendment?	<p>The definition for at risk generation could be amended as follows to better achieve an appropriate allocation of cost of reserves:</p> <p>at risk generation means a generating unit or 50% of the rated capacity of a group of generating units as identified in the list of at risk generation maintained by the system operator in accordance with clause 8.59A</p>