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John Rampton  
General Manager Market Design  
Electricity Authority

By email: [submissions@ea.govt.nz](mailto:submissions@ea.govt.nz)

Dear John

## Hosting capacity Part 6 low Voltage Networks

We appreciate the opportunity to submit on the Electricity Authority's issues paper *Integrating hosting capacity into Part 6 of the Code on low voltage networks*, published 4 September 2018.

We support the Authority responding to the EEA's proposal for standards for small-scaled distributed generation (SSDG) and appreciate the Authority's recognition [section 4.16] of SSDG studies by Transpower and distributors.

As indicated in the issues paper [section 3.16] Transpower, as the system operator, is concerned that distributed generation inverters are tested and conform to the latest standards, to maximise their ability to 'ride through' system low voltage and low frequency disturbances.

We support Option B, amend Part 6 of the Code to:

- (i) adopt the latest inverter standards and make use of some of their new optional features
- (ii) provide clarity and consistency around distributors' standards for connection and operation, and policies for managing congestion

We consider the proposed change is a step in the right direction, but to be effective will require MBIE (Ministry of Business Innovation and Employment) to amend the Electricity Safety Regulations to refer to the latest version of the standard (AS/NZS 4777.2). Otherwise, EDBs may not be able to insist that connections are to comply with the latest standard.

We have responded to the questions in the Appendix.

Please contact me if you have any questions about this submission.

Yours sincerely

Micky Cave  
Senior Regulatory Analyst

## Appendix Responses to questions

Question	Response
Q1. Have we adequately outlined the issues with increasing levels of SSDG, particularly inverter-connected solar PV systems?	Yes.
Q2. What other factors are relevant to these technical network considerations?	Harmonics and power factors.  We consider the total harmonic distortion will increase as more inverter-based equipment is installed.
Q3. Do you agree these options broadly represent the range of actions we could consider at this time? Are there other broad conceptual options we should consider that are not covered by these three approaches?	Yes.
Q4. Do you think the Authority should pursue the types of measures that Option B would require? If not, please outline your alternative preferred approach, including if possible the costs and benefits. If you consider there is a valid Option C-style alternative, please provide details, including your view on how your alternative would meet the Authority's statutory objective.	Yes. However, for the standards to be effective we understand that they would need to be referenced in safety regulations administered by MBIE.
Q5. Do you have any comments on the draft EEA guide's stated objectives?	No.
Q6. What advanced power quality capabilities do inverters sold into the New Zealand market possess?	No comment.
Q7. Is it reasonable to assume that the advanced power quality modes outlined are currently available in the marketplace at no additional cost? If not, what are the likely incremental costs involved to obtain these modes?	No comment.
Q8. Would a default requirement to provide volt-var and volt-watt modes for all future inverter installations that use the Part 1A connection process have any unintended adverse consequences (for example, leaving a stock of unsold inverters that are otherwise compliant with the superseded AS4777:2005 standard suite)? Are these adverse consequences surmountable?	No comment.
Q9. What comments do you have about the hosting capacity assessment process described in detail in the draft EEA guide?	No comment.

<p>Q10. Do you support the Code amendment request discussed in the draft EEA guide? If not, please explain why and, if possible, suggest an alternative approach.</p>	<p>Yes, but for inverters that do not have power quality operation modes, the draft guide could also include a harmonics standard and power factor operation range.</p>
<p>Q11. Do you think there is a problem or conflict with the '10 kW total' versus '5 kW per phase' thresholds respectively adopted in the Code and AS/NZS 4777.2:2015? If so, would you support aligning the Code threshold with the inverter standard?</p>	<p>No comment.</p>
<p>Q12. Do you think there are emerging problems with capacity or power quality from in-home electric vehicle chargers, or is it too early to tell? We are keen to hear industry views and experiences and from parties that supply electric vehicle charging equipment.</p>	<p>We consider it highly likely that in-home EV charging will cause operational issues for networks.</p>