

**Consultation Paper-Integrating hosting capacity into small-scale distributed
generation connections**

ECOTRICITY SUBMISSION

December 4th 2019



3th December 2019

Submissions
Electricity Authority
P O Box 10041
Wellington 6143

By email: Part6hosting.submissions@ea.govt.nz

Re: Consultation Paper-Integrating hosting capacity into small-scale distributed generation connections

Dear Andy,

Re: Consultation Paper-Integrating hosting capacity into small-scale distributed generation connections

Ecotricity welcomes the opportunity to make submissions on the Electricity Authority's (Authority) consultation paper to amend Part 6 of the Code to change eligibility for small-scale distributed generation connected under the Part 1A process.

Ecotricity has the highest proportion of solar installations, 45% of our customer base, compared with all retailers combined 1.09%. Ecotricity is also the first in the world to carbonZero the solar export for all our customers. For that reason we think it is important that we be consulted.

To facilitate efficient, secure and reliable access to networks for distributed generation less than 10kW, the Authority is consulting on 3 changes to the Part 6 of the Code to:

- a) update references to the latest technical Standard AS 4777.1:2016
- b) ensure the inverter used has the power quality modes enabled for volt-var mode and volt-watt mode
- c) limit the maximum export by a small-scale distributed generation system to the network as specified in the network company's congestion management policy.

Ecotricity wishes to submit on (c) above as follows;

- c) limit the maximum export by a solar pv system to the network as specified in the network company's congestion management policy**

Ecotricity strongly disagrees with the proposal that a network company has the power to arbitrarily limit the maximum export of a small-scale distributed generation system.

There are several reasons why Ecotricity does not support this proposal, namely:

- The Authority's consultation paper provides no information about the degree to which networks are currently subject to or expected to become subject to congestion in the next 12 months. That is, it is unknown what the size of the problem is that the Authority's proposal seeks to address. Any Code

amendment should be evidence based.

- Distributed generation should not be penalised or incur a cost for increased congestion on a distribution network, because:
 - the load on the network can be no more than it was before the small-scale distributed generation was installed, by definition
 - if all inverters had the volt response modes enabled there would be no impact on, and maybe an improvement in, the quality and reliability of power supply on the network (according to the consultation paper) – to the benefit of the network company without them having to spend a dollar
 - if congestion occurs it must be because the ratings are different in the network equipment for power flows in two directions – this is an issue with the investment made by the network company (and not the investor in the small-scale distributed system)
 - have network companies considered other ways to solve any issues with two way power flow? For example, is it less costly for a network company to encourage solar pv owners to install a battery than to invest in equipment with higher two way power flow capability?
 - in other jurisdictions, output from solar pv is being used to benefit all electricity consumers – this requires all industry participants to view new technologies, including solar pv, as a positive opportunity rather than a problem to be solved.
- Issues on the distribution network impact the transmission grid. However, Transpower’s analysis¹ identified distribution networks could host 9-10GW of solar pv (balanced with battery technology) by 2050. Transpower’s analysis supports the Authority’s focus on having well-designed inverters installed. Further, when you consider rapidly increasing uptake of electric vehicles with batteries of 50 kWh or more, the ability to store solar energy is exponentially increasing.

Myth: Our grid won’t be able to handle all the distributed solar

Some have interpreted the Green Grid analysis³ to suggest New Zealand electricity distribution networks could host at most 2GW of distributed solar before voltage constraints became a barrier.

Our recent analysis has found new technology means this isn’t the case. By exploiting the natural partnership between solar and battery technology (and the utilisation of inverter capabilities), anticipated voltage constraints in electricity networks could be managed to enable networks to host 9-10GW of solar.

Inverters will be critical to enable a smart, reliable and affordable grid, but this requires the right design and standards. Every solar installation comes with an inverter – if this is well-designed and correctly set-up it can support renewable generation on the grid and reliability for households through providing ancillary services and support. New Zealand needs to stay up to date with this fast-changing technology, for example by adopting the latest global standards.

Ecotricity suggests the Authority’s ‘cost benefit’ analysis in paragraphs 3.9 to 3.18 does not specifically address the proposal to limit the maximum output of any small-scale distributed generation. The random imposition of a solar pv export cap may seriously discriminate against those consumers making solar investments versus other

¹ <https://www.transpower.co.nz/sites/default/files/plain-page/attachments/Te%20Mauri%20Hiko%20%E2%80%93%20the%20sun%20rises%20-%20published.pdf> page 8


consumers and market participants, when the export to grid reduces network and grid demands by definition. The Authority must consult on a comprehensive quantitative CBA before implementing this proposal.

We conclude this submission with an extract from Transpower's publication "*The sun rises on a solar energy future*" (January 2019)

As solar continues to fall in price, this economic imperative will continue to grow. With solar in a range of locations and as part of a diversified suite of generation capacity, solar can create a more robust and reliable generation profile to support the transformation of New Zealand's energy future and economy.

We would welcome the opportunity to discuss this submission with you in more detail.

Best regards
Al Yates



Ecotricity
CEO