

Submission: Part 8 Code amendment proposal – Part 1

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Introduction

SolarZero is at the forefront of Code barriers that impact new technology. We have faced Code issues via our VPP in the reserves market and using DNL for winter and exploring whether DNG could be a viable option for winter peak, both using distributed energy resources.

What is the best approach to amend the Code to enable new technologies?

We appreciate the work that the Authority is doing to keep the Code up to date and enable new technologies.

The Code is a standard operating procedure. The challenge the Authority faces is developing a standard operating procedure for new technology in advance of the technology being deployed. In other words, the Authority is attempting to change/adapt/create a standard operating procedure before the relevant technology has actually been deployed.

Our experience is that we cannot fully predict how the technology will actually operate in practice. We are not convinced that attempting to “second guess” the Code changes that are needed to enable new technology is the right way to go.

Agency-cultural differences

We have observed that the Code can be considered as either enabling or prescriptive depending on the point of view and culture of the agency interpreting the Code. The variation in approach between agencies is not helpful. We don't believe that Code changes will address this issue as it is fundamentally cultural. A process is needed to achieve alignment between agencies on how to interpret the Code, e.g. is it enabling or prescriptive?

Better process – two approaches

The approach outlined in the consultation document risks a “whack a mole” approach. As issues are identified in the Code attempts are made to address them, but more issues come to light as technology is deployed and industry players come across barriers in the Code. The industry could end up in a continuous process of Code changes as an issue pops up, i.e. “whack a mole”. We think a different approach is needed.

Approach 1: Using the Power Innovation Pathway

We think that alternative processes to Code changes need to be looked at. Code change processes are time consuming for all involved, take way too long and may not actually address the problem because, as outlined above, the Code change is trying to write a standard operating procedure in advance of that procedure actually being developed.

During the winter peak pilot project (involving SolarZero, Ara Ake, Transpower and the Authority) we discovered that neither DNL nor DNG were well suited to what we wanted to do – create a virtual peaker plant using thousands of distributed batteries. For that project a pseudo committee of experts approach was used to look at Code issues. That approach appears consistent with and possibly a forerunner for the “Power Innovation Pathway”.

Rather than leaping straight into Code changes we suggest that a process of piloting and testing is used. We understand that the Power Innovation Pathway seeks to do just that. The process must provide sufficient certainty to participants that if the pilot/trial is successful the product/service will be able to be used in the power system, otherwise potential investors will not invest.

Approach 2: Along the lines of the Wind Grid Integration Project in the 2000s

The Wind Grid Integration Project may provide a useful model for how to understand and deal with the new technology coming into the power system. A detailed technical study on the new technology may help identify what technical changes are needed in the power system and the associated Code changes. We suggest that the Authority reviews the wind grid integration project together with a wider industry group and see whether that approach might have some value for considering the challenges and opportunities associated with new technologies.

Many other countries are a lot further down the track than New Zealand is in terms of inverter-based generation. For example, at times over 50% of electricity generation in the Australian grid is from solar. While the New Zealand grid system is different to others, there must be lessons that can be learned from other jurisdictions and shared

with the New Zealand industry. Collating that information from other countries via a process like the Wind Grid Integration Project is worth exploring.

Answers to specific questions

We are unsure as to the relative priority of the nine proposed Code amendment topics or their priority relative to other issues. The proposed Code changes seem logical, but whether they are actually needed or whether they will play out as expected is a point for debate.

For example, is a Code change required relating to asset capability statement (FSR-002) when a conversation with the relevant people within Transpower would achieve the same result and would need to happen anyway?

In short, we don't understand the relative priority for these Code changes or whether they are even warranted.

As outlined above, we are not convinced that the approach adopted by making Code changes without an overall systematic approach. If these Code changes are part of a systematic approach we are not aware of that approach.