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Response to the Integration of hosting capacity into Part 6 of the Code, sunset clause

Introduction

- 1) This is Vector Limited's (Vector) response to the consultation paper "Integration of hosting capacity into Part 6 of the Code, sunset clause", dated August 11, 2020.
- 2) Vector does not agree with the proposal to add a 5-year sunset clause into Part 6 of the Electricity Code.
- 3) The Authority provides weak reasoning to support setting a timeline for the removal of volt-watt response modes, volt-var response modes, and maximum export limits for Part 1A applications. The Authority acknowledged long-term consumer benefits for making volt response modes mandatory in Part 1A applications yet are threatening its removal as an "incentive" to find a replacement.
- 4) Rather than codifying a requirement for an operational review or introducing a sunset clause for these new provisions to Part 6, the Authority should accept its responsibility to schedule an operational review of the code when appropriate.
- 5) The Authority has noted that "distributors are best placed to: (a) monitor and analyse their network utilisation and develop strategies to provide the hosting capacity required to connect the new technologies consumers increasingly seek to deploy (b) operate their networks efficiently, managing supply security and reliability in the face of technology advancement and changing customer expectations (c) carry out timely and innovative investments in the electricity system."¹ If this is truly the case, then the sunset clause is not necessary to support the innovation the Authority seeks.
- 6) Both Transpower and electricity distributors (EDBs) have noted the value of volt-response modes and inverter standards for improving hosting capacity and supply reliability.² The Authority have also noted that the use of volt-var and volt-watt response modes are a "low cost, high return opportunity to maximise (future proof) low voltage network hosting capacity".³ Removing volt response modes from Part 1A applications before suitable (technical and economic) replacements are on the horizon leaves the industry with no viable options after the sunset period. Distributors would then be forced to consider potentially high cost/lower

¹ Electricity Authority. (3 May 2019). *Integrating hosting capacity into small-scale distributed generation connections*. Consultation Paper. Paragraph 2.29.

² Electricity Authority. (4 September 2018). *Integrating hosting capacity into Part 6 of the Code on low voltage networks*. Issues Paper

³ Electricity Authority. (3 May 2019). *Integrating hosting capacity into small-scale distributed generation connections*. Consultation Paper

effectiveness alternatives or costly infrastructure reinforcements, that almost certainly would have been avoided, to support additional distributed generation (DG) connections.

Responses to consultation questions

Q1: Do you agree with the proposal to add an end date to the Code amendment previously consulted upon by the Authority, as described in this section? If not, why not?

- 7) Vector does not agree with the proposal to add a 5-year sunset clause into Part 6 of the Electricity Code affecting the volt-watt and volt-var response modes and the maximum export power limits.
- 8) The proposal creates significant uncertainty around the use of advanced voltage response features that support EDB's efficient operations and infrastructure planning processes. If a viable alternative was to become available, such an option would likely require other technological or regulatory developments before it can deliver the same hosting capacity improvements and compete as a low-cost alternative to the built-in volt response modes found in inverters today.

Q2: Do you agree the additional proposed amendment is preferable to the other option? 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.

- 9) The amendment to include a sunset clause is not preferable. The alternative option of scheduling a review of the code is a more responsible approach given the uncertainty of finding appropriate replacements but would also be unnecessary if the Authority accepts its responsibility to perform its function to schedule a review of the relevant aspects of the code at an appropriate time.
- 10) The objective of the Authority is to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.
- 11) Implementation of volt response supports higher shares of DG to be integrated on the network before incurring additional costs to consumers and provides an efficient and effective means of sharing available network capacity between connected small-scale distributed generation (SSDG). By activating the sunset clause, the Authority risks higher costs to consumers to deliver reliable supply and efficient operation of networks.
- 12) The proposed sunset clause may suppress market mechanisms. If it is economic and efficient the market will come up with an alternative without the need for the regulatory "incentive". Industry experts (through the AS / NZS committee and internationally) have developed a recognised standard which the Authority supports. Significant resources have been and continue to be spent internationally in markets that have been experiencing the challenges of managing hosting capacity in the face of high DG adoption rates, like the EU, California, and Australia. New Zealand, as a follower in SSDG adoption, should continue to adopt the best-practice learnings from these markets, such as the use of advanced inverter standards. The markets where hosting capacity issues are prevalent are already motivated to find economic

alternatives to the “low cost, high return opportunity”⁴ of volt response inverter modes. If alternatives are found to work in those markets, they can be reviewed and considered for use in New Zealand. The Authority gives the industry no viable options to work towards during the sunset period, and distributors will have to consider redundant network reinforcements to accommodate additional DG connections.

- 13) The proposed sunset clause could also incentivise inefficient behaviour in the DG industry. There will be unforeseen impacts on the developing solar PV market in New Zealand as a result of policy uncertainty. Wind energy in the United States has faced similar uncertainty regarding the treatment of production tax credits (PTC) by policy makers since the 1990s. “The cycle begins with the industry experiencing strong growth in development around the country while the PTC is firmly in place, and in the years leading up to the PTC’s expiration. Lapses in the PTC then cause a dramatic slowdown in the implementation of planned wind projects and layoffs at wind companies and manufacturing facilities. Upon restoration, the wind power industry takes time to regain its footing, and then experiences strong growth until the tax credits expire. And so on.”⁵ New Zealand’s residential solar market is still in its early stages and creating uncertainty with the sunset clause adds risk for small competitors, potentially preventing them from entering the market.

Q4: Are there any other options that you consider a preferable to the options discussed? If so, please provide details.

- 14) Rather than setting a timeline for its removal, the Authority could put monitoring processes in place to assess market conditions around SSDG and the new mandatory volt-response modes. Over time, a baseline would then exist for making comparisons against the cost and performance of alternatives. Utilising international equipment standards, which are based on the experiences and expertise from regions with much higher DG penetrations than New Zealand’s, should be considered the preferred option given the absence of alternatives.
- 15) Part 1A provides a simplified application and approval process for distributed generation that complies with the prescribed eligibility criteria. The purpose of having the simplified application and approvals process is that both DG applicants and EDBs have clear expectations of the requirements and outcomes, supporting expedited processing by EDBs and a straightforward economic decision by consumers. Consumers are not prevented from pursuing innovative ideas as they can still apply through Part 1 applications. Utilising Part 1 applications could support the testing and development of alternatives, while maintaining the benefits of following international standards in the Part 1A applications. If the alternatives prove to be reliable and cost effective against the baseline, a code review can take place to introduce those alternatives to the Part 1A application process.

Q4: Do you agree the Authority’s proposed amendment complies with section 32(1) of the Act? If you don’t agree, please explain your reasons.

- 16) See answers to Q2.

Q5: Do you agree with the drafting of the proposed amendment? If not, why not?

⁴ Electricity Authority. (3 May 2019). *Integrating hosting capacity into small-scale distributed generation connections*. Consultation Paper

⁵ <https://www.ucsusa.org/resources/production-tax-credit-renewable-energy>

- 17) Vector does not support the sunset provision; however, the drafting of the proposed sunset clause creates ambiguity around the true intentions of the Authority, which is to revoke the EDBs ability to use volt response modes or maximum export thresholds as a way to manage network safety and reliability in the face of technology advancement and changing customer expectations.
- 18) For section 1.1 Interpretation of connection and operation standards
- a) Authority's drafting could be interpreted that until 2025 it is optional to include a maximum export power threshold in the connection and operation standards, but after 2025 it is mandatory:
 - i) (c) **until [5 years from the Code effective date] 2025**, may include the distributor's policies for specifying available maximum export power amongst categories of network users, a maximum export power threshold for applications under Part 1A of Schedule 6.1, and the methodology used to determine that threshold.
 - b) Recommended change:
 - i) (c) **After [5 years from the Code effective date] 2025**, may **not** include the distributor's policies for specifying available maximum export power amongst categories of network users, a maximum export power threshold for applications under Part 1A of Schedule 6.1, and the methodology used to determine that threshold.
- 19) For section "Schedule 6.1 Process for obtaining approval"
- a) The Authority's drafting is unclear since control settings and volt response settings are both a type of protection setting, as they protect the voltage levels on the distribution network, however they are being treated differently as a result of the sunset clause:

Schedule 6.1 Process for obtaining approval

...

1D When application may be made under Part 1A

- (1) A distributed generator may elect to apply to a distributor under Part 1A instead of Part 1 if the distributed generation to which the application relates—**
- (a) is designed and installed in accordance with AS/NZS 4777.1:2016; and
 - (b) incorporates an inverter that—
 - (i) has been tested and issued a Declaration of Conformity with AS/NZS 4777.2:2015 by a laboratory with accreditation issued or recognised by International Accreditation New Zealand; and
 - (ii) has protection settings, ~~control settings, and volt response mode settings~~ that meet the distributor's connection and operation standards; ~~and~~
- (2) Until XXXX 2025, in order to make an application under subclause (1), the distributed generation must also have:**
- (a) a volt-watt response mode;**
 - (b) a volt-var response mode; ~~and~~**
 - (c) control settings and volt response mode settings that meet the distributor's connection and operation standards; and**
 - (d) a maximum export power limit at the ICP of the distributed generator that does not exceed the maximum export power threshold, if any, specified by the distributor in its connection and operation standards.**

...

- b) Recommended changes to make the Authority's intention of removing EDBs ability to set volt-response settings clear:
 - i) Change 1D(1)(b)(ii) to read **"(ii) has settings which meet the distributor's connection and operation standards; and"**. It is simpler to use the term "settings" because there is no existing definition of protection settings

- ii) Change 1D(2) to read "(2) After XXXX 2025, **distributed generation applications under subclause (1) have no requirement for the following:**"
- 20) For section "Schedule 6.1 - 9B Application for distributed generation of 10 kW or less in total in specified circumstances"
- a) The Authority's drafting is unclear under (2)(e)(ii) since control settings and volt response settings are a type of protection setting, protecting the voltage levels on the distribution network, yet they are being treated differently
 - b) Recommended changes to make the Authority's intention of removing EDBs ability to set volt-response settings clear:
 - i) Change 9B(2)(e)(ii) to read "(ii) conforms with the settings specified in the distributor's connection and operation standards"
 - ii) Change 9B(2A) to read "(2A) After XXXX 2025, **distributed generation applications under subclause (2) have no requirement to include the following:**"

Concluding Comments

- 21) As indicated in this submission, Vector does not support the inclusion of a sunset clause. The Authority does not need to threaten the removal of an internationally accepted method for delivering reliable supply and efficient network operations under the pretence of incentivising innovation, as they have noted that EDBs are "best placed to ... carry out timely and innovative investments in the electricity system."⁶.
- 22) We are happy to provide further information to support this submission or discuss any aspects of it with the Authority. Please contact Neil Williams at Neil.Williams@vector.co.nz or 09 978 7633.
- 23) No part of this submission is confidential, and we are happy for the Authority to publish it in its entirety.

Yours sincerely

Neil Williams

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⁶ Electricity Authority. (3 May 2019). *Integrating hosting capacity into small-scale distributed generation connections*. Consultation Paper. Paragraph 2.29.