Update on status of other options in the long list of options

ELECTRICITY AUTHORITY
TE MANA HIKO

Options that may be assessed further along the Part 8 review

Issue no.	Option description	Update on status
2, 3, 4	Revise ~~or remove~~ the fault ride through envelope **for transmission connected generation** specified in Part 8 of the Code	Review of fault ride through envelopes to be undertaken by the system operator and the Authority, likely in 2025/26.
2, 3, 4	Impose greater obligations on distributors and the system operator to maintain: - certain voltage ranges at GXP/GIPs - system strength at GXP/GIPs	Voltage ranges - this is being addressed as part of the options paper. System strength - propose removing this as it is difficult to impose such obligations on NZ's power system.
2, 3, 4	Consider a standard for generation assets to ride through multiple faults in quick succession (within several minutes). For example, in Australia they recommend a capability of 1.8 p.u.s (i.e. the generator can dissipate full power output for 1.8 s). If a system fault is typically cleared in 200 ms, then the generator would tolerate approximately 9 successive bolted faults, before the power dissipation capability would be exceeded.	Propose this continues to remain on hold. In the NZ context, given the amount of synchronous generation, this is considered a HILP (high-impact low-probability) at this stage. Currently the SO manages connection requests in a bespoke manner, ie, if the connection request is closer to the HVDC link, the requester is provided with the HVDC commutation failure curve for their connection studies. The Authority has decided to defer analysing this option for the time being, for two reasons: 1. because of the system operator's practice of including credible contingencies in the connection studies for proposed new connections, with the modelling of faults that have the potential to cause a multiple fault event 2. resourcing constraints within the Authority.
2, 3, 4	Develop suitable technical requirements for fault ride through for embedded / distributed generation, which are consistent with and elaborate upon the fault ride through requirements in the Code.	Voltage study 3 will help inform this option. May be considered for 2025-26. CQTG has recommended the Authority commence a project on this in the 2024/25 financial year, with involvement of Authority, system operator, ENA and EEA.

Options that may be assessed as part of a different project: (Operations Policy team – 1 of 2)

Issue no.	Option description	Update on status
1	Resources (eg, generators, batteries) must make available X% of maximum rated capacity to support frequency in underfrequency events	May be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	New market product – 1 second reserve / synthetic inertia	May be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	Widen the normal band	May be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	Have a new ancillary service for inertia	May be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.

Options that may be assessed as part of a different project: (Operations Policy team – 2 of 2)

Issue no.	Option description	Update on status
1	Lower the minimum frequency keeping threshold below 4 MW and have a national market for frequency keeping	To be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	Allocate frequency keeping costs to the causers of frequency deviations	To be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	Put in place ramping limits on generation plant and load for post-disturbance or change-of-MW output (eg, due to wind gust or cloud covering)	May be investigated as part of the Ancillary Services (frequency keeping) Review. Initial investigations/scoping around frequency regulation has commenced. Next stage of this work is subject to prioritisation for 2024/25.
1	Remove the obligation on the system operator to eliminate from the power system any deviations from New Zealand standard time caused by variations in system frequency	Work is underway. Consultation paper due Q3 2024.
1	Review the dispensations and equivalence arrangements framework (for **frequency** obligations)	To be prioritised for 2025/26
2, 3, 4	Review the dispensations and equivalence arrangements framework (for **voltage** obligations)	To be prioritised for 2025/26

Options that may be assessed as part of a different project: (Retail & Networks team)

Issue no.	Option description	Update on status
2, 3, 4	Require alignment of voltage-related connection standards across distribution networks	Connection and operation standards (COPS) will be considered during Stage Two of the Network Connections project, commencing in early 2025. The work has not been scoped but is likely to include, for example: • whether COPS should be better cemented in the Code (eg, COPS are not current defined, does the Code give distributors the necessary powers to enforce)? • whether minimum quality thresholds should apply (eg, coverage)? • mechanisms to provide greater COPS consistency across networks (eg, whether certain requirements should be mandatory) • how industry could assist to improve compliance with COPS (eg, guidelines). The Network Connections Technical Group (NCTG) is assisting the Authority with this and wider Part 6 work. Input from the CQTG on COPS would be valued.
6	Establish a protocol for setting the frequency in islanded networks, including who the grid forming generator is	Not previously considered but this could be added to work on COPS above.
6	Establish a registry of distributed energy resources	Work underway by Retail & Networks policy team in the Authority. First stage involves capturing more granular DG data on the ICP registry, with consultation to be released mid-2024. Second stage will look to include DER (eg, EV chargers), with consultation likely around late 2024.

Options proposed to be removed from Part 8 review, and not assessed as part of another project (1 of 2):

Issue no.	Option description	Update on status
1	Increase, from 45 Hz to 47 Hz, the minimum frequency at which South Island generation assets must remain synchronised for 30 seconds following an underfrequency event	The option is expensive or has a long implementation and/or a moderate risk of unintended consequences (>3 years to change the Code, >5 years to change assets, >$50m implementation cost). Expected benefits of this option include greater competition in the supply side of the wholesale electricity market and possibly a reduction in the risk of extended supply shortages during dry years. However, amongst other things, raising to 47Hz the minimum frequency at which South Island generation assets must remain synchronised for 30 seconds following an under-frequency event would require a change to the design of the AUFLS regime for the South Island and to the system operator's system tools (eg, the Reserve Management Tool). The system operator would need to also procure more reserves to cover HVDC extended contingent events. This option requires significant investigation and would have a long implementation.
2, 3, 4	Establish a new ancillary service for reactive power management	Current ancillary services address this option.
2, 3, 4	Establish a new system strength ancillary service	This option would be difficult to implement on NZ's power system.
5	Make the system operator responsible for managing harmonics on the transmission network (eg, a new PPO) and distribution network operators responsible for managing harmonics on distribution networks, with costs recovered from the causers of the harmonics	The CQTG has agreed the obligation should stay with the asset owner rather than with operators.

Options proposed to be removed from Part 8 review, and not assessed as part of another project (2 of 2):

Issue no.	Option description	Update on status
6	Where a flexibility provider is providing a service to an asset owner, leave it to the flexibility provider rather than the asset owner to provide the network operator with the information required by the network operator to use the flexibility service	CQTG agreed this should be a contractual matter.
6	Require asset owners' vendors to provide asset capability information that network operators require to meet their regulatory obligations	This option would require vendors to be made industry participants, which would require legislative change. Would be high risk of unintended consequences - with vendors asking why they have to be a participant in order for them to provide information that the asset owner could provide. Also, the vendor's involvement with a network-connected asset typically is not for the life of the asset.
6	Require asset owners' vendors to provide asset capability information, encrypted if required by the vendor, that network owners require to optimise their network investments	This option would require vendors to be made industry participants, which would require legislative change. Would be high risk of unintended consequences - with vendors asking why they have to be a participant in order for them to provide information that the asset owner could provide. Also, the vendor's involvement with a network-connected asset typically is not for the life of the asset.