

29 September 2025

System Operator

Transpower

By email: system.operator@transpower.co.nz

Tēnā koe,

CACTIS requirements for power system security (consultation question 18)

We welcome the opportunity to respond to the System Operator (**SO**)'s consultation on the proposed Connected asset commissioning, testing and information standard (**CACTIS**). Our interest and comments relate to proposed section 8.33 Connected asset owner specific requirements, and related communications provisions in chapter 8.

Powerco is already providing information to the SO about controllable load. We support a formal approach for Electricity Distribution Businesses (**EDBs**) and the SO to share this information, which is the intent of 8.33. However, third parties are increasingly managing controllable load and EDBs do not have the information to comply with the codification in 8.33. Further, it is not a neat fit in CACTIS, does not reflect the current operating system and aligns even less with the future operating system both Transpower and the Electricity Authority are working towards.

Our review of chapter 8 the proposed CACTIS raises five questions:

- What is controllable load?
- When will the data be provided and how will the SO communicate this?
- How can EDBs meet the requirement when we can only estimate residual controllable load?
- Is CACTIS the appropriate place to define requirements for sharing controllable load information?
- How does the CACTIS reflect a future system designed for flex and visibility?

We expand on each of these questions in the attached commentary. Our conclusion is that **proposed section 8.33 should be removed** and addressed in Part 8 of the Code; **communications provisions in section 8.4 to 8.18 should be modernised** for efficiency; and the CACTIS needs a **full review to align, or at least provision for, the changing electricity operating system**.

We are always keen to discuss and develop the ideas in our submissions. If you have any questions or would like to talk further on the points we have raised, please contact Irene Clarke (Irene.Clarke@powerco.co.nz).

Nāku noa, nā,



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1. What is controllable load?

Controllable load is defined in the Code as “the quantity of resources (in MW) that a connected asset owner estimates will be available for use by the system operator under a grid emergency”¹ with some identified resources excluded from “controllable load” such as those of a load aggregator.

Controllable load is changing, it’s not just managed by EDBs – when load is managed by customers, retailers or their agents it is largely invisible to Powerco. The CACTIS does not reflect the shift in responsibilities but rather appears to be drafted around a scenario where EDBs have visibility of, and control over, hot water ripple. New types of controllable load (such as batteries) and new types of aggregators are a critical contributor to availability and management of controllable load. This is not captured by the Code or CACTIS.

The operational communication requirements in chapter 8 appear to be designed to assist the SO to meet the ‘principal performance obligations’ (8.1) which is broader than a grid emergency to which ‘controllable load’ technically relates.

2. How will the SO communicate their request and when will the data be provided by the connected asset owner?

It is unclear which circumstances would prompt a connected asset owner to provide the ‘controllable load’ information in 8.33, noting that term applies to grid emergencies only.

Chapter 8 is also not clear on the actions prompting a connected asset owner to provide the information or the timing for the response².

Chapter 8 sets out communications requirements that duplicate what is currently in technical code c in part 8 of the Code. This is a missed opportunity to modernise the expected means of communications and improve efficiency.

The signal from the SO about the need for reduction in controllable load and our response should not rely on a voice phone call and manual response. Operational communications should be digital first, with voice communication as a safety critical fallback. **The CACTIS should be updated with communication procedures modernised and digital first procedures (for both SO signal and asset owner response) for efficiency and immediate action.**

3. How will EDBs meet the proposed requirement when we can only estimate residual controllable load?

The definition of controllable load (see 1 above) is about an estimate of load that will be available, not a measure of actual or calculated availability. The CACTIS is therefore inconsistent with the Code.

¹ Code Part 1.1 interpretation

² Compare to current Code requirement in Part 8 Technical Code B clause 5A.

SCADA can estimate residual distributed flex (such as controllable hot water load not already deployed by traders), but Powerco cannot provide a direct measurement. We only have forecasts derived from load drop tests, not actual or calculated load with $\pm 5\%$ accuracy.

We do not have visibility of all controllable load, and this will become even less so as more parties have a role in managing controllable load.

There is future opportunity to improve accuracy with smart meter data. Powerco has access to some raw smart meter data through our individual agreement with meter equipment providers, but EDBs do not consistently have access to this data. Further, even our current data access does not enable viewing of controllable load data.

While 8.20 requires an asset owner to use 'reasonable endeavours' to ensure the accuracy of the measurements provided, we are very concerned about a Code requirement (via CACTIS) that we know we cannot comply with or demonstrate compliance with even with reasonable endeavours.

We can and do currently provide estimates for each GXP and we are more than willing to continue to do this. Mandating requirements for all EDBs must reflect the data and estimates available to EDBs, and the capacity for systems to achieve those requirements.

4. Do requirements for sharing controllable load information belong in CACTIS, in Part 8 or elsewhere?

Section 8.33, or an equivalent, is not in the current Part 8 of the Code. It is not a neat fit with intent for the CACTIS to provide the system operator with "timely access to certain information about assets that are connected, or intend to connect, to the power system"³.

It appears that section 8.33 has been included in the CACTIS as a convenient place to impose an SO requirement on EDBs' estimates on controllable load. We can, and already do, share this information. For efficiency across the system, we support a clear expectation of what data will be shared and how this will occur. For consistency across the system, we support a regulated requirement. However, we are not sure this should sit in the CACTIS. Our preference would be to **remove 8.33 from CACTIS. Once adapted in response to our comments above, the requirement is put in Part 8 of the Code.**

The Electricity Authority has "an important role in ... ensuring that clear and comprehensive guiding principles and impartial procedures are in place for the SO to follow in power system emergencies...", and the "System Operator is ... to efficiently coordinate the utilisation of electricity generation and demand-side offers that have been made available in the wholesale market by market participants in response to spot price signals"⁴

The CACTIS is one tool in managing a reliable, safe and efficient electricity system. The Authority has a role to ensure that the package of tools and requirements are suitable for managing controllable load as part of a secure operating system.

³ Connected asset commissioning, testing and information standard consultation document, page 3.

⁴ Government Policy Statement on Electricity, para 22 – 23.

5. How does the CACTIS reflect a future system designed for flex and visibility?

The CACTIS reflects the industry's historic operating model, however this is quickly changing. In future, traders will develop full flex portfolios, and these flex resources are usable across generation (market spikes), transmission constraints (nodal price spikes) and network constraints.

Intervention should not be deployed until after market response has proved insufficient, especially to ensure market price signals incentivise purchasing traders to develop demand side portfolios.

As highlighted in the Electricity Authority's recent consultation⁵ on the future operation of New Zealand's power system, capabilities and functions in our future system are complex and evolving, particularly with distribution system operation.

Visibility is key for our future operating system, not intervention mechanisms such as load reduction requirements controlled by the SO only on those parties subject to the Code. Visibility and coordination will be necessary across distribution, grid, and generation dispatch to ensure a stable and reliable system. The recent national energy market review in Australia made significant recommendations about visibility of all flex as an underlying principle.

It is not clear that the CACTIS or related work on common quality code amendments is aligning with, or at least provisioning for, the changing electricity operating system. This includes the capabilities and role of distribution system operators in aggregating load, and the limitations on EDB's visibility of controllable load. Requirements for sharing information on controllable load need to be designed for our future operating system.

The CACTIS needs a **full review to align, or at least provision for, the changing electricity operating system.**

⁵ [Future system operation: DSO models | Our consultations | Our projects | Electricity Authority](#)