29 September 2025

System Operator
Transpower New Zealand Ltd
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Subject: Consultation Paper - Connected Asset Commissioning, Testing and Information Standard (CACTIS)

Introduction

Manawa Energy welcomes the opportunity to provide a submission to the System Operator (SO) consultation paper – CACTIS. Manawa Energy's views and questions are covered below in the body of this submission, with answers to the System Operator specific questions contained in Appendix A.

Manawa Energy, a wholly owned subsidiary of Contact Energy, owns and operates a diverse portfolio of 41 power stations across 25 hydro-electric power schemes, supplying around 5% of New Zealand's electricity needs. Manawa also jointly owns and operates King Country Energy's six hydro-electric power stations. Approximately 60% of this combined generation portfolio is connected to ten different distribution networks across New Zealand, which makes Manawa New Zealand's largest distributed generation portfolio, with multiple stations operating successfully for more than 100 years.

Manawa Energy has made previous submissions to the Electricity Authority Part 8 code amendments to the Authority. These most relevant submission is the "**Promoting reliable electricity supply: A Code amendment proposal on common quality-related information**". This submission should be read in conjunction with the attached copy of the Electricity Authority submission given the overlap in subject matter.

CACTIS

Manawa supports the proposed standard and agrees this is a practical approach for a rapidly changing system. Our view is that clarity from the proposed standard will provide benefits to the Asset Owner (AO) and the SO to ensure a timely commissioning process. The capability for the SO to consult on the standard without restrictions should be a benefit.

However, there are several aspects of the proposed standard we do not agree with or seek further detail and clarification.

Key Points

1. We disagree with the requirement for High-Speed Data monitoring as this will be a significant cost to Manawa, with little benefit. Specifically:
    a. No time frames for implementation have been provided, Manawa anticipates this will be a long process and will require considerable coordination between the AO and both the SO and Grid Owner (GO) divisions of Transpower.
    b. There will be significant cost to the AOs, to design, install commission and maintain. We estimate the cost likely to be plus $100,000 per unit, implying a total cost of around $5 – 10 million across Manawa's asset fleet.
    c. Manawa see that this is just adding cost to the AO, and it is not clear that this will result in a net benefit for consumers.
    d. To achieve the proposed 20ms data resolution will be challenging and costly. This will mean existing monitoring equipment such as transducers, VT's, CT's, data recorders and other related equipment may be redundant and new equipment required.
    e. The amendment is silent on legacy clauses for existing stations and if these arrangements will be consistent with the previous code amendments that *do* have legacy clauses for existing generation.
2. Sharing encrypted models from other AOs when under-taking fault ride through (FRT) modelling. We see this as a challenge, for example, if there is an issue identified with another AOs system how will this be managed? We recommend the SO manage this process to allow other AO's to complete FRT modelling.
3. Manawa has concerns with the requirements for routine testing:
    a. Will high-speed data requirements replace the need to confirm performance (the 10 yearly testing requirements)?
    b. The cost for this routine testing will remain at $70,000 - $100,000 per generator including model revalidation. At a total cost of $2-5 million across all of Manawa's assets.
    c. The Event Data in lieu of testing is potentially an opportunity that and could offset the requirement to retest and remodel and therefore reduce the maintenance and cost estimates above.
    d. For synchronous machines the changes between routine tests is likely to be minimal and therefore not require full validation of models for each test.
4. The standard is silent on asynchronous machines; how will these be treated under the proposal?
5. Modelling:
    The SO mentions that while RMS models were historically sufficient, EMT models are now also needed to accurately capture the fast-switching, software-driven controls of Inverter-based Resources (IBRs). We agree with this requirement but to accompany this we require regional Power Systems Computer Aided Design (PSCAD) grid models that are fit for purpose to avoid undue delays. We believe that more thought needs to be given to standardised Transient Stability Assessment Tool (TSAT) models for IBR based park controllers to avoid repetitive requests to the TSAT vendor for the same information.

    We don't see the need to mandate power flow studies. These are an at-risk component for the AO, if the AO does not undertake the required due diligence on whether their asset will be constrained in the market then that is at their own risk.

If you require further information on the above, please contact me directly.

Kind regards,

Mike Moeahu
Principal Generation Engineer

Appendix A – Connected Asset Commissioning, Testing and Information Standard

Submitter:	Manawa Energy

Question	Comments
Q1. Do you agree that failing to provide key information will have an impact on the commissioning of an asset, power system security and the system operator's ability to meet the PPOs and dispatch objective?	Agree in principle. We believe the additional information and data should be for new assets, IBR and BESS Stations. We think there should be legacy clauses that provide practical exemptions for existing assets as the benefit of retrofitting the necessary equipment for these assets does not justify the benefit of doing so.
Q2. Do you agree with the proposal to mandate minimum time frames for the activities in Chapter 1 of the proposed CACTIS?	Agree The balance in timing should match with the alignment of all parts of the program. The constraint has been the SO resource availability to complete their reviews. While standardizing the requested information and template data will assist, we are concerned on the SO's ability to meet these time frames given resource constraints.
Q3. Do you agree with the proposed time frames for asset owners to submit a commissioning plan and for the system operator to review them?	Agree. However, some time frames may be out of our control when working with assets embedded into a distribution network. This could provide conflicts and even safety challenges. What are the expected feedback time frames in this situation?
Q4. Do you agree that requiring asset owners to use a standard commissioning plan template would help streamline the preparation and review process?	Agree.
Q5. Do you agree with the proposed time frames for asset owners to submit asset	Agree, noting that there should be an allowance for time frames to be extended

capability statements at the planning, pre-commissioning, and final stages of the commissioning process, and for the system operator to review them?	upon mutual agreement (for example, there is little point in "breaching" requirements when all parties are comfortable with longer time frames).
Q6. Do you agree that formalising the asset capability statement assessment requirements will provide clarity for asset owners?	Agree
Q7. Do you agree with the proposal to formalise requirements for asset owners to provide urgent or temporary changes to asset capability statements?	Agree the need, but recommend initial ACS update requirement is extended from 2 days to 5 days to allow further assessment and confirm within 4 weeks (clauses 3.5 (a) & (b)).
Q8. Do you agree with the proposed time frames for asset owners to submit m1 and m2 models, and for the system operator to review them?	Agree.
Q9. Do you agree that the updated modelling requirements are necessary to reflect the increasing complexity and changing generation mix within the New Zealand power system?	Agree. There is a mismatch between Chapter 9, High Speed Data requirements of a resolution of 20ms and the need for RMS models to be valid down to timesteps of 5ms – 10ms. We need to have consistency.
Q10. Do you agree that the system operator needs TSAT and PSCAD software models to conduct the studies needed to maintain power system security and meet the PPOs?	Agree with the need for the appropriate models. However, there is not enough clarity to prove we are there yet in the submission. For the TSAT in the consulting document there needs to be more clarity to be supplied by the SO on the certainty of application and if it meets the needs for IBR assets. We are also concerned that TSAT and WECC models may not be able to be shared because of third party confidentiality agreements. We believe this needs more work from the SO to provide a guide for bench marking these models.
Q11. Do you agree with the proposed time frames for asset owners to submit a final	Agree.

connection study report, and for the system operator to review it?	
Q12. Do you agree with the proposed approach of using RMS studies for scenario screening and EMT studies for detailed fault ride through analysis of IBRs?	Agree
Q13. Do you agree with the proposal to require asset owners to repeat fault ride through studies when control system parameters are modified during or after commissioning?	Agree Need a clarification on how modifications of the control system will be handled post commissioning. Depending on the modification or tuning these changes may not have an effect on the FRTs. The wording around this requirement is a bit loose given the costs involved in full FRT studies – that is, completing unnecessary FRT studies should be avoided.
Q14. Do you support the proposed process for accessing encrypted models from other asset owners when needed for fault ride through studies?	We agree there will most likely be a need to access other asset owner's models and information. We see the SO being in the best position to manage and facilitate this.
Q15. Do you agree with the proposed time frames for asset owners to submit a commissioning plan and for the system operator to review it?	Agree
Q16. Do you agree with the proposed time frames for asset owners to submit a final engineering methodology, and for the system operator to review it?	Agree The balance in timing should match with the alignment of all parts of the program. For example, the engineering methodology and commissioning plans should align as they complement each other. The Final ACS timing should align with the M2 modelling requirements. The SO review time will be critical and timed accordingly to meet the commissioning timeline of the project.

Q17. Do you agree with the proposed testing requirements for wind, solar photovoltaic and BESS technologies?	Agree.
Q18. Do you agree that the system operator needs the additional data identified in this section to maintain power system security and meet the PPOs?	Disagree. We continue to provide information now and the cost to provide additional information will be high. For example, the Chapter 9, High speed data proposed requirements. Agree with the need for additional information for new installations, however, existing assets should have exemptions. New Solar, Wind, BESS and synchronous it can be part of the build. While existing generators and stations will require costly retrofitting while not providing much benefit. If the SO is concerned about existing assets, we suggest the SO investigate where the deficiencies may be on what connected assets.
Q19. Do you agree with the proposal to use high-speed monitoring data to verify asset performance and reduce the need for routine testing of generating stations between 10 MW and 30 MW?	We understand the intention. How ever we have concerns with existing synchronous generators and stations how this will be achieved and at what cost. We do not believe the costs will outweigh the benefits. If we take it by unit for synchronous generators or stations it could be between $100,000 per unit with a total cost of $5 – 10 million across Manawa's asset fleet. We agree that the benefit of high-speed data for new IBR stations will justify the costs, but do not agree that this will be the case for existing synchronous generator stations (the issues that the SO is concerned with is sourced from IBRs). To better understand any benefits, we need to understand what the SO will use the high-speed data for and if it will be required to undertake more system studies. If that is so more data points should be at the grid connection point.

Q20. Do you agree with the data quality requirements as described in Chapter 9 of the proposed CACTIS for high-speed monitoring and operational reporting?	Same as Q18 & Q19.
Q21. Do you currently have the ability to provide the additional information proposed in the draft CACTIS? If not, when do you expect to be able to meet these requirements?	We have very limited capability to provide the additional information; only a small number of existing generators will be able to meet the requirement. There are no current plans to retrofit those generating stations that are unable to meet the proposed data requirements.