29 September 2025

System Operator
Transpower New Zealand Ltd
PO Box 1021
Wellington

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

Subject: Consultation Paper- CACTIS

Contact welcomes the opportunity to provide a submission on the System Operator's (SO) consultation paper above. Please see Appendix A for our responses to the specific questions in the paper. Our general response is outlined below:

Formalising Requirements

The SO notes that existing guideline documents, which help clarify expectations, are not enforceable. As a result, adherence to these expectations remains variable. Our view is that following the guidelines already ensures timely commissioning, which benefits the generation asset owner (AO), without the need to formalise these requirements in the Code. There is nothing preventing the SO from consulting on the guidelines. In any case, delays in submitting the required commissioning information are incentive enough for the AO to provide this information.

Modelling

The SO states that while RMS models were historically sufficient, EMT models are now also needed to accurately capture the fast-switching, software-driven controls of IBRs. We agree with this requirement for IBR and BESS stations but believe it must be accompanied by regional PSCAD grid models that are fit for purpose, in order to avoid undue delays. More thought should also be given to standardised TSAT models for IBR-based park controllers, since the modelling requirements are generally the same. This would reduce repetitive requests (and associated costs/delays) made to the TSAT vendor for identical information.

We do not see the need to mandate power flow studies in the CACTIS. These are already an at-risk component for the AO, and if the AO fails to carry out due diligence on whether their asset will be constrained in the market, that remains their own risk.

High Speed Data

Of most concern to Contact and other AOs is the proposed 20ms resolution requirement, which is onerous and costly to apply to existing stations. We do not believe the cost-benefit analysis supporting this proposal is robust enough to justify its adoption.

Our current monitoring systems, which rely on transducers and plant control systems, cannot be reused. Instead, dedicated event recorders would need to be installed. This would require considerable lead time for investigation, budgeting, design, procurement, and installation, as well as the availability of suitable VTs, CTs, power supplies, and cyber-security-approved communication links.

Station MW data typically requires summation across multiple unit-based CT locations, which would be challenging at most multi-unit synchronous machine stations. We estimate costs of at least $25K per unit for our assets.

We agree that this data requirement is appropriate for new IBR and BESS generation going forward. However, we disagree that it should apply retrospectively to existing stations or to new synchronous machine generation. If the primary use of this data is to analyse potential system issues identified in planning studies, it would be more efficient for the Transpower Grid Owner to install PMUs (or similar devices) at the specific locations of interest.

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

Yours sincerely

Gerard Demler
Transmission Manager, Contact Energy

Appendix A

Submitter:	Contact

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 but as mentioned below we believe the additional information requested regarding data requirements should apply to IBR and BESS stations only.
Q2. Do you agree with the proposal to mandate minimum time frames for the activities in Chapter 1 of the proposed CACTIS?	Agree but with some changes. The timing to submit the engineering methodology should align with timing to submit commissioning plans as these are generally developed together and complement each other. The final ACS timing should align with the M2 modelling requirements as these are required to be uploaded into the ACS, the ACS would be considered finalised once this is actioned. The timeframes for SO assessment should be considered a maximum to ensure timely commissioning of new generation projects.
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 that T-2 months is probably the minimum time for submitting a commissioning plan. Generally, for new generation commissioning these plans are completed well in advance of this to ensure that all requirements are met to avoid commission delays and to ensure that the OEM supplies the required information for this process.
Q4. Do you agree that requiring asset owners to use a standard commissioning plan template would help streamline the preparation and review process?	Agree, this assists with getting the right information from the OEM in a standardised form and removes any ambiguity.
Q5. Do you agree with the proposed time frames for asset owners to	Agree but the final ACS timing should align with M2 model timeframe of E+

submit asset capability statements at the planning, pre-commissioning, and final stages of the commissioning process, and for the system operator to review them?	3mths. As mentioned above, the timeframes for SO assessment should be considered a maximum to ensure timely commissioning of new generation projects.
Q6. Do you agree that formalising the asset capability statement assessment requirements will provide clarity for asset owners?	Agree this is useful when requesting information from the OEM in the early stages of the project.
Q7. Do you agree with the proposal to formalise requirements for asset owners to provide urgent or temporary changes to asset capability statements?	Disagree. 2 business days is insufficient when investigating causes of faults as these may be remedied within 2 days, we would recommend 5 business days as a minimum.
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, generally these are delivered well in advance of these timeframes due to the time taken to review these models.
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 but please clarify the need for RMS models to be valid down to timesteps of 5ms as generally 20ms is acceptable. 20ms would also align with the proposed high speed data requirements.
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?	Somewhat agree. Given that solar and windfarms will not offer reserves into the market the park frequency control models are simple droop control with deadband. Rather than each AO having to create their own TSAT model for RMT it would be more efficient for the SO to have a standard base model and then apply the individual site-specific settings. How do we benchmark TSAT and WECC models in a timely manner if we are relying on a 3rd party software supplier to do this given that TSAT is not a commonly used tool? We don't see the value of creating the WECC model until the model validation (M2) stage. Will the SO provide a guide for benchmarking these models? Regarding the updating of software versions consideration should be given

	to what versions consultants are using for cohesion purposes. Can the SO please explain why inverter models required for TSAT if the primary use of this software is for RMT?
Q11. Do you agree with the proposed time frames for asset owners to submit a final connection study report, and for the system operator to review it?	Agree. Generally, there can be outstanding items that require commissioning to be completed, this timing requirement should not prevent or affect commissioning timeframes.
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 but this should only apply to voltage control systems modifications.
Q14. Do you support the proposed process for accessing encrypted models from other asset owners when needed for fault ride through studies?	We agree that other AO information is most likely required but the SO are best placed to facilitate the sharing of information as we see potential OEM/IP issues with the proposal as it stands. Rather than treating these consents or requests individually it would be preferable and more efficient if the SO maintains power system cases (NIPs and SIPs) that contains these encrypted models. These cases can then be made publicly available and updated as new generation assets are commissioned onto the system.
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 as per our response to Q4.
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?	Please refer to our response to Q2.

Q17. Do you agree with the proposed testing requirements for wind, solar photovoltaic and BESS technologies?	Agree. This proposal applies this requirement to routine testing, but it would also be useful to have a list of specific commissioning tests for new IBR stations.
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. Wind speed and solar irradiance information is required (and will be supplied) in advance through forecast data to maintain power system security allowing the SO to meet its PPOs, please clarify the need for real time data measurements. Please clarify the specific need for station high voltage bus measurements as most generators do not have HV voltage transformers (VTs). This proposal would require using Transpower's bus or line VTs as a supply input of which Transpower already has access to.
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?	Disagree as it stands. We agree there is a need for new IBR stations but not for synchronous generation stations as the power system behaviour that the SO is concerned with is sourced from IBRs.
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?	As per our Q19 response we agree that this is required for commissioning and testing and new IBR plant going forward but disagree that there is need to apply this requirement retrospectively and going forward for synchronous generators. We disagree with the cost benefit analysis used for this requirement to retrospectively apply as we estimate the cost at $25K per unit to fit, these costs would outweigh any proposed benefits. There is no mentioned of how long this data is required to be stored which has additional cost implications. If the SO has identified potential issues through power system studies at certain sites, then it would be more efficient for the Transpower grid owner (GO) to install PMUs rather than requiring each AO to install similar equipment to record data

	that may never be utilised. The response time to provide requested data to the SO is also not specified, 14 calendar days would be reasonable.
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?	Not at our existing or planned synchronous generator stations and there are no business plans at present to meet the proposed data requirements. Our new GLN BESS can potentially meet the proposed data requirements.