Chairman: Ben Gibson, ben.gibson@egen.nz
Secretary: David Inch, david@nzenergy.co.nz

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Power Systems Group
System Operator
Transpower New Zealand Limited
PO Box 1021
Wellington
By email: system.operator@transpower.co.nz

Dear team,

Re: Connected Asset Commissioning, Testing and Information Standard (CACTIS)

The Independent Electricity Generators Association Inc. (IEGA) appreciates the opportunity to make this submission on the System Operator's (SO) draft Connected Asset Commissioning, Testing and Information Standard (CACTIS) document.[1]

The IEGA engaged in the Electricity Authority's (Authority) recent consultation "*Promoting reliable electricity supply – a Code amendment proposal on common-quality related information*"[2] which sought feedback on proposed Code to incorporate the SO's CACTIS document by reference. From our perspective it remains unclear whether this step (to include the proposed CACTIS in the Code by reference) will proceed and the SO's consultation may be premature. The Authority's decision on this must be dependent on a comprehensive quantitative cost benefit analysis of the requirements being imposed by the SO on asset owners in the new CACTIS.

The IEGA provided the Authority with feedback on some technical aspects of the draft CACTIS. Feedback in this submission to the SO relies on our understanding that the SO is consulting on an identical draft CACTIS document to that the Authority included in its consultation.

The IEGA notes Appendix B includes a summary of the technical aspects of submissions to the Authority. It is not clear who has developed this summary (the SO or the Authority) but the IEGA submits the SO must consider each individual submission to the Authority, and not the just the summary, when it is revising its draft CACTIS. This will ensure that the SO fully understands the context of submitters' views (answering the 'why' question) and that no point is overlooked.[3]

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[1] The Committee has signed off this submission on behalf of members.

[2] On reflection the IEGA notes that the title of this consultation paper and Authority website description of the content of this consultation provides no indication to interested parties that this consultation process included the opportunity to provide feedback on the SO's draft CACTIS.

[3] For example, Appendix B does not include any information from submitters on costs associated with the technical requirements in the draft CACTIS.

Cost benefit analysis by the SO

Clause 7.20(2) of the Code is clear that the SO must do the following when it is proposing an **amendment to an existing SO document** incorporated by reference in the Code:

> a) make the following information available to the persons it is consulting with:
>
> (i) a draft of the proposed amendment:
>
> (ii) a statement of the objectives of the proposed amendment:
>
> (iii) **an evaluation of the costs and benefits of the proposed amendment**:
>
> (iv) an evaluation of alternative means of achieving the objectives of the proposed amendment (if any):

The SO's current consultation does not include "an evaluation of the costs and benefits" of the proposed new CACTIS. This is theoretically compliant with the Code – which only addresses any amendments to existing SO documents.

The IEGA submits the SO must consult on its own evaluation of the costs and benefits of the proposed CACTIS.

The Authority is proposing the SO be responsible for these common quality requirements because it has the "*requisite technical expertise and power system knowledge to author the CACTIS*".[4] The IEGA expects this technical expertise extends to a thorough understanding of the costs and benefits of the requirements it proposes to impose on participants that can be used in a robust qualitative cost benefit analysis.

Lodestone Energy's submission to the Authority provides strong evidence that costs were under-stated in the Authority's consultation. Lodestone estimates the cost of the proposed CACTIS requirements for IBR plant being commissioned in 2026 are approximately 3 times the estimate of benefits described in the Authority's consultation.[5]

The SO (and/or EA) must source robust and current costings for licensing and maintaining the models that are proposed to have to be used by asset owners.[6]

CACTIS requirements being imposed on new and/or existing assets?

Numerous submitters have commented on the ambiguity of the draft CACTIS about whether the requirements apply to existing assets as well as new assets.[7]

The IEGA submits the SO (and Authority) must provide clarity about the requirements that apply only to new assets and the requirements that are being imposed retrospectively on existing assets or assets already under construction. This information has a critical impact on the qualitative cost benefit analysis.

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[4] Paragraph 5.9 EA consultation paper https://www.ea.govt.nz/documents/7593/Code_amendment_proposal_on_common_quality-related_information_ps3wP6J.pdf

[5] Lodestone Energy submission page 4-5. Estimate of benefits in paragraph 6.16 of the Authority's consultation paper

[6] We have a low level of confidence in the range of costs used in the EA's consultation paper

[7] Authority consultation in 2025: Genesis (pg 1); IEGA (pg2); Buller Electricity (pg 1); Meridian (pg 3); Lodestone Energy (pg 6); Manawa (pg 2 and answer to Q2); Mercury (pg 2)

The **IEGA strongly supports calls for grandfathering existing assets. Some of the requirements are unworkable if assets are not grandfathered.**

As well as being clear about whether existing and / or new assets are subject to the requirements, each section of the CACTIS should be clear about the **size** of the assets that are subject to the requirements.

The remainder of this submission comments on aspects of the draft CACTIS. Individual IEGA members have and will provide more detailed feedback on the technical aspects of the SO's draft CACTIS. The IEGA supports these individual submissions.

Chapter 1 Time Frame Requirements

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?

The SO outlines the reasons why additional information is required. This does not include any assurance that the SO's systems can process this information in a way that results in an improvement in real-time power system management.

The IEGA suggests that using FOUR models may add confusion and greatly increase the administrative burden as the models are likely to be contradictory in some areas. That is, this 'key information' may negatively impact the SO's ability to meet its PPOs and dispatch objectives.

Q2. Do you agree with the proposal to mandate minimum time frames for the activities in Chapter 1 of the proposed CACTIS?

There are a number of steps in this chapter where the asset owner must provide the SO with a particular piece of information within a specific timeframe prior to when the asset is electrically connected to a network; and the SO is required to "review" this information within a specified time frame. It is unclear what the purpose or outcome of this 'review' is.

If the SO requests further information the timeframe is to be agreed between the parties or determined by the SO "acting reasonable".[8] The IEGA is concerned that the SO effectively controls the decision to review and how long this review can take and queries whether the asset owner is provided with any more certainty about the SO processes than the current Code.

The following is a list of the steps in the 'before commissioning stage' where the asset owner has to provide the SO with information at least 2 months prior to when the asset is electrically connected to a network:

Information the asset owner must provide	**Action required of the SO**
A pre-commissioning stage asset capability statement	Review within 20 business days
A final copy of a commissioning plan	Agree within 20 business days
A final copy of the m1 model	Review within 20 business days
A final copy of a connection study report	Agree within 20 business days

[8] Paragraphs 1.2 and 1.3

If the asset owner provided all four pieces of information listed above to the SO on the same day can the SO complete its obligations to review / agree within the stipulated timeframes?

Figure 1: Timeline of Commissioning Requirements[9] shows the timeframes for asset owners. The IEGA suggests it should also show the timeframes for actions required by the SO.

Chapter 3: Asset Capability Statements

Q7. Do you agree with the proposal to formalise requirements for asset owners to provide urgent or temporary changes to asset capability statements?

This requirement is currently written as a blanket requirement across any sized asset and for any period of urgent/temporary change less than 4 weeks. **The IEGA recommends a risk-based approach.** A reduction of 70% in the capability of a 100MW asset for 2 weeks is obviously of more interest to the SO than a 70% reduction in the capability of a 10MW asset for 2 days. We note that an asset owner is incentivised to ensure it continues to meet its asset owner performance obligations (otherwise it could be breached) which will contribute to achieving the SO's principal performance obligations.

Chapter 4 Modelling Requirements

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?

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?

The IEGA does not agree with the SO that the proposed updated modelling requirements are necessary (Q9) or that TSAT and PSCAD models are specifically needed to ensure the SO can maintain power system security and meet its PPAs (Q10).

Asset owners have provided detailed submissions on this section of the proposed CACTIS. It is incumbent of the SO to review in detail this feedback (and not the summary in Appendix B) and articulate a clear rationale for requiring results from FOUR models. The SO should be clear with stakeholders about the counterfactual if it does not have access to these FOUR models for every asset and the risks associated with the counterfactual. Its unclear if these FOUR models are actually the best source of information as the SO has not described any analysis of alternative software models.

Further, the IEGA queries whether the SO's proposed approach is in line with other jurisdictions like Australia and the UK. We suggest the SO should investigate an option of developing the models inhouse and requesting data inputs from asset owners instead of each asset owner having to have, or acquire, the expertise to run models and provide the SO with the outputs.

Chapter 5 Connection Study Requirements

Q14. Do you support the proposed process for accessing encrypted models from other asset owners when needed for fault ride through studies?

As with Manawa, Mercury and Contact Energy, the IEGA is concerned whether clauses 5.22 and 5.23 on sharing of encrypted models from other asset owners are implementable / enforceable / practicable.

[9] Page 8 https://static.transpower.co.nz/public/bulk-upload/documents/SO%20Consultation%20-%20Proposed%20CACTIS.pdf?VersionId=vstuIoGBO5KOkyLsyo.4hl5LRxMPT3Jp

The SO's proposed process for accessing encrypted models from other asset owners when needed for fault ride through studies could result in delays to new generation connections as existing generators have the right to decline access.

Chapter 6 Test Plan Requirements

The consultation paper notes the Code currently does not require asset owners that connect to a local network to provide test plans to the system operator. The consultation paper implies the proposed CACTIS includes drafting to place a mandatory obligation to provide test plans for new or existing assets on generator asset owners at a minimum threshold of 1 MW for generating units (or 10 MW for generating stations) (page 19).

Our interpretation of paragraph 6.3 of the proposed CACTIS is smaller distribution network connected generation assets are not covered by the wording. The draft CACTIS refers to changes made to an asset that "alters any of the following at the **grid interface**" (paragraph 6.3(b)) [emphasis added]. Grid interface is a defined term relating to a connection to the transmission grid.

The IEGA agrees with the proposed CACTIS and submits that it should be clear that excluded generating stations are exempt from providing test plans. These generating stations are unlikely to alter any details at the transmission grid interface or impact the SO's ability to comply, or plan to comply, with the principal performance obligations.

Chapter 7 Testing Requirements

Q17. Do you agree with the proposed testing requirements for wind, solar photovoltaic and BESS technologies?

The IEGA agrees the proposed new requirements for wind, solar PV and BESS technologies should not apply to excluded generating stations. This is a pragmatic risk-based approach.

It is unclear when the timeframes start for retesting. That is, will the SO be inundated with test results / new asset capability statements for all existing assets close to 4 years' time given the requirement to undertake a set of tests at least one every 4 years.

Chapter 8 Operational Communication Requirements

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?

The IEGA recommends that the SO confirm the requirements for solar irradiance, wind-speed at nacelle height, BESS injection / load and controllable load do not duplicate requirements in other parts of the Code. Is this a requirement for asset owners to communicate this information to the SO in real-time? The IEGA queries whether asset owners are going to review this CACTIS document to understand their obligations for information that is used in the real-time operations of the power system.

The IEGA has not identified the specific "additional" information referred to in this question. The question should be "do the benefits for the SO of getting this additional information exceed the costs for asset owners of providing the information". This is another component of the robust quantitative cost benefit analysis the SO must complete before finalising the CACTIS.

Chapter 9 High Speed Data Requirements

The IEGA submits there must be a minimum capacity threshold below which the requirement for a high-speed monitor is not required. Paragraph 9.2 states: "*An asset owner must install a high-speed monitor at each of its generating stations and provide event data from the high-speed monitor to the system operator for post-event analysis and routine testing requirements in accordance with Chapter 7*." But some of these testing requirements in Chapter 7 are placed on "*A generator, other than generators who are owners of excluded generating stations that are not subject to a directive issued by the Authority under clause 8.38 of the Code, must, for each of its generating units …*"

If the testing requirements have been designed on a 'risk to power system' basis then the requirement for a high-speed monitor should be as well. Submitters have already expressed concern about the costs of imposing this obligation on smaller generating stations.

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?

The linkage between using high-speed monitoring data and reducing the need for routine testing of generating stations between 10 MW and 30 MW is unclear.

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?

The data quality and specificity about speed of data requirements imposes costs on asset owners. The SO must undertake a robust quantitative cost benefit analysis of these requirements before finalising any Code.

Other comments

The IEGA queries who is going to revise Part 8 of the Code to ensure that there is no duplication when the proposed CACTIS is incorporated by reference. The IEGA suggests it would be useful to undertake this work before the proposed CACTIS is finalised as a cross check to ensure the Code and proposed CACTIS complement each other and minimise any confusion between the two documents.[10] [11]

The SO should provide stakeholders with information about the processes it has / will be putting in place to regularly update the proposed CACTIS and / or respond to suggested amendments from stakeholders.

Concluding remarks

The IEGA agrees with Orion and Meridian that any change to the common quality requirements should be fit-for-purpose with regard to a particular asset, project or risk and not be a shopping list of 'nice-to-haves'. "*It is likely to be difficult to right-size these requirements for all scenarios with prescriptive rules*."[12] The SO should undertake a risk-based assessment of whether a particular asset is relevant to the SO achieving its principal performance obligations.

[10] And ensure all the clause references are correct. For example, is the Code reference correct in paragraph 9.1 "purposes of clause 8(2)(c) of Technical Code A of Schedule 8.3 of the Code"

[11] There are also formatting issues. For example, , in Chapter 7 the heading 'NORTH ISLAND CONNECTED ASSET OWNER AUTOMATIC UNDERFREQUENCY LOAD SHEDDING SYSTEM PROFILES AND TRIP SETTINGS' on page 34 and subsequent headings in that chapter are not part of the section on 'GENERATING UNIT PRODUCING POWER FROM WIND OR SOLAR OR BESS' starting on page 32.

[12] Page 1 Meridian Energy submission https://www.ea.govt.nz/documents/8218/A_Meridian_Energy.pdf

The IEGA has significant concerns that the proposed CACTIS will impose costs on existing and new asset owners that far exceed estimated benefits. The IEGA strongly submits that the SO must consult again on a proposed CACTIS which incorporates feedback on this and the Authority's consultation detailing changes it does or does not propose to make, the reasons why, as well as a robust quantitative cost benefit analysis.

We would welcome the opportunity to discuss this submission with you.

Yours sincerely

Ben Gibson
Chair