Chairman: Ben Gibson, [redacted]
Secretary: David Inch [redacted]

12 August 2025

Future Security and Reliability team
Electricity Authority
By email: fsr@ea.govt.nz

Dear team,

Re: Consultation Paper—Promoting reliable electricity supply – a common quality-related information Code amendment proposal

The Independent Electricity Generators Association Inc. (IEGA) appreciates the opportunity to make this submission on the Electricity Authority's (Authority) proposals.[1]

There are two topics in this consultation paper:

1. draft Code amendments so that the proposed 'Connected Asset Commissioning, Testing and Information Standard' (CACTIS) document can be incorporated by reference in the Code
2. substantive changes to the obligations on asset owners that are proposed to be included in this new CACTIS document (described in paragraph 6.5)

The consultation paper describes the objective of this paper is to "update and clarify the common quality-related information requirements in the Code … so that the system operator receives **necessary** common quality-related information from asset owners". [emphasis added]

This statement provides no hint of the substantive changes to the asset owner obligations for new and **existing** generation plant that are being introduced by being written into the first draft of the CACTIS that the System Operator has prepared.[2] This includes:

- requiring the modelling and results of FOUR tests be provided to the System Operator for new and **existing** IBR generation plant
- new minimum technical requirements for operational communications (Table 1, page 23)
- mandating that asset owners provide real-time indications of controllable load
- high-speed data recording requirements to enhance real-time monitoring and responsiveness

[1] The Committee has signed off this submission on behalf of members.
[2] Further, It is not possible to know what sections of the Code have been cut and paste into the CACTIS and what are new requirements without a detailed knowledge of the current common quality Code requirements. It would be useful to see a cross-reference table detailing the source of the requirements in this draft CACTIS (and track changes on any future iterations of this document.

Our feedback focuses first on the impact of these substantive changes as this is expected to impose substantial costs on asset owners – in excess, in our view, of the expected benefits.

1. **Comments on the substantive changes to the obligations on asset owners that are being included in this new CACTIS document**

Grandfathering existing generation stations

The IEGA strongly submits that existing generation plant should be grandfathered – the new requirements the System Operator is proposing in the draft CACTIS should apply only to new generation assets. As Mercury submitted on the October/November 2024 options paper:

> "We highlight two matters of critical importance:
>
> 1. Fundamentally, any requirements that retrospectively apply to existing assets are likely to be unworkable. We cannot supply information that we do not have and there might be physical limitations in obtaining these with older assets:
>
> 2. There are intellectual property implications which have not been thoroughly addressed and may pose significant challenges for New Zealand asset owners and their vendors."[3]

Other comments

The IEGA submits that there has been insufficient attention paid to submissions on the options paper in Octboer/November 2024 relating to equipment suppliers concerns about confidentiality and intellectual property. For example, Mercury submitted:

> "Most vendors supplying equipment to New Zealand will also supply equipment to the NEM. We suggest leveraging experience in the NEM and mirroring the relevant information requirements in the NEM as far as it is practical in order to not reinvent the wheel. It would be more efficient to replicate, as far as possible, a regime that vendors are already familiar with and find acceptable."[4]

WEL Networks submission on the October/November 2024 options consultation:

> "The economic efficiency aspect has generally not been investigated in detail so far by the Electricity Authority. There is a cost to modelling (the more detailed the models, the greater the cost in collecting and storing asset data, the greater processing power required by the models and the greater the effort to interpret the output of the models). This cost needs to be balanced with the benefits of the modelling. In addition, more detailed modelling may indicate problems that do not exist in reality but result in increased costs as the problems are investigated and solutions devised.
>
> The benefit provided by more detailed modelling has not been investigated. For example, what are the economic costs of the system operator having to apply more onerous constraints than it

[3] Page 1 https://www.ea.govt.nz/documents/6050/CMercuryercury_submission_Redacted.pdf
[4] Page 2 https://www.ea.govt.nz/documents/6050/CMercuryercury_submission_Redacted.pdf

might have otherwise had it more detailed information. Likewise, the grid owner has not identified the economic benefit provided by more detailed asset models in the presence of other uncertainties such as inaccurate load forecasting, assumptions around power system operation in the presence of reduced power system strength and inertia and around future market requirements."[5]

Further, WEL Networks submission highlights that "none of the common quality obligations on the system operator [in the Code] require common quality-related asset information".

> "The system operator does not need a document specifying the common quality-related asset information requirements necessary for the system operator to meet its common quality Code obligations. None of the common quality obligations on the system operator require common quality-related asset information. The system operator does require common quality related asset information in regard to complying with the principal performance obligations.[6]

We are concerned about whether the "scope [will] be limited to the present aspects of common quality or would [it] be extended over time according to the whim of the system operator".[7] The first draft of the document demonstrates the System Operator has a propensity to include new and tighter requirements on generation asset owners over time.

For example, the draft CACTIS proposes generation plant of >1MW be required to provide the System Operator with the results of FOUR models. In addition, the requirements appear to be all generating stations above 1MW must have high speed monitors. This is because the System Operator has included these requirements in the details of the Asset Capability Statement (required from every generator >1MW). This clearly contradicts the Authority's policy decision that the threshold at which a generating plant must comply with common quality standards is >10MW for non-excluded generating stations.

These additional costs on generating plant in the >1MW and <10MW range will negatively impact the financial viability.

The IEGA requests the Authority review in detail the feedback on the proposed new requirements for generator asset owners. We suggest that if the Authority was proposing to include these new requirements in the Code the process would be substantially different to the current process with a comprehensive cost benefit analysis.

Cost benefit analysis

We suggest the qualitative cost benefit analysis in the consultation paper is not risk based. An issue with the power system arising because the System Operator does not have the results of four models for a 2MW generating plant is a Low Impact Low Probability event. We query if the Authority has a clear idea of the threshold for what constitutes a High Impact Low Probability event in the context of the System Operator holding and operating with more detailed common quality information.

---

[5] Page 3 https://www.ea.govt.nz/documents/6047/Michelle_Allfrey_-_WEL_Submission_-_Addressing_common_quality_information_requ_CFhK8UL.pdf

[6] Ibid Page 4

[7] Ibid Page 4

The consultation paper includes some $ values:

- Testing:
    - PSCAD models require validation, at an estimated cost of $15,000 to $20,000, though this can vary significantly. (para 6.10)
    - These models can typically be translated into the required TSAT format by the original equipment manufacturers or third-party providers at a cost of about $50,000 to $100,000, with an additional $10,000 to $15,000 cost for validation (para 6.11)
- operational communication between asset owners and the system operator:
    - For synchronous generation, we estimate an additional fixed cost of approximately $500 per generating station, along with a variable cost of $2,000 per generating unit
    - For IBRs, the estimated additional fixed cost ranges from $2,500 to $5,000 per generating station (para 6.13)
- install high-speed monitors at each generating station:
    - estimated cost of between $20,000 and $30,000 per station (para 6.14)
- distributors to provide real-time indications of controllable load to the system operator:
    - nationwide implementation is estimated to cost approximately $2.3 million (para 6.15)
- Quantified estimated benefits:
    - $16,500 per year in operational efficiencies
    - $175,000 per year in avoided costs from reduced loss of load during emergencies[8]
    - $500,000 per year in avoided investigation costs for the System Operator (para 6.16)

The total stated value of benefits is $691,500 per annum. While not a formal cost benefit analysis, a simplistic analysis of the breakeven point ratio of these benefits relative to the costs is revealing - that is when do the benefits exceed the costs:

- it takes 3.3 years of these benefits to offset the cost of a nationwide rollout of real-time SCADA indications of controllable load by distributors ($2.3 million divided by $691,500)
- taking the maximum cost for each activity listed above, costs exceed the annual benefits if 3.6 of each of those expenses were made in one year. [9]

Benefits annual savings	
operational efficiency	16,500
avoided cost from reduced load during emergencies	175,000
avoided investigation costs	500,000
	691,500
Costs For one of each of these costs:	
Testing:	
validation of PSCAD models	20,000
translating models to TSAT format + validation	115,000
Operational communications:	
synchronous generation	4,500
IBR	5,000
high speed monitors	50,000
	194,500
Benefit value divided by one of each of these costs for a generator	3.6

[8] At $32,700 per MWh VOLL this implies 5.3 hours per year of the loss of 1 MW (VOLL from pg 124 of the consultation paper)
[9] The cost for synchronous generation assumes two generating units at one generation station

2. Comments on the draft Code amendments so that the proposal 'Connected Asset Commissioning, Testing and Information Standard' (CACTIS) can be incorporated by reference in the Code

While the Authority may have already consulted on[10] and made the decision[11] that common quality information be incorporated by reference in the Code, the IEGA disagrees with this approach.

We **disagree** with the proposal to assign the System Operator complete discretion over the detail of what 'common quality' information is required from asset owners and any amendments to these requirements over time.

While the proposed CACTIS might be consistent with Section 64 of the Legislation Act 2019 which empowers the Authority to incorporate by reference:

> c. any other written material that deals with technical matters if it is reasonable to consider that—
>
> (i) it is impracticable to include the material in the secondary legislation; or
>
> (ii) the material is so large that including it in the secondary legislation will prevent persons to whom the law applies from using or understanding the secondary legislation with reasonable ease.

there is no regulatory requirements on the System Operator about the process it must follow to develop this new document.[12] For example, when will the System Operator consult on its quantitative evaluation of the costs and benefits of this new document? Will the System Operator's process be as rigorous as would be required if the new information requirements were being implemented via a Code amendment?

The Authority explains its position:

> 2.31. The system operator has the technical expertise and system knowledge to author the document that is proposed to be incorporated by reference in the Code. Given its role in managing real-time system operations and ensuring power system security, the system operator is uniquely positioned to define the technical specifications required for common quality-related information.

The IEGA queries whether the System Operator has in place a standard process to consider participants, or its own, proposals for changes to the CACTIS document. Avoiding the process of Code changes is not a valid reason to use the 'incorporated by reference' approach.

We disagree that "The content of the CACTIS meets the requirements for the kinds of materials that can be incorporated by reference in the Code. This is due to the specialist technical nature of the CACTIS in specifying the information that the system operator requires about assets, commissioning, testing, and operational communications to meet the PPOs."

---

[10] Addressing common quality information requirements consultation paper, 1 October 2024 https://www.ea.govt.nz/documents/5739/Addressing_common_quality_information_requirements.pdf

[11] It is not clear that the decision paper dated 1 April 2025 includes a decision to take common quality information from the Code and into a document prepared by the System Operator

[12] Clauses 7.13 to 7.22 of the Code apply to amending or replacing an existing system operation document

If the material that is planned for the CACTIS is already in the Code then this is not a justification for a separate document. The CACTIS therefore must be going to be longer / more detailed / more technical than the current provisions in the Code.

We note Part 7 of the Code includes the process for involvement of the Authority in changes made to the CACTIS. However, the System Operator is (naturally) conservative (when it can be breached / fined by the Authority for breaching its PPOs). The IEGA is concerned that reliance / dependence by the Authority on the System Operator to manage these information requirements will diminish the Authority's understanding and ability to evaluate whether "compliance costs are proportionate to factors such as risk and size of asset".[13]

Further, over time the level of understanding within the Authority might be such that the System Operator can assure the Authority that an amendment is technical and non-controversial so that it progresses without consultation and without evaluating the costs and benefits of a proposed amendment by undertaking a quantitative assessment, if reasonably possible.[14]

> (5) Despite subclause (1), consultation is not required if the **system operator** satisfies the **Authority**, on reasonable grounds, that—
> (a) the nature of the amendment is technical and non-controversial; or
> (b) there is widespread support for the amendment among the persons likely to be affected by it; or
> (c) there has been adequate prior consultation so that all relevant views have been considered; or
> (d) it is necessary or desirable in the public interest that the proposed amendment be made urgently.

The following table outlines our understanding of next steps:

Date	Agency	Activity
September 2025	System Operator	Undertakes its own consultation on the CACTIS
4th quarter of 2025	System Operator	Finalises CACTIS based on submissions
Towards the end of 2025	Electricity Authority	Decision on whether to amend the Code to allow for common quality information to be incorporated by reference and creating a new system operation document – the CACTIS
Possibly 1st quarter 2026	System Operator	Seeks approval from the Authority of the CACTIS
Possibly 2nd quarter 2026	Electricity Authority	Approves the CACTIS under clause 7.21 of the Code
1 July 2026		Effective date

These timeframes are tight.

[13] Paragraph 2.32 of consultation paper
[14] Clause 7.20(5) of the Code

Proposed stage 2 – to share common quality information with distributors and Transpower grid owner

The consultation paper states:

> *"This staged approach allows us to first address immediate concerns, before turning our attention to developing solutions to the **more complex challenge of enabling the sharing** of common quality-related information between the system operator and Transpower, as a transmission network owner, and with distributors."* [emphasis added]

There is no indication of when Stage 2 will be progressed or implemented. We are concerned that developing solutions "to the more complex challenge' of enabling sharing might mean Stage 2 is not progressed. Sharing information about embedded generation with distributors is particularly important for IEGA's distributed generation owners. The IEGA queries:

- Do distributors also think the proposed new information requirements are necessary?
- Does the modelling and test results provide distributors with information they **need** to manage their networks. If not, then why does the System Operator need the information for embedded generation?

Submissions on the consultation paper in October/November 2024 highlighted confidentiality concerns from OEM suppliers relating sharing modelling information with generators – let alone this information being shared with the System Operator. This might be addressed for Stage 1 of this project but would have to be revisited / relitigated to progress Stage 2. It would be more efficient if confidentiality concerns could be addressed once – that is, everyone understands that the modelling information will be shared with the System Operator, the relevant distributor and Transpower Grid Owner.

The IEGA also submits that decisions on or an understanding of the future governance of the power system is essential before making decisions on the proposed CACTIS and new testing requirements. The Authority is consulting on the DSO / TSO model options. For example, a 'system operations' document mandated to be prepared by the System Operator is incompatible with the potential for a totally DSO model. Or the ability to overcome the 'challenge' of sharing information could pre-determine the future DSO model.

The other part of Stage 2 is "updating and clarifying the Code's common quality information requirements to **better enable** distributors and Transpower, as a transmission network owner, to support common quality". [emphasis added][15] Without understanding how distributors can better support common quality, it's difficult to say whether the proposed increased testing adds value for distributors (or the System Operator).[16] Many distributors submitted previously that compliance with their connection and operating standards was a higher priority than the information the System Operator might be interested in.

[15] Paragraph 2.23 of consultation paper

[16] The FSR consultation papers state "the Authority defines 'common quality' to cover all connected transmission and distribution networks in New Zealand. This definition is broader than the Code's definition, which defines 'common quality' as relating only to the transmission network." We query if an amendment to the Code definition of 'common quality' is necessary in order to progress some of the proposed Cade amendments.

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

Yours sincerely

Ben Gibson
Chair