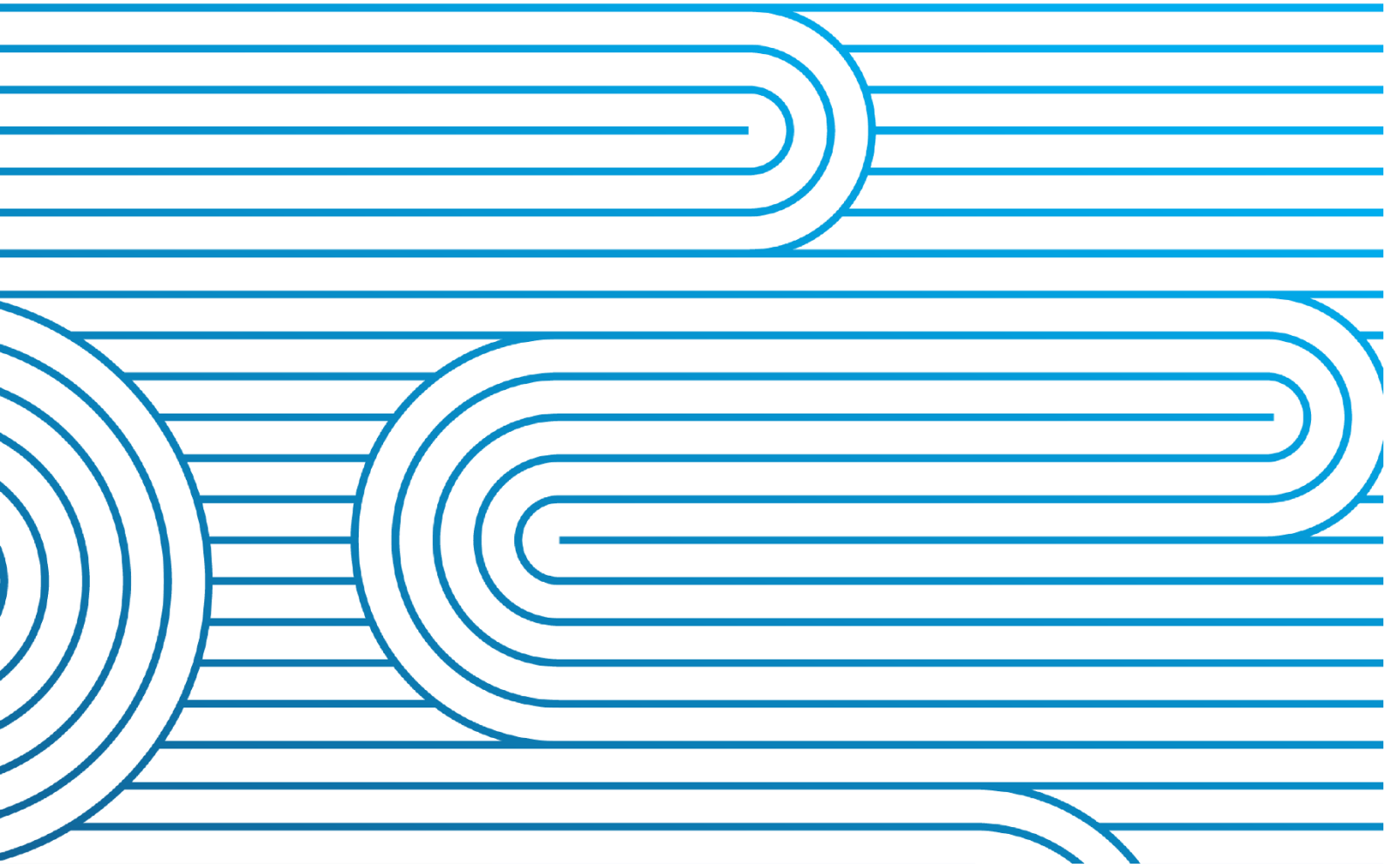
TRANSPOWER

2025 System Operator Asset Owner Engineering Forum

Questions and Answers

29 October 2025



IMPORTANT

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Purpose

This document contains an account of the questions and answers from the System Operator Asset Owner Engineering Forum on 29 October 2025, edited for legibility and comprehensiveness. For ease of reference, these are grouped according to the discussions they arose in.

If you would like clarification on anything in this document, please email system.operator@transpower.co.nz.

Contents

1. Part 8 Review and Code Amendment

Question 1: *(Generator)*

Has the Electricity Authority put any more thoughts into how the frequency obligations will apply to generation such as solar?

Answer:

The expectation will be that they operate up to the maximum that they can.

Question 2: *(Generator)*

What is the need for CACTIS? Are people not following the existing processes during commissioning?

Answer:

Yes there is a problem. Currently there is no incentive to provide models and infromation early to the system operator and allow for them to be loaded into the tools.

Question 3: *(Generator)*

There are likely to be many projects in flight when the Code changes come into effect. Will these projects need to comply?

Answer:

The Electricity Authority is considering a grandfathering option for generators commissioned before a certain date. Note that if your technology can comply with the requirements, your asset will not be grandfathered.

Question 4: *(Generator)*

When are the frequency amendments coming into effect?

Answer:

The feedback we received was that 2026 was too soon, so we are currently looking to propose a date around the middle of 2027.

Question 5: *(Consultancy)*

What does a 'default' mode of voltage control mean for generators in the distribution network that are ≥10 MW?

Answer:

The system operator has identified the potential of a voltage problem in the future, and having the generators in voltage control will help with this. However, when you are connecting to a distribution network, the distribution company needs to ensure the reliable operation of their network and may have different preferences and requirements. Therefore, whatever the distribution company requests takes presidence here.

Question 6: (*Consultancy*)

Are there any plans to look into the protection requirements in Part 8 and update them with regards to IBR?

Answer:

No, not at this stage. Under Part 12 of the Code, Transpower as the Grid Owner picks up on this and the requirements are currently with them.

Question 7: (*Consultancy*)

We are seeing a variety of voltage requirements and some consistency would be appreciated. For example, is it the voltage at the distribution network terminal or is it at the grid exit point?

Answer:

Point of compliance is at the point of connection for distribution. By contrast, for transmission, this is at the terminals.

Question 8: (*Generator*)

When you mandate the reactive power over a voltage range, you are getting a conservative voltage range limit. Is there any intention to adjust this?

Answer:

This is just a default. If you are finding a problem with the distributors, you are more than welcome to formally raise it with the Electricity Authority. It is not currently on the Authority's 'to-do' list. However, it would be something that we would want to discuss with all the distribution companies and generators.

Question 9: (*Generator*)

For distribution level, there is a ±33% reactive power requirement; has there been any thought about aligning the transmission side with this?

Answer:

We haven't done any analysis on this. However, at the transmission level, there is more to consider. We need to ensure that we can support the network voltage.

2. CACTIS: Modelling Requirements

Question 10: *(Generator)*

To what generators do the modelling requirements apply?

Answer:

To those that are ≥ 10 MW.

Question 11: *(Generator)*

Has there been any consideration to the capability of consultants to do the TSAT modelling, and whether it will slow down the commissioning process?

Answer:

This is not expected to hold up commissioning as the models are needed after the testing phase. If the OEM provides you the TSAT model, you can either get a consultant to do the model validation or you can give it to the System Operator who will recover the cost.

Question 12: *(Generator)*

If you have three months to get model [validation] done, is there the ability to get an extension if you have made reasonable effors but can't achieve this?

Answer:

It would be considered a breach of the Code; so no, you can't.

Question 13: *(Generator)*

Can you please clarify the encryption requirements?

Answer:

The m1 PowerFactory model can be encrypted. The m2 PowerFactory model must be unencrypted.

PSCAD and TSAT models may be encrypted.

Question 14: *(Generator)*

How are we meant to do model validation if [asset owners] don't get the unencrypted models, and they just get sent to the System Operator?

Answer:

The expectation will be that the model validation is completed on the encrypted model if this is the case. The System Operator will then combine unencrypted models provided that the model user guides include information about integrating the models with other OEM models.

Question 15: *(Consultancy)*

I assume it will be up to the asset owners to confirm if the OEM can provide the required models. However, to prevent all of the asset owners from reaching out to all the OEMs and asking the same questions you have already asked, can you share the OEM names and what they can provide?

Answer:

Unfortunately, that was not the pretext that was used when reaching out to the OEMs. We would therefore need to discuss this internally and with legal before releasing that information.

Question 16: *(Grid Owner)*

Your experience with OEMs is not the same as what we have had. OEMs have asked us "What is TSAT?" and have indicated that they are not willing to provide unencrypted models to anyone for their grid forming technology. These OEMs have supplied grid forming STATCOMS under these requirements to other countries, so we are receiving conflicting information.

Answer:

Based on our findings, we expect that they likely will face problems globally as our requirements aren't out-of-line with other countries'. We are definitely keen to hear about your experiences as they are different to ours. We will follow up with you about this.

Question 17: *(Consultancy)*

How are things expected to work when we have more than one OEM involved and the unencrypted models are only being supplied to the System Operator?

Answer:

Asset owners are responsible for integrating the encrypted models from different OEMs for the purpose of validation.

Question 18: *(Consultancy)*

Would you be able to create a document that makes all of these modelling requirements black and white (e.g. in a template) so that we can take it to the OEMs early in the process?

Answer:

CACTIS intended to provide high-level requirements. However we received this request from CQTG members and we intend to release this as an appendix in GL-EA-716.

Question 19: *(Consultancy)*

There is a 5% accuracy requirement for models; what is this referring to?

Answer:

The 5% means different things for different units, so this is something we are concerned about. This is something that we are planning to update and address in the next guideline update [of the GL-EA-716 document].

3. CACTIS: Connection Study Requirements

Question 20: *(Generator)*

If you have a multi-stage project, with part of it being commissioned before the CACTIS implementation, and the subsequent part after, what are the requirements for the second stage?

Answer:

From a connection studies point of view, if you are following the connection studies guideline, then you will most likely be compliant. However, from a modelling point of view, this is something that we have already discussed with you [outside of the Forum], and you may need to engage with the OEM to ensure that you get all of the models you need.

Question 21: *(Generator)*

Have you considered reducing contractual barriers, delays, and asset owners acting as 'gatekeepers' by providing a list of consultants available to the industry for conducting studies?

Answer:

We have not considered providing a list of consultants that could be engaged to conduct studies. However, we understand there may be delays in the process and therefore encourage asset owners to engage with respective parties early in the project.

Question 22: (*Consultancy*)

The proposal differs from the current approach. [If] the System Operator does the EMT studies [on behalf of the asset owner], would the asset owner still need to do EMT study? If the System Operator is still going to require a plant-specific model, will the asset owner have to provide this?

Answer:

If the System Operator cannot provide the models of nearby plants, then we can help asset owners to conduct EMT FRT studies on their behalf. If there is a way that we can standardise this, or make this easier, please let us know.

The responsibility to provide a commissioning plant model remains with the asset owner.

Question 23: (*Generator*)

If the asset owners are providing the SMIB models, and the System Operator is integrating the model into the wider grid, what time frame will the System Operator be held to? And if something 'interesting' is found, what are the expectations on asset owners?

Answer:

We understand that anything 'interesting' we find will involve lots of people, including the asset owners and likely OEMs. The only new part here is around who is doing the studies; otherwise, you can expect expectations to be the same as at present.

Question 24: (*Generator*)

Will these studies by the System Operator hold up the connection process?

Answer:

If you engage us early enough then they shouldn't. We are likely going to need to do some cost recovery for this to ensure that we can have adequate resources and can retain talent.

Question 25: (*Generator*)

How should we be engaging with consultants when there is the potential for a fault ride through study to indicate that our asset might cause a third party to not ride through the fault?

Answer:

This is a problem that the System Operator is aware of. A situation like this would require discussion between all parties.

Question 26: *(Generator)*

For a wider area protection study, who is going to do these studies if it is only the System Operator who has the EMT case with all the models?

Answer:

That is a contractual obligation with the Grid Owner.

Question 27: *(Consultancy)*

Is there a chance that a generator with a size ≥ 1 MW may need to do a fault ride through study in PowerFactory, then again in EMT?

Answer:

No, only ≥ 10 MW need to do fault ride through studies.

Question 28: *(Consultancy)*

The fault ride through study process goes through doing an RMS study, then later doing an EMT study if needed. Is there a need for the RMS study?

Answer:

You are more than welcome to go straight to an EMT study if you would prefer to. You just need to ensure that all the requirements are covered.

Question 29: *(Generator)*

Many of the contracts reach out years in advance. Are we not setting ourselves up for failure when the requirements aren't out yet?

Answer:

There is always the dispensation route for anything that grandfathering can't capture.

Question 30: *(Generator)*

Why does the System Operator want a load flow?

Answer:

We can use it to determine overloading and voltage levels. You will be doing one anyway for your own due dilligence, so it shouldn't be very onerous to pass that on.

Question 31: *(Generator)*

Will there be a summary of changes document coming out?

Answer:

The current connection guidelines [GL-EA-953] match CACTIS, so if you are meeting them, you should be fine. However, a complete 'section 8 changes' document is something we can look into working with the Electricity Authority to do.

4. CACTIS: Time Frames, Commissioning Plan, ACS, Test Plan and Testing Requirements

Question 32: *(Grid Owner)*

Is there a difference between the electrically connected date and the commissioning date?

Answer:

Yes, there is. The exact defenition of these is something that we are hoping to clarify with the Common Quality Technical Group.

Question 33: *(Generator)*

Can you change the name of commissioning plan to Code commissioning plan?

Answer:

Yes, we agree that it would be a good idea to do so.

Question 34: *(Consultancy)*

It is good to reduce the time frames. However, will the System Operator have enough resources to meet the 20-day requirement?

Answer:

The 20 days starts from when the final submission is made, so the System Operator will already have had a chance to make comments on the draft submissions.

5. CACTIS: Operational Communications and High-Speed Data Requirements

Question 35: *(Generator)*

Can you please clarify what you mean by "string level"?

Answer:

We are not talking about a string as the term is commonly used in solar. We are instead talking about the MV feeders. We agree this is slightly unclear and something we can try make clearer.

Question 36: *(Generator)*

Should we not be trying to align our definitions and requirements with what is happening internationally?

Answer:

We will discuss this with the Electricity Authority.

Question 37: *(Generator)*

How long do we need to store the data?

Answer:

We will look into this. It isn't something that we have explicitly stated.

Question 38: *(Consultancy)*

Does event data need to be provided automatically, or just on request?

Answer:

On request.

Question 39: *(Generator)*

Does the data need to be at the station level, or can we give you it at the unit level?

Answer:

We are happy to take data for multiple collection points.

6. General Discussion

Question 40: *(Generator)*

Is the System Operator going to be resource-constrained with all the additional work, and is it going to slow down our connections?

Answer:

Thank you for your concerns. We will do our best to always ensure that we don't slow down any of the connections.

Question 41: *(Consultancy)*

In New Zealand, unlike other parts of the world, we are tuning our plants in isolation instead of along with other projects in the area. The System Operator has the EMT models and the information to make this happen; there just needs to be some more communication and information flow between the System Operator and Grid Owner. What is the separation between the System Owner and Grid Owner intended for?

Answer:

In Part 8, schedule 8.3, Technical Code A, clause 3, subclause 2 of the Code, it states the System Operator cannot disclose any asset information. This means that we are required to keep the Grid Owner at arm's length.

Question 42: *(Generator)*

It would be beneficial to have both the Grid Owner and System Operator around the table together.

Answer:

This is something that we are looking into in part two of the common quality assessment as the System Operator currently can't share information and models with the Grid Owner.

Question 43: *(Generator)*

The System Operator and Grid Owner requirements are sometimes conflicting. For example, the System Operator wants the best fault ride through, but the Grid Owner wants anti-islanding.

Answer:

If there is lots of concern around this, then there may be value in having a forum around fault ride through.

Question 44: (*Generator*)

Is all of the information and studies that have been 'sorted' with the Grid Owner's Systems Planning team being passed on to the System Operator?

Answer:

Yes, they are. We do recommend you have a look at the connection studies guideline to help you see what studies are required by who and when.

Question 45: (*Consultancy*)

EDBs have a power factor requirement of 0.95 lagging at the GXP, at regional coincident peak demand. Are there any plans to update this requirement?

Answer:

There are some details in the Electricity Authority's option paper around what they are looking into here. Updates to part 12 are also being considered as part of the GXP reactive power flows work.

Question 46: (*Consultancy*)

The System Operator is wanting to not use the short circuit ratio as a trigger for doing an EMT fault ride through study, but instead making the decision based on the results of an RMS study, which will give unreliable results. How is the System Operator therefore going to determine the scenarios that need to be studied?

Answer:

There is no 'bulletproof' [i.e. explicit] answer to this and it is something that we hope to develop a process around once we have gone through a few results and have a better idea of what works well.

Question 47: (*Generator*)

Is there a plan to define an enforceable required measure of model accuracy?

Answer:

Not currently. This could be something we look into, though. We do already suggest 5% as a guideline.

Question 48: *(Distributor)*

What are the requirements for distribution companies? Most of this has been generation-focused.

Answer:

That is a 'can of worms' that we have not yet opened. However, it likely is something that we will need to look into it in the not too distant future.

Distribution companies must keep up-to-date an Excel-based ACS and share it with the System Operator. See Asset Capability Statements (ACS) | Transpower. Currently it contains a minimal amount of information which may be extended as needs arise.

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