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Chairman
The Reliability Panel
Australian Energy Market Commission
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Dear Mr Woodward

ISSUES PAPER – TEMPLATE FOR GENERATOR COMPLIANCE PROGRAMS

Reference: REL0032

The National Generators Forum (NGF) appreciates the opportunity to provide a submission in response to the Issues paper on Template for Generator Compliance Programs.

It is important that the role of the Template within the quality assurance framework envisioned by the NGF is understood. The framework includes:

- A process that would get the performance standard “right”. This would mean standards that could be adequately applied to a range of technologies, sizes of plant and deal with the fact that some plants were connected a long time ago;
- Performance requirements being agreed at the time of connection. These standards would be set so that the connecting plant would not materially degrade the system, but equally be set without requiring the connecting plant to add additional support to the system. Any support to increase the capability of the system would be provided commercially as a paid service;
- The definition of “Good Electricity Industry Practice” in the Rules being augmented and made more specific by principles and the Template. The principles would provide a common thought process to allow a consistent set of compliance regimes to be developed in the Template. The Template would need to cover the same range of plant as the performance standards themselves (ideally all technologies current and future); and
- Review of the Template and compliance programs based on experience, including market incidents, to allow appropriate refinement over time.

The Template is a tool to be used to define the generators’ obligations to assist in maintaining the system. While there is a compliance assessment benefit, the main focus is assurance of plant performance for acceptable market and system operation.

In addition, given the amount of new power plant “build” that will be required in the next decade, a Template is a very important document for a generator to use when contracting with a Power Plant contractor as such Templates are used to form the basis of the Commissioning Compliance Plan. Typically, Power Plant contractors are not familiar with NEL and therefore clear requirements and deliverables greatly assist a generator in managing these contractors.

The NGF, relevant NSPs and NEMMCO have experience in compliance programs. Since the completion of the grandfathering process for performance standards, all NGF members have agreed their compliance programs with NEMMCO and NSPs. This set of agreed programs provides a sound basis for the development of the initial Template. The programs should however be considered against a set of principles agreed by the Reliability Panel.

The use of agreed principles for the development of the Template will allow standardisation, comparison and extension of the existing programs within a cohesive framework. The NGF has considered a set of principles, which was attached to the issues paper. The NGF suggests these principles be refined by the Reliability Panel as the first step before defining the Template.

The NGF also envisaged a standing group to support the Reliability Panel in technical areas. Such a group existed when the Panel operated under NECA. This group could provide expert technical support in both the Performance Standard and Compliance Template work and assist in other matters dealt with by the Panel.

Please find attached detailed comments on each of the issues raised in the paper. Please call Methsiri Aratchige on 02 8268 4235 if you require additional information or clarification of the points raised in this submission.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'J Boshier', with a stylized flourish at the end.

John Boshier
Executive Director

Issue 1 :

Are there benefits in adopting a set of compliance principles and what are these benefits in terms of meeting the Rules requirements for the Template for generator compliance programs ?

- if so, are the examples of compliance principles in Appendix A appropriate ?

A set of guiding principles are important to articulate the intent, rationale, scope and value of developing a Template for generator performance compliance program.

The principles will provide the link between the Rules and the compliance Template/program and provide guidance for ongoing development of the Template to ensure “good electricity industry practice” is better defined and maintained.

The Template development work will therefore proceed far faster if the over-riding principles are agreed in advance. The Panel has already found this approach necessary for the development of performance standards, as did the NECA review when it approached that task. The NGF therefore considers that the development of principles to be an essential step.

The NGF has offered its principles as a starting point for the Panel and is happy to work with the Panel to refine those principles.

NGF proposed principles as indicated in the appendix A of the Issues paper are summarised below.

1. Where plant performance is variable with time, regular testing would be required.
2. Where plant performance is unlikely to change, no tests are warranted unless there are reasonable grounds to believe that the plant performance may have changed.
3. Materiality of the issues must be taken into account.
4. Generators use of compliance program, based on the Template, represents “good electricity industry practice”
5. Generators are responsible only to meet the agreed standards.
6. Compliance testing regime must reflect an equitable balance between risk management and the risk created by the test itself.
7. Compliance regime must specify objectives and outcomes to be achieved by testing.
8. Where performance standards cannot be directly tested, the compliance program should include measurable criteria.
9. Compliance program must be reviewed and updated periodically.

The Template is not envisaged as a prescriptive document rather a high level description (could be termed as a “framework”) of the nature of the testing or monitoring that should be performed to confirm compliance. It will be the individual generator’s compliance program that contains the detail on specific testing and plant monitoring that the generator intends to undertake.

Issue 2:

Are there benefits in adopting compliance standards categories and, if so, what are these benefits in terms of meeting the requirements in the rules for the compliance program Template ?

The two categories proposed by the NGF are important because the compliance approach for equipment performance that does not vary over time is very different to equipment performance that varies with age.

For each major component in the program a generator will have to identify the relevant equipment as category A or B and the Template should provide the agreed industry approach to testing or monitoring.

In addition, it is possible to categorise the standards depending on materiality. For example, the standards which directly impact upon system security are more important than others. As such, certain standards may have to be tested more extensively and more frequently than others.

Although the NGF haven't as yet attempted to categorise the standards, such an approach would be beneficial to help determine the extent and frequency of testing applicable to each standard.

Issue 3:

Is it necessary to draft guidelines for the Template and, if so, are the example guidelines appropriate ?

As discussed above, the use of guidelines to focus the thinking of the Panel and to provide consistency of approach between the various elements of the resulting Template is essential.

The guidelines provide a high level and abstract set of rules that allow the appropriateness of a compliance regime to be readily assessed.

If necessary, the guidelines can be incorporated into the Template.

Issue 4 :

What should be covered in the scope of the Template, how should it be structured and what should it contain ?

The Rule requirements for the Template and the compliance program are given in the Clause 4.15(c) and (ca).

- (c) A compliance program instituted and maintained under rule 4.15(b) must:
 - (1) be consistent with the *template for generator compliance programs*; and
 - (2) include procedures to monitor the performance of the *plant* in a manner that is consistent with *good electricity industry practice*; and
 - (3) be modified to be consistent with any amendments made under clause 8.8.3(ba) to the *template for generator compliance programs*, by no later than 6 months after amendments to the *template for generator compliance programs* are *published* or by a date determined by the *Reliability Panel*; and
 - (4) provide reasonable assurance of ongoing compliance with each applicable *performance standard*.
- (ca) The *template for generator compliance programs* must:
 - (1) cover all *performance standards*; and
 - (2) define suitable testing and monitoring regimes for each *performance standard* so that a *Registered Participant* can select a regime that complies with the obligations set out in rules 4.15(a), 4.15(b) and 4.15(c) for their particular *plant*.

As such, the Template must be able to cater for :

- all plant types
- all plant sizes
- all performance standards
- power plants at the commissioning stage

In addition, compliance program must be consistent with the Template. Therefore, the Template must contain sufficient details so that participants can develop a compliance program. In other words, the information in the Template must be sufficient to develop the compliance program meeting the Rule 4.15(c) (1).

On the other hand, if it is too descriptive, there may be potential problems in developing compliance programs due to different plant technologies and sizes. Participants should be able to perform tests taking into account individual plant conditions. Therefore, the Template must be flexible enough to cater for such needs while meeting the overall objectives of the compliance regime.

Therefore, the testing details in the Template would require both clarity and flexibility.

As a minimum, the Template must contain the following information:

- Number of different testing methodologies at a high level to cover all types of plants
- Room for variations of testing methods
- Frequency of tests
- A clear definition of acceptance criteria

Compliance Principles must be set in order to determine the depth of testing and frequency of testing taking into account the materiality of each performance standard for individual plant.

Issue 5:

How prescriptive should the Template be for each performance standard ?

The Rules require sufficient detail so that a generator can select a regime. Within this requirement, however, there must be enough flexibility to allow for differences between plants. The NGF considers that if a variety of approaches are described as meeting good industry practice then a generator can use these to develop a compliant plan by extension of the Template.

When the NGF developed the sample Template, the Rule changes related to the Template were not finalised. As such, the NGF left the sample Template open for discussion.

However, the NGF is now in a position to forward a better developed sample Template following the rule changes. Attachment 1 illustrates a sample Template using a couple of selected performance standards.

Issue 6 :

How can it be ensured that the Template meets “good electricity industry practice” that would provide certainty for generators as to what is required of their compliance program ?

The NGF concept in developing the Template has been that the Template would define “good electricity industry practice”. In this way, provided a generators compliance program was compliant with the Template, the generator could be confident its program was consistent with “good electricity industry practice”.

The NGF recommends that the reliability panel accepts this principle. Development of the Template can be achieved by reviewing the compliance programs that have already been agreed and determining the compliance approach that is currently in place. As these programs are already in place, widely used across the industry, and have been agreed between generators, NSP’s and NEMMCO, they are by definition good electrical industry practice.

Issue 7 :

Having regard to the current processes for implementing the Template already set in the Rules, what other implementation and transition issues may need to be addressed and how would these be put into effect ?

Given the existing transitional Rules and the fact that all generators should have agreed compliance programs now, the NGF is of the view that further transitional requirements are likely to be minimal.

On the basis that the Template should encompass most compliance programs currently in place, transition will only be a consideration where existing plans should be modified. It may be necessary to adopt a “grandfathering approach” for any instances where the Template imposed significant additional costs on particular generators compared to their existing programs.

Attachment 1 - Sample Template

Performance Standard/NER Clause	Testing methodology	Frequency	Comments	Acceptance Criteria
S5.2.5.1 Reactive Capability	Method 1 (a) With the generating unit operating at or near full output, adjust reactive power to demonstrate the specified level, and (b) Monitoring in-service performance using metering equipment.	3 years Ongoing	Demonstrating the registered capability is subject to network capability. In some networks it may not be possible to demonstrate the full reactive power range.	Unit at any level of active power demonstrates the required levels of reactive power.
	Method 2 (a) If the network is not able to support demonstration of the full reactive power range, modelling and simulation of plant characteristics to make sure the plant is capable of meeting agreed standards, and (b) Monitoring in-service performance using metering equipment.	At first Commissioning Ongoing	Modelling must be repeated if changes to the plant are made	Modeling demonstrates the required levels of reactive power. Ongoing monitoring further demonstrates capability as required.
S5.2.5.3 Response to Frequency Disturbances	Method 1 (a) Investigating unit trips that occur during significant frequency disturbances and (b) Monitoring in-service performance using high speed data recorders and (c) Routine tests of electrical/mechanical over speed devices	3 years	Some flexibility to change this frequency if plant outages are required	Operation over the frequency range specified and agreed in the Generator Performance Standard.

Performance Standard/NER Clause	Testing methodology	Frequency	Comments	Acceptance Criteria
	<p>Method 2</p> <ul style="list-style-type: none"> (a) Modelling and simulation of plant characteristics to make sure the plant is capable of meeting agreed standards and (b) Investigating unit trips that occur during significant frequency disturbance and (c) Routine tests of electrical/mechanical over speed devices 	3 years	<p>Modelling must be repeated if changes to the plant are made</p> <p>Some flexibility to change this frequency if plant outages are required</p>	Operation over the frequency range specified and agreed in the Generator Performance Standard.
	<p>Method 3</p> <ul style="list-style-type: none"> a) Verify the modelled performance of a sample of turbines (say 1-2%). This is first done at R2 testing. b) Verify the performance at the connection point by testing response to an introduced disturbance. c) Continuous monitoring (high speed) of performance at the connection point. 	Continuous monitoring. Testing and verification at 10 year intervals.	Only applicable to small asynchronous generators with digital controls that are aggregated. Each unit is not material and performance slippage is unlikely.	Operation over the frequency range specified and agreed in the Generator Performance Standard.
	<p>Method 4</p> <ul style="list-style-type: none"> a) Injection of simulated frequency / speed control signal into control system to demonstrate correct response of control system output to input signals b) Investigating unit trips that occur during significant frequency disturbances and c) Monitoring in-service performance 	3 years	Some flexibility to change this frequency if plant outages are required	Operation over the frequency range specified and agreed in the Generator Performance Standard.

Performance Standard/NER Clause	Testing methodology	Frequency	Comments	Acceptance Criteria
	using high speed data recorders			