Overview of changes to Secure System Guidelines Version 4.2

Review of the Northern Territory Generation Performance Standards

PowerWater

Summary of changes

Established under clause 3.5 of the System Control Technical Code (SCTC), the Secure System Guidelines (SSG) set out the principles and details for determining whether the power system is in a secure state. The document includes a section devoted to overarching power system parameters, and participant-specific sections for potentially commercial-in-confidence or ring-fenced information. The participant-specific sections are developed on an as-needs basis.

The System Controller may amend, vary or replace the SSG at any time, and shall consult with participants when doing so.

This latest version of the SSG is the result of consultation undertaken to introduce Generation Performance Standards (GPS) to the Northern Territory regulated electricity systems.

The initial consultation for GPS included only a minor change to the SSG which was the inclusion of a definition of the Technical Envelope (version 4.1) which was thought to have no impact for Participants as it was merely adding the term 'technical envelope' to the definitions, and changing that term, as used in the body of the document, to italic format.

However, following the first round of consultation along with some technical and legal advice, further changes to definitions and the removal Channel Island Node constraint were proposed. This updated document was released for round two of the GPS consultation in June 2019.

The other additions to the SSG (Version 4.2) are the result of advice provided by the Utilities Commission (the Commission) in their final decision on Power and Water's proposed GPS code amendments. This included:

- Final Decision (NTC clause 3.3.5.15)

"The commission recommends that revisions to the SSG are made to better clarify how the C-FCAS [Contingency Frequency Control Ancillary Service] capability will be assessed, as this will assist generators in designing the control systems they implement to respond to changes in system frequency"

This has been addressed through inclusions in Section 8 of the SSG~~, along with a new appendix which provides worked examples~~.

- Final Decision (NTC clause 2.2.2)

"Under abnormal operating conditions, the network frequency may vary between 47 Hz and 52 Hz.

In the case of operations between 47 Hz and 52 Hz, the stabilisation time is 10 minutes, where stabilisation time means: the longest time allowable for the frequency of the power system to remain outside the normal operating frequency band, for any condition (including an "island" condition) in the frequency operating standards that apply to each region."

This has been addressed in Section 5 of the SSG, by replacing the definition of emergency operating frequency band, with the Commission's revised definition. This results in a reduction to the acceptable time the system can be outside the normal operating frequency band from 30 minutes to 10 minutes.

Changes have been made in Section 8 of the SSG to set out the process for C-FCAS accreditation, in accordance with NTC clause 3.3.5.15 (3).

Future development of the SSG

With the finalisation of the GPS code amendments process, Power and Water intends to undertake a more comprehensive review of the SSG during 2020. It is intended that the review will address a number of issues identified in previous consultations in addition to new emerging issues.

In addition to the review of the SSG, Power and Water plans to develop and consult on a number of documents providing further information to system participants. These will include:

- System Strength Impact Assessment Guidelines
- Dynamic Modelling Guidelines
- Dynamic Modelling Change Management Procedure
- ~~Generator Forecasting Compliance Procedure~~, and
- Plant Outage Procedure.

Stakeholder Feedback

Power and Water's response to stakeholder feedback on the proposed GPS changes has been documented and provided to participants through both the 2nd Round of Consultation material and the subsequent submission to the Commission.

The following table is presented for completeness and outlines our responses to the issues raised by stakeholders that relate to the SSG during the GPS consultation. Some issues have been addressed within this version of the SSG while others have been dealt with by adjustment of other regulatory documents.

Please note the issues column is, in general our summarised interpretation of the issues raised by stakeholders rather than a verbatim quote from individual submissions. The submissions are available on our website. The PWC Ref# is an internal issue tracking number to ensure all issues raised have been addressed.

PWC Ref#	Clause	Stakeholder(s)	Issue	PWC response
126	NTC 3.3.1 Outline of Requirements	Territory Generation (T-Gen)	Queries the validity of referring to a non-Code document (SSG) for determining thresholds for the application of generator registration thresholds.	This clause has been updated to reference a materiality threshold and the jurisdictional legislative instrument.
35	NTC 3.3.5.3 Generating Unit Response to Frequency Disturbance	SENER	Value of stabilization time for the "abnormal frequency band" needs to be indicated.	Following consideration of the issue raised we have reviewed the NEM Reliability Panel frequency standards and adapted to the NT. In line with the Commission's final decision we have included clarification for the stabilisation time as being 10 minutes for frequency within the abnormal range 47-52 Hz to be restored back to the normal operating frequency range. We have consequently reviewed the SSG to ensure alignment.
127	NTC 4.5.1 (e) Network voltage control	T-Gen	Queries appropriateness of the Network Technical Code (NTC) deferring to a subsidiary document of the SCTC.	Paragraphs (a), (b) and (c) of NTC clause 4.5.1 establish the head of power for determining the network voltage limits. Recording those limits in the SSG document which is subject to consultation is good practice because the limits will be used by the System Controller and the limits are publicly transparent within that document.
106	Ancillary services	T-Gen	There is no mention of inertia dispatch constraints that are currently operating	The details of the current spinning reserve and future C-FCAS / Inertia operating arrangements are outlined in the

PWC Ref#	Clause	Stakeholder(s)	Issue	PWC response
			under the spinning reserve and proposed under C-FCAS arrangements. T-Gen understands, from System Control publications, that Inertia and C-FCAS are inextricably linked	SSG. The GPS specifies capability requirements via NTC 3.3.5.15.
6, 7	SSG	T-Gen	Incorporate C-FCAS specification into a guideline.	It is proposed that the specification and assessment process for C-FCAS will be contained in a guideline which is a similar approach to the NEM where AEMO has published a guideline.
86, 139	SSG Appendix A	T-Gen	SSG Appendix A – refers to a constraint that is no longer applicable due to reconfiguration of connections at CIPS.	Appendix A has been removed from the SSG.
96	SCTC various	T-Gen	Concerns about the hierarchy of Code and the SSG. Suggest a review to review and ensure appropriate aspects are Codified.	Power and Water is of the view that this is not a significant issue in the context of the current consultation. This will be considered in a subsequent review of the SCTC and SSG.
8	SSG	T-Gen	Section 8 of the SSG currently states that all three regulated power systems are not operating under C-FCAS requirements, rather all are still operating under 'spinning reserve' requirements. Will all three power systems be changed over to C-FCAS prior to the GPS being enacted?	The GPS quantifies the capability to connect, not the mode of operation. It ensures the right equipment is available to manage a system in a stable manner. This is unchanged and is not under consultation. The SSG highlighted a transition to C-FCAS for the Darwin Katherine system, exact dates have yet to be confirmed but this is a priority for Power and Water and is currently being progressed. Further work is currently underway on the Alice Springs system to refine the use of spinning reserve.
188	General	T-Gen	Will all 3 regulated power system change over to C-FCAS from "spinning reserve" prior to the GPS being enacted?	The SSG highlighted a transition to C-FCAS for the Darwin Katherine system, exact dates have yet to be confirmed but this is a priority for Power and Water and is currently being progressed. Further work is currently underway on the Alice Springs system to refine the use of spinning reserve.