Record No: TGD2020/30551
Container No: TGF2020/1-01

Market Operator
Power and Water Corporation
Attention: Matthew Phillips
GPO Box 1921
Darwin NT 0801

By email: market.operator@powerwater.com.au

Dear Market Operator

Submission in relation to *Generator Forecasting Compliance Procedure* consultation

Territory Generation (TGen) appreciates the opportunity to provide a submissions in relation to the proposed *Generator Forecasting Compliance Procedure*.

TGen notes that at the initial publication of the SCTC V6 and NTC V4 on 30 March 2020, PWC's *Wholesale Market Consultation papers* web page stated "[T]he UC's final decision required the development and consultation of a number of documents. These documents will be released for consultation individually in the coming weeks".

TGen believes it would be beneficial for these documents to be available for consultation at the same time.

Grandfathering

TGen notes its current generation fleet is eligible for grandfathering, and as such is not required to comply with the proposed forecasting compliance procedure for existing fleet.

Extra costs and workload

Supplying six sets of forecast data every five minutes for every generator and then reporting on it adds cost to the Generator in manpower, and workload in installing and maintaining the system.

Result in under utilisation

Assessing on a 'unit by unit' basis, with no regard to other units owned and operated by the same Generator will likely lead to under utilisation of assets. Currently, TGen forecasts are reasonably accurate at a station level. However, TGen recognises that actual performance may be 'under' on one unit but 'over' on another.

TGen supports an operating mode where a Generator is accountable for the dispatch and operation of its plant. This includes unit selection and operating state in delivering energy and services against a forecast supply requirement provided by the Power System Controller.

Batteries and other fixed storage capacity devices

It is understood that batteries are for FCAS purposes and not energy. If the intention is to make "X" MWh of discharge capacity availability, this could be forecasted. We note if the discharge capacity is used, forecasts will likely be inaccurate. Three items for consideration in this context are:

- a way to indicate that forecast is based on fixed amount of stored energy
- the ability to indicate the amount of stored energy at time of forecast
- the ability to forecast other services capability, for example frequency control services.

Forecast Constraint Calculation Process – Performance measures (page 4)

It is noted on page 4 the following statement was made:

"In addition to the above measures, a further measure is applied to assess how closely the active power produced by the generator across each dispatch interval aligns with the dispatch instruction for that interval considering the firm offer (forecast made at t=0min covering the period to t=5min) and plant ramp rates. If across any 5 minute dispatch interval, the active power deviates from the dispatch instruction by greater than +/- 0.5% (in the absence of any frequency disturbance) the generator will be considered non-compliant."

TGen makes the following observations:

- What is a 'frequency disturbance'? "frequency deviation from 50Hz" or "frequency deviation from frequency set point" may be a better description.
- For example; for a synchronous generator that has 4% droop on a 50 MW basis. This means a 0.25MW per 0.01Hz change. For a dispatch instruction set point of 30MW on this unit, a dispatch instruction variance of 0.5% is only 150kW which equates to 0.006Hz under 4% droop. A variance of 0.006 Hz is within the normal frequency operating band and not considered a disturbance, yet would result (for this example) in a machine response that is in contravention to the allowable dispatch instruction variance and rendering the generator 'non-compliant'.
- Frequency disturbance is also not defined in the Network Technical Code V4 glossary.

Forecast Constraint Calculation Process – Compliance check (page 4)

It is also noted on page 4 the following statement was made:

"D is not to exceed 10% of forecasts over a rolling 24hour period and KM is not to exceed 1 MW, and KP is not to exceed 5% in any 5 minute interval. In all dispatch intervals where frequency is within the normal operating band, the maximum absolute difference between the actual power output and the dispatch instruction must be less than 0.5% of the dispatch instruction."

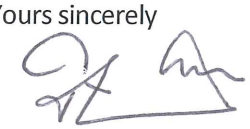
TGen makes the following observations:

- Normal band of frequency is +/- 0.2 Hz (PWC NTC V4 section 2.2.1)
- Will this mean that as far as NTC 3.3.5.11 (e) (2) (i) is concerned that the governor dead band will need to be set at +/- 0.2 Hz or 0.4 Hz (depending on the power system) absolute in order to comply with this procedure?

TGen welcomes further consultation with the Market Operator and other participants.

If you have queries or require further information, please do not hesitate to contact Andrew Roberts on 08 7979 2574 or at andrew.roberts@territorygeneration.com.au

Yours sincerely



Gerhard Laubscher
Chief Executive Officer

15 May 2020