

Under-frequency management

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Information

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Requested actions

1. The Council is requested to:
 - (a) to note that these Common Quality work streams are ongoing and will ultimately require Code changes and implementation by the System Operator and the industry.

Context

2. The paper summarises some of the Common Quality work streams that are currently being undertaken by the System Operator as part of the work programme agreed with the Authority. The System Operator has recently published reports on these issues and has undertaken a series of workshops in Auckland, Wellington and Christchurch. The Authority makes the following comments regarding this paper:

Automatic Under-frequency Load Shedding (AUFLS)

3. AUFLS in the North Island has been found to have block discrimination issues. This has led to the recommendation of a move from the current 2 x 16% blocks to 4 x 8% blocks that require new df/dt (rate of change of frequency) relays.
4. In the South Island the issue is not with the speed of operation but with having a sufficient quantity of AUFLS available. The Tiwai grid exit point is currently not incorporated into the AUFLS system.

Reserve Review

5. A review of actual under-frequency events has indicated that in the majority of these events the frequency does not fall below 49Hz, while the Code allows for a target frequency of 48Hz in these circumstances. This indicates that there may be significant over-procurement of reserves.

6. The System Operator has identified several modelling tool changes and potential for new reserve products which could provide performance benefits and reduce total system costs.
7. The System Operator is continuing to engage with the Authority and the industry with a view to establishing a set of recommended actions.

Normal Frequency Review

8. 'Normal frequency' relates to systems and processes that maintain the system within its target operating band of 50 ± 0.2 Hz.
9. The System Operator has:
 - Confirmed that the current normal frequency band is optimal for New Zealand;
 - Confirmed that the existing frequency keeping procurement band of ± 50 MW is required for the North Island;
 - Recommended a trial to reduce the South Island frequency keeping procurement band to ± 10 MW at certain times;
 - Recommended a trial removal of the time error requirement; and
 - Suggested code changes to clarify generator governor performance.