

TERMS OF REFERENCE – INDEPENDENT REVIEW OF AURORA ENERGY NETWORK

REVIEW OBJECTIVE

The objective for this review is to determine the state of the Aurora networks in Dunedin and Central Otago (the Aurora networks), identifying any critical assets at significant risk of failure. This will allow interested stakeholders to better assess the appropriateness of the planned interventions and investments Aurora proposes to make.

There are two key tasks for the review, which should reflect a consumer focus:

1. Establish an accurate and reliable assessment of the current state of the Aurora networks with particular focus on identified critical assets; and
2. Having established the state of the network, determine the resulting prioritised risk to consumers.

GENERAL PRINCIPLES

- In applying a consumer focus, regard should be had for; public safety, reliability, resilience, environmental risk, post-fault restoration times, future planned outage volumes, investment, and the likely timeframes for addressing identified risks..
- It is anticipated the review will primarily rely on a detailed bottom-up physical inspections of in-service assets that provide statistically representative samples of individual assets within each asset class. The bottom-up assessment will draw from Aurora's existing asset data where it is established that this data is sufficiently complete, accurate and reliable. It is also anticipated that the review may also rely on limited top-down assessment to support the bottom up assessment.

REVIEW SCOPE

Key aspects of the review will include:

- Identifying Aurora's critical assets and their underlying physical condition. We expect that the following may represent areas of key consideration:
 - ↳ Sub-transmission circuits;
 - ↳ Zone substations;
 - ↳ High voltage distribution circuits (CBD, residential urban, rural, commercial and industrial areas);
 - ↳ SCADA and protection (including the operation of protection systems)
- Assessment of Aurora's understanding of the performance and health of its assets (in the absence of hard evidence what assumptions / judgment is being applied);
 - ↳ Data gaps;
 - ↳ Data quality;
 - ↳ Modelling approaches
- Identification of potential and probable failure modes, and the underlying potential consequences of failure.
- An assessment of the extent to which the network assets are constructed to appropriate design standards, taking into account:
 - ↳ The past and current design standards applied by Aurora;
 - ↳ The specific location and environment of the assets; and
 - ↳ The impact of asset deterioration.

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- Consideration of the extent to which network topology mitigates (or otherwise) the risk of service failure in significant urban areas of the network, and in rural zones.
 - ↳ Underlying security of supply standard;
 - ↳ Areas where security of supply standard is exceeded;
 - ↳ Areas where security of supply standard is not being met;
 - ↳ Emerging capacity constraints;
 - ↳ Locations where changing land use is driving a need to convert infrastructure historically designed for rural use, to urban levels of resilience and reliability,
- Estimate the overall risk profile for the Aurora networks.

MATTERS OUT-OF-SCOPE

The review is not intended to be an audit of performance – it is focused more on providing an informed and expert opinion as to the state of the Aurora network.

The following aspects are out-of-scope

- Review of the performance, qualifications, experience, or similar of any individual;
- The interventions and future strategies planned by Aurora;
- Review of matters relating to Aurora's breach of quality standards in 2015 and 2016.
- The review should not attempt to benchmark the current state of Aurora's network for comparative performance purposes but may refer to industry practice where appropriate, and this may include comparison of risk profiles against other EDBs. The focus of the review should be specific to Aurora.

ENGAGEMENT

Aurora is solely responsible for engaging and funding the engineering consultant (Engineer); however, the Commission has also noted their invested position in this review and that the Engineer should also owe the Commission a duty of care (access to draft and final reports, periodic communication, etc). Accordingly, Aurora and the Commission anticipate that all parties will enter into some form of simplified Tripartite Deed similar to that applied to a CPP verification process.

While modelling the engagement on the tripartite arrangements of CPP verification, it is not expected that the Engineer will hold themselves at arms-length. Specifically, Aurora Energy and the Commerce Commission expects the Engineer will provide regular progress updates, including any emerging views and points requiring further clarification. It is also important for the Engineer to advise Aurora and the Commerce Commission as soon as possible of any high priority network intervention that should be happening.

COMMERCE COMMISSION OBSERVERS

The review should allow for Commission staff to participate on-site, periodically, as required during the review, as observers.

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TIMING

Activity	Target date
Aurora sends draft TOR to the Commission and confirms proposed reviewer	28 February 2018
Commission provides feedback on draft TOR and the proposed reviewer	2 March 2018
Discussions / negotiations with proposed reviewer to agree scope and terms	w/c 5 March to 14 March 2018
Tripartite agreement agreed and signed	Friday 16 March 2018
Aurora communication plan executed	Monday 19 March 2018
Independent Review commences	w/c 26 March 2018
Regular progress update	Fortnightly
Emerging view – verbal feedback to Aurora and the Commission	Friday 4 May 2018
Draft Review Report to Aurora for comment and the Commission for comment and feedback	Friday 29 June 2018
Final report (and Public Summary if required)	July 2018