Revised Regulatory Proposal

Supporting Information: Replace EDO Fuse Tubes (REOHS)

Aurora response to the AER's Draft Distribution Determination

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Table of contents

1. Introduction

Aurora provided the AER with its *Regulatory Proposal* on 31 May 2011 in accordance with the provisions of Chapter 6 of the *Rules*. Aurora also set out its answers to the Regulatory Information Notice (RIN) issued by the AER on 21 April 2011 in its response (*RIN Response*) of 31 May 2011.

The AER have reviewed Aurora's *Regulatory Proposal* and *RIN Response* and provided Aurora with the AER's *Draft Distribution Determination*, associated consultant's reports and AER models on 29 November 2011 in accordance with the provisions of Chapter 6 of the *Rules*.

Aurora provides its *Revised Regulatory Proposal* to the AER in response to the AER's *Draft Distribution Determination* in accordance with the provisions of Chapter 6 of the *Rules*. This document provides specific supporting information as an appended attachment to Aurora's *Revised Regulatory Proposal*

2. Replace EDO Fuse Tubes (REOHS)

2.1. Summary

In Aurora's *Regulatory Proposal*, Aurora proposed an Expulsion Drop Out (EDO) fuse tube replacement program to replace switchgear at sites with a service life exceeding 10 years to manage the risk of EDO 'hang up'.

The drivers for this program are public safety and mitigation of fire starts.

In its *Aurora Revenue Review*[1] report to the AER, the AER's consultant determined that in the absence of historical data of fuse tube service life, a 'business as usual' approach to managing the risk of 'hang up'. The consultant provided no explanation what constituted as 'business as usual[2]' approach. If the intent of this is to 'Do Nothing' then the consultant in its recommendation has ignored the impacts on public safety and mitigation of fire starts.

Aurora considers that the consultant made an error in its recommendation to the AER on this program, and that the program be should included in Aurora's program of work for the forthcoming *Regulatory Control Period*.

2.2. Background

In Aurora's *Regulatory Proposal*, Aurora proposed an Expulsion Drop Out (EDO) fuse tube replacement program to replace switchgear at sites with a service life exceeding 10 years to manage the risk of EDO 'hang up'.

When EDO fuse tubes become weathered after years of service, the internal fibres swell. This swelling can cause the fusible link to stick, preventing the tube from dropping out after a protection operation. When a fuse does not drop out, this is referred to as 'hung up'. When this occurs, electrical tracking can occur inside the tube. This in turn creates heat, causes the fuse tube to catch fire, burn in half, and drop vertically to the ground near the base of the pole. This issue of 'hang up' is known within the industry and has the potential to start fires when the fuse drops to the ground, cause asset damage such as dropped wires, which again have the potential of starting fires and pose a safety risk to the general public

Aurora has identified (during asset inspections) indications of fuse tube deterioration on fuse tubes as young as five years of service life with an increased risk of 'hang up' after 10 years.

The AER's consultant agrees that EDO fuse 'hang up' caused by weathering of the EDO fuse tube is a known industry issue.

The consultant made note of the following in making their recommendation:

- no historical data on service life was provided; and
- replacement of fuse carriers in high fire danger areas is covered by alternative programs.

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[1] Report – Principle Technical Advisor, Aurora Electricity Distribution Revenue Review
[2] Report – Principle Technical Advisor, Aurora Electricity Distribution Revenue Review, page 100

2.2.1. No historical data on service life provided

Aurora's current data capturing processes for switchgear and associated failures do not allow sufficient and accurate historical data relating to the mal-operation of EDO fuses due to deterioration of the EDO fuse tube to be retrieved.

As indicated previously, Aurora has identified, during asset inspections the deterioration of EDO fuse tubes after only five years in service. To accurately determine service life Aurora could:

- inspect all fuse tubes, measure condition and determine a service life. The cost of this is comparable to replacing the tubes. The only difference between the options is the cost of the tubes; or
- allow the tubes to fail and create a failure history. This does not address the risks of failure.

Neither of these options provide a sensible solution so Aurora considers that the best course of action is to implement a replacement program.

2.2.2. Replacement of fuse carriers in high fire danger areas is covered by alternative programs.

It is acknowledged that this category does not include EDOs in high or very high fire dangers. Expenditure for these EDOs is covered by another program.

There is a risk of local fires and increased damage to assets from failed EDOs not clearing faults. There can also be a risk of live conductors on the ground.

2.3. Conclusion

Aurora contends that the AER address the error made in its draft decision to reject the EDO fuse tube replacement program, as due to the increased risk to Aurora and the community. Aurora has provided an updated forecast in its *Revised Regulatory Proposal.*

3. Confidentiality

Aurora does not consider any section of this document to be confidential.