Queensland Government

Our reference: FILE ESO1144
Your reference: Feedback on Energex and Ergon Energy Regulatory Submissions 2020-2025

Electrical Safety Office

Office of
Industrial Relations

24 July 2019

Mr Warwick Anderson
General Manager, Networks Finance and Reporting
Australian Energy Regulator
Email: EnergyQueensland2020@aer.gov.au
GPO Box 3131
Canberra ACT 2601

Dear Mr Anderson,

Feedback on Energex and Ergon Energy Regulatory Submissions 2020-2025

The Electrical Safety Office, as the State Regulator for the prevention of death, injury and destruction of property caused by electricity, has prepared this feedback to assist AER's review of Energex and Ergon Energy (Energy Queensland) regulatory submissions.

In providing for an electrically safe network, key comments for each submission are:

- Details of specific and measurable activities and outcomes should be provided for each current and emerging safety issue outlined in the asset management plans.
- Where applicable, options to those proposed should be explored in sufficient detail to allow informed decision making.
- Replacement of Ergon Energy's aging assets does not appear to be adequately addressed and appears to be related to increased risks (such as service line failures).

Specific comments relevant to the proposed expenditure for electrical safety risk areas follow.

Neutral failure (low voltage network monitoring and service line capex)

Neutral failure is an important safety issue to be addressed as current rates of failure are not acceptable.

The two issues of low voltage network monitoring and service line replacement are closely related from a safety perspective, as such they as discussed together.

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For low voltage monitoring refer to the ESO response to the AER questions – response email dated 28/6/2019 from John Quinn to Cain Fleckhammer.

Whilst investment in monitoring is considered necessary, further investment appears to be required in preventing failures in the first instance, as follows:

- Engineering to address causes of higher failure rates in coastal areas and with dissimilar metals (as raised by the Energy Queensland submissions).
- Increased standards, including consideration of consistent application of double clamping of neutral conductors (as raised by the Energy Queensland submissions).
- Determining the safe operating life of service lines in different environments.
- Increase in inspection activities that confirm effective service line connections.
- Improve inspections beyond visual checks[1] to include electrical testing of connections at either end of the service line; this should provide improved safety outcomes. Visual inspections of service line connections will not identify all neutral connection failures. Additional funding should be allowed for electrical connection testing of service lines.
- Further inspection activities for service lines for the Ergon Energy area of supply (due to the age of existing infrastructure).
- Reductions in the average age of service lines through replacement programs, especially for Ergon Energy as discussed below.

The Asset Management Plan – Services (7.040) shows that approximately 33% of Ergon Energy's service lines are over 40 years of age (130,000 of 397,633), while Energex only has approximately 2.4% of service lines over 40 years of age (14,000 of 593,754)[2]. This correlates with Ergon experiencing 0.15 service related shocks per 1,000 customers; while Energex has 0.06[3].

While Ergon Energy have approximately 130,000 service lines more than 40 years old and a further 40,000 to age beyond 40 years in the next five years, the 2020 – 2025 Ergon Energy replacement program estimates only 69,000 service lines will be replaced[4].

Plans to inspect and replace overhead service lines should include details of specific and measurable volumes service lines to be inspected and replaced for the various types of risk locations.

Plans to roll out low voltage network monitors for safety purposes should be specific, measurable and linked to public risk.

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[1] Assessment Management Plan - Services – section 8.1 Inspection process alignment
[2] Asset Management Plan – Services 7.040 Figures 4 and 5
[3] Asset Management Plan – Services 7.040 Figures 6 and 10
[4] Justification Statement Service line replacement Ergon Energy Table 1

Conductor clearance issues

Rectification of Clearance to Ground (CtG) and Clearance to Structures (CtS) non-compliances with safety regulations is an important safety issue which has not been adequately addressed[5].

While Energex has provided commentary, Ergon Energy have not provided a justification statement for CtG and CtS non-compliances. Both entities currently have a backlog of CtS and CtS non-compliances which are expected to extend past 1 July 2020.

Energy Qld advised ESO in the March 2019 report that there were 21,666 CtG and CtS matters outstanding.

The submission lacks detail in CtG and CtS programs and should include specific and measurable outcomes.

Overhead conductor – replacement

Overhead conductor maintenance is an important safety issue.

The Asset Management Plan for Overhead Conductors item 3.4 recognises significant volumes of legacy, aged conductors remaining in Northern and Southern regions. This is also supported with the normalised number of overhead conductor defects (figure 10 and 11) for the Northern and Southern regions.

The modelling presented for the age distribution of conductors (figure 4 of Asset Management Plan – overhead conductors) suggest that Ergon, and to a lesser extent Energex (figure 5), are proposing to underspend in conductor replacement programs for the period 2020 - 2025.

- Ergon Energy modelling depicts (figure 4) if no replacement programs were in place there would be in excess of 6,000 km of conductors aged 70+ years while the proposed replacement program makes allowance for replacement of 3,000 km.
- Energex modelling depicts if no replacement programs were in place there would be in excess of 2,200 km of conductors aged 70+ years while the replacement program proposed makes allowance for replacement of 1,491 km.

Plans to replace overhead conductors should include details of specific and measurable replacement volumes for the various types of risk locations.

Underground cabling

Energex recognise that CONSAC (Concentric Neutral Solid Aluminium Conductor) cable failures are a significant safety risk due to the potential of an open circuit neutral[6]. ESO supports the program to identify and replace problematic installed CONSAC underground cables in all areas.

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[5] Assessment Management Plan – Overhead conductor 7-035 section 6.2

[6] Energex Underground cables 7-078 section 3

Ergon Energy have not outlined details of CONSAC cable use in the Ergon Energy area of supply and are not proposing any planned replacements in the 2020-2025 regulatory period[7]. Ergon should include commentary regard the use of CONSAC cable and, if installed, implement a program for its replacement.

Bushfire risk

Energex and Ergon Energy bush fire risk management is a very important safety issue yet there is little detail in any of the asset management plans submitted. A general statement on bushfire mitigation strategies is contained in section 6.4 Asset Management Plan for Overhead Conductors but does not include strategies that are specific, targeted, measurable and costed.

Vegetation maintenance

Appropriate vegetation management is an important element of electrical safety management. Other than a report on vegetation audit findings there is insufficient detail (costings or measurable detail) provided in the Distribution Annual Planning Reports[8], entity asset management plans and justification statements to enable any informed comments.

Vegetation management plans should be specific, targeted, measurable and costed.

If you require further information or assistance, please contact me on [redacted].

Yours sincerely

[redacted]

John Quinn
Supply and Networks Director
Electrical Safety Office
Office of Industrial Relations

[7] Ergon Underground cables 7-079 section 3, Ergon Distribution annual planning report 7-050
[8] Energex Distribution annual planning report 7-049, Ergon Distribution annual planning report 7-050