

AusNet

ILJIN Overhead Manual Switch Replacement Program

Regulatory Investment Test for Distribution

Notice of Determination under clause 5.17.4(d) of the National Electricity Rules

Friday, 3 November 2023



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1. Introduction

AusNet is a regulated Victorian Distribution Network Service Provider (DNSP) that supplies electrical distribution services to more than 745,000 customers. Our electricity distribution network covers eastern rural Victoria and the fringe of the northern and eastern Melbourne metropolitan area.

As expected by our customers and required by the various regulatory instruments that we operate under, AusNet aims to maintain service levels at the lowest possible cost to our customers. To achieve this outcome, we develop forward looking plans that aim to maximise the present value of economic benefit to all those who produce, consume and transport electricity in the National Electricity Market (NEM).

Our approach is to consider network and non-network options on their merits, so that we meet our customers' needs and our compliance obligations at the lowest total cost. Where applicable, we also prepare, publish, and consult on a regulatory investment test for distribution (RIT-D), which further helps ensure all credible options are identified and considered, and the best option is selected.

In relation to the ILJIN overhead switch replacement program, we have concluded that there are no credible non-network options capable of addressing the identified need, which arises from the poor condition of these assets. In accordance with clause 5.17.4(d) of the National Electricity Rules (NER), therefore, this document is the notification of our determination that there are no credible non-network options. Consequently, AusNet will not publish an Options Screening Report as part of the RIT-D for the ILJIN overhead switch replacement program.

This notice provides background information which explains the identified need and outlines the reasons for AusNet making its determination, along with the methodologies and assumptions that underpin this determination.¹ The next stage of the RIT-D process will be the publication of the Draft Project Assessment Report (DPAR), which AusNet intends to publish in November 2023.

¹ In accordance with clause 5.17.4(d) of the National Electricity Rules.

2. Project background

2.1. Asset condition

AusNet's 22kV network comprises approximately 1400 pole mounted, ILJIN manufactured, 24kV manual SF6 gas load break switches. These manual switches enhance network reliability through minimising customer disruptions during planned or unplanned maintenance and network outages resulting from faults.

Following an incident in October 2022, AusNet launched an internal investigation on ILJIN switch condition and placed a suspension on the reuse of the switches as well as manual operation of switches with significant signs of corrosion. The figure below shows the physical impact of corrosion on these switches.

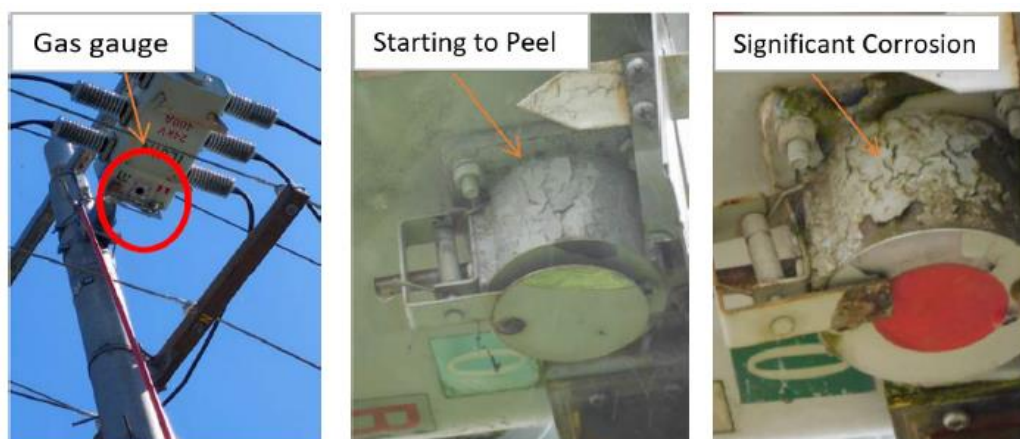


Figure 1: Impact of corrosion on the condition of ILJIN overhead switches

To provide a consistent assessment of the condition of the whole asset group, a common condition scoring methodology has been developed. This methodology uses the known condition details of each asset and grades that asset against common asset condition criteria. There are five different condition scores ranging from "Very Good" (C1) to "Very Poor" (C5).

A comprehensive analysis involving desktop assessments and field visits revealed that a majority of ILJIN overhead switches with a condition score of C3 or higher exhibited significant corrosion around the safety gauge, rendering them unsafe and inoperable. In total, AusNet found that 480 switches (about 34%) were in an inoperable condition.

With the switches in an inoperable condition, planned and unplanned outages may affect more customers than would otherwise be the case. The impact on reliability performance affects our customers and has a financial impact on AusNet through the Service Target Performance Incentive Scheme (STPIS).

2.2. Identified need

The performance of 480 existing ILJIN overhead switches is adversely affected by their condition, which is rendering them inoperable and unsafe. As a result, AusNet's network reliability is adversely affected, leading to increased outages for some customers. The identified need is to address the safety and network performance issues arising from these switches in accordance with our regulatory obligations and good industry practice.

2.3. Assumptions and methodology

The principal assumption underpinning our identified need is that the condition assessments have been conducted appropriately so that the ILJIN overhead switches that are inoperable have been correctly identified. In conducting the cost benefit analysis, our methodology will consider:

- Probability of failure.
- Consequence of failure:

- value of unserved energy - product of VCR (value of customer reliability), EAR (energy at risk) and the MTTR (mean time to repair); and
- safety risk cost.
- Cost of replacement:
 - cost of replacement in today's \$ value;
 - cost of replacement NPV for each option considered; and
 - cumulated consequence and cost of replacement NPV for each option.
- Benefit of replacement:
 - calculated benefit NPV as a difference between the consequence NPV and cost of replacement NPV; and
 - calculated preferred option as a maximum NPV benefit across all considered options.

Our cost-benefit analysis will be presented in the DPAR, which is the next stage of the RIT-D.

3. Regulatory obligations

In addressing the identified need, we must satisfy our regulatory obligations, which we summarise below.

Clause 6.5.7 of the National Electricity Rules requires AusNet to only propose capital expenditure required to achieve each of the following:

- (1) meet or manage the expected demand for standard control services over that period;
- (2) comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
- (3) to the extent that there is no applicable regulatory obligation or requirement in relation to:
 - (i) *quality, reliability or security of supply of standard control services; or*
 - (ii) *the reliability or security of the distribution system through the supply of standard control services*

to the relevant extent:

 - (iii) *maintain the quality, reliability and security of supply of standard control services, and*
 - (iv) *maintain the reliability and security of the distribution system through the supply of standard control services; and*
- (4) *maintain the safety of the distribution system through the supply of standard control services.*

Section 98(a) of the Electricity Safety Act requires AusNet to design, construct, operate, maintain and decommission its supply network to minimise as far as practicable:

- (a) *the hazards and risks to the safety of any person arising from the supply network; and*
- (b) *the hazards and risks of damage to the property of any person arising from the supply network; and*
- (c) *the bushfire danger arising from the supply network.*

The Electricity Safety act defines 'practicable' to mean having regard to –

- (a) *severity of the hazard or risk in question; and*
- (b) *state of knowledge about the hazard or risk and any ways of removing or mitigating the hazard or risk; and*
- (c) *availability and suitability of ways to remove or mitigate the hazard or risk; and*
- (d) *cost of removing or mitigating the hazard or risk.*

Clause 19.2.1(b) of the Electricity Distribution Code of Practice requires AusNet to:

develop and implement plans for the acquisition, creation, maintenance, operation, refurbishment, repair and disposal of its distribution system assets and plans for the establishment and augmentation of transmission connections:

- (i) *to comply with the laws and other performance obligations which apply to the provision of distribution services including those contained in this Code of Practice;*
- (ii) *to minimise the risks associated with the failure or reduced performance of assets; and*
- (iii) *in a way which minimises costs to customers taking into account distribution losses.*

Under clause 13.3.1 of the Electricity Distribution Code, AusNet:

must use best endeavours to meet targets required by the Price Determination and targets published under clause 13.2.1 [relating to reliability of supply] and otherwise meet reasonable customer expectations of reliability of supply.

4. Screening for Non-network Options

As detailed in section 2, the identified need in relation to ILJIN overhead switches exposes customers and the community to adverse outcomes and increased risk in relation to:

- Unserved energy; and
- Safety risks.

We undertook desktop analysis to consider whether it would be feasible to adopt a non-network option in relation to the ILJIN overhead switches that need to be replaced. Our analysis indicated that the costs of non-network options that would enable the ILJIN overhead switches to be decommissioned rather than replaced were highly prohibitive, being orders of magnitude greater than the replacement cost. This finding reflects the fact that the ILJIN overhead switches are an integral component of the network.

Accordingly, we have concluded that there are no credible non-network options to address the identified need in relation to ILJIN overhead switches. In accordance with the NER requirements, we note that our conclusion reflects our assessment of the costs of non-network options, which are orders of magnitude greater than the cost of replacing the ILJIN overhead switches.

5. Next steps

For the reasons set out in Section 4, AusNet has determined that there will not be a non-network option that is a credible option, or a non-network component that forms a significant part of a potential credible option in relation to the replacement of ILJIN overhead switches. In accordance with clause 5.17.4(c) of the NER, therefore, AusNet will not be publishing an Options Screening Report as part of the RIT-D for the ILJIN overhead switch replacement project.

Any questions on the matters of this determination notice should be submitted by email to ritdconsultations@ausnetservices.com.au

The next stage of the RIT-D process is the publication of the DPAR, which is required to provide the information set out in clause 5.17.4(j) of the National Electricity Rules, including:


- A description of the identified need for investment.
- The assumptions used in identifying the need for investment, including the reasons why AusNet considers the subject of this RIT-D requires reliability corrective action.
- A description of each credible option assessed, and their costs, that AusNet considers could potentially address the identified need.
- The results of our net present value analysis and accompanying explanatory statements regarding the results.
- Identification of the proposed preferred option that meets the identified need and the RIT-D requirements.
- The contact details for a suitably qualified staff member to whom queries on the draft report may be directed.

AusNet intends to publish the DPAR in late November 2023.

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