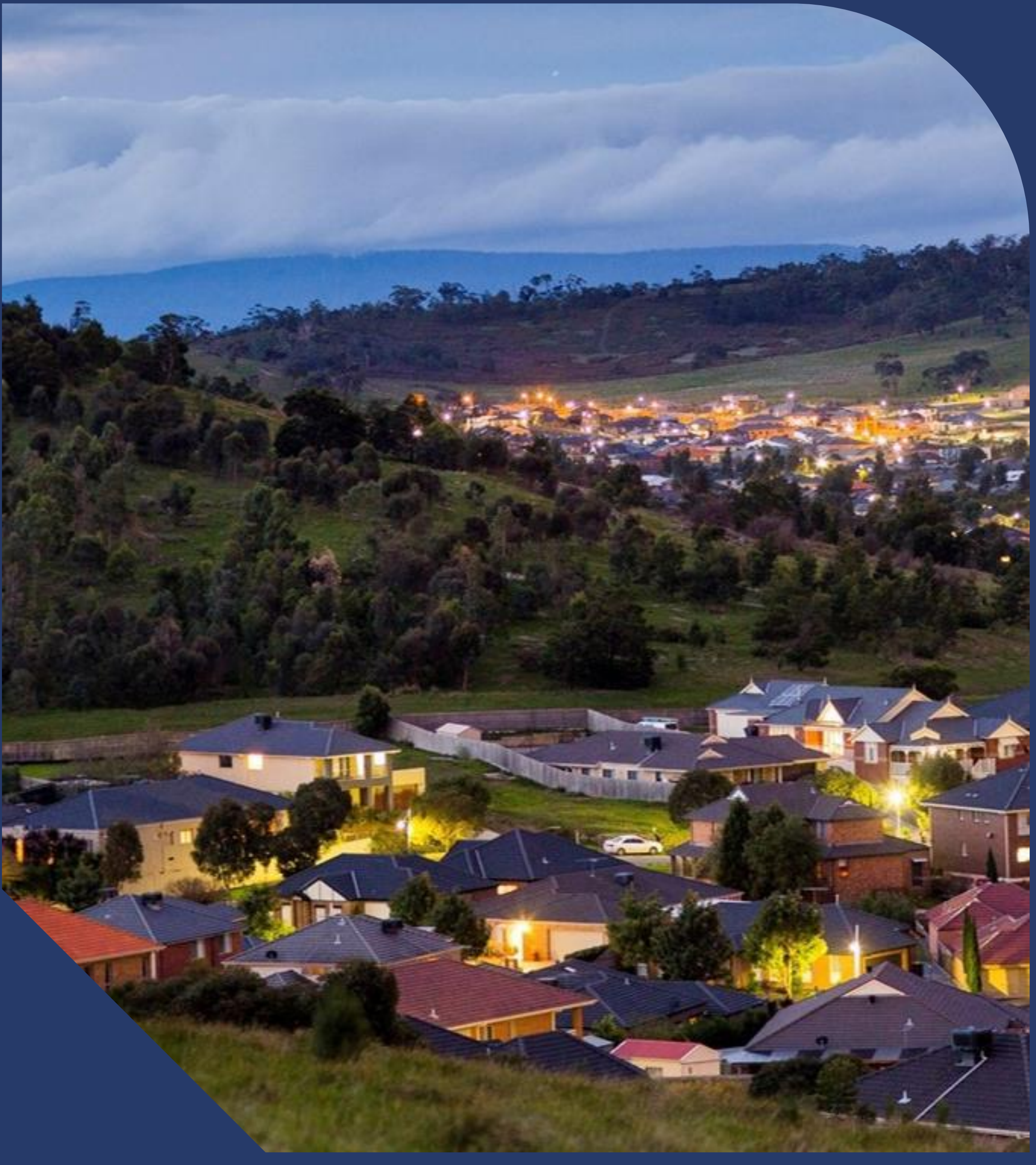
Kilmore South Zone Substation - 22kV Switchroom Replacement Project

Regulatory Investment Test for Distribution

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

Monday, 25 August 2025



AusNet

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1. Introduction

AusNet is a regulated Victorian Distribution Network Service Provider (**DNSP**) that supplies electrical distribution services to more than 809,000 electricity 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.

Kilmore South ZSS (**KMS**) is located approximately 56km north of Melbourne and is the main source of supply for surrounding area, serving approximately 7,000 customers in total, includes town and urban based residential, with some town based commercial, industrial and farming loads. KMS is a Rapid Earth Fault Current Limiter (**REFCL**) site, which reduces the risk of bushfires caused by powerlines.

This project relates to the replacement of the 22kV switchroom in order to address existing safety issues and the need for increased security of supply. The switchboard has been the subject of repair works following a flashover incident in 2020, with further works undertaken in 2022 and 2025, and is now subject continuous monitoring. In addition to the replacement of the switchroom and the associated equipment, the proposed project would also address existing loading issues by splitting an existing feeder into two feeders from the new switchboard.

AusNet's assessment is that the existing safety and reliability issues at KMS can only be addressed by a network solution. In accordance with clause 5.17.4(d) of the National Electricity Rules (**Rules**), therefore, this document is the notification of our determination that there are no credible non-network or Stand Alone Power Systems (**SAPS**) options. Consequently, AusNet will not publish an Options Screening Report as part of the RIT-D for the KMS 22kV Switchroom Replacement Project. An Options Screening Report canvasses alternative options to a network solution, but is not required if there are no credible alternatives.

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 September 2025.

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

2. Project background

2.1. Current circumstances at KMS

The KMS commenced operation as a 66/22kV transformation station in 1966. The two transformers (13.5MVA and 30MVA) were installed in 1967 and 2011 respectively. The 66kV switchyard consists of 5 circuit breakers (CBs) installed in 2011 and one installed in 2023. The 22kV switchyard consists of two outdoor CBs installed in 2011and 2018, tied into an indoor switch room consisting of two feeder CBs and a capacitor bank CB that were installed in 1985. These Siemens, 3AF indoor switchgear are currently obsolete and support from the original equipment manufacturer is not available for additional replacement parts.

This KMS indoor switchboard underwent a major repair in October 2020, followed by another significant repair in December 2022, both resulting from recurring Partial Discharge (**PD**) issues. In March 2025, A de-humidifier unit was installed to reduce further electrical insulation deterioration caused by moisture ingress in the switchroom and increased PD scans have been employed in recent years. The switchboard is now subject continuous monitoring

KMS operates as a REFCL site, which means that the electrical equipment is subject to heightened stress due to increased voltage levels on phase-to-earth connections. This added stress accelerates the deterioration of the insulation over time. Intermittent testing procedures, which are typically employed to identify potential faults, have proven insufficient in detecting PD due to the transient nature of the issue. While PD itself may not always be immediately identifiable, it leaves behind residual ozone, which is indicative of the underlying electrical stress.

In addition to these issues, the load on the KMS 12 feeder has grown significantly in the area which currently necessitates load transfers to Kalkallo and Seymour zone substations during peak winter and summer times. This project scope addresses this over-loading issue by splitting the KMS 12 feeder into two feeders from new switchboard. While this component of the project is not the principal driver for the investment, noting that the incremental costs of this work is relatively modest, the reliability risks are significant as growth in the area is constraining load transfers and severely restricting AusNet's ability to obtain outages for planned works.

For the reasons set out above, switchroom replacement at KMS is now required. The scope of the required works includes essential distribution network augmentations to address both the compromised infrastructure and the need for increased system reliability. These works will involve:

- The construction of a new 22kV modular switchroom, which will include the installation of the necessary protection and control systems to ensure safe and efficient operation.
- Splitting the KMS 12 feeder into two feeders in new switchboard, underground connections and REFCL integration.
- The removal of the existing 22kV container switchroom and control room.
- The removal of outdoor 22kV transformer switchgear bays and their associated protection and control mechanisms. Outdoor 22kV equipment that identified in serviceable condition will be returned to store as spares.

These upgrades are critical to maintaining the long-term stability and safety of the electrical network, ensuring that it can withstand the stresses imposed by the REFCL system and continue to provide reliable services to consumers.

2.2. Identified need

The KMS indoor switchboard and CBs are in poor condition due to age and moisture related insulation deterioration, which resulted in a flashover incident in 2020. The switchboard has been temporary repaired with limited spares of this make and model. Therefore, the equipment probability of failure is high and is likely to increase further if not replaced. This project is required to mitigate the identified failure risk to maintain service levels to customers over the short and long term. The failure of the switchboard exposes consumers to significant reliability risks, particularly given the lack of transfer capability from KMS to other zone substations.

AusNet considers that the identified need is driven by our regulatory obligations which are described in section 3. As such, it is a 'reliability corrective action', which is defined in the NER as follows:

> "means investment by a *Transmission Network Service Provider* or a *Distribution Network Service Provider* in respect of its *transmission network* or *distribution network* for the purpose of meeting the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments* or *SAPS performance and supply standards* and which may consist of *network options* or *non-network options*."

2.3. Assumptions and methodology

The principal assumption underpinning the identified need is that the equipment and performance risks at KMS have been correctly identified and assessed. AusNet is confident that this is the case, noting the historical issues and the remedial action previously taken. 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;
- Benefit of replacement:
  - calculated benefit NPV, which compared the cost of the preferred option with the BAU option.

Our cost-benefit analysis will be presented in the DPAR, which is the next stage of the RIT-D. AusNet notes that as the identified need is for reliability corrective action, the preferred option does not need to provide a positive net market benefit in order to satisfy the RIT-D. 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 KMS 22kV Switchroom Replacement Project exposes customers and the community to adverse outcomes and increased risk in relation to:

- Safety; and
- Unserved energy.

KMS is the main source of supply for surrounding area, serving approximately 7,000 customers in total, includes town and urban based residential, with some town based commercial, industrial and farming loads. KMS is also a REFCL site, which reduces the risk of bushfires caused by powerlines. The issues identified at KMS relate principally to the condition of the switchboard and the risks of asset failure, in addition to the existing overloading of the KMS 12 feeder.

Accordingly, we have concluded that there are no credible non-network or SAPS options to address the identified need in relation to the KMS 22kV Switchroom Replacement Project. In accordance with the NER requirements, our conclusion reflects our assessment of that AusNet’s regulatory obligations cannot be maintained in the absence of taking remedial action by replacing the existing the relevant assets and undertaking the associated works.

5. Next steps

For the reasons set out in Section 4, AusNet has determined that there will not be a non-network option or a SAPS option that is a potential credible option, or that forms a significant part of a potential credible option, to address the identified need in relation to the KMS 22kV Switchroom Replacement Project. 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 KMS 22kV Switch room Replacement Project. As explained in section 1, an Options Screening Report canvasses alternative options to a network solution, but is not required if there are no credible alternatives.

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

The next stage of the RIT-D process will be the publication of the DPAR, which is required to provide the information set out in clause 5.17.4(j) of the NER, 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 relation to the KMS 22kV Switchroom Replacement Project in September 2025.

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