REFCL operating expenditure

PAL BUS 9.02 - REFCL annual operating costs - Jan2020 - Public

Powercor

January 2020

Contents

1 Overview

Business	REFCL operating expenditure
Project ID	PAL BUS 9.02 - REFCL annual operating costs - Jan2020 - Public
Category	Operating expenditure
Identified need	On-going re-balancing works, compliance testing and technical support for Rapid Earth Fault Current Limiters (**REFCL**), to meet the requirements of the Amended Bushfire Mitigation Regulations
Recommended option	Option 2—undertake annual compliance testing and re-balancing, with technical support
Proposed start date	2021/22
Proposed commission date	N/A
Supporting documents	• PAL ATT094 - Bushfire mitigation plan - Dec2019 - Public • PAL MOD 9.01 - Step changes - Jan2020 - Public • PAL ATT212 - AER - Final decision REFCL tranche 1 - Aug2017 - Public • PAL ATT213 - AER - Final decision REFCL tranche 2 - Sep2018 - Public

Source: Powercor

We are required to progressively install Rapid Earth Fault Current Limiters (**REFCLs**) at 22 zone substations to comply with the Electricity Safety (Bushfire Mitigation) Amendment Regulations 2016 (**Amended Bushfire Mitigation Regulations**) which were implemented in Victoria on 1 May 2016. A REFCL is a network protection device, normally installed in a zone substation, which can reduce the risk of a fallen powerline causing a fire-start.

Once the installed REFCL is commissioned and becomes operational, we must demonstrate compliance against the performance criteria to Energy Safe Victoria (**ESV**) annually. We also have ongoing operational expenditure related to re-balancing works and technical and engineering support. For REFCLs that become operational in 2019 onwards, this will result in an incremental annual operating expenditure not reflected in our 2019 base operating expenditure. The forecast incremental operating expenditure requirements in the 2021–2026 regulatory period are outlined in table 1.[1]

Table 1 Expenditure forecasts for preferred option ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Operating expenditure	1.8	2.2	2.8	3.2	3.3	13.3

Source: Powercor

[1] PAL MOD 9.01 - Step changes - Jan2020 - Public

2 Background

Following the Black Saturday bushfires in 2009, the Victorian Government established the Victorian Bushfire Royal Commission (**VBRC**) to consider how bushfires can be better prevented and managed in the future. One of the recommendations of the VBRC was to progressively replace all 22kV distribution feeders with aerial bundled cable, underground cabling or other technologies that delivers greatly reduced bushfire risk from the feeders.

The Powerline Bushfire Safety Taskforce (**PBST**) further investigated this recommendation. They identified REFCLs as a cost effective solution to reduce the likelihood of powerlines contributing to starting a bushfire.

A REFCL is a network protection device, normally installed in a zone substation, which can reduce the risk of a fallen powerline causing a fire-start. It is capable of detecting when a powerline has fallen to the ground and (almost instantaneously) reduces the voltage on the fallen line.

On 1 May 2016, the Victorian Government introduced regulations which amended the *Electricity Safety (Bushfire Mitigation) Regulations 2013* (**Amended Bushfire Mitigation Regulations**)—to implement the PBST's findings. The Amended Bushfire Mitigation Regulations require our bushfire mitigation plan (**BMP**) to include details of the preventative strategies and programs by which we will ensure each polyphase electric line originating from selected zone substations in our network meet specified capacity requirements. The Amended Bushfire Mitigation Regulations specify the timeframes by which the selected zone substations must meet these capacity requirements. That is, schedule two of the Amended Bushfire Mitigation Regulations assigns a number of 'points' to each of the selected zone substations. We are then required to ensure the following:[2]

- at 1 May 2019, the points set out in schedule two of the Amended Bushfire Mitigation Regulations in relation to each zone substation upgraded, when totalled, are not less than 30
- at 1 May 2021, the points set out in schedule two in relation to each zone substation upgraded, when totalled, are not less than 55
- on and from 1 May 2023, in our supply network, each polyphase electric line originating from every zone substation specified in schedule two has the required capacity.

We are also required to test each year, before the start of the bushfire risk period, that our operations meet the required capacity of each polyphase electric line.[3]

2.1 Annual capacity testing requirement

In September 2019, we submitted an updated BMP to ESV. This sets out our proposed installation of REFCLs to comply with the Amended Bushfire Mitigation Regulations.

In terms of annual testing, it states that 'for those zone substations that have achieved the required capacity, Powercor will complete Annual Capacity Testing (**ACT**) prior to the fire season to demonstrate that *each polyphase electric line originating from the substation* has the required capacity and that the nominated substation is a *complying substation*.[4]

2.2 Contingent projects

Because of the timing of the introduction of the Amended Bushfire Mitigation Regulations, the expenditure required to install REFCLs on our network was not included in our revenue allowance for the 2016–2020

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2 Electricity Safety (Bushfire Mitigation) Regulations 2013, Authorised version no. 004, cl. 7(3)(a)

3 Electricity Safety (Bushfire Mitigation) Regulations 2016, Authorised version, cl. 6(1)(hb)

4 PAL ATT094: Powercor, Bushfire Mitigation Plan, Revision 6, 10 September 2019.

regulatory period. Instead, the Australian Energy Regulator's (**AER**) final decision specified the installation of REFCLs as a contingent project.

In August 2017, the AER made a final decision in relation to our first contingent project application for REFCLs to be installed by 30 April 2019. In September 2018, the AER made a final decision in relation to our second contingent project application for REFCLs to be installed by 30 April 2021. The AER is expected to make a final decision in relation to our third contingent project application in January 2020 for REFCLs to be installed by 30 April 2023.

2.3 Operating expenditure does not carry over regulatory periods in contingent projects

The National Electricity Rules (**Rules**) allows for capital expenditure to carry between regulatory periods for a contingent project. That is, the AER can approve capital expenditure contained within a contingent project application made by us during the 2016–2020 regulatory period that applies in the 2021–2026 regulatory period.

In contrast, the Rules do not contain provisions to allow operating expenditure to carry between regulatory periods. As a result, as part of the above mentioned contingent project applications, the AER was unable to approve any operating expenditure associated with our first and second contingent project applications during the 2021–2026 regulatory period.

We lodged a third contingent project application relating to REFCLs in August 2019. The incremental-going operating expenditure related to REFCLs in the tranche 3 application is included in this step change.

3 Identified need

To ensure compliance with the Amended Bushfire Mitigation Regulations and our BMP accepted by ESV, we are required to install and operate REFCLs at 22 zone substations by 1 May 2023. We are also required to test each year, before the start of the bushfire risk period, that our operations meet the required capacity of each polyphase electric line.

As part of the on-going operation of REFCLs we must:

- undertake annual compliance testing to ensure the REFCLs comply with the performance specification, in terms of sensitivity, speed of operation and energy released
- undertake annual re-balancing works to ensure the network can achieve the required fault detection sensitivity for each polyphase electric line
- provide technical and engineering support related to REFCL technology.

We will require increasing incremental operating expenditure to meet these obligations for each installed REFCL. The AER has previously found these costs to be reasonable and necessary to achieve 'required capacity' as set out in the Amended Bushfire Mitigation Regulations.[5]

[5] PAL ATT212: AER, Final Decision Powercor Australia Contingent Project, Installation of Rapid Earth Fault Current Limiters (REFCLs)— tranche 1, August 2017, p.59; PAL ATT213 AER, Final Decision Powercor Australia Contingent Project, Installation of Rapid Earth Fault Current Limiters (REFCLs) —tranche 2, September 2018, p. 43.

4 Options analysis

This section outlines two alternative options to address the identified need. A summary of the cost of each option is set out in table 2.

Table 2 Options ($ million, 2021)

	Option	Cost
1	Do nothing	$0
2	Undertake annual compliance testing and re-balancing, with technical support, to meet the requirements of the Amended Bushfire Mitigation Regulations	$13.3

Source: Powercor.

4.1 Option one

Do nothing is not a viable option as it does not enable us to meet the performance specification requirements of the Amended Bushfire Mitigation Regulations nor our BMP accepted by ESV. Failure to comply with an accepted Bushfire Mitigation Plan could result in Powercor being penalised under section 113B of the Electricity Safety Act 1998. This option would also fail to achieve the safety outcomes deemed necessary by Victorian Government through the mandated REFCL roll out program.

Table 3 summarises the advantages and disadvantages of this option.

Table 3 Option 1—do nothing

Advantages	Disadvantages
Low cost	Does not meet our regulatory requirements
	Does not achieve the safety outcomes deemed necessary by Victorian Government through the mandated REFCL roll out program

Source: Powercor.

4.2 Option two

This option refers to conducting compliance testing and re-balancing, with technical support, for each REFCL. The forecast costs for the incremental annual re-balancing and compliance works are estimated for each zone substation based on:

- the number of feeders for the REFCL zone substation
- the expected timing of the commissioning of each REFCL zone substation
- the unit costs per feeder, consistent with our approach for the tranche 1 and tranche 2 contingent project applications approved by the AER.

Table 4 summarises the advantages and disadvantages of this option.

Table 4 Option 2—annual compliance testing and re-balancing works with technical support

Advantages	Disadvantages
Ensures that the network achieves the specifications in the Amended Bushfire Mitigation Regulations	Costs to customers
Ensures we meet our obligations set out in our Bushfire Mitigation Plan accepted by ESV	

Source: Powercor

5 Recommendation

We recommend option 2—undertake compliance testing annual re-balancing, with technical support, to meet the requirements of the Amended Bushfire Mitigation Regulations. This option ensures we meet our obligations set out in our Bushfire Mitigation Plan accepted by ESV. Conversely, option one does not enables us to meet our obligations.

Table 5 summarises the incremental operating expenditure of the preferred option.

Table 5 Expenditure forecasts for preferred option ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Incremental operating expenditure under option 2	1.8	2.2	2.8	3.2	3.3	13.3

Source: Powercor