

2023 Compliance Report

Legislated Bushfire Mitigation Programs

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1 Overview

Section 120P of the *Electricity Safety Act 1998* (Vic)¹ (**the Act**) requires Major Electricity Companies (**MECs**), to submit an annual compliance report to Energy Safe Victoria (**ESV**) before 1 August each year, commencing 1 August 2018.

The MEC must include in the report, details of works completed over the previous reporting period and works planned for the next reporting period in relation to the following legislated bushfire mitigation programs:

- Installation of Rapid Earth Fault Current Limiter (**REFCL**) technology within twenty-two of AusNet Services' zone substations by 1 May 2023, (section 120M of the Act);
- Installation of insulated or covered high voltage (1kV-22kV) for any new or replacement of ≥ 4 consecutive spans of powerlines within 'electric line construction areas' (**ELCA**), (section 120N of the Act); and
- Installation of remote-controlled Automatic Circuit Reclosers (**ACRs**) on all Single Wire Earth Return (**SWER**) systems, (section 120O of the Act).

This Compliance Report contains the information and presentation in the form required by ESV's 'Specification for S120P Annual Compliance Reports'

AusNet Electricity Services Pty Ltd (**AusNet**), the licence holder for the distribution network, is the MEC responsible for preparation and submission of this Compliance Report.

2 Reporting period

The reporting period means the year beginning 1 May and ending the following 30 April.

This compliance report covers the following reporting periods:

- Reporting period (actual works): 1 May 2022 to 30 April 2023; and
- Next reporting period (planned works): 1 May 2023 to 30 April 2024.

3 Rapid Earth Fault Current Limiters

3.1 Context

The *Electricity Safety Act 1998 (the Act)* requires zone substations in which REFCL technology has been prescribed, to be implemented by 1 May 2023.

At the commencement of the REFCL deployment, the Act required AusNet Services to ensure:

- at 1 May 2019, the points allocated to prescribed zone substations upgraded with REFCL, when totalled, are not less than 30;
- at 1 May 2021, the points allocated to zone substations upgraded with REFCL, when totalled, are not less than 55; and
- on and from 1 May 2023, each polyphase electric line originating from every AusNet Services prescribed zone substation has the required capacity (64 points).

Accordingly, the AusNet REFCL Program was structured into three separate tranches in order to achieve the 'points' requirement by the mandated dates.

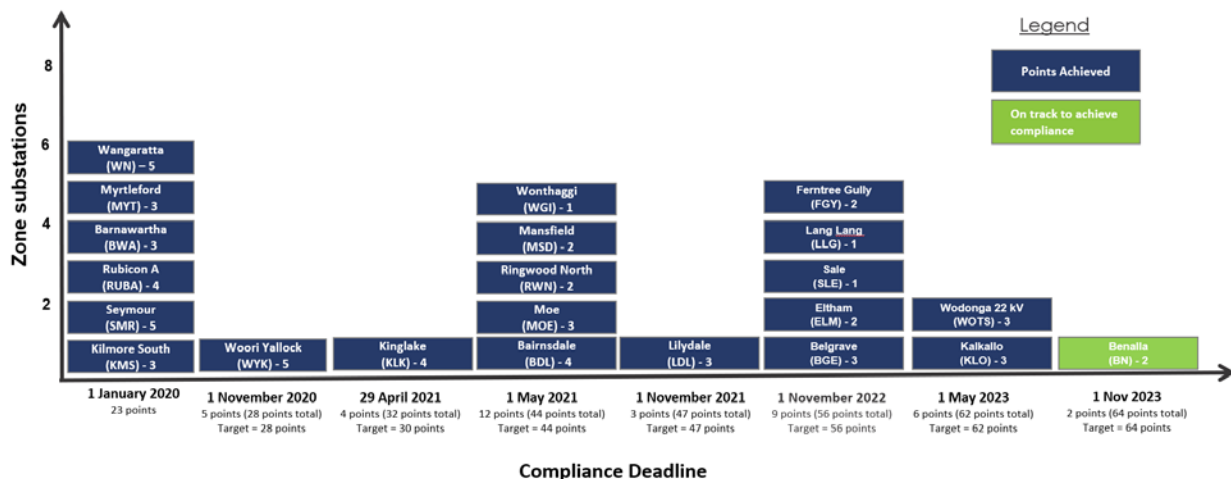
Subsequently, as a result of a number of extensions of time being granted by ESV² due to network characteristics and/or High Voltage Customer REFCL-readiness delays preventing compliance with the mandated performance criteria being demonstrated, the AusNet REFCL Program is being delivered to meet the following compliance deadlines:

- 1 January 2020 – 23 points
- 1 November 2020 – 28 points
- 29 April 2021 – 30 points
- 1 May 2021 – 44 points
- 1 November 2021 – 47 points
- 1 November 2022 – 55 points
- 1 November 2023 – 64 points

Figure 1 shows the specified zone substations by compliance deadline as at 30 April 2023.

² ESV granted an extension of time (EoT) in relation to the 'initial period' on 12 July 2019. This EoT was subsequently superseded by an EoT granted on 21 November 2019 which amended the commencement of the 'initial period' from 1 May 2019 to 29 April 2021. On 27 April 2021, the ESV Commission granted an EoT in relation to the 'intermediate period' which amended the commencement date from 1 May 2021 to 1 November 2022. On 28 April 2023 the ESV Commission granted an EoT for the third tranche with a completion date of 1 November 2023.

Figure 1: Overview of AusNet Services REFCL Program by Compliance Deadline



Source: AusNet Services

3.2 REFCL Program Status as at 30 April 2023

The tables below contain information, in the prescribed form, for the zone substations requiring REFCL implementation.

Note: The REFCL implementation at the following zone substations was completed prior to 30 April 2022 and hence the following 13 zone substations are not included in this report:

- Barnawartha (BWA)
- Kilmore South (KMS)
- Myrtleford (MYT)
- Rubicon A (RUBA)
- Seymour (SMR)
- Wangaratta (WN)
- Wonthaggi (WGI)
- Woori Yallock (WYK)
- Kinglake (KLK)
- Mansfield (MSD)
- Ringwood North (RWN)
- Moe (MOE)
- Bairnsdale (BDL)

Each of following tables below provides the on-going implementation status as at 30 April 2023 for the remaining 9 zone substations, 8 of which have been completed prior to 1 May 2023.

3.2.1 Tranche 2: Wodonga and Tallangatta (WOTS)

WOTS REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	24/08/2017	100%	10%
	Business Case approval	03/05/2018		
Design	Design commenced	15/07/2018	100%	15%
	Design complete	22/06/2020		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2019	100%	10%
	REFCL delivered to site	08/07/2020		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	22/10/2020		
Construction - Stations	Station works commenced	23/08/2019	100%	20%
	Station works complete	30/09/2020		
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	24/08/2020		
Testing / Commissioning	REFCL testing / commissioning commenced	22/06/2020	100%	10%
	REFCL commissioned and operable	06/04/23		
Close Out	REFCL at "required capacity"	06/04/23	100% ³	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -36°15439 latitude, 146°94682 longitude.

³ ESV-observed compliance testing was completed on 10 February 2021. Compliance was not demonstrated on the WOTS24 feeder due to network characteristics which prevented the performance criteria being met. On 27 April 2021, the ESV Commission granted an extension of time to amend the 'Intermediate Period' commencement date from 1 May 2021 to 1 November 2022 resulting in the delivery of the remaining REFCL substations targeting either a 1 November 2022 or 1 May 2023 compliance deadline. Compliance at WOTS was achieved prior to 1 May 2023, and was subject to the granting of a technical exemption request to isolate the WOTS24 feeder at Tallangatta which has resulted in no REFCL protection on the WOTS24 feeder downstream of Tallangatta.

3.2.2 Tranche 2: Lilydale (LDL) Zone Substation

LDL REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	31/07/2017	100%	10%
	Business Case approval	26/02/2018		
Design	Design commenced	15/06/2018	100%	15%
	Design complete	19/02/2020		
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	03/12/2019		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	30/11/2020		
Construction - Stations	Station works commenced	02/09/2019	100%	20%
	Station works complete	04/09/2020		
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	11/10/2021		
Testing / Commissioning	REFCL testing / commissioning commenced	01/04/2020	100%	10%
	REFCL commissioned and operable	19/12/2020		
Close Out	REFCL at "required capacity"	26/10/2021	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°76339 latitude, 145°35840 longitude.

3.2.3 Tranche 2: Belgrave (BGE) Zone Substation

BGE REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	01/08/2017	100%	10%
	Business Case approval	25/06/2018		
Design	Design commenced	01/09/2018	100%	15%
	Design complete	20/03/2020		
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	05/02/2020		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	26/08/2020		
Construction - Stations	Station works commenced	02/09/2019	100%	20%
	Station works complete	17/09/2020		
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	19/03/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	19/06/2020	100%	10%
	REFCL commissioned and operable	17/12/2020		
Close Out	REFCL at "required capacity"	31/10/2022	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°93056 latitude, 145°36096 longitude.

3.2.4 Tranche 2: Eltham (ELM) Zone Substation

ELM REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	01/08/2017	100%	10%
	Business Case approval	03/05/2018		
Design	Design commenced	01/09/2018	100%	15%
	Design complete	16/03/2020		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2019	100%	10%
	REFCL delivered to site	22/01/2021		
Construction - Lines	Line works commenced	18/01/2019	100%	20%
	Line works complete	31/05/2022		
Construction - Stations	Station works commenced	16/10/2019	100%	20%
	Station works complete	11/02/2021		
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	31/08/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	01/03/2021	100%	10%
	REFCL commissioned and operable	27/10/2022		
Close Out	REFCL at "required capacity"	27/10/2022	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°71675 latitude, 145°13881 longitude.

3.2.5 Tranche 3: Ferntree Gully (FGY) Zone Substation

FGY REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	31/07/2017	100%	10%
	Business Case approval	03/05/2018		
Design	Design commenced	01/07/2018	100%	15%
	Design complete	08/09/2020		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2019	100%	10%
	REFCL delivered to site	03/07/2020		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	29/04/2022		
Construction - Stations	Station works commenced	05/02/2020	100%	20%
	Station works complete	08/11/2021		
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	18/03/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	09/08/2021	100%	10%
	REFCL commissioned and operable	09/06/2022		
Close Out	REFCL at "required capacity"	09/06/2022	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°89304 latitude, 145°29167 longitude.

3.2.6 Tranche 3: Lang Lang (LLG) Zone Substation

LLG REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	29/09/2020		
Design	Design commenced	30/10/2019	100%	15%
	Design complete	24/08/2021		
Procurement	Number of REFCL units required	1		
	REFCL order placed	18/12/2020	100%	10%
	REFCL delivered to site	17/02/2022		
Construction - Lines	Line works commenced	01/04/2020	100%	20%
	Line works complete			
Construction - Stations	Station works commenced	03/05/2021	100%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	25/08/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	27/09/2022	100%	10%
	REFCL commissioned and operable	29/09/2022		
Close Out	REFCL at "required capacity"	29/09/2022	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -38°26605 latitude, 145°56266 longitude.

3.2.7 Tranche 3: Sale (SLE) Zone Substation

SLE REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	02/10/2020		
Design	Design commenced	09/07/2020	100%	15%
	Design complete	05/04/2022		
Procurement	Number of REFCL units required	1		
	REFCL order placed	18/12/2020	100%	10%
	REFCL delivered to site	31/05/2022		
Construction - Lines	Line works commenced	01/04/2020	100%	20%
	Line works complete	17/08/2022		
Construction - Stations	Station works commenced	13/12/2021	100%	20%
	Station works complete	31/07/2022		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	31/05/2021		
Testing / Commissioning	REFCL testing / commissioning commenced	15/08/2022	100%	10%
	REFCL commissioned and operable	05/10/2022		
Close Out	REFCL at "required capacity"	05/10/2022	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -38°10364 latitude, 147°06972 longitude.

3.2.8 Tranche 3: Benalla (BN) Zone Substation

BN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	25/08/2020		
Design	Design commenced	03/02/2020	100%	15%
	Design complete	24/03/2022		
Procurement	Number of REFCL units required	1		
	REFCL order placed	18/12/2020	100%	10%
	REFCL delivered to site	22/02/2022		
Construction - Lines	Line works commenced	01/04/2020	100%	20%
	Line works complete	12/08/2022		
Construction - Stations	Station works commenced	26/07/2021	100%	20%
	Station works complete	12/08/2022		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	03/10/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	05/12/2022	50%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			90%	

This zone substation is located at -36°55'160 latitude, 145°98'000 longitude.

3.2.9 Tranche 3: Kalkallo (KLO) Zone Substation

KLO REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	23/02/2021		
Design	Design commenced	18/10/2019	100%	15%
	Design complete	04/04/2022		
Procurement	Number of REFCL units required	2		
	REFCL order placed	18/12/2020	100%	10%
	REFCL delivered to site	26/05/2022		
Construction - Lines	Line works commenced	01/04/2020	100%	20%
	Line works complete	1/03/2023		
Construction - Stations	Station works commenced	08/03/2022	100%	20%
	Station works complete	29/7/2022		
Construction - Third Party	Number of affected HV Customer Connections	n/a		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	27/10/2022	100%	10%
	REFCL commissioned and operable	07/03/2023		
Close Out	REFCL at "required capacity"	07/03/2023	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°53833 latitude, 144°94140 longitude.

3.3 Planned Program Status as at 1 November 2023

This section provides the forecast REFCL program status for the remaining zone substation by 1 Nov 2023

3.3.1 Tranche 3: Benalla (BN) Zone Substation

BN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	25/08/2020		
Design	Design commenced	03/02/2020	100%	15%
	Design complete	24/03/2022		
Procurement	Number of REFCL units required	1		
	REFCL order placed	18/12/2020	100%	10%
	REFCL delivered to site	22/02/2022		
Construction - Lines	Line works commenced	01/04/2020	100%	20%
	Line works complete	12/08/2022		
Construction - Stations	Station works commenced	26/07/2021	100%	20%
	Station works complete	12/08/2022		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	03/10/2022		
Testing / Commissioning	REFCL testing / commissioning commenced	05/12/2022	100%	10%
	REFCL commissioned and operable	09/10/2023 ¹		
Close Out	REFCL at "required capacity"	09/10/2023 ¹	100%	5%
Total Weighted Percentage Complete			100%	

¹ Forecasted date

This zone substation is located at -36°55160 latitude, 145°98000 longitude.

4 Insulated Powerlines in Electric Line Construction Areas

This section reports the volume of high voltage bare wire and insulated powerlines within prescribed 'electric line construction areas'.

The *Electricity Safety (Bushfire Mitigation) Regulations 2013* require all new and replacement (≥4 consecutive spans) powerlines be constructed with insulated or covered wire.

4.1 Program Status as at 30 April 2023

The table below indicates the change in volumes (km) of bare and insulated powerline between 1 May 2022 and 30 April 2023.

Total HV Electric Line Volumes	At 1 May 2022	At 30 April 2023	Progress over Reporting Period
Bare construction in ELCA	Route km	Route km	Route km
Polyphase	781.43	773.97	(7.46)
SWER	623.09	623.09	(0.00)
Covered or underground construction in ELC	Route km	Route km	Route km
Polyphase	301.75	309.32	7.57
SWER	28.15	28.15	0.00

As at the 30 April 2023 the percentage of total route kilometres of all bare conductors remaining within Electric Line Construction Areas is 80.5%.

Information relating to changes to these powerlines over the reporting period is expanded by feeder below:

Electric Line Construction Area	Feeder	Reason/Driver	Previous Construction	Previous Phasing	Length(km)	New Construction	New Phasing	Length (km)	Completion Date
LEGL./16-229	BGE11	New Electric Line				Underground	Polyphase	0.5503	30/03/2023
LEGL./16-229	BGE13	New Electric Line				Underground	Polyphase	0.0839	29/09/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	0.2936	Overhead covered	Polyphase	0.2936	2/12/2021
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	0.2428	Overhead covered	Polyphase	0.2428	12/01/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	1.3701	Overhead covered	Polyphase	1.3701	10/03/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	0.7812	Overhead covered	Polyphase	0.7812	13/04/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	0.7193	Overhead covered	Polyphase	0.7193	14/04/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	2.6345	Overhead covered	Polyphase	2.6345	12/05/2022
LEGL./16-219	KMS12	New Electric Line	Overhead barewire	Polyphase	0.198	Overhead covered	Polyphase	0.1980	29/06/2022
LEGL./16-223	MDI1	New Electric Line	Overhead barewire	Polyphase	1.5613	Overhead covered	Polyphase	1.5613	25/03/2022
LEGL./16-219	KMS12	Decommissioned	Overhead barewire	Polyphase	0.4649				No data
LEGL./16-229	BGE13	Decommissioned	Underground	Polyphase	0.0553				No data

A review of alterations and additions data identified a single 34m bare wire HV span that was incorrectly erected within an ELCA for the purposes of REFCL fault simulation testing on a Belgrave feeder (BGE13). The span has been scheduled for removal by the 30 August 2023.

4.2 Planned Program Works 1 May 2023 to 30 April 2024

The table below indicates the planned change in volumes (km) of bare and insulated powerline between 1 May 2023 and 30 April 2024.

Total HV Electric Line Volumes	At 1 May 2023	At 30 April 2024	Progress over Reporting Period
Bare construction in ELCA	Route km	Route km	Route km
Polyphase	773.97	773.97	-
SWER	623.09	623.09	-
Covered or underground construction in ELC	Route km	Route km	Route km
Polyphase	309.32	309.32	-
SWER	28.15	28.15	-

The planned percentage of total route kilometres of bare conductor remaining within Electric Line Construction Areas as at 30 April 2024 is forecast to remain 80.5%.

5 Automatic Circuit Reclosers on SWER Networks

AusNet Services completed the installation of Automatic Circuit Reclosers on all SWER networks in December 2015.

6 Board Approval

The Board of AusNet Electricity Services Pty Ltd has reviewed and approved this Compliance Report.



Tony Narvaez
Chief Executive Officer