2019 Compliance Report

Legislated Bushfire Mitigation Programs

Contents

1 Overview 3
2 Reporting period 3
3 Rapid Earth Fault Current Limiters 4
3.1 Context 4
3.2 REFCL Program Status as at 30 April 2019 5
3.3 Planned Program Status as at 30 April 2020 27
4 Insulated Powerlines in Electric Line Construction Areas 44
4.1 Program Status as at 30 April 2019 44
4.2 Planned Program Works 1 May 2019 to 30 April 2020 46
5 Automatic Circuit Reclosers on SWER Networks 47
6 Board Approval 47

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 >3 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 Services)**, 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 2018 to 30 April 2019; and
- Next reporting period (planned works): 1 May 2019 to 30 April 2020.

[1] Authorised version No. 073

3 Rapid Earth Fault Current Limiters

3.1 Context

The *Electricity Safety (Bushfire Mitigation) Regulations 2013* (**Bushfire Mitigation Regulations**) prescribe the zone substations in which REFCL technology is to be implemented by 1 May 2023.

Schedule 2 of the Bushfire Mitigation Regulations assigns points to each of the selected zone substations.

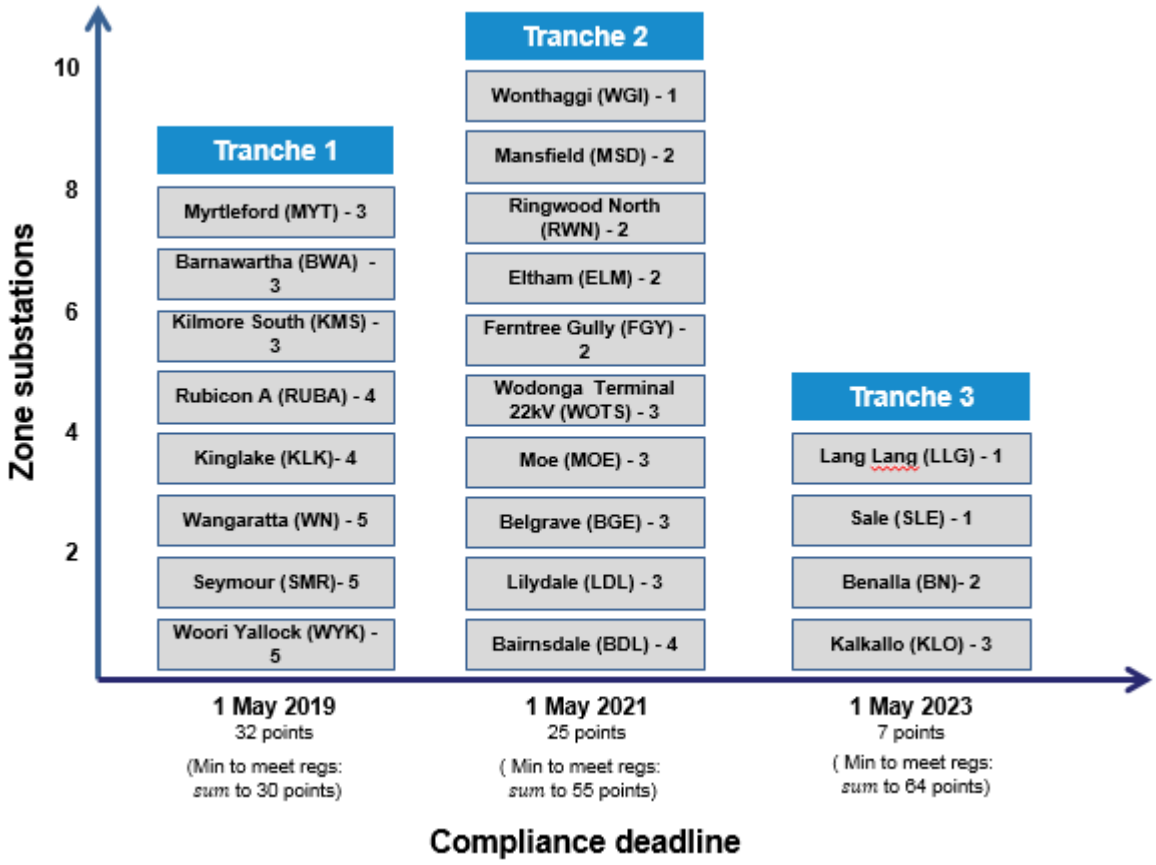
The Bushfire Mitigation Regulations require AusNet Services to ensure:

- at 1 May 2019, the points set out in Schedule 2 in relation to each zone substation upgraded, when totalled, are not less than 30;
- at 1 May 2021, the points set out in Schedule 2 in relation to each zone substation upgraded, when totalled, are not less than 55; and
- on and from 1 May 2023, each polyphase electric line originating from every AusNet Services zone substation specified in Schedule 2 has the required capacity.

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

The following figure shows the specified zone substations by tranche.

Figure 1: Overview of AusNet Services REFCL Program Tranches



Source: AusNet Services

3.2 REFCL Program Status as at 30 April 2019

The tables below contain information, in the prescribed form, for the zone substations requiring REFCL implementation in Tranches 1, 2 and 3.

Each of following tables provides an implementation status as at 30 April 2019.

3.2.1 Tranche 1: Barnawartha (BWA) Zone Substation

BWA REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	01/10/2016	100%	10%
	Business Case approval	03/11/2016		
Design	Design commenced	01/01/2017	100%	15%
	Design complete	21/11/2017		
Procurement	Number of REFCL units required	1		
	REFCL order placed	14/02/2017	100%	10%
	REFCL delivered to site	20/07/2017		
Construction - Lines	Line works commenced	10/12/2016	100%	20%
	Line works complete	27/06/2018		
Construction - Stations	Station works commenced	07/04/2017	100%	20%
	Station works complete	09/10/2017		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete	06/11/2018		
Testing / Commissioning	REFCL testing / commissioning commenced	06/11/2017	100%	10%
	REFCL commissioned and operable	13/11/2017		
Close Out	REFCL at "required capacity"[2]	13/12/2018	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -36°10556 latitude, 146°67345 longitude.

[2] Conditional compliance received from ESV on 19 February 2019

3.2.2 Tranche 1: Kinglake (KLK) Zone Substation

KLK REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	15/05/2017	100%	15%
	Design complete	30/06/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	21/05/2018		
Construction - Lines	Line works commenced	19/06/2017	100%	20%
	Line works complete	23/01/2019		
Construction - Stations	Station works commenced	24/10/2017	100%	20%
	Station works complete	18/03/2019		
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	18/03/2019	100%[3]	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		90%[4]	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°51440 latitude, 145°31615 longitude.

[3] Whilst ESV-observed compliance testing was completed on 4 April 2019, the inverter fire on 5 April 2019 prevented the REFCL from being placed in service by 30 April 2019

[4] As a result of harmonics and damping-related technical issues, demonstration of compliance with the performance criteria was not demonstrated in early April 2019. A request for extension of time to demonstrate compliance at Kinglake (KLK) was submitted to ESV on 15 April 2019. The extension of time to 1 November 2019 was granted by ESV on 12 July 2019.

3.2.3 Tranche 1: Kilmore South (KMS) Zone Substation

KMS REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	04/08/2017	100%	15%
	Design complete	30/06/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	01/06/2018		
Construction - Lines	Line works commenced	01/06/2017	100%	20%
	Line works complete	17/09/2018		
Construction - Stations	Station works commenced	01/05/2018	100%	20%
	Station works complete	31/08/2018		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/06/2018	100%	10%
	HV customer works complete	21/12/2018		
Testing / Commissioning	REFCL testing / commissioning commenced	23/08/2018	100%	10%
	REFCL commissioned and operable	21/12/2018		
Close Out	REFCL at "required capacity"[5]	22/03/2019	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°31798 latitude, 144°97174 longitude.

5 Conditional compliance received from ESV on 15 April 2019

3.2.4 Tranche 1: Myrtleford (MYT) Zone Substation

MYT REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	05/06/2017	100%	15%
	Design complete	27/04/2017		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	22/06/2018		
Construction - Lines	Line works commenced	05/08/2017	100%	20%
	Line works complete	30/10/2018		
Construction - Stations	Station works commenced	03/01/2017	100%	20%
	Station works complete	09/11/2018		
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	04/11/2018	100%	10%
	REFCL commissioned and operable	21/12/2018		
Close Out	REFCL at "required capacity"	20/02/2019[6]	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -36°55745 latitude, 146°72525 longitude.

6 Conditional compliance received from ESV on 12 April 2019

3.2.5 Tranche 1: Rubicon A (RUBA) Zone Substation

RUBA REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	01/10/2017	100%	10%
	Business Case approval	03/11/2017		
Design	Design commenced	01/01/2017	100%	15%
	Design complete	30/04/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	06/02/2017	100%	10%
	REFCL delivered to site	15/09/2017		
Construction - Lines	Line works commenced	22/08/2017	100%	20%
	Line works complete	30/11/2018		
Construction - Stations	Station works commenced	22/08/2017	100%	20%
	Station works complete	30/11/2017		
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete[7]	16/03/2019		
Testing / Commissioning	REFCL testing / commissioning commenced	20/11/2017	100%	10%
	REFCL commissioned and operable	27/03/2019		
Close Out	REFCL at "required capacity"	27/03/2019[8]	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°29287 latitude, 145°81850 longitude.

7 AGL has elected to harden their HV electrical assets to withstand REFCL operations. The REFCL cannot be placed in service until AGL have completed their HV electrical asset hardening or these HV electrical assets are disconnected from the network.

8 Conditional compliance received from ESV on 29 April 2019

3.2.6 Tranche 1: Seymour (SMR) Zone Substation

SMR REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	18/05/2017	100%	15%
	Design complete	25/07/2018		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	29/06/2018		
Construction - Lines	Line works commenced	12/09/2017	95%[9]	20%
	Line works complete			
Construction - Stations	Station works commenced	23/10/2017	100%	20%
	Station works complete	10/12/2018		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete	14/12/2018		
Testing / Commissioning	REFCL testing / commissioning commenced	10/12/2018	100%	10%
	REFCL commissioned and operable	26/04/2019		
Close Out	REFCL at "required capacity"	21/02/2019[10]	100%	5%
Total Weighted Percentage Complete			99%	

This zone substation is located at -37°02548 latitude, 145°14068 longitude.

[9] Whilst the SMR network is balanced at the network level, further refinement of the network at a section level will be undertaken.

[10] Conditional compliance received from ESV on 12 April 2019

3.2.7 Tranche 1: Wangaratta (WN) Zone Substation

WN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	31/07/2017	100%	15%
	Design complete	17/07/2018		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	29/05/2018		
Construction - Lines	Line works commenced	01/08/2017	100%	20%
	Line works complete	12/12/2018		
Construction - Stations	Station works commenced	08/01/2018	100%	20%
	Station works complete	11/12/2018		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete	12/12/2018		
Testing / Commissioning	REFCL testing / commissioning commenced	07/12/2018	100%	10%
	REFCL commissioned and operable	01/04/2019		
Close Out	REFCL at "required capacity"[11]	02/04/2019	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -36°35744 latitude, 146°31022 longitude.

[11] Conditional compliance received from ESV on 16 April 2019

3.2.8 Tranche 1: Woori Yallock (WYK) Zone Substation

WYK REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	01/03/2017	100%	15%
	Design complete	28/02/2018		
Procurement	Number of REFCL units required	2		
	REFCL order placed	27/03/2017	100%	10%
	REFCL delivered to site	21/09/2017		
Construction - Lines	Line works commenced	15/05/2017	100%	20%
	Line works complete	27/06/2018		
Construction - Stations	Station works commenced	08/09/2017	100%	20%
	Station works complete	21/11/2017		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	n/a[12]	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	07/12/2017	100%	10%
	REFCL commissioned and operable	05/12/2018		
Close Out	REFCL at "required capacity"[13]		90%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°77634 latitude, 145°52933 longitude.

12 HV customer hardened their assets and signed a connection agreement variation on 11 December 2017. No HV customer works were undertaken by AusNet Services

13 As a result of harmonics and damping-related technical issues, a number of tests failed to demonstrate compliance with the performance criteria in early April 2019. A request for extension of time to demonstrate compliance at Woori Yallock (WYK) was submitted to ESV on 15 April 2019. The extension of time to 1 November 2019 was granted by ESV on 12 July 2019.

3.2.9 Tranche 2: Wonthaggi (WGI) Zone Substation

WGI REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	15/05/2017	100%	15%
	Design complete	30/06/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	31/12/2018		
Construction - Lines	Line works commenced	15/09/2017	75%	20%
	Line works complete			
Construction - Stations	Station works commenced	11/12/2017	92%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/4/2018	55%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			74%	

This zone substation is located at -38°60885 latitude, 145°58860 longitude.

3.2.10 Tranche 2: Ringwood North (RWN) Zone Substation

RWN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	10/07/2017	100%	10%
	Business Case approval	17/04/2018		
Design	Design commenced	18/10/2018	63%	15%
	Design complete			
Procurement	Number of REFCL units required	1		
	REFCL order placed	16/11/2018	35%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	30%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	0%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
			29%	

This zone substation is located at -37°79260 latitude, 145°23449 longitude.

3.2.11 Tranche 2: Wodonga Terminal Station (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	26%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	30%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	16%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			21%	

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

3.2.12 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	23%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	30%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	5%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			18%	

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

3.2.13 Tranche 2: Mansfield (MSD) Zone Substation

MSD REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	04/02/2019		
Design	Design commenced	13/03/2019	5%	15%
	Design complete			
Procurement	Number of REFCL units required	1		
	REFCL order placed	16/11/2018	30%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced		0%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			24%	

This zone substation is located at -37°05458 latitude, 146°08802 longitude.

3.2.14 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	20%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	8%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			15%	

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

3.2.15 Tranche 2: Moe (MOE) Zone Substation

MOE REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	08/08/2017	100%	10%
	Business Case approval	03/05/2018		
Design	Design commenced	01/07/2018	23%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	16%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			17%	

This zone substation is located at -38°18424 latitude, 146°25908 longitude.

3.2.16 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	60%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	18/01/2019	26%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			25%	

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

3.2.17 Tranche 2: Bairnsdale (BDL) Zone Substation

BDL REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	26/07/2017	100%	10%
	Business Case approval	08/03/2018		
Design	Design commenced	01/07/2018	26%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	10%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			26%	

This zone substation is located at -37°82537 latitude, 147°61261 longitude.

3.2.18 Tranche 2: 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	35%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced	01/01/2019	15%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			19%	

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

3.2.19 Tranche 3: Lang Lang (LLG) Zone Substation

LLG REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	15%	10%
	Business Case approval			
Design	Design commenced		0%	15%
	Design complete			
Procurement	Number of REFCL units required	1		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced		0%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			4%	

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

3.2.20 Tranche 3: Sale (SLE) Zone Substation

SLE REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	15%	10%
	Business Case approval			
Design	Design commenced		0%	15%
	Design complete			
Procurement	Number of REFCL units required	1		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced		0%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing / Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			4%	

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

3.2.21 Tranche 3: Benalla (BN) Zone Substation

BN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	15%	10%
	Business Case approval			
Design	Design commenced		0%	15%
	Design complete			
Procurement	Number of REFCL units required	1		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced		0%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			4%	

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

3.2.22 Tranche 3: Kalkallo (KLO) Zone Substation

KLO REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	15%	10%
	Business Case approval			
Design	Design commenced		0%	15%
	Design complete			
Procurement	Number of REFCL units required	2		
	REFCL order placed		0%	10%
	REFCL delivered to site			
Construction - Lines	Line works commenced		0%	20%
	Line works complete			
Construction - Stations	Station works commenced		0%	20%
	Station works complete			
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/07/2018	5%	10%
	HV customer works complete			
Testing /Commissioning	REFCL testing / commissioning commenced		0%	10%
	REFCL commissioned and operable			
Close Out	REFCL at "required capacity"		0%	5%
Total Weighted Percentage Complete			4%	

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

3.3 Planned Program Status as at 30 April 2020

This section provides the forecast REFCL program status for the Tranche 1, 2 and 3 zone substations by 30 April 2020, noting that Tranche 1 zone substations with no forecast activities post 30 April 2019 are not included.

3.3.1 Tranche 1: Kinglake (KLK) Zone Substation

KLK REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	15/05/2017	100%	15%
	Design complete	30/06/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	21/05/2018		
Construction - Lines	Line works commenced	19/06/2017	100%	20%
	Line works complete	23/01/2019		
Construction - Stations	Station works commenced	24/10/2017	100%	20%
	Station works complete	18/03/2019		
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	18/03/2019	100%	10%
	REFCL commissioned and operable	**06/08/2019**		
Close Out	REFCL at "required capacity"	**28/07/2021**[14]	90%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°51440 latitude, 145°31615 longitude.

[14] Due to the damping issue encountered at Kinglake (KLK) during ESV-observed compliance testing in April 2019, isolating of a section of underground cable has been identified to resolve this issue. There are extensive works required to complete this activity.

3.3.2 Tranche 1: Seymour (SMR) Zone Substation

SMR REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	18/05/2017	100%	15%
	Design complete	25/07/2018		
Procurement	Number of REFCL units required	2		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	29/06/2018		
Construction - Lines	Line works commenced	12/09/2017	100%	20%
	Line works complete	**10/05/2019**		
Construction - Stations	Station works commenced	23/10/2017	100%	20%
	Station works complete	10/12/2018		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete	14/12/2018		
Testing / Commissioning	REFCL testing / commissioning commenced	10/12/2018	100%	10%
	REFCL commissioned and operable	26/04/2019		
Close Out	REFCL at "required capacity"	21/02/2019	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°02548 latitude, 145°14068 longitude.

3.3.3 Tranche 1: Woori Yallock (WYK) Zone Substation

WYK REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	01/03/2017	100%	15%
	Design complete	28/02/2018		
Procurement	Number of REFCL units required	2		
	REFCL order placed	27/03/2017	100%	10%
	REFCL delivered to site	21/09/2017		
Construction - Lines	Line works commenced	15/05/2017	100%	20%
	Line works complete	27/06/2018		
Construction - Stations	Station works commenced	08/09/2017	100%	20%
	Station works complete	21/11/2017		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	07/12/2017	100%	10%
	REFCL commissioned and operable	05/12/2018		
Close Out	REFCL at "required capacity"	**03/04/2020**[15]	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -37°77634 latitude, 145°52933 longitude.

[15] An additional 22kV capacitor bank is being installed at Woori Yallock (WKY) to address the harmonics issue encountered during ESV-observed compliance testing undertaken in March 2019.

3.3.4 Tranche 2: Wonthaggi (WGI) Zone Substation

WGI REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	03/04/2017	100%	10%
	Business Case approval	11/05/2017		
Design	Design commenced	15/05/2017	100%	15%
	Design complete	30/06/2018		
Procurement	Number of REFCL units required	1		
	REFCL order placed	21/06/2017	100%	10%
	REFCL delivered to site	31/12/2018		
Construction - Lines	Line works commenced	15/09/2017	100%	20%
	Line works complete	**20/08/2019**		
Construction - Stations	Station works commenced	11/12/2017	100%	20%
	Station works complete	**15/08/2019**		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/04/2018	100%	10%
	HV customer works complete	**31/07/2019**		
Testing / Commissioning	REFCL testing / commissioning commenced	**03/09/2019**	100%	10%
	REFCL commissioned and operable	**30/09/2019**		
Close Out	REFCL at "required capacity"	**28/10/2019**	100%	5%
Total Weighted Percentage Complete			100%	

This zone substation is located at -38°60885 latitude, 145°58860 longitude.

3.3.5 Tranche 2: Ringwood North (RWN) Zone Substation

RWN REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	10/07/2017	100%	10%
	Business Case approval	17/04/2018		
Design	Design commenced	18/10/2018	100%	15%
	Design complete	**09/10/2019**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	**19/08/2019**		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	**10/01/2020**		
Construction - Stations	Station works commenced	**18/06/2019**	100%	20%
	Station works complete	**03/12/2020**		
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	**03/12/2019**	100%	10%
	REFCL commissioned and operable	**06/04/2020**		
Close Out	REFCL at "required capacity"	**12/06/2020**	95%	5%
			100%	

This zone substation is located at -37°79260 latitude, 145°23449 longitude.

3.3.6 Tranche 2: Wodonga Terminal Station (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	**11/11/2019**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	**19/08/2019**		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	**23/04/2020**		
Construction - Stations	Station works commenced	**24/07/2019**	100%	20%
	Station works complete	**17/04/2020**		
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	92%	10%
	HV customer works complete	**30/06/2020**		
Testing / Commissioning	REFCL testing / commissioning commenced	**17/04/2020**	10%	10%
	REFCL commissioned and operable	**31/08/2020**		
Close Out	REFCL at "required capacity"	**04/11/2020**	0%	5%
Total Weighted Percentage Complete			85%	

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

3.3.7 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	**06/11/2019**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	**19/08/2019**		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	**31/03/2020**		
Construction - Stations	Station works commenced	**15/07/2019**	100%	20%
	Station works complete	**07/04/2020**		
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	88%	10%
	HV customer works complete	**31/07/2020**[16]		
Testing / Commissioning	REFCL testing / commissioning commenced	**07/04/2020**	10%	10%
	REFCL commissioned and operable	**08/10/2020**		
Close Out	REFCL at "required capacity"	**11/12/2020**	0%	5%
Total Weighted Percentage Complete			85%	

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

[16] Metro Trains Melbourne have advised they are unable to meet the 1 May 2021 compliance date. A request for an extension of time is being drafted. The MTM delay will impacts the commencement of REFCL testing and commissioning activities

3.3.8 Tranche 2: Mansfield (MSD) Zone Substation

MSD REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	16/11/2018	100%	10%
	Business Case approval	04/02/2019		
Design	Design commenced	13/03/2019	100%	15%
	Design complete	**12/11/2019**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	16/11/2018	100%	10%
	REFCL delivered to site	**19/08/2019**		
Construction - Lines	Line works commenced	**25/03/2019**	100%	20%
	Line works complete	**07/02/2020**		
Construction - Stations	Station works commenced	**16/08/2019**	100%	20%
	Station works complete	**14/02/2020**		
Construction - Third Party	Number of affected HV Customer Connections	0		
	HV customer works commenced	n/a	100%	10%
	HV customer works complete	n/a		
Testing / Commissioning	REFCL testing / commissioning commenced	**14/02/2020**	75%	10%
	REFCL commissioned and operable	**02/06/2020**		
Close Out	REFCL at "required capacity"	**05/08/2020**	0%	5%
Total Weighted Percentage Complete			93%	

This zone substation is located at -37°05458 latitude, 146°08802 longitude.

3.3.9 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	**09/10/2019**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	**21/06/2019**	100%	10%
	REFCL delivered to site	**18/12/2019**		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	**23/03/2020**		
Construction - Stations	Station works commenced	**19/08/2019**	100%	20%
	Station works complete	**19/03/2020**		
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	**30/04/2020**[17]		
Testing / Commissioning	REFCL testing / commissioning commenced	**20/03/2020**	25%	10%
	REFCL commissioned and operable	**29/07/2020**		
Close Out	REFCL at "required capacity"	**01/10/2020**	0%	5%
Total Weighted Percentage Complete			88%	

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

[17] Metro Trains Melbourne have advised they are unable to meet the 1 May 2021 compliance date. A request for an extension of time is being drafted. The MTM delay will impacts the commencement of REFCL testing and commissioning activities

3.3.10 Tranche 2: Moe (MOE) Zone Substation

MOE REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	08/08/2017	100%	10%
	Business Case approval	03/05/2018		
Design	Design commenced	01/07/2018	100%	15%
	Design complete	**07/11/2019**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	**21/06/2019**	100%	10%
	REFCL delivered to site	**18/12/2019**		
Construction - Lines	Line works commenced	01/01/2019	89%	20%
	Line works complete	**30/06/2020**		
Construction - Stations	Station works commenced	**08/08/2019**	78%	20%
	Station works complete	**13/07/2020**		
Construction - Third Party	Number of affected HV Customer Connections	5		
	HV customer works commenced	01/07/2018	95%	10%
	HV customer works complete	**31/05/2020**		
Testing / Commissioning	REFCL testing / commissioning commenced	**13/07/2020**	0%	10%
	REFCL commissioned and operable	**17/11/2020**		
Close Out	REFCL at "required capacity"	**05/02/2021**	0%	5%
Total Weighted Percentage Complete			78%	

This zone substation is located at -38°18424 latitude, 146°25908 longitude.

3.3.11 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	**30/10/2019**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	**21/06/2019**	100%	10%
	REFCL delivered to site	**18/12/2019**		
Construction - Lines	Line works commenced	18/01/2019	75%	20%
	Line works complete	**30/09/2020**		
Construction - Stations	Station works commenced	**19/08/2019**	82%	20%
	Station works complete	**24/06/2020**		
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/07/2018	92%	10%
	HV customer works complete	**30/06/2020**[18]		
Testing / Commissioning	REFCL testing / commissioning commenced	**24/06/2020**	0%	10%
	REFCL commissioned and operable	**28/10/2020**		
Close Out	REFCL at "required capacity"	**05/02/2021**	0%	5%
Total Weighted Percentage Complete			76%	

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

[18] Metro Trains Melbourne have advised they are unable to meet the 1 May 2021 compliance date. A request for an extension of time is being drafted. The MTM delay will impacts the commencement of REFCL testing and commissioning activities

3.3.12 Tranche 2: Bairnsdale (BDL) Zone Substation

BDL REFCL Project Activities		Completion Date	Percentage Complete	Weighting
Initiate	Business Case commenced	26/07/2017	100%	10%
	Business Case approval	08/03/2018		
Design	Design commenced	01/07/2018	100%	15%
	Design complete	**15/01/2020**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	**21/06/2019**	100%	10%
	REFCL delivered to site	**18/12/2019**		
Construction - Lines	Line works commenced	01/01/2019	84%	20%
	Line works complete	**28/07/2020**		
Construction - Stations	Station works commenced	**13/09/2019**	83%	20%
	Station works complete	**15/06/2020**		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	100%	10%
	HV customer works complete	**01/04/2020**		
Testing / Commissioning	REFCL testing / commissioning commenced	**16/06/2020**	0%	10%
	REFCL commissioned and operable	**19/10/2020**		
Close Out	REFCL at "required capacity"	**05/02/2021**	0%	5%
Total Weighted Percentage Complete			88%	

This zone substation is located at -37°82537 latitude, 147°61261 longitude.

3.3.13 Tranche 2: 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	95%	15%
	Design complete	**02/06/2020**		
Procurement	Number of REFCL units required	2		
	REFCL order placed	**21/06/2019**	100%	10%
	REFCL delivered to site	**18/12/2019**		
Construction - Lines	Line works commenced	01/01/2019	100%	20%
	Line works complete	**26/02/2020**		
Construction - Stations	Station works commenced	**17/06/2019**	87%	20%
	Station works complete	**15/06/2020**		
Construction - Third Party	Number of affected HV Customer Connections	4		
	HV customer works commenced	01/07/2018	96%	10%
	HV customer works complete	**31/05/2020**[19]		
Testing / Commissioning	REFCL testing / commissioning commenced	**18/06/2020**	0%	10%
	REFCL commissioned and operable	**22/10/2020**		
Close Out	REFCL at "required capacity"	**05/02/2021**	0%	5%
Total Weighted Percentage Complete			81%	

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

[19] Metro Trains Melbourne have advised they are unable to meet the 1 May 2021 compliance date. A request for an extension of time is being drafted. The MTM delay will impacts the commencement of REFCL testing and commissioning activities

3.3.14 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	**28/03/2020**		
Design	Design commenced	**04/05/2020**	0%	15%
	Design complete	**10/03/2021**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	**28/04/2021**	0%	10%
	REFCL delivered to site	**18/10/2021**		
Construction - Lines	Line works commenced	**04/01/2020**	22%	20%
	Line works complete	**01/07/2021**		
Construction - Stations	Station works commenced	**01/08/2021**	0%	20%
	Station works complete	**22/06/2022**		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	46%	10%
	HV customer works complete	**30/06/2022**		
Testing /Commissioning	REFCL testing / commissioning commenced	**15/07/2022**	0%	10%
	REFCL commissioned and operable	**15/10/2022**		
Close Out	REFCL at "required capacity"	**25/11/2022**	0%	5%
Total Weighted Percentage Complete			19%	

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

3.3.15 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	**28/03/2020**		
Design	Design commenced	**04/05/2020**	0%	15%
	Design complete	**10/03/2021**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	**28/04/2021**	0%	10%
	REFCL delivered to site	**18/10/2021**		
Construction - Lines	Line works commenced	**04/01/2020**	22%	20%
	Line works complete	**01/07/2021**		
Construction - Stations	Station works commenced	**01/08/2021**	0%	20%
	Station works complete	**22/06/2022**		
Construction - Third Party	Number of affected HV Customer Connections	1		
	HV customer works commenced	01/07/2018	46%	10%
	HV customer works complete	**30/06/2022**		
Testing / Commissioning	REFCL testing / commissioning commenced	**15/07/2022**	0%	10%
	REFCL commissioned and operable	**15/10/2022**		
Close Out	REFCL at "required capacity"	**25/11/2022**	0%	5%
Total Weighted Percentage Complete			19%	

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

3.3.17 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	**28/02/2020**		
Design	Design commenced	**04/04/2020**	10%	15%
	Design complete	**04/01/2021**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	**28/02/2021**	0%	10%
	REFCL delivered to site	**18/06/2021**		
Construction - Lines	Line works commenced	**04/01/2020**	22%	20%
	Line works complete	**01/07/2021**		
Construction - Stations	Station works commenced	**01/08/2021**	0%	20%
	Station works complete	**22/06/2022**		
Construction - Third Party	Number of affected HV Customer Connections	2		
	HV customer works commenced	01/07/2018	46%	10%
	HV customer works complete	**30/06/2022**		
Testing / Commissioning	REFCL testing / commissioning commenced	**15/07/2022**	0%	10%
	REFCL commissioned and operable	**09/10/2022**		
Close Out	REFCL at "required capacity"	**01/12/2022**	0%	5%
Total Weighted Percentage Complete			21%	

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

3.3.18 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	**28/02/2020**		
Design	Design commenced	**04/04/2020**	10%	15%
	Design complete	**04/01/2021**		
Procurement	Number of REFCL units required	1		
	REFCL order placed	**28/02/2021**	0%	10%
	REFCL delivered to site	**18/09/2021**		
Construction - Lines	Line works commenced	**04/01/2020**	22%	20%
	Line works complete	**01/07/2021**		
Construction - Stations	Station works commenced	**01/08/2021**	0%	20%
	Station works complete	**22/06/2022**		
Construction - Third Party	Number of affected HV Customer Connections	3		
	HV customer works commenced	01/07/2018	46%	10%
	HV customer works complete	**30/06/2022**		
Testing / Commissioning	REFCL testing / commissioning commenced	**15/07/2022**	0%	10%
	REFCL commissioned and operable	**09/10/2022**		
Close Out	REFCL at "required capacity"	**01/12/2022**	0%	5%
Total Weighted Percentage Complete			21%	

This zone substation is located at -37°53833 latitude, 144°94140 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 2019

The table below indicates the change in volumes (km) of bare and insulated powerline between 1 May 2018 and 30 April 2019.

Total HV Electric Line Volumes	At 1 May 2018	At 30 April 2019	Progress over Reporting Period
Bare construction in ELCA	Route km	Route km	Route km
Polyphase	816.51	786.55	(29.96)
SWER	646.68	644.47	(2.21)
Covered or underground construction in ELCA	Route km	Route km	Route km
Polyphase	264.39	296.25	31.86
SWER	0.43	5.05	4.62

As at the 30 April 2019 the percentage of total route kilometres of all bare conductors remaining within Electric Line Construction Areas is 83%.

Information relating to changes to these powerlines over the reporting period is provided in the required form below.

Electric Line Construction Area	Feeder	Reason/Driver	Previous Construction	Previous Phasing	Length(km)	New Construction	New Phasing	Length (km)	Completion Date	
LEGL./16-212	BWA22	New electric line				Underground cable	22.000 kV	0.04519	7/12/2017	(1)
LEGL./16-217	ELM33	New electric line				ABC	22.000 kV	0.06093	8/03/2019	
LEGL./16-217	ELM33	New electric line				ABC	22.000 kV	0.09718	8/03/2019	
LEGL./16-217	ELM33	New electric line				ABC	22.000 kV	0.06552	26/07/2018	
LEGL./16-217	ELM33	New electric line				ABC	22.000 kV	0.1459	1/01/1970	
LEGL./16-217	ELM33	New electric line				ABC	22.000 kV	0.08451	26/07/2018	
LEGL./16-217	RWN34	New electric line				Underground cable	22.000 kV	0.2572	5/09/2018	
LEGL./16-219	KMS12	New electric line				Underground cable	22.000 kV	0.3403	11/04/2019	
LEGL./16-219	KMS12	New electric line				Underground cable	22.000 kV	0.1728	28/05/2018	
LEGL./16-224	KLK11	New electric line				Underground cable	22.000 kV	0.7429	16/03/2019	
LEGL./16-224	LDL14	New electric line				Underground cable	12.700 kV	0.5069	unset	(2)
LEGL./16-224	LDL14	New electric line				Underground cable	12.700 kV	0.4147	unset	
LEGL./16-224	LDL14	New electric line				Underground cable	12.700 kV	3.6147	5/12/2018	
LEGL./16-224	KLK11	New electric line				Underground cable	22.000 kV	3.4357	4/12/2018	
LEGL./16-224	KLK11	New electric line				Underground cable	22.000 kV	3.5128	19/12/2018	
LEGL./16-224	KLK11	New electric line				ABC	22.000 kV	0.1466	4/12/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.1729	20/06/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.8035	10/10/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.5048	4/10/2018	
LEGL./16-224	LDL14	New electric line				Underground cable	22.000 kV	1.7647	23/08/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	1.1003	10/10/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.9657	9/08/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.2783	18/05/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.2153	18/06/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	2.5125	28/06/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.3535	4/10/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	1.1477	10/10/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	1.7449	11/09/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.8749	30/05/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	0.4782	20/06/2018	
LEGL./16-224	KLK1	New electric line				ABC	22.000 kV	0.02162	20/06/2018	
LEGL./16-224	KLK1	New electric line				Underground cable	22.000 kV	4.3565	20/06/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.3378	16/01/2019	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.4227	24/03/2019	
LEGL./16-225	WYK24	New electric line				ABC	22.000 kV	0.06383	16/01/2019	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.1271	21/11/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.552	27/11/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.6354	13/12/2018	
LEGL./16-225	WYK24	New electric line				ABC	22.000 kV	0.02985	27/11/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.4059	6/09/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.5209	5/09/2018	
LEGL./16-225	WYK24	New electric line				Underground cable	22.000 kV	0.1814	30/06/2017	(1)
LEGL./16-226	RUBA22	New electric line				Underground cable	22.000 kV	0.1536	12/12/2018	

Electric Line Construction Area	Feeder	Reason/Driver	Previous Construction	Previous Phasing	Length(km)	New Construction	New Phasing	Length (km)	Completion Date
LEGL./16-229	LDL13	New electric line				Underground cable	22.000 kV	0.0576	unset
LEGL./16-229	LDL13	New electric line				ABC	6.600 kV	0.004787	unset
LEGL./16-229	BWR13	New electric line				Underground cable	22.000 kV	0.5802	7/08/2018
LEGL./16-229	CYN33	New electric line				Underground cable	22.000 kV	0.05433	28/06/2018
LEGL./16-231	WYK13	New electric line				Underground cable	22.000 kV	0.2755	12/12/2018
LEGL./16-231	WYK13	New electric line				Underground cable	22.000 kV	0.6065	11/12/2018
LEGL./16-231	WYK13	New electric line				Bare	12.700 kV	0.0787	11/10/2018
LEGL./16-231	WYK13	New electric line				ABC	22.000 kV	0.1141	11/07/2018
LEGL./16-231	WYK13	New electric line				Underground cable	22.000 kV	0.3198	11/07/2018
LEGL./16-217	unset	Decommissioned	Unknown	Polyphase	0.08574				unset
LEGL./16-219	KMS12	Decommissioned	Bare	Polyphase	0.07408				23/12/1999
LEGL./16-223	SMR5	Decommissioned	Bare	Polyphase	0.2123				1/01/1980
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	2.8626				1/01/1970
LEGL./16-224	LDL14	Decommissioned	Bare	Polyphase	0.6354				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.06103				8/06/2016
LEGL./16-224	LDL14	Decommissioned	Bare	Polyphase	0.5124				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	8.4446				1/01/1970
LEGL./16-224	LDL14	Decommissioned	Bare	Polyphase	0.8567				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	2.8981				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.009				19/06/2017
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.4774				unset
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.09416				8/06/2016
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.123				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.04153				29/07/1998
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	1.8689				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.05706				28/06/1994
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	3.341				1/01/1970
LEGL./16-224	LDL14	Decommissioned	Bare	SWER	2.2082				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.3705				1/01/1970
LEGL./16-224	KLK1	Decommissioned	Bare	Polyphase	0.6522				29/07/1998
LEGL./16-225	WYK24	Decommissioned	Bare	Polyphase	0.8704				1/01/1970
LEGL./16-225	WYK24	Decommissioned	Bare	Polyphase	0.3995				3/07/2002
LEGL./16-225	WYK24	Decommissioned	Bare	Polyphase	1.4302				1/01/1970
LEGL./16-229	BWR13	Decommissioned	Bare	Polyphase	0.1929				1/01/1970
LEGL./16-229	BGE23	Decommissioned	Bare	Polyphase	0.053				1/01/1970
LEGL./16-229	BGE24	Decommissioned	Bare	Polyphase	0.4391				1/01/1970
LEGL./16-229	LDL21	Decommissioned	Bare	Polyphase	0.589				1/01/1970
LEGL./16-229	LDL21	Decommissioned	Bare	Polyphase	0.1473				11/02/2013
LEGL./16-229	LDL21	Decommissioned	Bare	Polyphase	0.2126				1/01/1970
LEGL./16-229	LDL13	Decommissioned	Bare	Polyphase	0.8477				1/01/1970
LEGL./16-229	LDL21	Decommissioned	Bare	Polyphase	0.5608				1/01/1970
LEGL./16-229	LDL21	Decommissioned	Bare	Polyphase	0.02991				24/11/2009
LEGL./16-229	BGE24	Decommissioned	Bare	Polyphase	0.05339				1/01/1970
LEGL./16-231	WYK24	Decommissioned	Bare	Polyphase	0.4552				1/01/1970

Note

(1) Delayed system recording of asset prior to the current reporting period

(2) "Unset" data means incomplete recording in system

4.2 Planned Program Works 1 May 2019 to 30 April 2020

The table below indicates the planned change in volumes (km) of bare and insulated powerline between 1 May 2019 and 30 April 2020.

Total HV Electric Line Volumes	At 1 May 2019	At 30 April 2020	Progress over Reporting Period
Bare construction in ELCA	Route km	Route km	Route km
Polyphase	786.55	786.55	-
SWER	644.47	621.56	(22.91)
Covered or underground construction in ELCA	Route km	Route km	Route km
Polyphase	296.25	296.25	-
SWER	5.05	28.48	23.44

The planned percentage of total route kilometres of bare conductor remaining within Electric Line Construction Areas as at 30 April 2020 is forecast to be 81%.

The table below contains information in the prescribed form for works planned for completion between the 1 May 2019 and 30 April 2020.

Electric Line Construction Area	Feeder	Reason / Driver	Current Construction			Future Construction		
			Construction	Phasing	Length (km)	Construction	Phasing	Length (km)
LEGL./16-224	LDL14	Other Proactive replacement or direction	Bare Conductor	SWER	7.237	Underground Cable	SWER	6.082
LEGL./16-217	LDL14	Other Proactive replacement or direction	Bare Conductor	SWER	11.741	Underground Cable	SWER	13.095
LEGL./16-217	WYK24	Other Proactive replacement or direction	Bare Conductor	SWER	3.928	Underground Cable	SWER	4.26

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.

Nino Ficca

Managing Director