

# Safety expenditure

## Presentation to the Customer Forum

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7 June 2018



# Overview

- ▶ **What is safety expenditure**

- › Includes expenditure history and preliminary bill impacts for 2021-25

- ▶ **REFCL program**

- ▶ **Fire risk programs**

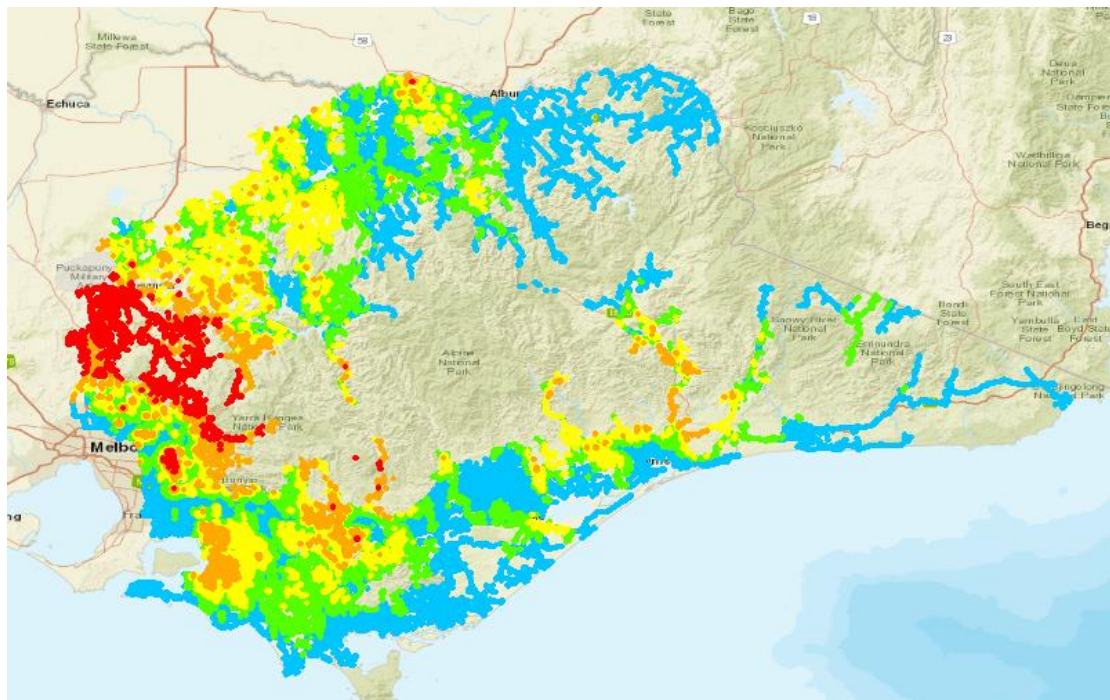
- ▶ **Other minor programs**

# What is safety expenditure



# What is safety expenditure?

- ▶ **Expenditure to improve safety levels**
  - › Targeted, company-initiated programs
  - › Government mandated programs
- ▶ **Most material spend is in areas classified as high bushfire risk**



# What is safety expenditure?

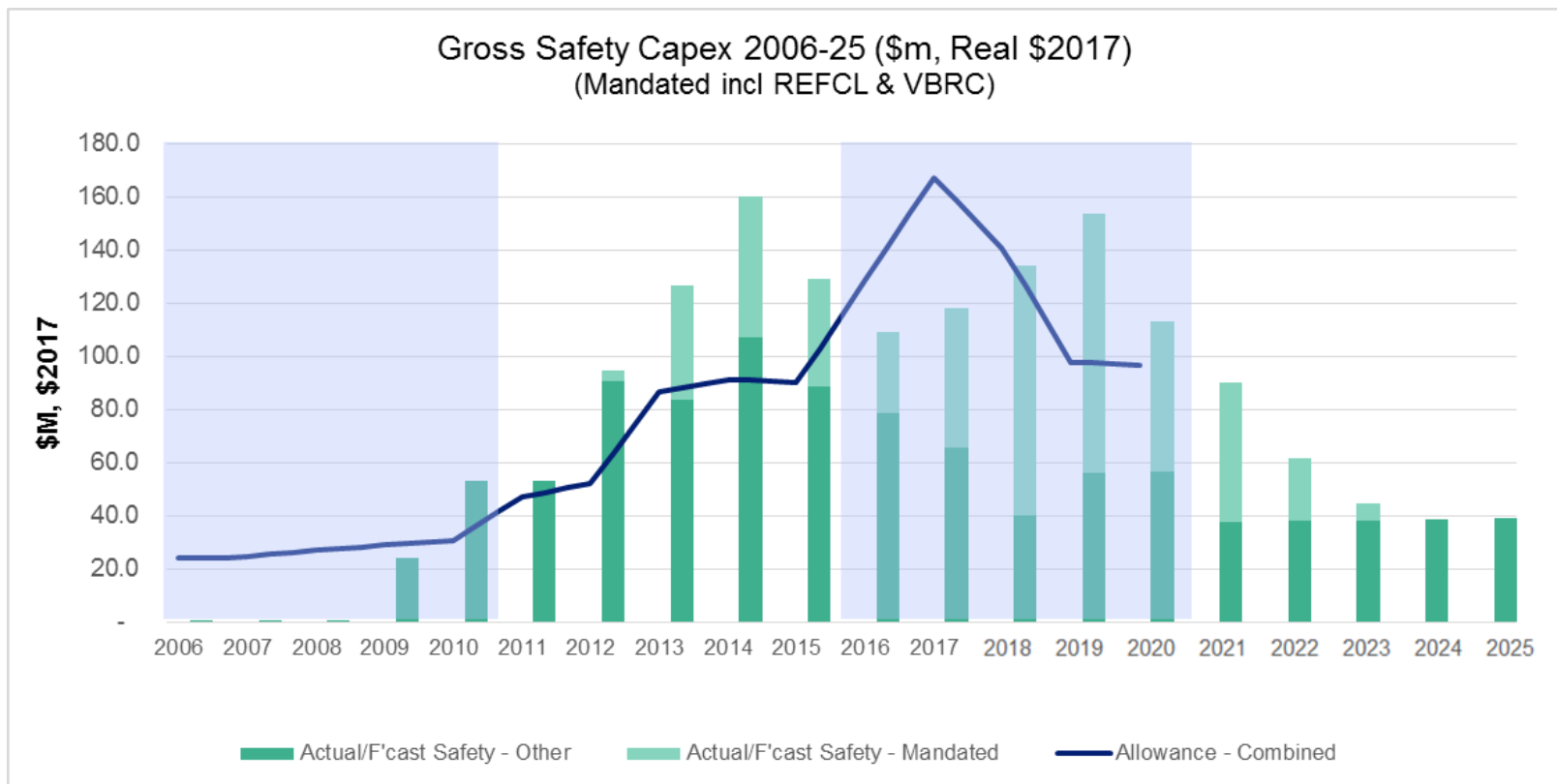
## ► Major programs

Past	Current	Proposed
Accelerated crossarm replacements	Government funded powerline replacement	REFCL
Accelerated conductor replacements	Armour rods and vibration dampers	Codified area SWER insulation or undergrounding
EDO fuse replacements	REFCL	EDO fuse replacements
Spacers and clearances	EDO fuse replacements	Other minor programs
Pre-emptive service cable replacements	High-risk Aerial Bundled Cable replacement	

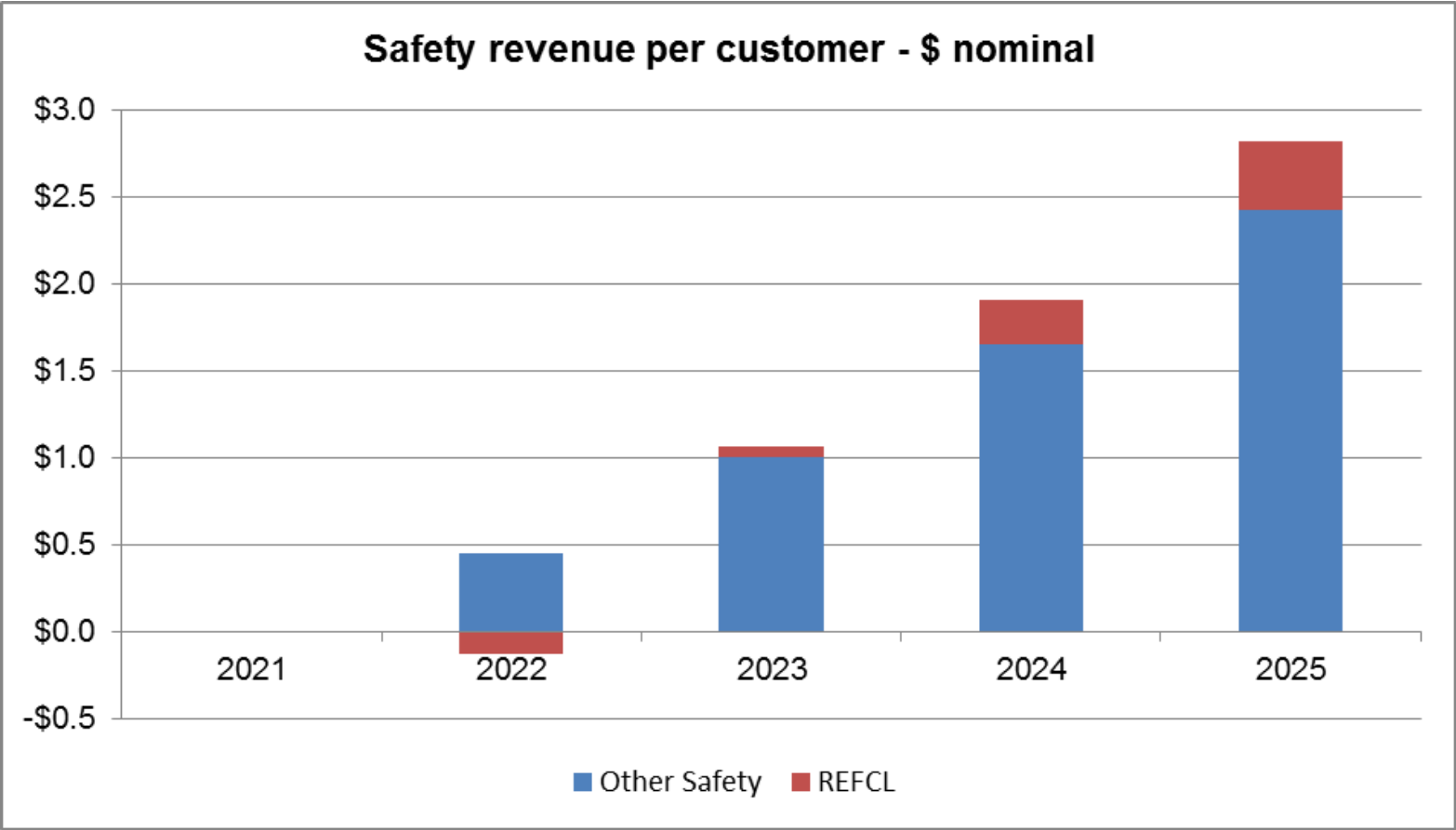
# Safety expenditure 2006 to 2025



Pre 2009 Bushfires      Response to VBRC Recommendations + AusNet service initiatives      REFCL Program      Placeholder value

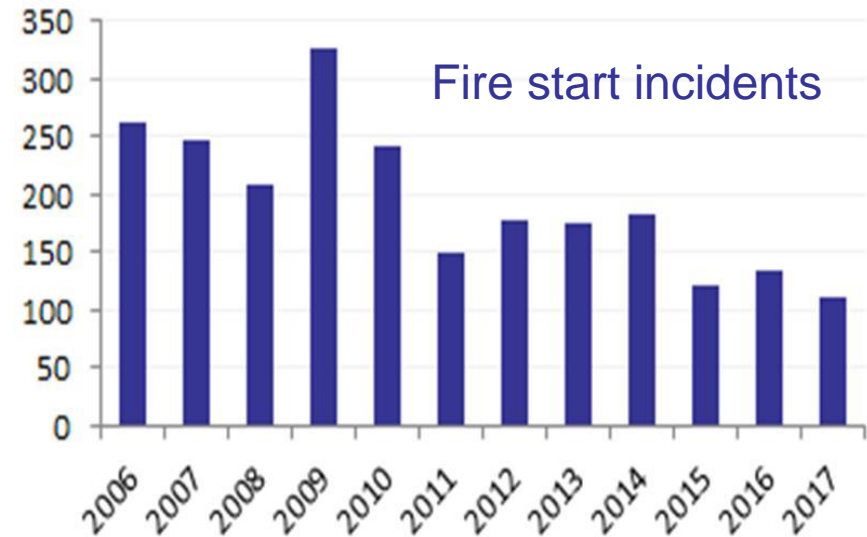
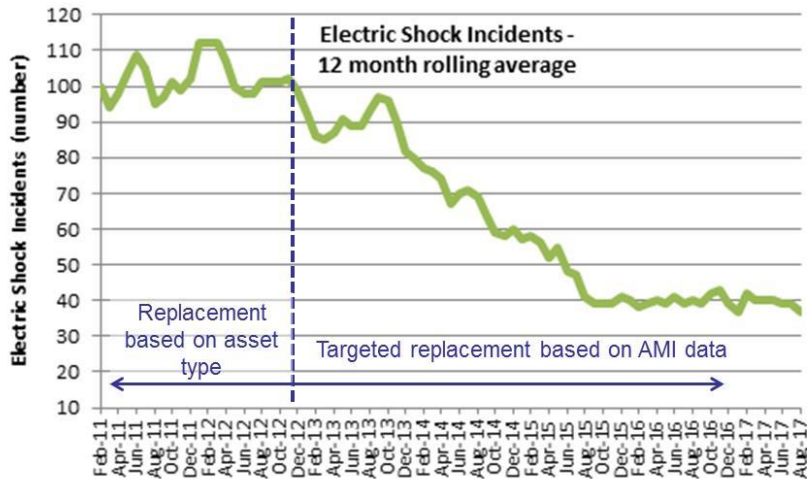


# Bill impact: Revenue per customer 2021 to 2025 (placeholder value)



# Customer outcomes/benefits

- ▶ Important note – most of the expenditure reduces the risk of bushfire or electric shock; it does not completely eliminate the risk



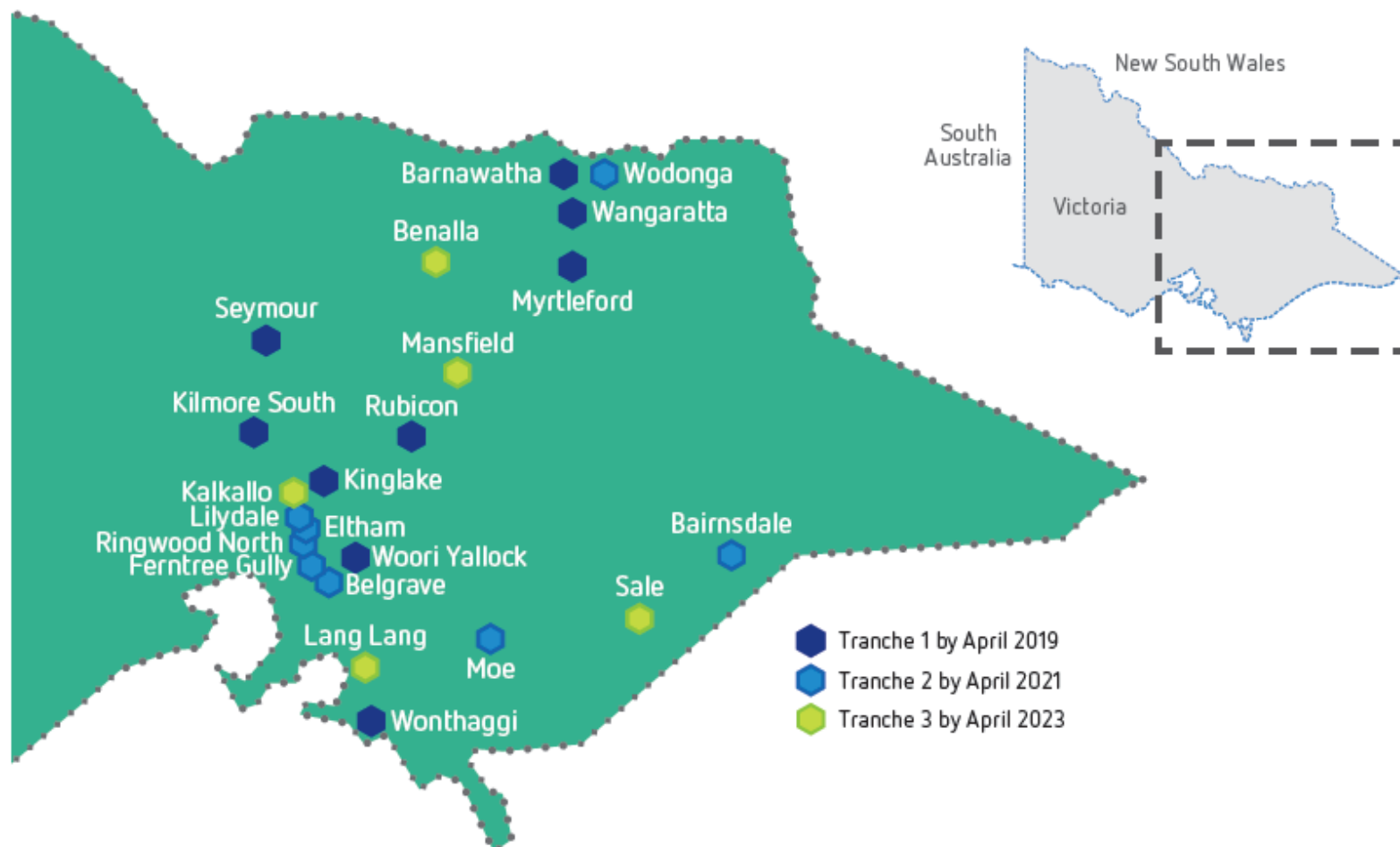


# REFCL program

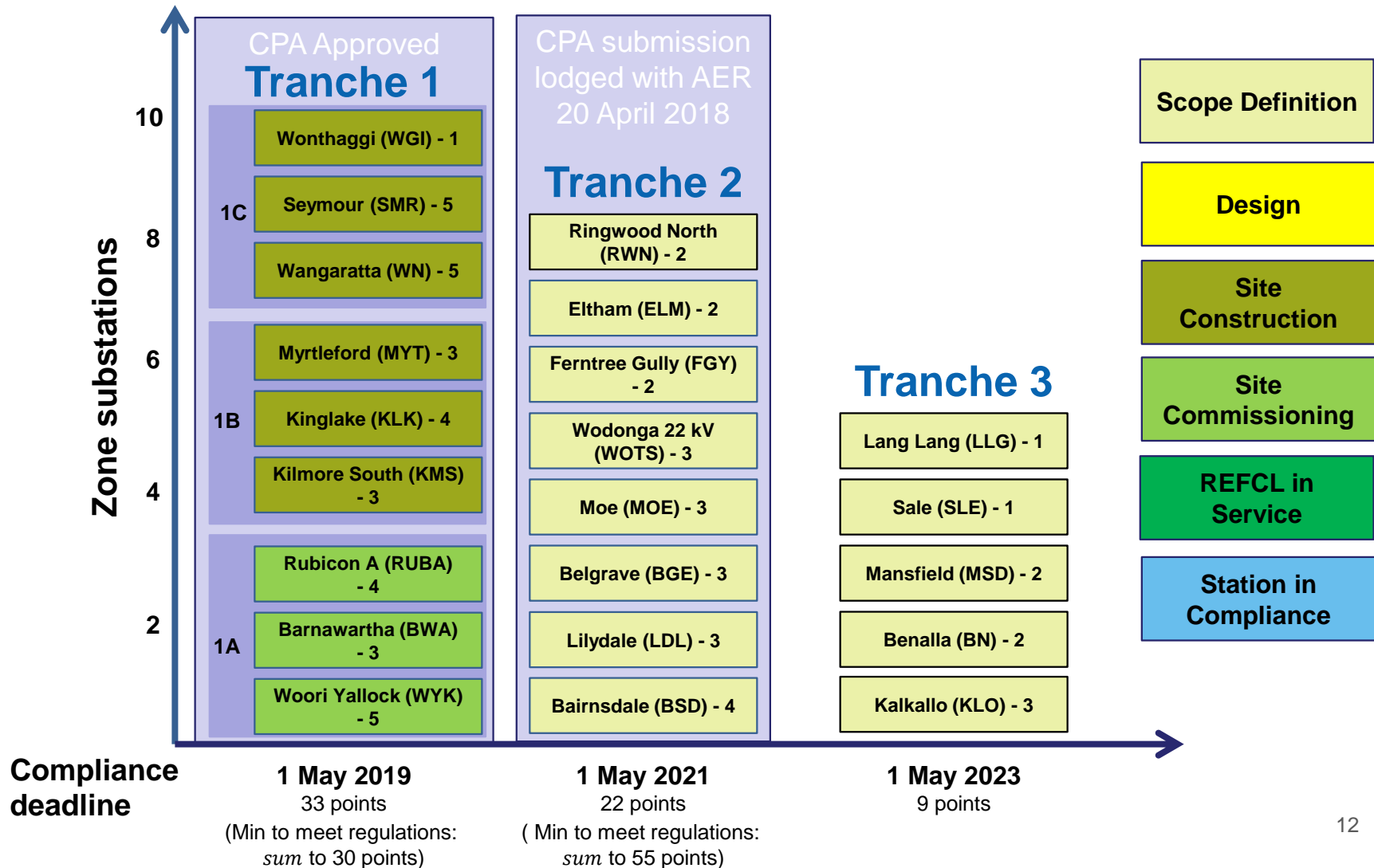


# REFCL program scope

REFCLs will be installed at:



# REFCL program tranche progress as at end May 2018



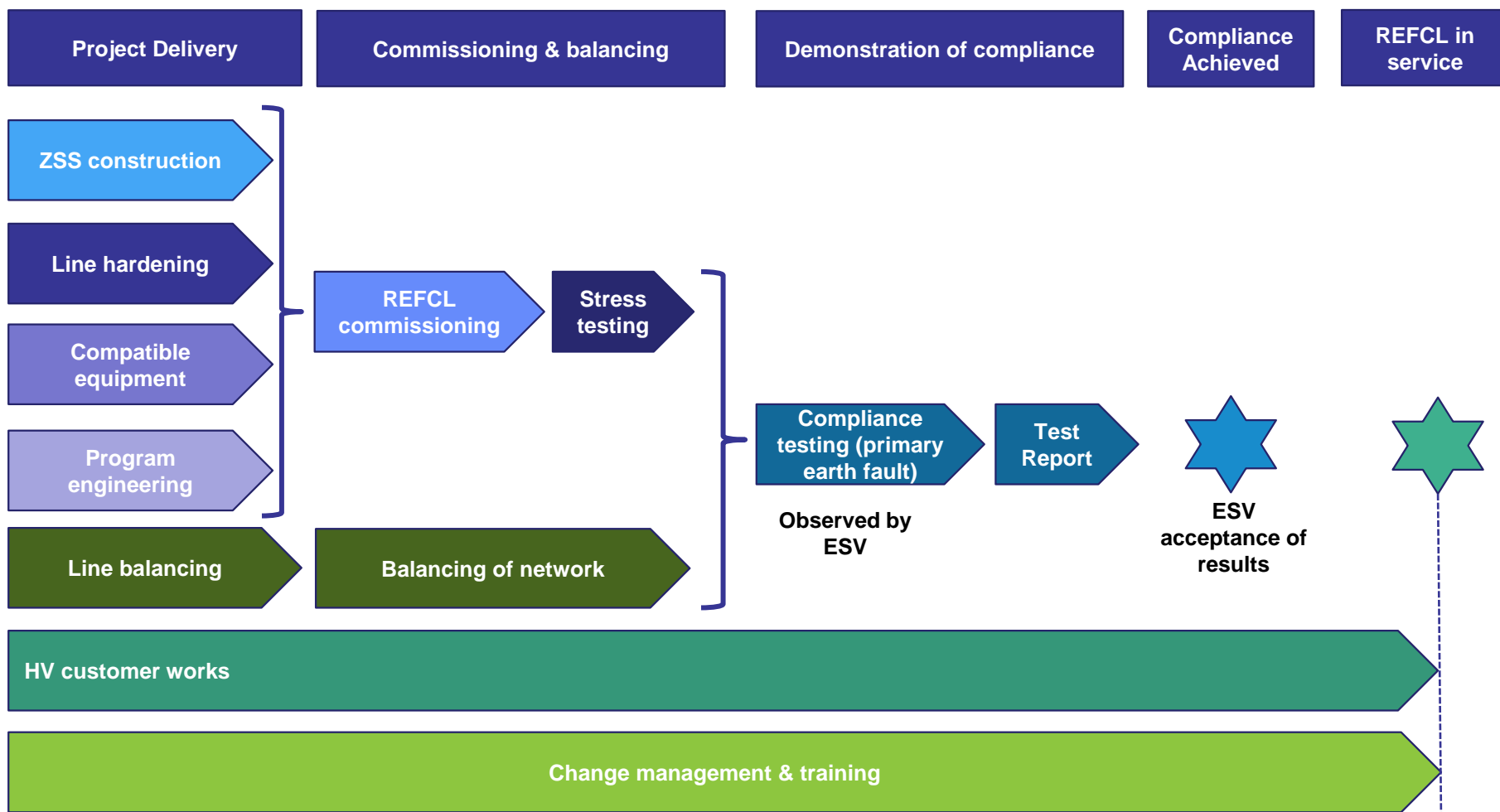
# REFCL program components

1. High level Tranche 3 scope confirmed as 5 zone substations and their respective supply networks
2. Five project delivery work streams as per Tranches 1 & 2:

Work stream	Description
<b>Zone substation</b>	Installation of REFCL's and associated works
<b>Line hardening</b>	Replacement of surge arrestors and cables which are unable to sustain REFCL operating voltages
<b>Compatible equipment</b>	Upgrading of line assets, such as Automatic Circuit Reclosers (ACRs), which are not compatible with REFCL operations
<b>Line balancing</b>	Achieving line capacitive balancing, which may involve the installation of capacitor balancing units, to ensure REFCLs operate as intended
<b>High Voltage (HV) customers</b>	Ensuring HV customers electrical assets are not adversely impacted by REFCL operations. This may involve hardening of the HV customers electrical assets or the installation of an isolating substation.

3. In addition, work to maintain the reliability of the network is required involving the replacement of existing remote control switches (sectionalisers)
4. Comprehensive change management and training is a fundamental element of the REFCL Program given the paradigm shift in how the network is designed, maintained and operated
5. An overarching REFCL Program Governance Framework provides end-to-end program oversight and accountability for the REFCL Program

# REFCL program components overview



# REFCL – Expenditure forecasting methodology

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- 1. The expenditure forecasting methodology used for Tranche 3 of the REFCL Program is the same as used for Tranches 1 and 2**
  - › The AER approved the Contingent Project Application (CPA) for Tranche 1 in August 2017
  - › The CPA for Tranche 2 was submitted to the AER on 20 April 2018
  
- 2. High level functional scopes of work have been prepared, options assessed and estimates prepared**
  
- 3. The Tranche 3 estimate is based on bottom up build of expenditure forecasts**
  - › Volumes are based on the functional scope of works and asset audits
  - › Unit rates are based on recent actual costs or tendered rates

# Fire risk programs



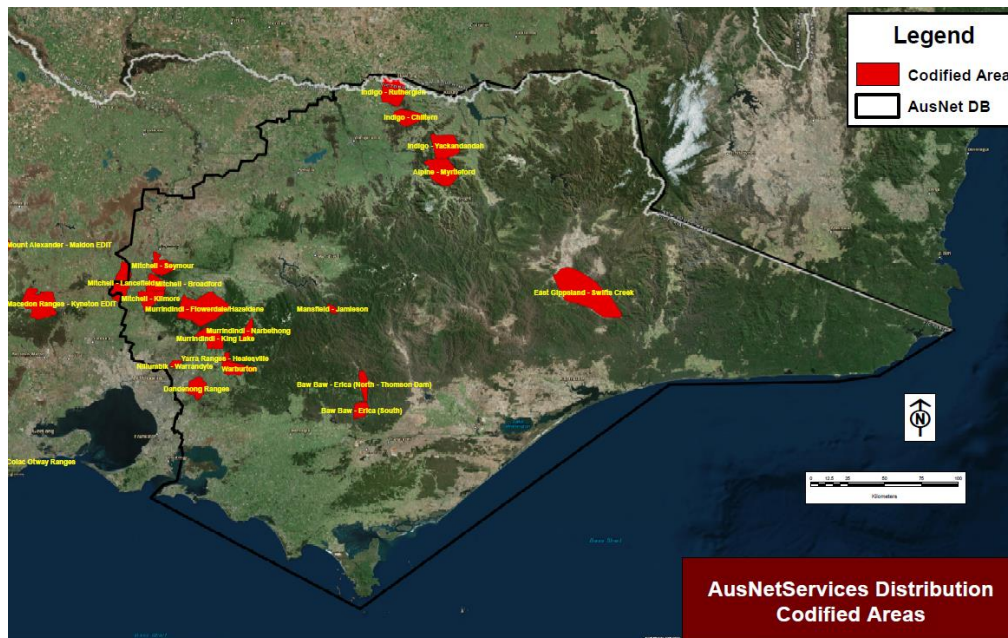
## Fire risk programs

- ▶ Codified areas SWER insulation or undergrounding
- ▶ EDO fuse replacements



# Codified areas SWER insulation or undergrounding

- ▶ Areas defined in legislation
- ▶ Within these areas, all new lines and replacements must be insulated or placed underground



- ▶ **20,000 poles**
- ▶ **3,000 distribution transformers**
- ▶ **1,500 km overhead conductor**
  - › Includes 650 km SWER conductor which REFCL will not be protected by REFCL

# Codified areas – Investigations and response

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## ▶ 2009 Victorian Bushfires Royal Commission (VBRC)

*the progressive replacement of all SWER (single-wire earth return) power lines in Victoria with aerial bundled cable, underground cabling or other technology that delivers greatly reduced bushfire risk. The replacement program should be completed in the areas of highest bushfire risk within 10 years and should continue in areas of lower bushfire risk as the lines reach the end of their engineering lives*

## ▶ Powerline Bushfire Safety Taskforce (PBST)

*targeted replacement of SWER and 22kV powerlines with underground or insulated overhead cable, or conversion of SWER to multi-wire powerlines, in the next 10 years*

## ▶ Response

- › REFCLs legislated
- › Defined codified areas
- › Powerline replacement fund
- › Proposed SWER and unprotected HV insulation/undergrounding program

# Codified areas – Expenditure forecasting methodology

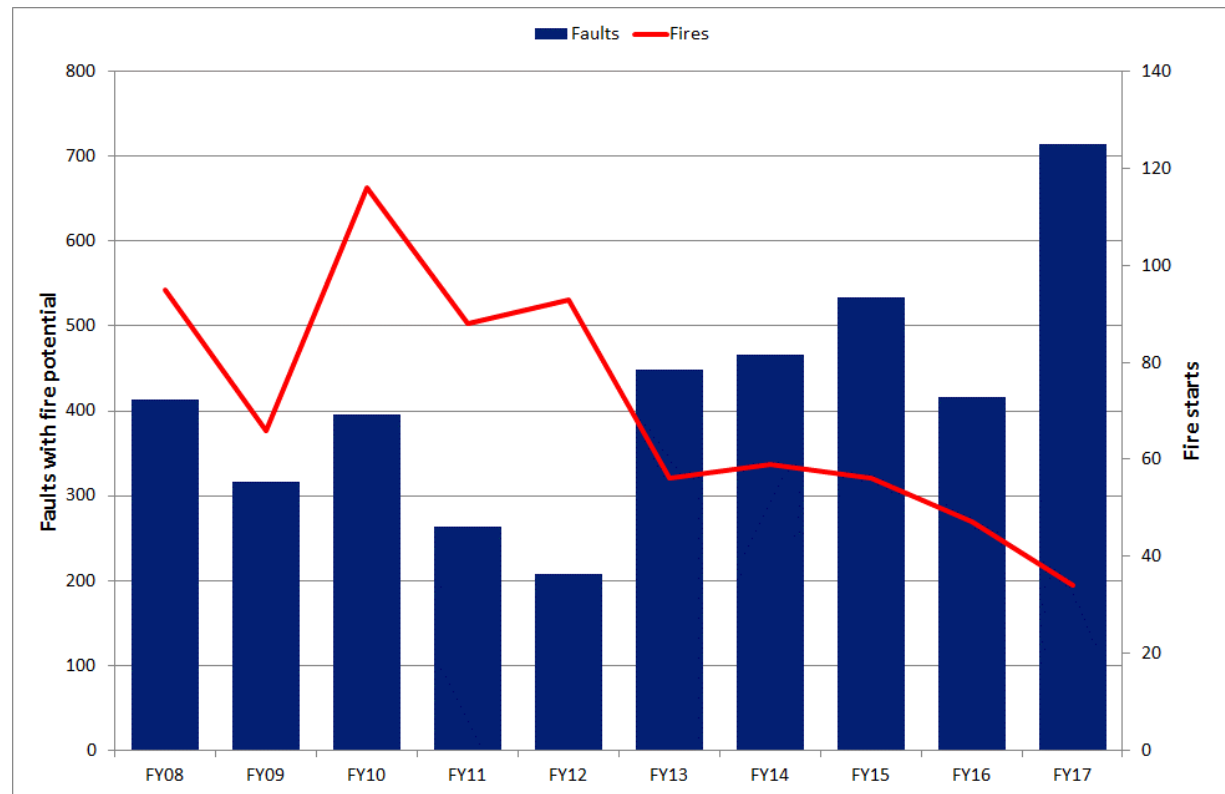
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- ▶ **Program to insulate or underground all SWER conductor in Codified Areas over next 20 years (650 km)**
  - › Reduces risk of fire ignition from SWER in codified areas
  - › Moves in the direction recommended by VBRC and PBST
  - › Accelerates replacement of SWER conductor
  
- ▶ **Simple volume x unit rate cost estimate**
  - › Unit rates based on recent projects assuming a blend of insulated overhead conductors and undergrounding

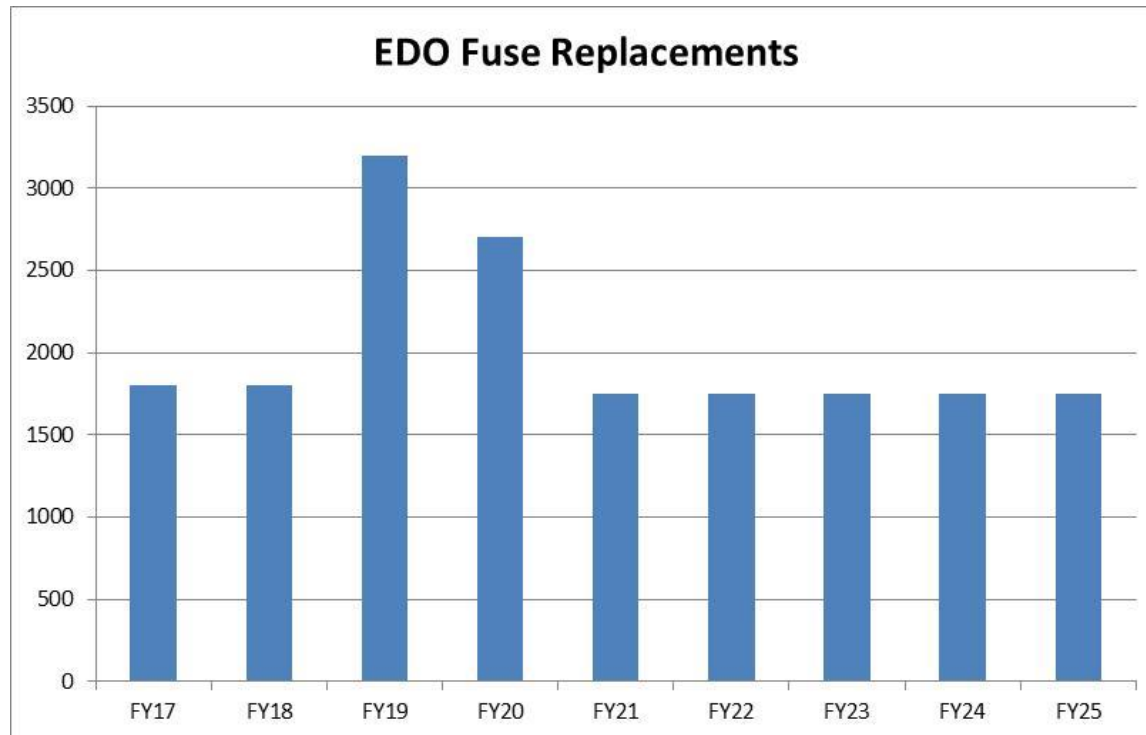
# EDO fuse replacements

## ▶ EDO fuses continue to be a cause of fire ignition



# EDO fuse replacements – Expenditure forecasting methodology

- ▶ Approximately 37,200 EDO fuses currently remain in service
- ▶ Unit rate is based on current rate



## Other minor programs



## Other minor programs

- ▶ **There are a number of other small programs to address public safety and OHS risks**
  - › Zone substation remediation works – asbestos and oil control
  - › Low services/conductor – compliance driven
  - › Fall arrest systems – OHS driven
  - › SWER earths – electric shocks and fire starts
- ▶ **These are forecast based on historical volumes and sites with known issues**
- ▶ **The unit rate is based on current rates**

# Questions

