

Powerline Bushfire Steering Committee

March 2018

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Agenda

- ▶ **REFCL**
 - ▶ **Woori Yallock Operations**
 - ▶ **REFCL installation activities overview**
 - **KLK ZSS re-build**
 - ▶ **Program status**
 - ▶ **Program update & schedule**
 - ▶ **Tranche 1 HV customer solutions**
 - ▶ **Tranche 1 exemption applications**

Woori Yallock Operations

► Woori Yallock 2nd GFN

- › The two REFCLs at WYK operated reliably over the summer after being commissioned just before the end of December.
- › The same technical issue encountered by Powercor at Woodend in relation to the operation of 2 GFN's is present at Woori Yallock. As a consequence both Arc Suppression Coils are being fed by one inverter, resulting in reduced sensitivity of 4000Ω/3.2A
- › Since being re-commissioned the REFCL has operated 27 times, of these:
 - › 22 were transient faults
 - › 5 were permanent faults
 - › None were on Total Fire Ban days
 - › There was one fault that resulted in a minor fire. The REFCL initially failed to detect the fault, over time the fault impedance reduced to the sensitivity threshold and the REFCL operated. This emphasises the need to achieve high sensitivity in order to deliver the full benefits of the REFCL program.

Note that without REFCLs the 22 transient faults would have resulted in a trip and reclose and hence supply interruption.



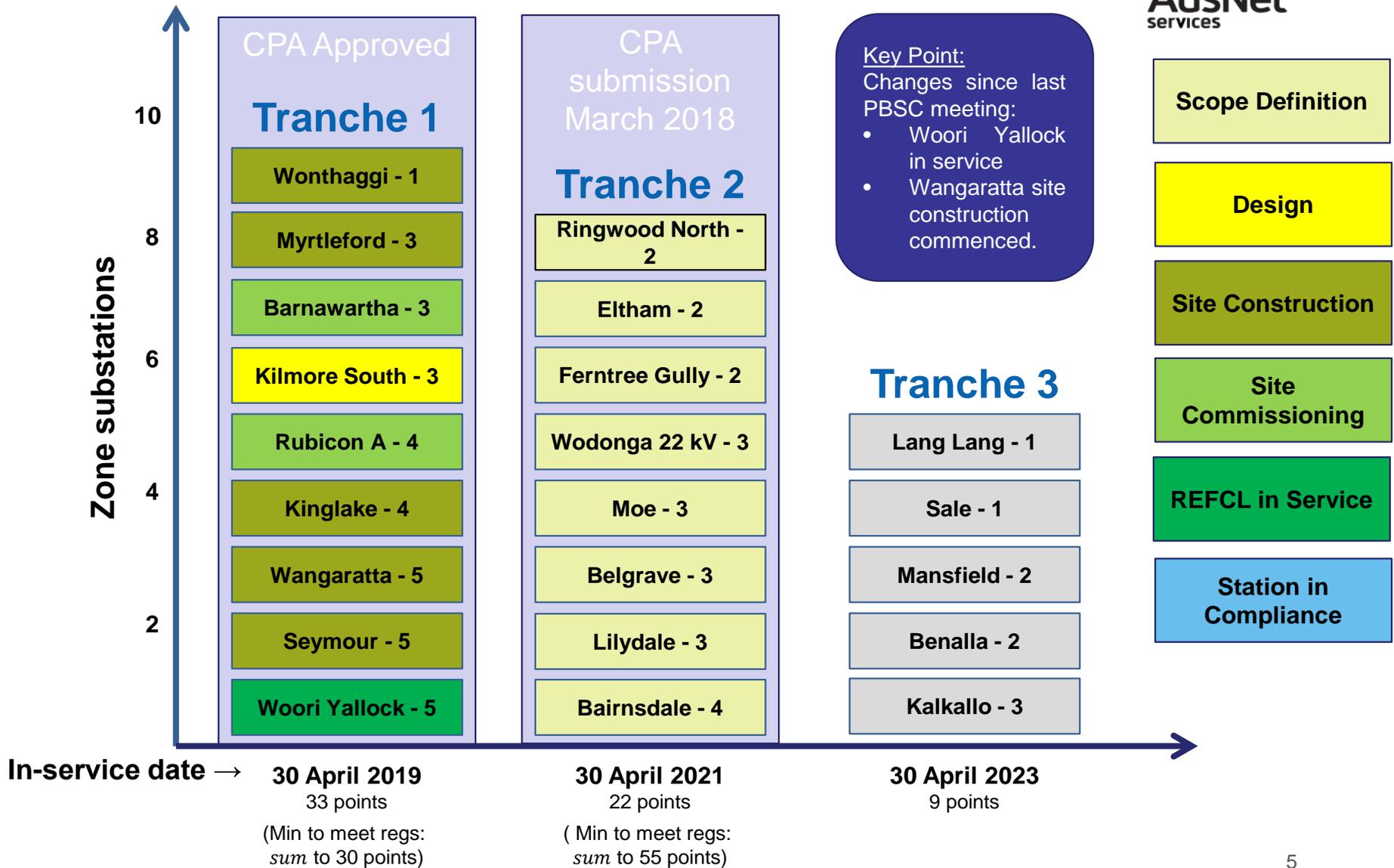
Kinglake ZSS new switchroom



- › Kinglake (KLK) ZSS is undergoing a rebuild in parallel with REFCL works.
- › The rebuild is funded from outside the REFCL program although the REFCL works cannot be delivered without the re-build.
- › The re-build was advanced to suit the REFCL program and the previously anticipated transformer refurbishment was changed to replacement due to REFCLs.



Program Status



Program update & schedule



- ▶ Tranche 2 Contingent Project Application submission planned end of March 2018
- ▶ Tranche 1 implementation including network hardening, network balancing, compatible equipment, design and station construction works ongoing
- ▶ Proactive engagement with Tranche 1 & 2 HV customers, Tranche 1 HV customer solutions agreed
- ▶ First isolating transformer orders placed
- ▶ More detailed commissioning and compliance test program under development

Tranche 1 Delivery Schedule

Zone Substation	Activity / # of GFN'a	Q1 '17	Q2 '17	Q3 '17	Q4 '17	Q1 '18	Q2 '18	Q3 '18	Q4 '18	Q1 '19	Q2 '19	Q3 '19	HV customer connections
Wonthaggi	1		Design	Design	Construction	Construction	Construction	Construction	Construction	Compliance testing	Tranche 1 compliance date		2
Myrtleford*	1		Design	Design	Design	Construction	Construction	Construction	Compliance testing				0
Barnawatha	1	Design	Construction	Construction	Construction				Compliance testing				2
Kilmore South	1		Design	Design	Design	Construction	Construction	Compliance testing					1
Rubicon A	1	Design	Construction	Construction	Construction			Compliance testing					3
Kinglake*	1		Design	Design	Construction	Construction	Construction	Compliance testing					0
Wangaratta	2			Design	Design	Construction	Construction	Construction		Compliance testing			2
Seymour*	2			Design	Design	Construction	Construction	Construction		Compliance testing			2
Woori Yallock	2		Design	Construction	Construction			Compliance testing					1

* Associated rebuild activities not included

** Compliance testing is subject to the HV customer solution being in place & completion of line balancing works

Legend: Design Construction Compliance testing

Tranche 1 HV customer solutions



ZSS Code	Feeder	Name of organisation	Customer installation	# of supply points	Agreed solution
BWA	BWA23	Nestle Australia	Uncle Tobys	1	Isolating substation
BWA	BWA21	Woolworths	Barnawartha Distribution Centre	1	Isolating substation
RUBA	RUBA13	AGL	Mountain Streams Power Station	1	Asset hardening
RUBA	RUBA21	AGL	Mountain Streams Power Station	1	Asset hardening
RUBA	RUBA24	Pacific Hydro	Eildon Pondage	1	Isolating substation
WYK	WYK23	Melbourne Water Corporation	Upper Yarra Mini Hydro	1	Asset hardening
WGI	WGI21	Wonthaggi Wind Farm		1	Isolating substation
SMR	SMR1 & 4	Defence Force	Packapunyal	2	Isolating substation
KMS	KMS01	National Paper Industries		1	LV conversion
WN	WN5	Pacific Hydro	William Hovell	1	Isolating substation
WN	WN7	Australian Textile Mills	Bruck Mills	1	Isolating substation

► **Since the last PBSC AusNet Services has:**

- › Confirmed asset hardening with AGL including a commitment as to timeline. This is a significant commitment from AGL
- › Confirmed LV Conversion with National Paper Industries

Key Point: All Tranche 1 customer solutions agreed and first batch of isolating transformers ordered, detailed designs in progress.

Tranche 2 HV customer solutions



- ▶ **Plenty of engagement with Tranche 2 customers**
- ▶ **Progress to agreeing solutions slow:**
 - › Customers reluctant to engage when timeline is distant (+3 years to compliance date)
 - › Outages necessary in some cases to obtain equipment data (poor records)
- ▶ **Based on conversations to date the potential outcome is:**
 - › 2 conversions to LV
 - › 18 isolating substations
 - › 8 asset hardening
- ▶ **Some customers concerned about liability for cross-country faults**
- ▶ **Working with customers to improve quality of asset information**
 - › Provided list of recommended consultants

Tranche 1 exemption applications



▶ Where AusNet Services will install isolating transformers:

- › This arrangement necessarily leaves short sections of AusNet-owned underground cable unprotected by REFCL's.
- › Change in bushfire safety risk as a consequence is negligible. Reminder, undergrounding of overhead is first choice for ignition risk reduction, REFCL's is second choice.

▶ Consequently Ausnet Services is preparing exemption applications under Section 13 of the Electricity Safety (Bushfire Mitigation) Regulations 2013

- › There has been pre-application engagement since late January 2018.
- › ESV will refer exemptions to minister for referral to Governor in Council after consideration by the Powerline Bushfire Safety Committee.
- › Exemptions need to be approved by date for compliance – latest 1 May 2019.
- › There is no technical alternative in the event that an exemption is not granted.

Zone Substation	HV Customer
BWA	Woolworths
BWA	Uncle Tobys
RUBA	Pacific Hydro, Eildon Pondage
WN	Pacific Hydro, Williams Hovell
WN	Australian Textiles Mills
SMR	Department of Defence, Puckapunyal
WGI	Wonthaggi Wind Farm

Tranche 1 exemption application details

► Typical arrangement of isolating transformer

