

PBSC UPDATE Powercor REFCL Program

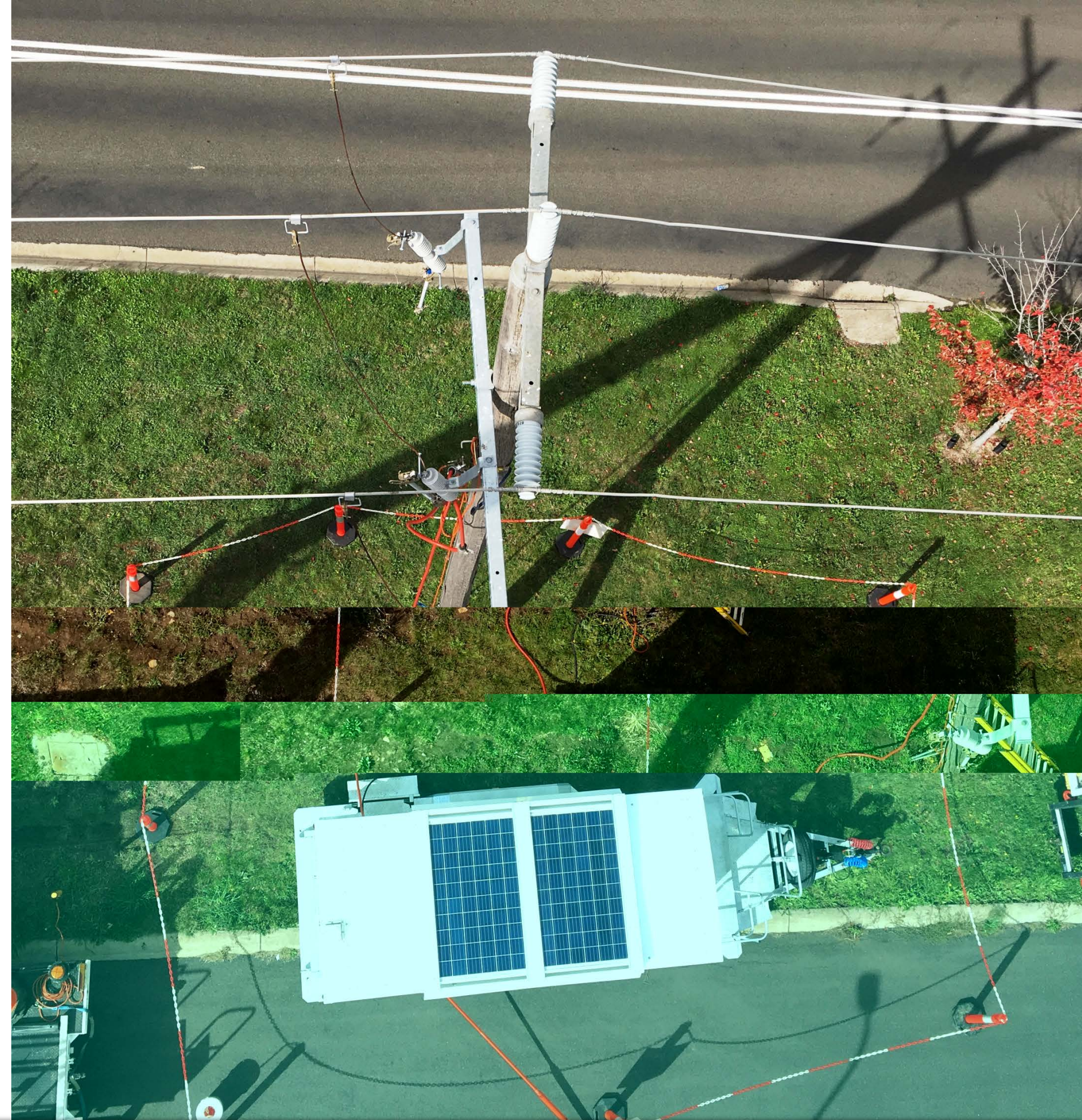


JUNE 2018
Steven Neave
GM, Electricity Networks

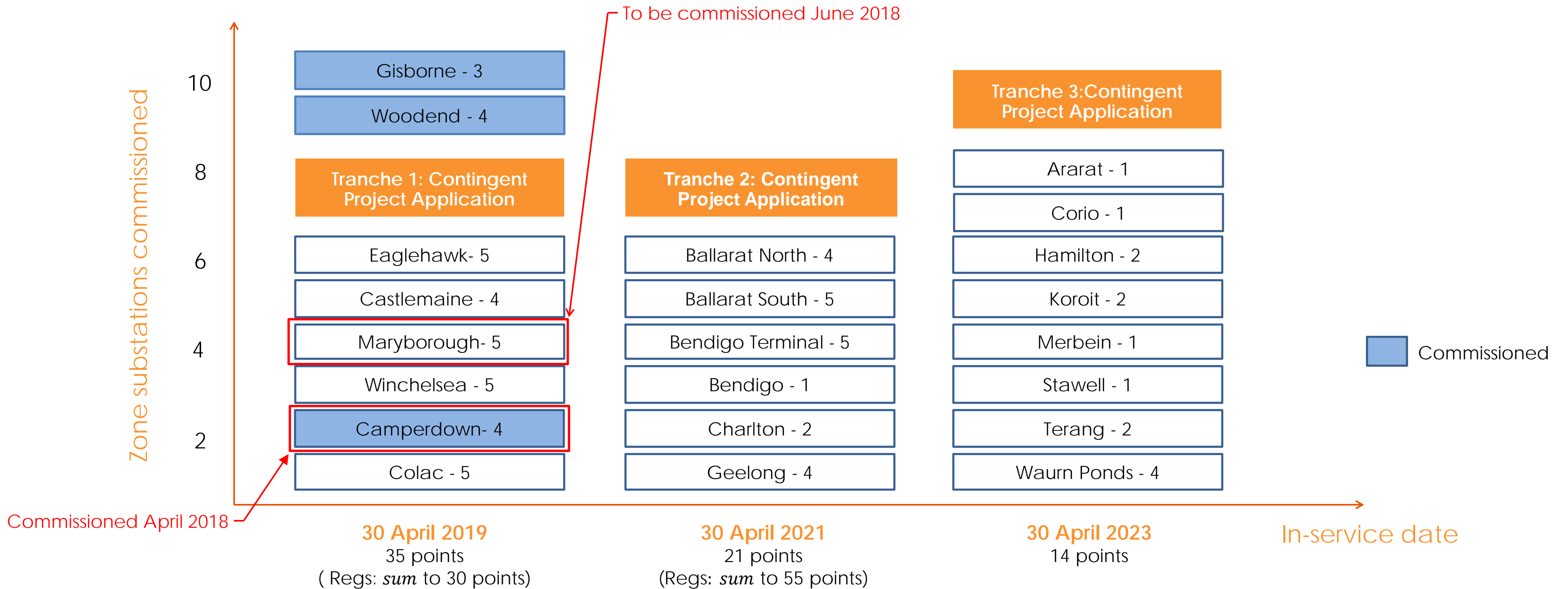


AGENDA

1. REFCL Timetable
2. REFCL Implementation update
3. REFCL Performance issues
4. REFCL Deployment timetable
5. REFCL HV Customers update
6. REFCL Exemption Requests
7. ESC Draft decision
8. SWER ACR Deployment status
9. Powerline Replacement Fund



1. REFCL TIMETABLE



2. REFCL IMPLEMENTATION UPDATE



GISBORNE

- ESV observed compliance testing in May
- PAL performed 116 primary fault tests over 4 days to demonstrate required capacity
- A request for formal approval that GSB achieved required capacity was submitted to ESV on June 8th

WOODEND

- Multi-GFN site has been operating across a split bus since March
- A “mystery asset” was preventing full performance; however this has now been rectified
- ESV observing of Woodend compliance booked for end of June



CAMPERDOWN

- REFCL commissioned in early April, however will likely need re-commissioning
- Two HV cables failed on May 22nd and subsequent REFCL performance issues have been experienced

MARYBOROUGH

- Stress testing this week then commissioning to follow

3. REFCL PERFORMANCE ISSUES

- Recent REFCL performance issues are causing a few concerns
- The issues vary across hardware, firmware and software
- The REFCLs at CDN and WND are currently out of service

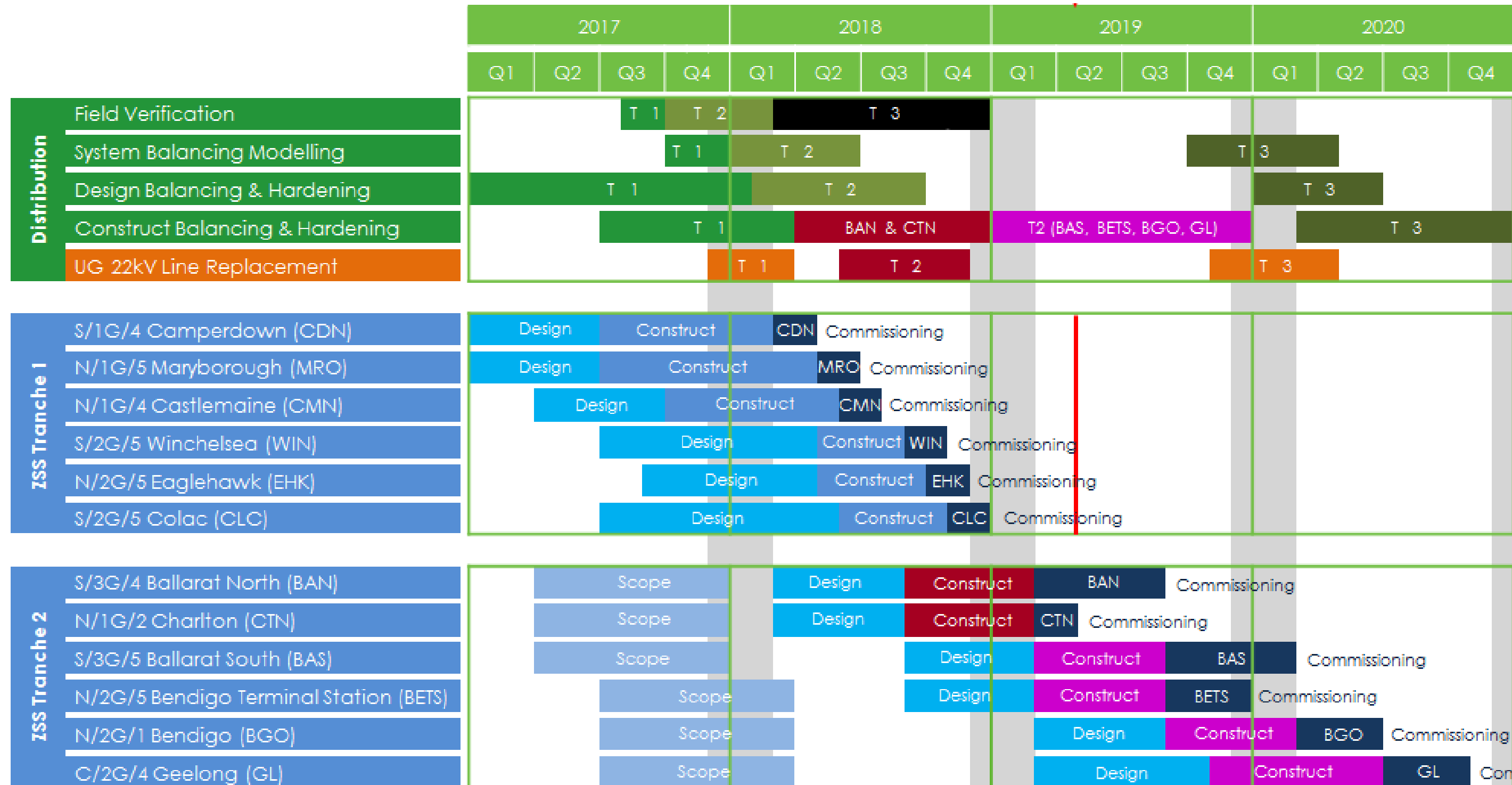
CAMPERDOWN

- On May 22nd the GFN failed to trip the CB for a cable fault and the NER was closed
- Investigation revealed an empty GFN log and the CPU was replaced
- Prior to restoring CDN during calibration there was a voltage excursion beyond what we expected. Fortunately there was no damage.

SUMMARY

- Both AusNet and Powercor have experienced a range of hardware, firmware and software issues
- Swedish Neutral are generally very fast to respond, however concerns remain around their quality control processes
- We are actively working with Swedish Neutral to address this

4. TRANCHE 1 and 2 DEPLOYMENT PROGRAM



5. REFCL TRANCHE 1 – HV CUSTOMERS

Zone Sub	Feeder	Customer	Option	6MVA	3MVA	1MVA kiosk	Other
Camperdown	CDN001	Fonterra	Transfer to adjacent station				Cobden
Castlemaine	CMN005	George Western Foods (Main Factory) ¹	Shared Isolation Substation	1			
Castlemaine		George Western Foods (Secondary Factory) ¹					
Castlemaine	CMN005	Flowserve (Hunter St)	Shared Isolation Substation	1			
Castlemaine		Flowserve (Parker St)					
Castlemaine	CMN004	AGL Hydro	Single Isolation Substation		1		
Eaglehawk	EHK021	Keech Castings	Shared Isolation Substation	1			
Eaglehawk		Motherson Elastomers					
Eaglehawk	EHK031	Coliban Water 1	Single Isolation Substations		1		
Eaglehawk	EHK022	Coliban Water 2					
Eaglehawk	EHK022	Hofmann Engineering	Shared Isolation Substation		1		
Eaglehawk		Thales Australia					
Eaglehawk	EHK033	Southern Shorthaul Railroad	LV conversion			1	
Eaglehawk	EHK033	Parmalat Australia	Single Isolation Substation		1		
Eaglehawk	EHK034	Bendigo Health Care	Single Isolation Substation	1			
Colac	CLC011	Regal Cream Products (East Fdr)	Network hardening				Harden
Colac		Regal Cream Products (West Fdr)					
Colac	CLC011	AKD Softwoods (7-15 Forrest St)	Network hardening ²	→			Harden
Colac	CLC003	AKD Softwoods (Warrowie Rd)	Single Isolation Substation		1		
Colac	CLC003	Australian Lamb Company	Single Isolation Substation		1		
Colac	CLC003	Regal Cream Products (Lot 2 Forrest St)	Single Isolation Substation		1		

Notes:

- 1) Prototype site
- 2) Network hardening discussions have commenced with this HV customer

5. REFCL – TRANCHE 1 ISOLATION SUBSTATIONS

Isolation Transformer delivery and construction schedule

Note: Commissioning dates subject to full customer agreement following negotiation of location and easement. We are establishing agreement for leases (AFLs) with all customers. We expect to have all signed by the end of June.

Note: Rate of delivery is 3 per month	Number Iso Tx Required	Delivery Date	Iso Tx Commissioning Completion Date	ZSS Commissioning Start Date	Detail
Castlemaine	3	Jun-18	Jul-18	Aug-18	2 x 6MVA, 1 x 3MVA (1 x 6MVA is the Prototype)
Winchelsea	2	Jul-18	Sep-18	Oct-18	1 x 6MVA, 1 x 3MVA for distribution (Not for HV Customers)
Eaglehawk	6	Jul-18 to Sep-18	Oct-18	Nov-18	2 x 6MVA , 4 x 3MVA
Colac	3	Sep-18	Nov-18	Dec-18	1 x 6MVA, 2 x 3MVA

Item	Activity	Date	2018							
			May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4	Delivery window	May 19 – Oct 18		CMN (3)	EHK (2), WIN (2)	EHK (3),	EHK (1), CLC (3)			
5	ZSS commissioning date	Various				CMN		WIN	EHK	CLC

6. REFCL EXEMPTION REQUESTS

PAL has submitted Tranche 1 exemption applications for:

- The PAL lines connecting our applicable HV customer sites to their isolating substations
- Two sections of underground cable (total 53.5km) ex-Winchelsea zone substation funded through the Powerline Replacement Fund

These applications were submitted on 11th May.

Following a meeting with ESV, there were some minor amendments made and these applications have been resubmitted on June 7th.

At this stage no decision has been made on further future exemption requests.

Zone Sub	HV Customer	Approval status
Castlemaine	Flowserve	With ESV
	George Weston Foods	With ESV
	AGL Hydro	With ESV
Colac	AKD Softwoods (Warrowie Rd)	With ESV
	Australian Lamb	With ESV
	Bulla	With ESV
	AKD Softwoods & Regal Cream (combined)	With ESV
Eaglehawk	Bendigo Health	With ESV
	Coliban Water	With ESV
	Hoffman Engineering & Thales	With ESV
	Keech Castings & Motherson Elastomers	With ESV
	Parmalat Australia	With ESV
Winchelsea	NA (Isolation subs are for 53.5km of Powercor cable)	With ESV

7. ESC DRAFT DECISION

THE DRAFT DECISION

"...high voltage customers will need to take reasonable measures to safeguard their own equipment during a REFCL operation"

OUR TAKE

- Places the onus on HV customers to ensure their assets are REFCL-ready
- Distribution businesses are now reliant on HV customers to undertake their works in order to meet legislated timelines
- No change to the current scope of works for Tranche 1 HV customers

CLARIFICATION REQUIRED

- Who informs HV customers of the draft decision and implications?
- What are the consequences if a HV customers' installation is not REFCL-ready?
- What is the process to confirm a HV customers' installation is REFCL-ready?
- Who confirms or signs-off that a HV customers' installation is REFCL-ready?
- Where do we direct customer inquiries, such as funding assistance?

8. SWER ACR DEPLOYMENT STATUS

Total of 1,045 SWER systems are to be protected with new functionality ACRs



Year	2018	2019	2020
Qty to be replaced	350	265	227



9. POWERLINE REPLACEMENT

