

POWERLINE BUSHFIRE SAFETY COMMITTEE

**MINUTES OF MEETING No. 03**

**Held: Tuesday 13 June 2017, at 9:00 am**

**Location: Level 5, Building 2, 4 Riverside Quay, Southbank**

<b>Attendees:</b>	<b>Status</b>	
David Harris	Member	Chairman
Gaye Francis	Member	Director, R2A Pty Ltd
Steve MacDonald	Member	Engineering Support Manager at Orion NZ Ltd
Tony Marxsen	Member	Director, Marxsen Consulting Pty Ltd
Claire Noone	Member	Principal, Nous Group
Gary Towns	Member	Director, Facio Pty Ltd
Ian Burgwin	Observer	General Manager Electrical Safety & Technical Regulation, ESV
Paul Fearon	Observer	Director of Energy Safety, ESV
Tom Hallam	Observer	General Manager Regulation and Network Strategy, AusNet Services
Steven Neave	Observer	General Manager Electricity Networks, CitiPower and Powercor
Ashley Hunt	Observer	Powerline Bushfire Safety Program, DELWP
Julian Kucherhan	Observer*	Powerline Bushfire Safety Program, DELWP
Robert Skene	Secretariat	Senior Technical Advisor, ESV

\* Part time – for the Fire Loss Consequence Modelling only.

**Agenda item Discussed:**

<b>Item</b>	<b>Matter</b>	
Part A	Committee Members and secretariat only	
1	Committee Discussion	David Harris
Part B	Committee Members and Observers	
2	Introduction	David Harris
3	DB progress to-date	Steve Neave/ Tom Hallam
4	ESV HV Customer Survey	Tony Marxsen
5	Fire Loss Consequence Modelling	Julian Kucherhan
6	NZ GFNs	Steve MacDonald
7	Discussion	David Harris
8	Future meetings	David Harris

**Part A - Committee members and secretariat only**

**1. Committee Discussion**

**1.1. Committee procedural practices**

The Chair suggested and Members agreed that future minutes should be briefer to capture what has been resolved at the meeting. It was also agreed that any specific matters to be included in the minutes will be at the specific call of the committee Member(s).

**1.2. Register of Engagements – Committee Members**

The Chair requested Members provide advice to the Secretariat on engagements where there may be a perceived conflict of interest.

**Committee decision:** Passed without dissent.

**Action:** Members to provide advice the Secretariat by email matters where there may be a perceived conflict of interest.

**Action:** The receipt of notification by Member(s) of a perceived conflict to be an agenda item for Part A of the meeting, with the details of the distribution of the notification restricted to the Chair.

**Part B - Committee Members and Observers**

**2. Introduction**

**2.1. Attendance and apologies**

The Chair informed the meeting that Gail Moody had extended her apology for nonattendance at this meeting.

**2.2. Previous meeting minutes**

Minutes of the previous meeting were circulated out of session and comments received from some Members and Observers.

The Chair requested Members approve the minutes as a record of the meeting held on 14 March 2017.

**Committee decision:** Passed without dissent.

**2.3. Outstanding actions from previous meetings**

Meeting date	Matter	Action	Status
14/03/2017	<b>1.3 Committee procedural practices</b>	Secretariat to commence the drafting of a process/protocol for the provision of advice to the DoES, when requested.	Initial discussions held within ESV. Members invited to provide views on the process.

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Meeting date	Matter	Action	Status
	<b>1.4 Other</b>	Secretariat to provide Members a list of matters where the industry is likely to seek relief from requirements with each meeting agenda.	Initial list attached.
	<b>2.3 Outstanding matters</b>	The Secretariat to advise Members when the new web site contains all of the linked material.	Members notified by email.
	<b>3. Electricity Distribution Business - progress to-date</b>	Copy of the presentation to be distributed with the minutes and made available on the ESV PBSCs web page.	Copy of the presentations distributed to Members and Observers. Copy of the presentations posted on the ESV PBSCs web page.
	<b>3. Electricity Distribution Business - progress to-date</b>	Consideration be given to distributors taking the committee through their risk modelling.	DWELP to give a presentation to the June PBSC on the risk modeling used to inform the current legislation.
	<b>6. Cross-country faults on a REFCL network</b>	Copy of the presentation to be distributed with the minutes (size limitations permitting) and made available on the ESV PBSCs web page.	Copy of the presentations distributed to Members and Observers. Copy of the presentations posted on the ESV PBSCs web page
<b>Outcome legend</b>			Open
			Closed

**Action:** Secretariat to provide Members a list of matters where the industry is likely to seek relief from requirements with each meeting agenda.

**Action:** Members to consider the content of the process/protocol for the provision of advice to the DoES, when requested, and provide suggestions to the Secretariat by the end of June 2017.

**Action:** Following input from Members, the Secretariat to produce an outline of the process/protocol for the provision of advice to the DoES, when requested, and circulate this to Members.

### 3. Electricity Distribution Business - progress to-date

Tom Hallam and Steve Neave provided a joint update on progress in implementation of the requirements contained in the Electricity Safety (Bushfire Mitigation) Amendment Regulations, as many of the matters were common to both distributors. The presentations given were related to the installation of REFCLs and covered conductors.

A PowerPoint presentation was provided and included an overview of:

- **REFCL Trials – Current Status**

- Gisborne and Woodend trial zone substations.

Gisborne ZSS:

Powercor advised that at this time it appeared that the required “capacity” was likely to be attained at the small trial ZSS.

Work has been initiated through the REFCL TWG to determine the testing criteria with Tony Marxsen having provided a paper on the matter. It is intended that on completion the test criteria is to be submitted to ESV for acceptance.

False tripping has been experienced impacting on reliability and Swedish Neutral has been on site making adjustments to algorithms.

Woodend ZSS:

Powercor reported on recent problems experienced at this trial ZSS during commissioning with a failure of a previously stress tested cable. Commissioning was placed on hold until repairs completed and replacements sourced.

To achieve accurate balancing of the network it was determined that the current transformers (CT) are required to be replaced. These CTs had not been included in the current contingent funding applications to the AER as they were believed to be of sufficient accuracy for the operation of the REFCL.

Powercor stated that they saw many challenges remaining in attaining of the capacity at this trial ZSS.

- Woori Yallock trial zone substation.

AusNet Services provided a slide providing comment on the impact which undergrounding the network has had, and is expected to have in the future, on achieving the required capacity at this trial ZSS. AusNet Services provided further clarification that whilst 22kV cables may have been used in its earlier programs that it was intended that future programs adopt 33kV cables as the standard.

The Chair noted the option of the use of 33kV cables was to reduce the capacitance and minimise the impact on REFCL performance. The DELWP Observer also noted that PBSP would consider the acceptance of the use of 33kV cables for future Powerline Replacement Fund projects.

AusNet Services advised that as all of the options, including disconnecting certain feeders with underground cables away from this ZSS to enable the

REFCL to function, have been exhausted that the REFCL is expected to stop operating at the end of June 2017.

AusNet Services further on the performance of the trial ZSS over the past two months, with two major hardware failures resulting in the GFN being disconnected for a 10 day period. Comment was made that there remains a heavy reliance on Swedish Neutral for support with limited knowledge transfer.

An updated graph derived from the future adoption of 33kV cable, to reduce the effect of capacitance, was received and distributed to Members and Observers following the meeting.

**Action:** PBSP to report back to the next meeting on the inclusion of 33kV underground cables in any new Powerline Replacement Fund project submitted by distributors.

- **Timeline & Contingent Project**

- AusNet Services

- An updated REFCL program timetable slide was shown containing the status for each of the targeted zone substations and the number of HV customers for each of the three tranches of the program.

- AusNet Services advised that the construction of the Barnawartha ZSS has commenced and construction of Rubicon A is expected to start this month (June).

- Further it was their expectation that three ZSSs will be in service the coming summer.

- Powercor

- Updated REFCL program timetable slides were shown containing the status for each of the targeted zone substations with changes shown from the slide presented at the last PBSC meeting with Eaglehawk ZSS being brought forward into tranche 1.

- In addition to the trial sites of Gisborne and Woodend, Powercor stated that they expect to have Castlemaine, Marlborough and Camperdown ZSSs in operation for the coming summer.

- Powercor stated that all of the six ZSSs in tranche 1 were included in their contingent project application to the AER and the application included the use of isolating transformers to maintain the voltage supplied to HV customers to within the electrical distribution code. Powercor advised that the AER have indicated they will hand down their determination on their contingent project application by August 21, 2017.

- **Electrical Distribution Code & HV Customers**

- A slide was presented containing the distributors' understanding of the nature and timing of the review of the Code, following a number of conversations with the ESC. The distributors confirmed it was their expectation that the review would be holistic and not completed until the next calendar year. Further that the ESC would give no guarantee that the Code would be amended following that review.

- DELWP advised that from their conversation with the ESC that there was a very strong intent by the ESC to deal with the Code's voltage specification separately to the balance of the requirements.

The distributors' understanding of the ESV commissioned HV customer survey was summarised on a slide presented, noting that the report suggests that the customer side solution could be more cost effective.

Powercor advised that their tranche 1 contingent project application to the AER included the adoption of the isolating transformed solution for the four out of six ZSSs which have HV customers. Further Powercor advised that whilst they expected REFCLs to be installed in all of the tranche 1 ZSSs, they would be seeking a six month extension to the legislative completion dates for those ZSSs which have HV customers.

Powercor also advised that whilst they believed they would be able to install REFCLs in each of their tranche 1 ZSSs by the legislative date that there was insufficient evidence available at this time to assure that the REFCLs would be able to deliver the performance specified in the legislation.

AusNet Services confirmed that they also expect to have REFCLs installed in all of their tranche 1 ZSSs by the required date, and that they were in a similar position to Powercor in regard to the installation of isolating transformers and were also considering a time extension request.

Further information and an updated slide was received and distributed to Members and Observers following the meeting clarifying the distributors' view regarding tranche 1, namely;

- A network side solution is within the DB control.
- That the distributors were not aware of any alternate network side solution other than isolating transformers.
- A network solution is the only option that meets their existing obligations under the current regulatory framework, specifically the Distribution Code and AER contingent project application process.
- A network solution is the most viable given the time constraints for tranche 1; however distributors were still likely to seek a 6 month extension given the lack of changes to the current regulatory framework around this matter.
- Early engagement with customers, along with appropriate amendment to the regulatory framework, could allow more cost effective customer side solutions on future tranches.

- **Extension to Tranche 1**

Powercor confirmed their current intention to apply to ESV for an extension to the timelines for tranche 1 where the ZSS has HV customer(s) and the proposal is to install isolating transformers.

Powercor stated that their approach would be informed by the AER's decision regarding their contingent project application for tranche 1 before proceeding.

AusNet Services confirmed that their position was similar to that of Powercor.

A slide graphically showing the time based phases of Powercor's tranche 1 program was shown which includes an intended six month extension in time. Powercor indicated that this extension to the timeline would provide no additional bushfire risk to their customers as the extra six months sought was over the winter period, where they would not be operating the REFCL in fire risk mode.

- **Covered conductor development**

Powercor provided an update on the project for the utilization of the Nexans LoSAG conductor.

Powercor advised that further installation has been suspended following a joint investigation and further testing with the manufacturer on the nature of failure which had occurred during the installation of the conductor.

Powercor also stated that it was unclear if there is a fundamental design flaw and all work regarding LoSAG conductor has been suspended until a thorough due diligence has been completed.

As a consequence Powercor have reverted to the underground design standard for new projects where the LoSAG conductor may have been considered.

ESV has provided Powercor with short term exemptions to permit the installation of bare conductors for three customer driven projects in low bushfire risk area townships contained within Electric Line Construction Areas. The exemptions were granted to allow time for the completion of the development of the LoSAG conductor. A condition of the exemption is that these bare conductors are replaced with a form of covered/underground conductor within a specified period.

**Action:** Copy of the Electricity Distribution Business progress to-date presentation to be distributed to Members and Observers and made available on the ESV PBSCs web page.

#### 4. ESV HV Customer Survey

ESV commissioned Marxsen Consulting to undertake a limited survey to form a view of the potential safety risks to both the HV customers' assets connected to REFCL networks as well as the fire performance of the distributors connected network.

Tony Marxsen provided a brief outline of the findings and recommendations contained in his report, concluding that there is a small but real risk posed from the operation of a REFCL on both the HV customer sub-network as well as the potential to compromise the effectiveness of a REFCL protected network to reduce fire ignitions. The report provides insights into the potential solutions and the work required to address these risks.

The survey was conducted over 12 sites, including two Metro Trains and two Melbourne water sites, with 365 assets of ten types were reviewed. Sites reviewed had 51 assets owned by network operators. The survey reported that on occasions there was a lack of clarity as to who owned certain assets.

Costs of mitigation shown in the slide are in \$M and depict the cost of mitigation for asset replacement, dominated by the costs of cable replacement. Costs assessed associated with Metro trains were seen as low with little underground cable present.

The Chair noted the earlier comment provide by the distributors on the Marxsen Report and suggested readers of the minutes consider those comments when reading the report. The Chair also noted that the report had been subject to a peer review process which included distributors and other stakeholders.

**Action:** Copy of the presentation ESV HV Customer Survey as well as the whole Marxsen report to be distributed to Members and Observers and made available on the ESV PBSC's web page.

## 5. Fire loss Consequence Modeling & Risk Reduction Model (RRM)

DELWP provided a presentation on their approach taken to target areas/powerlines of high bushfire risk.

A PowerPoint presentation captured the government's response to powerline bushfire risk including; the implementation of certain VBRC recommendations, the framework for determining the geographical priorities, powerline risk profiling using a three part precautionary approach (Fire Loss Consequence -2014/15 AN140 Ash Wednesday data set, Fire Ignition Likelihood, and Fire Response Complexity) to form the PBSP Powerline Profile Model, and the PBSP Risk Reduction Model.

DELWP emphasised that the basis for these studies was relative risk reduction from an initial baseline notwithstanding other initiatives undertaken by ESV and the distributors. The presentation also included how Electric Line Construction Areas were determined and how zone substations for REFCL deployment were selected.

DELWP reinforced that these models were the initial basis of defining overall areas of high bushfire risk and noted that the administration of the legislative obligations benefit from the drilling down into the data, citing the current inclusion of low bushfire risk townships captured in the Electric Line Construction Areas as an example.

As the presentation contained certain sensitive information its distribution is to Members and Observers of a confidential and NOT FOR PUBLIC RELEASE basis, noting that much of this sensitive information was already in the possession of the distributors. DELWP undertook to provide a public version for posting on the ESV website.

An updated presentation removing and substituting sensitive material was received following the meeting.

<p><b>Action:</b> Copy of the NOT FOR PUBLIC RELEASE Fire loss Consequence Modeling presentation to be distributed to Members and Observers with the minutes and a public version to be made available on the ESV PBSC's web page.</p>
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## 6. New Zealand GFNs

Orion provided a brief update on their intended approach regarding the GFNs which they took out of service for safety reason.

The GFNs in the Orion network remain out of service.

## 7. Discussion

### 7.1. Committee Member raised matters

There were no additional matters raised by Members.

### 7.2. Other matters

There were no matters referred to the committee by ESV for advice.

ESV advised that following the peer review process, the Marxsen report titled "Customer assets connected to REFCL networks: a preliminary risk study" would be published on its website and contact stakeholders seeking their comments. With the agreement of the stakeholder ESV undertook to post those comments on its website.

ESV also stated that each of the distributors would be formally contacted to seek their plans to address the potential risks in the report.



The Chair thanked the presenters for interesting and informative papers.

## **8. Meetings**

### **8.1. Next meeting**

Meeting scheduled for 12 September, 2017, starting at 9:00am and finish at 12:00 noon, preceded by a “meet and greet” at 8:30 am.

### **8.2. Subsequent meetings**

Confirmation was given that subsequent meetings are scheduled for;

12 September 2017, 12 December 2017, 13 March 2018, 12 June 2018, 11 September 2018, and 11 December 2018.

It was also recognised that additional ad hoc Member meetings may be scheduled as a consequence of the committee having been requested to provide advice to the Director of ESV.

The Chair thanked the presenters for interesting and informative papers and closed the meeting.

**Meeting closed at 12:05 pm.**

### **List of Attachments**

- A. Acronyms
- B. AusNet Services and Powercor presentation progress to date (as amended post meeting)
- C. Marxsen report - Customer assets connected to REFCL networks: a preliminary risk study
- D. Approach to targeting areas/powerlines of high bushfire risk (Committee only version)