

POWERLINE BUSHFIRE SAFETY COMMITTEE

MINUTES OF MEETING No. 13

Held: Thursday 10 December 2019, at 10:00 am

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

Attendees:	Status	
David Harris	Member	Chairman
Gaye Francis	Member	Director, R2A Pty Ltd
Steve MacDonald	Member	General Manager Infrastructure, Orion NZ Ltd
Tony Marxsen	Member	Director, Marxsen Consulting Pty Ltd
Gail Moody	Member	Director, Wilmin Consulting
Gary Towns	Member	Director, Facio Pty Ltd
Paul Fearon	Observer	Director of Energy Safety, ESV
Ian Burgwin	Observer	General Manager Electrical Safety & Technical Regulation, ESV
Tom Hallam	Observer	General Manager Regulation and Network Strategy, AusNet Services
Steven Neave	Observer	General Manager Electricity Networks, CitiPower and Powercor
Mike Carter	Observer	General Manager Network Engineering, AusNet Services
Andrew Bailey	Observer	REFCL Technical Director, Electricity Networks, CitiPower and Powercor
Tiah Monahan	Observer	A/Director, Energy Programs Energy, Environment and Climate Change, DELWP
Robert Skene	Secretariat	Senior Technical Advisor, ESV
Apologies:		
Claire Noone	Member	Principal, Nous Group
Georgie Foster	Observer	Director, Energy Safety and Security, Energy, Environment and Climate Change, DELWP
Lorna Mathieson	Observer	Director Energy Programs, Energy Demand, Programs and Safety, Environment and Climate Change, DELWP

Agenda item Discussed:

Item	Matter	
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	HV customers – Update on impact on the REFCL program timeline	Secretariat
5	Discussion	David Harris
6	Future meetings	David Harris

Part A - Committee Members, the Secretariat, the Director of Energy Safety

1. Committee Discussion.

1.1. Meeting opening

David Harris advised the committee that this was the last meeting he would Chair, although he would continue to perform the role of committee Chair until the future of the committee was determined early in the New Year.

The Chair further advised that a number of items had been included in the agenda for this meeting for committee discussion, as the soundness of technical issues associated with the REFCL deployment has been recently raised in the public arena. Some of this material has been distributed to Members by the Secretariat prior to the meeting to facilitate discussions.

1.2. Register of Engagements – Committee Members.

Gary Towns advised that he has been approached by the CSIRO to participate in a review of the risk levels associated with the deployment of REFCLs into AusNet Services Kalkallo zone substation. This project is yet to be confirmed.

Tony Marxsen advised the Committee that he had been engaged by Southern California Edison to assist with their wild fire prevention planning.

No further engagements by Members were raised.

Action: Gary Towns to advise the committee if the Kalkallo review proceeds.

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

1.3. Review of Victoria's Electricity & Gas Network Safety Framework.

The Director of Energy Safety (DoES) provided a further update on the implementation of recommendation 27 of the review. The DoES confirmed that the remit of the Committee to provide an annual REFCL implementation report, as recommended by Dr Grimes in his report, is still being considered. In the meantime DELWP will likely produce the REFCL implementation report, with Energy Safe Victoria (ESV) and the electrical distribution businesses providing ongoing updates on the performance of REFCLs.

1.4. PBSC Charter

There was then a conversation about the future of the committee. Certain Members expressed the view that in light of the range of advice already given by the committee, and its monitoring of the various bushfire mitigation deployment programs over the past three years, that the major work of the committee has now been completed.

There was a brief discussion regarding the timing of the publication of the meeting minutes and the presentations. It was agreed that for this meeting that the meeting minutes be settled out of session and that those minutes be published together with presentations and meeting papers.

1.5. VAGO audit – Update on report

The Secretariat advised the committee that VAGO informed ESV that there will be a short delay in the publication of their draft End of Conduct Brief on Reducing Bushfire Risks. The report is now expected to be available in the week before Christmas. VAGO have requested that comments relating to the factual content

within the report made by the end of January 2020, with tabling of the final report expected mid-2020.

1.6. REFCL Program

1.6.1. Media update

There was a conversation regarding the current media interest into the REFCL deployment program and court actions, both civil and statutory.

Members expressed the view that the two recent articles regarding the deployment of REFCLs within Victoria, written by Fairley P based in Vancouver Canada, and published in the IEEE were balanced and informative.

An article titled "Understanding the variability of Australian fire weather between 1973 and 2017" written by Sarah Harris (CFA) and Chris Lucas (BOM) and published by the Public Library of Science, was also discussed and considered of interest.

Recent presentations and articles published by the Electricity Supply Association of Australia (ESAA) related to REFCLs were noted and discussed. Written commentary on this material was provided by a committee Member. The Chair suggested that the matters contained in this committee discussion paper be raised by ESV in its interaction with the electricity distribution businesses.

Other articles which relate wind speed to failure rates of powerline were also discussed.

The committee was advised that following extensive discussions with and collection of data from the electrical distribution businesses, that a Member has published personal articles on LinkedIn regarding the performance of REFCLs.

Action: Secretariat to attach to the minutes the two recent bushfire related IEEE papers.

Action: Secretariat to attach to the minutes the "Understanding the variability of Australian fire weather between 1973 and 2017 paper

Action: Secretariat to attach to the minutes the commentary provided by a Member on the recent ESAA REFCL related papers.

Action: Secretariat to forward the commentary provided by a Member on the recent ESAA REFCL related material to ESV.

Action: Secretariat to attach to the minutes the articles written regarding the performance of REFCLs by a committee Member as published on LinkedIn.

1.6.2. Time extensions update

The Secretariat advised the committee that time extensions have been granted to AusNet Services for achieving the required capacity at both of their Woori Yallock and King Lake zone substations.

1.6.3. Exemptions update

This item was not discussed at this meeting.

1.7. Other Business

1.7.1. ACR operation sequences on Total Fire Ban days

The Committee briefly discussed the issue of settings used by network businesses for automatic reclose (reconnection) of powerlines that suffered a fault on high fire risk days.

The 2011 recommendations of the Powerline Bushfire Task Force were noted together with analysis of recent powerline-caused ignitions. It was also noted that there appeared to be potential differences in operations policies between network businesses at this time.

The Committee discussed the role of ESV in the further evolution of these settings to optimise risk-reduction benefits to Victorian communities as experience is gained with the new powerline fire safety technologies currently being rolled out. It was suggested that ESV give consideration to data collection and reporting that might provide stronger guidance to the industry on this issue going forward.

1.7.2. Correspondence

The Secretariat advised the committee that correspondence had been received from Groundline Engineering seeking an opportunity to give a presentation on their covered conductor product. The Chair advised that this request had been passed on to ESV for their consideration.

1.7.3. General

There was a brief discussion regarding the progress made in the replacement of powerlines in the declared Electric Line Construction Areas (ELCAs).

One committee Member drew the committee's attention to the data published by the electricity distribution businesses regarding the quantum of the replacement to-date. It was suggested that based on that data it was unlikely that all the powerlines in the ELCAs were unlikely to be replaced in the 25 years as suggested in the Regulatory Impact Study which accompanied the Electricity Safety (Bushfire Mitigation) Amendment Regulations 2016.

Part B - Committee Members and Observers.

2. Introduction.

2.1. General

David Harris advised the meeting as a whole that this was to be the last meeting he would Chair, and reflected that this would also be the last meeting that Paul Fearon the DoES would be attending.

There were then brief introductions of attendees.

2.2. Attendance and apologies.

The Chair advised that the Member Clare Noone and the DELWP Observer Georgie Foster had sent their apologies and would not be attending today's meeting.

The Secretariat noted the receipt of meeting invitation cancellation from the DELWP Observer Lorna Mathieson.

The Chair advised Members that he had received and approved a request for Tiah Monahan A/Director, Energy Programs Energy to represent DELWP Energy Safety at today's meeting.

2.3. Previous meeting minutes.

A draft copy of the Minutes of the previous meeting was circulated out of session. Following minor adjustments a revised copy of the minutes was distributed out of session. The Chair requested Members approve the minutes, as revised at this meeting, as a record of the meeting held on 10 August 2019.

Committee decision: Passed without dissent.

Action: Secretariat to post the minutes of the 10 August 2019 PBSC meeting on the ESV PBSC web page.

Actions from previous meetings.

Actions from the last meeting.

Meeting date	Matter	Action	Status
20/08/2019	1.1 Register of Engagement	Secretariat to update Steve MacDonald's details in Committee's Charter to reflect the appointment to the board of EEANZ.	Charter adjusted.
	2.3 Previous meeting minutes	Secretariat to post the minutes of the 11 June 2019 PBSC meeting on the ESV PBSC web page.	Posted
	3.1 Powercor	Ian Burgwin to seek clarity on the administration associated with the creation of new and revised zone substations within the original REFCL footprint.	Discussions were reported and advice sought by ESV from DELWP on this policy issue.
		Powercor to update their presentation regarding the number of zone substations to be commissioned in 2019.	Update provided.

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Meeting date	Matter	Action	Status
		Copy of Powercor's updated presentation to be distributed to Members and made available on the ESV PBSC web page.	Update presentation distributed to Members and posted to the ESV PBSC web page.
	3.2 AusNet Services	AusNet Services to consider providing costing of the option of partial reconductoring of sections of the Kinglake network to lessen the network damping sufficient to meet the specified capacity. AusNet Services to advise the Secretariat of the AusNet Services decision	Open
		Copy of AusNet Services presentation to be distributed to Members and Observers and made available on the ESV PBSC web page.	Presentation distributed to Members and posted to the ESV PBSC web page.
	4.1 Committee raised matters	Powercor to review Members' request for access to a copy of the paper titled "REFCL Program – Resolution of Conditional Acceptance report", and advise the Secretariat of their decision.	Powercor have authorised the distribution of the paper to Members.
		Secretariat to provide a copy of Powercor's the "REFCL Program – Resolution of Conditional Acceptance report" to Members on a confidential basis.	Paper distributed to Members.
Outcome legend			Open
			Closed

Outstanding actions from previous meetings.

Meeting date	Matter	Action	Status
11/06/2019	2.3 Actions from previous meetings	PBSC Secretariat to convene a meeting for AusNet to discuss in detail the logic contained in their paper titled "Background to REFCL operating modes".	Open - Secretariat to advise on the status. Note 1
Outcome legend			Open
			Closed

Note 1

The Chair requested the Secretariat convene a meeting for AusNet Services to discuss in detail the logic contained in their paper titled "Background to REFCL operating modes". The Chair further requested that invitations be extended to Tony Marxsen, Gary Towns, and the Secretariat as representatives of the PBSC and suggested that ESV (Ian Burgwin or his representatives) be invited to attend this meeting.

The Secretariat advised that this meeting has been held in abeyance as ESV is currently in dialogue with AusNet Services and Powercor on the updating of their Bushfire Mitigation Plans (BFMP) to reflect their intended REFCL operating modes. The ESV General Manager Electrical Safety & Technical Regulation advised that it was his expectation that the electricity distribution bushfire mitigation plans would be approved before Christmas.

No outstanding actions from previous meetings.

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

Standing Action: Presenters to send the Secretariat a copy of their presentation a clear two whole business days before the meeting for distribution to Members.

3. Electricity Distribution Business - progress to-date.

Both AusNet Services and Powercor provided the Secretariat copies of their update on progress in implementation of the requirements contained in the Electricity Safety (Bushfire Mitigation) Amendment Regulations prior to the meeting. Copies of these updates were made available to Members for their study prior to the meeting.

The updates were taken as read with a page turn of the presentations undertaken at this meeting and discussion limited to specific items.

3.1. Powercor.

PowerPoint presentations were provided on Powercor's REFCL and other bushfire mitigation programs.

3.1.1. REFCL Timetable.

A slide showing the current REFCL deployment plan, by tranche, was presented and discussed with Powercor indicating that the timelines for deployment had not changed from those reported to the last committee meeting.

Powercor also advised that all of the Tranche 1 REFCL zone substations had now received unconditional approval from ESV following the resolution of earlier operational issues.

Powercor further advised that two of their Tranche 2 zone substations would be in service this summer, along with Charlton which would be available on Total Fire Ban (TFB) days with the disconnection of the relevant HV Customer on those days.

Tranche 3

Powercor confirmed their previous advice to Members of their intention to construct a new zone substation at Bannockburn and to exclude the Corio (one point) and Geelong (four points) zone substations from the REFCL deployment program. Powercor advised that they were currently in conversation with the Australia Economic Regulator (AER) about their funding proposals for the construction of the Bannockburn zone substation.

The intention to build an additional zone substation at Torquay was also contained in the slide presented. Powercor advised that it was their intention to transfer some of the feeders from Waurin Ponds (four points) to the new Torquay zone substation.

3.1.2. REFCL Tranche 2 deployment timetable.

Powercor presented a slide detailing the deployment times for each of the Tranche 2 zone substations.

Powercor advised Members that with the commissioning of the Charlton and Ararat zone substations that Powercor expect that all of the Tranche 2 zone substations would be in service by the end of 2020.

Powercor drew Members' attention to the significant timeline challenges posed in completing compliance testing for all of the Tranche 2 zone substations within the 2020 calendar year.

At Members request, Powercor provided an update on the Colac zone substation stating that the zone substation had been placed back into service as the summer fire danger period had been declared in Surf Coast Shire. Powercor expressed confidence that issues with the auto loop schemes associated with the dual feed from the Colac zone substation to Lorne had been addressed sufficiently to allow the zone substation to be placed back in service.

3.1.3. REFCL performance update.

As reported earlier in the meeting Powercor advised that ESV has lifted all the conditions on each of their Tranche 1 zone substations.

ESV confirmed that lifting the conditions had followed the re compliance testing of each zone substation and each condition had been dealt with on a case by case basis.

Powercor reiterated that for this summer that they intended to have 10 zone substations in service.

Powercor further advised Charlton zone substation network had been fully tested following the installation of the REFCL, with the HV customer disconnected. Powercor further advised that the REFCL would be placed in service on TFB days, with the disconnection of the HV customer. Powercor expressed the view that they did not expect that the affected HV customer would be REFCL ready until later in the 2019/20 summer period at best. DELWP further confirmed that the financial assistance grant to that HV customer was well advanced, with the next step being the HV customer returning a signed funding agreement. Powercor indicated their intention to advise the HV customer of the isolation of

their network the day before the declared TFB day, and that the isolation would take place when the Forest Fire Danger Index (FFDI) exceeded 30 and remain in place until the FFDI fell below 30.

Powercor confirmed that they had submitted their Tranche 3 REFCL deployment funding application to the AER, with a final decision expected in January 2020. Powercor advised that from conversations with the AER that significant cuts to the funds were likely, with the AER not expected to approve the costs associated with installing REFCLs in the Corio zone substation. It was said that this was because Powercor were proposing not to install REFCLs into the Corio zone substation, alternately reallocating all of the high bushfire risk feeders to a new zone substation to be built at Bannockburn. The AER were said to have advised Powercor that the funding associated with the of construction of the Bannockburn zone substation should be obtained through the periodic price reset (EDPR).

Powercor confirmed that they expected to formally lodge an exemption application associated with the construction of the Bannockburn zone substation next Monday, with the exemption applications for Waurn Ponds and Torquay expected to be lodged in the first quarter of 2020.

3.1.4. REFCL TFB performance.

Powercor presented a slide relating to the performance of REFCLs on the first TFB day for the year with eight (8) REFCL zone substations in operation. 10 permanent and 32 transitory faults were reported on their REFCL networks on this day. Many of the permanent faults were said to be from vegetation.

From the data to hand Powercor expressed the view that there was no evidence to suggest that any of the transient faults had subsequently become a permanent fault.

3.1.5. SWER ACR status.

Powercor presented a slide showing that they were on track to deliver the remaining 78 ACR rollout as committed to ESV, with 40 sites to carry over into quarter 1 2020 well ahead of the timelines specified in the legislation.

3.1.6. Powerline Replacement – Electric Line Construction Areas.

Powercor advised that the cut over and retirement works for the last government funded powerline replacement program site, Ashbourne South, which was planned for 21 November 2019 was cancelled due to the Code Red on that day.

Powercor also advised that they remain committed to the replacement of a further 100km of overhead line in the Electric Line Construction areas by the end of 2020.

A Member queried if Powercor had undertaken modeling to project when all the powerlines in the ELCAs would be replaced. Powercor advised that they had not undertaken such a model at this time.

3.1.7. Actions.

Action: Copy of Powercor's updated presentation to be distributed to Members and made available on the ESV PBSC web page.

Standing Action: Powercor's presentation to include updates on SWER ACR deployment and powerline replacement in Electric Line Construction Areas (both as part of the Powerline Replacement Fund and as a result of other obligations).

3.2. AusNet Services.

PowerPoint presentations were provided by AusNet Services on their REFCL and other bushfire mitigation programs.

3.2.1. REFCL Program Overview.

AusNet Services provided an update on their REFCL deployment program confirming that they had eight zone substations in service on the recent Code Red day and with the commissioning of the Wonthaggi zone substation they now have nine zone substations available for this summer.

There was a brief conversation about the performance of the REFCL networks on the Code Red day (21 November 2019), with AusNet Services reporting 3 permanent and 3 transient earth faults. AusNet Services advised Members that a permanent fault at the Rubicon zone substation lead to a cross country fault with a resultant small fire.

3.2.2. REFCL Tranche 1 Compliance.

AusNet Services provided an updated slide on the compliance of the Tranche 1 REFCL zone substations, with six REFCL zone substations having been given conditional approval by ESV. Following the submission of a comprehensive action plan ESV has granted a further time extension to achieve full compliance to the remaining two Tranche 1 zone substations.

AusNet Services discussed the substantial work undertaken with the GFN supplier Swedish Neutral on their firmware. It was said that revisions to the firmware had resulted in the improved operating performance seen across all their REFCL zone substations.

Slides showing the fundamental voltage collapse for the new and previous firmware were shown to Members and discussed. AusNet Services confirmed that the improved GFN firmware was now installed at all of their Tranche 1 zone substations.

3.2.3. REFCL Tranche 1 Roadmap

AusNet Services provided an updated slide showing the revised timelines for achieving compliance for all of their Tranche 1 REFCL zone substations.

3.2.4. REFCL Tranche 2 HV Customer Readiness.

AusNet Services provided an update on their discussions with Metro Trains Melbourne (MTM) regarding the four MTM installations projected to not be REFCL ready in time for AusNet Services to meet their statutory Tranche 2 REFCL deployment deadline.

AusNet Services advised the committee of initiatives agreed with MTM to expedite the commissioning of their REFCL zone substations. These initiatives include the permanent and temporary transfer of some MTM installations from a REFCL zone substation to non-REFCL zone substation. As a result AusNet Services now expect that only three of their REFCL zone substations will now be adversely affected by MTM installations not being REFCL ready.

AusNet Services advised the committee that installation of REFCLs into their zone substations was proceeding on the original timeline and were not being delayed by the HV customer not being REFCL ready.

From their discussions with MTM AusNet Services advised that MTM were not in favor of having their installations isolated on TFB days. The reason given was that MTM did not want to adversely affect the running of trains on those days. As such AusNet Services advised the committee that at this time they did not intend to isolate those MTM installations and bring those REFCL networks into service on TFB days.

AusNet Services further advised that from their discussions with MTM there seemed little opportunity to undertake commissioning works on the affected REFCL zone substations during the evening. It was said that MTM did not want their installations isolated for even short periods of time overnight due to concerns that their installations might not be re-energised in time for the morning train services.

There was considerable discussion in the meeting on the cause of the delay, the potential consequences of delaying the commissioning the REFCL zone substations in high bushfire risk areas, the benefit of providing transport services to the public and the overarching time line obligations placed on AusNet Services through legislation.

3.2.5. REFCL Tranche 2 Delivery Roadmap.

AusNet Services provided a slide depicting the time based Tranche 2 REFCL deployment.

As discussed earlier in the meeting, AusNet Services advised Members that they were now hopeful that the number of REFCL zone substations whose commissioning was adversely affected by MTM installations not being REFCL ready was now likely to be three and not four as shown in the slide presented.

3.2.6. REFCL Tranche 3 update.

AusNet Services provided a slide relating to their Tranche 3 REFCL deployment program.

AusNet Services advised that the AER had published their determination on their Tranche 3 contingent project funding application.

It was said that the AER had not provided funding for the Kalkallo (KLO) zone substation in this determination as there remained issues of the detail of the solutions proposed. AusNet Services advised that the agreement with the AER was that funding for KLO would now be processed as part of their next general price review (EDPR).

AusNet Services further advised that they intended to engage the CSIRO to undertake the relative bushfire risk assessments of the proposed solutions as part of seeking a technical exemption from ESV.

3.2.7. ACR Program

AusNet Services provided a slide on their completed ACR program in their updated presentation. This slide was not discussed during this meeting.

3.2.8. Powerline Replacement – Electric Line Construction Areas.

Powerline Replacement Fund

A slide relating to the governments' Powerline Replacement Fund (PRF) was presented. AusNet Services advised that these programs were now scheduled for completion in March 2020. This slide was not discussed during this meeting.

Electric Line Construction Areas

A slide was presented on AusNet Services' EDPR proposal to continue the SWER powerline replacement started under the previous government PRF program.

AusNet Services advised that generally their network was assessed as being in good condition and as such only a small amount of the network was being replaced under the condition based replacement programs. That said to avoid any replacement "bow wave" AusNet Services are proposing to apply to the AER for funding, through their EDPR, to replace approximately 110km of their SWER network over the five year funding period. AusNet Services confirmed that the

proposal was to replace the current bare wire SWER network with an insulated SWER network.

3.2.9. REFCL Program Overview

AusNet Services provided a slide depicting their overall REFCL deployment program. This slide was not discussed during this meeting.

3.2.10. REFCL equipment suppliers

AusNet Services provided the committee with a detailed presentation on alternate REFCL suppliers and encouraging trials which have been undertaken on that equipment.

3.2.11. Actions.

Standing Action: AusNet Services' presentation to include updates on powerline replacement in Electric Line Construction Areas (both as part of the Powerline Replacement Fund and as a result of other obligations)

Action: Copy of AusNet Services updated presentation to be distributed to Members and Observers and made available on the ESV PBSC web page.

3.3. HV customers – DELWP High Voltage Customer Assistance Program (HCAP) update.

DELWP provided an update on the HCAP funding program as it applies to non-government HV customers.

DELWP advised that their current priority was to execute the funding agreements with the Tranche 2 HV customers.

DELWP provided the committee with a detailed breakdown of the status of the progress in executing funding agreements, with it said that more than half of the Tranche 2, and a number of Tranche 3, HV customers have entered into a funding agreement.

The details of the status of the funding agreement with the HV customer connected to Powercor's Charlton zone substation were discussed.

DELWP also advised the committee that the relevant energy DELWP Executive Director has flagged the issue of delays in the REFCL deployment associated MTM trains at a peer level to see what can be done to expedite MTM installations becoming REFCL ready.

4. Discussion.

4.1. Committee Member raised matters.

4.2. Other matters.

There were no other matters on the bushfire mitigation initiatives raised by Members.

The Chair thanked the DoES for his leadership and support for the committee. The Chair also reflected on the substantial engagement that had made the committee function successfully.

The DoES thanked the committee and industry for their support in the execution of the bushfire mitigation initiatives reflecting on the substantial progress made in creating a safer Victoria.

5. Meetings.

5.1. Next meeting.

The date of the next meeting has not been clearly established as there will be a need to revise the committee Charter in the light of the current Chair retiring. A place holder for the next meeting will never the less be sent out to Members and Observers for 10 March 2020.

The meeting is to be scheduled to start at 10:00 am and finish at 12:30 pm, preceded by a “meet and greet” at 9:30 am.

Action: PBSC Secretariat to send out a 10 March 2020 placeholder meeting invitation for the next meeting.

The Chair then closed the meeting.

Meeting closed at 12:30 pm.

List of Attachments:

- A. Powercor presentation,
- B. AusNet Services presentation
- C. How Tech from Australia Could Prevent California Wildfires and PG&E Blackouts – IEEE, 8 November 2019. <https://spectrum.ieee.org/energywise/energy/the-smarter-grid/breaking-pges-cycle-of-blackouts-and-wildfires>
- D. How an Australian State Fought Back Against Grid-Sparked Wildfires – IEEE, 11 November 2019. <https://spectrum.ieee.org/energywise/energy/the-smarter-grid/how-an-australian-state-faced-devastation-from-gridsparked-wildfires>
- E. Understanding the variability of Australian fire weather between 1973 and 2017” Harris S (CFA) and Lucas C (BOM) - Public Library of Science (<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0222328>)
- F. A Members commentary ESAA REFCL related papers.
- G. Articles published on LinkedIn by a committee Member in a private capacity regarding the recent performance of REFCLs.