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Energy Safe Victoria Validation Report

Powercor 2022–23 Fire Start Report

Final report

VICTORIA State Government

Executive summary

The Victorian Governor in Council made the Order in Council for the F-Factor Scheme Order 2016 under section 16C of the *National Electricity (Victoria) Act 2005*. This was gazetted on 22 December 2016. On 20 July 2023, the Victorian Government gazetted the F-Factor Scheme Amendment Order 2023 that brought into effect changes to the calculation of Ignition Risk Units resulting from the move to the new Australian Fire Danger Rating System.

Powercor provided its fire start report to the Australian Energy Regulator (AER) on 28 September 2023. This report covered the period 1 July 2022 to 30 June 2023.

The AER forwarded the fire start report to Energy Safe Victoria on 28 September 2023 for validation by 30 November 2023. Energy Safe undertook the validation process in a staged manner as follows:

- A **preliminary review** to ensure the information provided was complete and in a satisfactory form.
- A **completeness assessment** to determine whether all fires previously reported to Energy Safe had been included in the fire start report and to ensure all incidents in the fire start report had been previously reported as fires to Energy Safe.
- A **comparative analysis of IRU-specific factors** to identify any material differences between the information reported by Powercor in its fire start report and previously to Energy Safe in relation to those aspects of the fire start report pertinent to the calculation of the total Ignition Risk Units (IRU) amount.
- A **comparative analysis of non-IRU factors** to identify any differences between the information reported by Powercor in its fire start report and previously to Energy Safe in relation to those aspects of the fire start report not pertinent to the IRU calculation.

Further detail on the methodology used for the validation analysis is provided herein.

On completion of the validation analysis, Energy Safe issued the draft 'Energy Safe Victoria Validation Report: Powercor 2022–23 Fire Start Report' to the AER on 30 November 2023. The AER provided a copy of this report to Powercor on 4 December 2023 and invited Powercor to respond with any comments.

Powercor wrote to the AER on 21 December 2023 providing feedback addressing the items raised by Energy Safe in the draft report. Powercor also provided an updated fire start report addressing some of the items raised in the draft validation report.

Energy Safe can confirm that the total IRU amount of 69.6156 as reported in the final Powercor fire start report [*PAL F-Factor RIN 2022-23 (Final Ver 2) 20-12-23*] is correct.

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Introduction

Background

The Victorian Governor in Council made the Order in Council for the F-Factor Scheme Order 2016 (the Order) under section 16C of the *National Electricity (Victoria) Act 2005*. This was gazetted on 22 December 2016. On 20 July 2023, the Victorian Government gazetted the F-Factor Scheme Amendment Order 2023 that brought into effect changes to the calculation of Ignition Risk Units resulting from the move to the new Australian Fire Danger Rating System.

The F-factor scheme is managed by the Australian Energy Regulator (AER). Section 7 of the Order identifies that the AER may request Energy Safe Victoria to validate the fire start reports submitted to the AER by the Distribution Network Service Providers (DNSP). Each fire start report will have an individual validation report.

The Order stipulates that each DNSP will provide a fire start report to the AER by 30 September each year. The Order also stipulates that, if requested by the AER, Energy Safe will provide a validation report to the AER by 30 November each year.

The Order also identifies that the AER may refer any submissions regarding the validation reports to Energy Safe in order to provide a revised validation that responds to the submissions by 15 February in the following year.

Request from the AER

On 28 September 2023, the AER provided Energy Safe with the Powercor 2022–23 fire start report for validation. This comprised the following documents:

- Powercor - F-Factor RIN 2022-23 (FINAL) — Excel spreadsheet
- Powercor - F-Factor Audit Opinion 2022-23 — PDF document

The fire start report considers the Powercor distribution system separately from other systems managed by the service provider.

Energy Safe did not raise any queries with Powercor in preparing this draft validation report. Any queries regarding the fire start report are presented herein for Powercor to address in its response to this report.

Validation process

While the scope of the fire start report and the validation process are detailed in the Order (as outlined below), the approach to be undertaken in assessing the accuracy of information provided is not specified. This section describes the process that Energy Safe applied to the validation assessment; the results are provided later in this report.

Scope

In reviewing the information provided in a DNSP's fire start report, clause 7(3) of the Order stipulates that Energy Safe's validation report:

(b) must include an assessment of the accuracy of the information provided in the fire start report pursuant to clauses 6(3)(d)-(f) and (h), specifically:
(c) must verify the estimate of the ignition risk unit (IRU) amount for the financial year provided under clause 6(3)(g).

These specific items are detailed in clause 6(3) of the Order, which states that a DNSP's fire start report must, among other things:

(d) if the Distribution Network Service Provider is the service provider in relation to more than one distribution system, distinguish between distribution systems;
(e) list all fire starts for a financial year, stating in each case and where known;

  (i) what kind of fire start it was;
  (ii) the date, time and latitude and longitude for each fire;
  (iii) the unique identification number of the pole and polyphase electric line nearest to the fire start;
  (iv) the voltage of the electric line in which the ignition occurred;
  (v) the estimated value of the fire start expressed in IRUs, calculated in accordance with this Order;

(f) state whether the fire was reported to a relevant entity;
(g) calculate the total IRU amount for the financial year on the basis of the information contained in the fire start report, in accordance with this Order;
(h) include such other information as the AER may from time to time specify;

Clause 6(3) of the Order also requires that the DNSP's fire start report:

(i) include an independent audit of the fire start report undertaken by an external auditor;

  (i) stating, in the auditor's opinion, whether the information contained in the fire start report is accurate and reliable; and
  (ii) which is acceptable to the AER.

Methodology applied

For its validation assessment, Energy Safe separated these items into two categories:

- *IRU-specific factors*

  These comprise those factors within the fire start report that are directly relevant to the calculation of the IRUs for the incident. Specifically, these are the date, time and latitude and longitude for the fire and the distribution business' estimate of the IRUs for the fire [items (e)(ii) and (e)(v) in the Order].

- *Non-IRU factors*

  These comprise all other information reported in the fire start report [items (e)(i), (e)(iii) and (e)(iv)].

A more detailed analysis was undertaken of the IRU-specific factors than of the non-IRU factors.

Energy Safe validated the DNSP fire start reports as follows:

- *Preliminary review*

  The purpose of the preliminary review was to determine that the information provided to Energy Safe was complete and in a satisfactory form for Energy Safe to undertake its validation analysis.

  Energy Safe started by reviewing the documentation provided by the AER to ensure that all relevant information was provided and readable.

  The DNSP's fire start spreadsheet was then subject to a preliminary, high-level review to ascertain whether there were any obvious issues with the information contained therein. If the preliminary review identified any issues that prevented the validation process from proceeding, Energy Safe would contact the DNSP so that the DNSP could provide an updated spreadsheet.

- *Completeness assessment*

  The purpose of the completeness assessment was to determine whether:

  – all fires in the DNSP's fire start report are listed as fires in OSIRIS[1]
  – all network-related fires listed in OSIRIS are included in the DNSP's fire start report.

  Where there were differences identified, Energy Safe detailed these in the draft validation report for the DNSP to address.

  The DNSP then provided a rationale for the differences and, where there was a change to the information in the fire start spreadsheet, the DNSP provided an updated spreadsheet reflecting any changes and, in some instances, additional supporting information.

  We reviewed the rationale and information subsequently provided by the DNSP to confirm we were satisfied with the reasons for the inclusion or exclusion of specific incidents.

- *Comparative analysis — IRU-specific factors*

  The purpose of the comparative analysis of IRU-specific factors was to identify any material differences between the information reported by the DNSP in its fire start report and through OSIRIS. In determining materiality, Energy Safe considered whether:

  – any differences in the location were sufficient to result in a change to the location multiplier being applied to the fire start
  – any differences in the location were sufficient to result in an incorrect Country Fire Authority (CFA) region being used for determining the applicable Fire Danger Rating for the fire start
  – any differences in the date and time were sufficient to result in an incorrect Fire Danger Rating being applied to the fire start.

  Where potentially material differences were identified, Energy Safe detailed these in the draft validation report for the DNSP to address.

  The DNSP then provided a rationale for the differences and, where there was a change to the information in the fire start spreadsheet, the DNSP provided an updated spreadsheet reflecting any changes and, in some instances, additional supporting information.

  We reviewed the rationale and information subsequently provided by the DNSP to confirm we were satisfied with the rationale and information provided.

[1] OSIRIS is Energy Safe's incident reporting portal for the major electricity companies to report details of any serious electrical incidents to Energy Safe. These incidents include a range of events that include fires involving network assets.

- *Comparative analysis — non-IRU factors*

  The purpose of the comparative analysis of non-IRU factors was to identify any differences between the information reported by the DNSP in its fire start report and through OSIRIS.

  Where differences were identified, Energy Safe detailed these in the draft validation report. The DNSP was able to comment on these differences in its response to the draft validation report.

  We reviewed the comments subsequently provided by the DNSP to confirm we were satisfied with the rationale provided for any differences.

Following the validation process, Energy Safe then used the final data to calculate an IRU amount for each fire start. We then compared these against the IRU amounts provided by the DNSP, and a total IRU amount was calculated.

Implementation of the AFDRS

Prior to the 2022–23 bushfire season, Victoria moved from the Victorian Fire Danger Rating System (VFDRS) to the Australian Fire Danger Rating System (AFDRS). Fire danger was predicted on a six-point scale from low-moderate to Code Red under the VFDRS, whereas the AFDRS uses a four-point scale.

The move to the AFDRS required changes to the weightings of the danger multipliers in the F-Factor Scheme Order and hindcasting of the DNSPs' fire histories based on the AFDRS in order to derive these weightings and set targets under the Scheme.

In late 2022, the Department of Energy, Environment and Climate Action (DEECA) undertook consultation with the DNSPs, the AER and Energy Safe on the proposed changes to the F-Factor Scheme Order. This included provision of a discussion paper on the proposed changes and a report from CSIRO detailing the methodology used to derive the proposed weightings for the danger multipliers used in the Order.

On 20 July 2023, the Victorian Government gazetted the F-Factor Scheme Amendment Order 2023 that brought into effect the changes to the danger multiplier weightings resulting from the move to the AFDRS. This included clause 4(2)(a)(ii) that addresses the danger multiplier to be applied for fires for the period between 1 July 2022 and when the AFDRS came into operation in Victoria on 1 September 2022.

Caveats

The following caveats apply to the validation process and the contents and findings of this report:

- *Accuracy of the fire start data*

  The validation process involves the comparison of two data sets — the DNSP's fire start report and incident data reported by the DNSP via Energy Safe's OSIRIS. Where there are differences between the data reported in these two data sets, Energy Safe has not sought to ascertain which data set provide the true and accurate record of each fire start for the purposes of this report beyond a desktop assessment.

  Energy Safe can only attest that the data provided in the fire start report is appropriate for the purposes of calculating the total IRU amount. The information provided in the DNSP's fire start report should not be used for other purposes without further analysis of the data to verify it is fit for such purposes.

- *Validation against third-party sources*

  Energy Safe has not sought to validate or verify the data in the DNSP's fire start report in its entirety against third-party sources such as the CFA and Fire Rescue Victoria (FRV). This is not

deemed to be a significant limitation on the validation process as any fires involving network assets should be reported by the CFA/FRV to the DNSP and these are, in turn, reportable to Energy Safe.

Individual records may have been subject to confirmation with the CFA and/or FRV on a case-by-case basis. If this has occurred, it is noted within the report.

- *Independent verification of fire starts*

  Energy Safe does not have the resources available to routinely undertake independent assessments of the DNSP's electricity network to ascertain whether the DNSP identifies all incidents, including fires. As such, the fire starts may be under-reported; however, we are confident that the number of such incidents is small and that no significant fires could have gone unreported.

  Similarly, Energy Safe has not undertaken an independent audit of the DNSP's records to ensure their accuracy. In this regard, we have relied on this being undertaken as part of the independent audit commissioned by the DNSP, the details of which were submitted as part of the fire start report.

Accuracy of information provided

Energy Safe undertook an assessment of the accuracy of the information provided in the Powercor fire start report in accordance with clause 7(3)(b) of the Order. The following sections outline the findings of the assessment.

Further details regarding the specific incidents reported in the fire start report are available upon request.

Preliminary review

Upon receipt of the Powercor fire start spreadsheet, we undertook a preliminary review to ensure that the fire reporting spreadsheet had no obvious issues regarding incomplete or incorrect data.

No high-level issues were identified with the documentation provided by Powercor.

Completeness assessment

We compared the records provided in the Powercor fire start spreadsheet with those available from Energy Safe's OSIRIS incident reporting portal. This comparison was undertaken to assess the completeness of the fire start report, with specific attention paid to identifying any records missing from either data set or classified differently between the data sets.

The analysis identified no incidents in OSIRIS that had not been included in the Powercor fire start report and vice versa.

There were eight incidents listed in OSIRIS as 'Network - Infrastructure' or 'Network - customer connection' that should have been listed as 'Installation' incidents. The OSIRIS records for these incidents were re-opened for Powercor to update.

Comparative analysis — IRU-specific factors

We compared the location (latitude and longitude) and timing (date and time) of each record in the fire start report with the record of the same incident in OSIRIS.

As we recognised that errors may be introduced into the location data due to rounding errors and other system-induced errors, we rounded all latitudes and longitudes to five decimal places to reduce the impact of such errors on the analysis.

We then checked the location area (used to determine the location multiplier) and the CFA fire district (used to determine the danger multiplier) using the DNSP and OSIRIS location data to ascertain whether these differed from the fire start report. As such, we only consider those differences in location that were material to the calculation of the IRU amount.

In undertaking its analysis, Energy Safe focused on those records where the differences could materially affect the IRU calculated for the fire start.

Energy Safe applied the following tests to determine if the differences between the data sets could be material:

- **Test 1 :** Is the difference in coordinates sufficient that a change in location may result in a change to the location multiplier?

  The location area for each fire start was determined based on the coordinates in the fire start report and OSIRIS. This was done by identifying the location areas in which the coordinates were sited. If these differed from the location areas listed in the fire start report, the incident was investigated in

more detail to identify the cause of the difference. Where necessary, the incident was referred back to the DNSP for further clarification.

- **Test 2 :** Does the Fire Danger Rating applicable at the location and time for a record differ when based on the information specified in the fire start report and in OSIRIS?

  The Fire Danger Rating is dependent on the location of the fire (which CFA region the fire occurred in) and the time of the fire (what was the applicable Bureau of Meteorology Fire Danger Rating at the time of the fire).

  The CFA region for each fire start was determined based on the coordinates in the fire start report and OSIRIS. This was used to look up the Fire Danger Rating for that region in the spreadsheet of ratings available from the EM-COP website at the listed date and time of the fire.

  The Fire Danger Rating was determined based on the coordinates and times in the fire start report and OSIRIS. If these differed from the ratings listed in the fire start report, the incident was investigated in more detail to identify the cause of the difference. Where necessary, the incident was referred back to the DNSP for further clarification.

Using these two tests, we identified two incidents where there were differences between the fire start report and OSIRIS.

The coordinates listed for incident 20230209PWA_01 were identical in the fire start report and OSIRIS; however, the fire start report recorded this location as being in ‘LBRA only’ whereas Energy Safe identified it as being in ‘HBRA only’. This had a material impact on the IRUs calculated for this incident.

The HBRA and LBRA boundaries for the Powercor network were amended on 1 November 2021. Figure 1 shows the location of incident 20230209PWA_01 within the dark green LBRA zone on the HBRA/LBRA map that applied prior to 1 November 2021. Figure 2 shows the incident location relative to the current HBRA/LBRA boundaries applicable to the Powercor network. While the incident is close to the LBRA layer, it is clearly now located in the light green HBRA layer and, as such, should be designated as ‘HBRA only’.

Powercor reviewed the findings of the draft validation report and amended the final Powercor fire start report accordingly.

In the case of incident 20230619PWA_01, Energy Safe found a discrepancy of 296 m between the coordinates listed in the fire start report and reported in OSIRIS. While this did not have a material impact on the IRUs calculated for this incident, Powercor needs to review this incident and either update its fire start report or update the OSIRIS record.

Powercor reviewed the incident and advised that the coordinates provided in its fire start report were correct. The OSIRIS incident report was re-opened for Powercor to update.

Figure 1: Location of 20230209PWA_01 relative to the HBRA/LBRA boundaries in effect prior to 1 November 2021

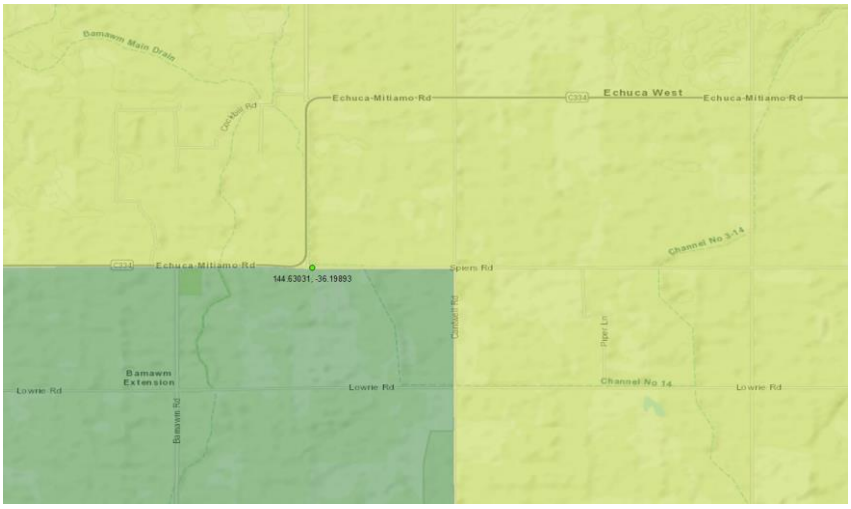

Figure 2: Location of 20230209PWA_01 relative to the HBRA/LBRA boundaries in effect since 1 November 2021

Comparative analysis — non-IRU factors

Energy Safe undertook a comparison of the data in the Powercor fire start report and OSIRIS related to:

- the pole and polyphase electric line identification numbers
- the voltage of the electric line
- the kind of fire start.

A direct comparison was made of the details of the pole and line identification numbers and line voltage in the fire start report and OSIRIS. This did not require any subjective assessment. The comparison identified no incidents with differences in the line identification number between the fire start report and OSIRIS.

There was one incident (20230522PWA_02) where the pole identification number differed between the fire start report and OSIRIS, and another incident (20230613PWA_03) where the voltage differed between the fire start report and OSIRIS.

Powercor reviewed incident 20230522PWA_02 and advised that, while both identification numbers were correct, the details in OSIRIS should be updated to match its fire start report. The OSIRIS incident report was re-opened for Powercor to update.

Powercor amended the voltage for incident 20230613PWA_03 in its final fire start report.

Details from OSIRIS were used to determine whether the kind of fire start had been correctly identified. This involved a subjective assessment of the information.

The assessment of the kind of fire identified the following three fire starts where Energy Safe would have classified the fires differently to Powercor:

- Incident 20220727PWA_01

  Powercor classified this incident as 'started by any other thing forming part of or coming into contact with a distribution system', but Energy Safe's review identified that this incident was 'started by any person, bird, reptile or other animal coming into contact with a distribution system'. The incident was started when an excavator contacted and damaged several underground cables and a kiosk substation. While the designation of 'contact by a person' is open to interpretation in this instance, Energy Safe interprets such contact to include contact by any tool or equipment under the direct control of a person, such as the excavator involved in this incident. This is the interpretation used in assessing other DNSPs' fire start reports.

  Powercor reviewed the Energy Safe interpretation and advised that it disagreed with the interpretation. Energy Safe acknowledges the Powercor position given the lack of clarity regarding the classifications in such an instance. We also suggest that an advisory note providing clarity regarding interpretation of the classifications should be developed and issued to the DNSPs. Given that the classification does not impact the total IRU amount, Energy Safe is willing to accept the Powercor classification while noting the inconsistency with other DNSPs.

- Incident 20230220PWA_01

  Powercor classified this incident as 'otherwise started by a distribution system', whereas Energy Safe classified this incident as being 'started by any tree, or part of a tree, falling upon or coming into contact with a distribution system'. The incident relates to a 165-hectare grass fire that occurred in Glenmore in country Victoria that Energy Safe has investigated and determined to have occurred due to vegetation contact with overhead powerlines.

  Powercor reviewed the fire start type for this incident and amended its fire start report accordingly.

- Incident 20230420PWA_02

  Powercor classified this incident as 'started in or originated from a distribution system', but Energy Safe's review identified that this incident was 'started by any person, bird, reptile or other animal coming into contact with a distribution system'. The fire occurred when a cross arm failed dropping energised bare conductors onto the ground. The cross arm was found to have failed due to termite damage. While the fire was started by the failure of a network asset, the initiating event was animal contact (in this case, termites).

  Powercor reviewed the fire start type for this incident and advised that it still regarded this incident as being initiated by an asset failure. Given that this damage probably should have been identified during asset inspections, Energy Safe agrees with Powercor that this was an asset failure and should be classified as 'started in or originated from a distribution system'.

These differences in the classification of fire start type were not material to the calculation of the total IRU amount.

Verification of the IRU amount

Following the validation of individual records, Energy Safe compiled any changes to the fire start records and assigned the corresponding location and danger multipliers. The individual and total IRU amounts were then calculated.

We then compared our location and danger multipliers with those of Powercor to determine whether Powercor had correctly assigned the multipliers for each fire start. There was one discrepancy in a location multiplier that had a material impact on the total IRU amount and one discrepancy that did not have a material impact. The former was rectified in the final Powercor fire start report.

Energy Safe has identified that the total IRU amount of 69.9156 as reported in the final fire start report [*PAL F-Factor RIN 2022-23 (Final Ver 2) 20-12-23*] is correct.

Conclusion

As noted earlier, the Order stipulates that this validation report:

(b) must include an assessment of the accuracy of the information provided in the fire start report pursuant to clauses 6(3)(d)-(f) and (h), specifically:
(c) must verify the estimate of the ignition risk unit (IRU) amount for the financial year provided under clause 6(3)(g).

Table 1 identifies where these items have been assessed within this report and summarises the key findings of the validation assessment.

Table 1: Summary of findings

Statistic	Relevant report section	Key findings
Clause 6(3)(d)	Request from AER	The fire start report addressed the Powercor distribution system separately from other systems managed by the service provider.
Clause 6(3)(e)(i)	Comparative analysis — non-IRU factors	There were three differences between the assessment of the fire type made by Powercor and that made by Energy Safe. Powercor reviewed its classifications and amend one instance in its final fire start report. Energy Safe has accepted the Powercor interpretation for the other two incidents. These differences were not material to the calculation of the total IRU amount.
Clause 6(3)(e)(ii)	Comparative analysis — IRU-specific factors	There were no material differences in the date and time of incidents in the Powercor fire report. There was one difference in the location multiplier that was material to the calculation of the total IRU amount. This was corrected in the final Powercor fire start report. There was another difference that did not have a material impact. This will be corrected in the OSIRIS record.
Clause 6(3)(e)(iii)	Comparative analysis — non-IRU factors	There was one incident where the fire start report and OSIRIS differed in relation to pole identification numbers. This will be corrected in the OSIRIS record. There were no differences between the fire start report and OSIRIS in relation to polyphase electric line identification numbers.
Clause 6(3)(e)(iv)	Comparative analysis — non-IRU factors	There was one incident where the fire start report and OSIRIS differed in relation to voltage of the line involved in the fire. This was corrected in the final Powercor fire start report.
Clause 6(3)(e)(v)	Verification of IRU amount	The total IRU amount of 69.9156 provided in the final fire start report [*PAL F-Factor RIN 2022-23 (Final Ver 2) 20-12-23*] is correct.
Clause 6(3)(f)	Completeness assessment	Powercor had reported all fires to Energy Safe as the relevant entity.