

ESV Validation Report

United Energy 2018-2019
Fire Start Report

Final report

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.

United Energy provided its fire start report to the Australian Energy Regulator (AER) by 30 September 2019. This report covered the period 1 July 2018 to 30 June 2019.

The AER forwarded the fire start report to Energy Safe Victoria (ESV) on 1 October 2019 for validation by 30 November 2019. ESV 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 ESV 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 ESV
- A **comparative analysis of IRU-specific factors** to identify any material differences between the information reported by United Energy in its fire start report and previously to ESV 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 United Energy in its fire start report and previously to ESV in relation to those aspects of the fire start report not pertinent to the IRU calculation.

Except for the analysis of non-IRU factors, ESV consulted with United Energy regarding any discrepancies identified to clarify the reasons for the discrepancies and to provide an opportunity to amend the fire start report.

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

On completion of the validation analysis, ESV issued the draft “ESV Validation Report: United Energy 2018-2019 Fire Start Report” to the AER on 29 November 2019. Due to outstanding errors in the fire start report, ESV was unable to complete the validation process. The draft validation report reported this conclusion and identified errors that needed to be resolved in finalising the fire start report.

A meeting was held between United Energy and ESV on 6 December where it was agreed that:

- United Energy would provide an updated fire start report
- ESV would review the report and issue a revised validation report to the AER by 13 December.

ESV also offered to discuss securing some additional time for United Energy to formally respond to the revised validation report.

After receipt of the updated fire start report on 11 December 2019, ESV undertook further validation and issued the revised draft “ESV Validation Report: United Energy 2018-2019 Fire Start Report Draft Report (version 2)” to the AER on 13 December 2019. The AER provided a copy of the report to United Energy on 16 December 2019 and invited United Energy to respond with any comments by 10 January 2020.

United Energy wrote to the AER on 7 January 2020 acknowledging there had been issues with reporting to the AER and reassuring the AER that its processes were being revised and supplemented to avoid a recurrence. There was no comment on the findings of the draft validation report.

Following the validation process, ESV can confirm that the total IRU amount of 18.14 provided in the final United Energy 2018-2019 fire start report¹ is correct.

¹ UE F-Factor 2018-19 Final(Rev3).xlsx

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Introduction

Background

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.

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

The Order In Council stipulates that each Distribution Network Service Provider (DNSP) will provide a fire start report to the AER by 30 September each year. The Order In Council also stipulates that, if requested by the AER, ESV will provide a validation report to the AER by 30 November each year.

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

Request from the AER

On 1 October 2019, the AER provided ESV with the United Energy 2018-2019 fire start report for validation. This comprised the following documents:

- | | |
|--|-------------------|
| • UE F-Factor 2018-19 Final | Excel spreadsheet |
| • United Energy 2018-19 F-factor stat dec | PDF document |
| • F-Factor United Energy Audit Opinion 2019 (Signed) | PDF document |

These documents consider the United Energy distribution system separately from other systems managed by the service provider.

On 10 October 2019, ESV confirmed receipt of the above documents and advised the AER that, where ESV deemed it necessary for the purposes of validation, ESV would seek additional information directly from the DNSPs. This is in line with clause 7(4) of the Order In Council. Where additional information was sought, ESV ensured that the AER was copied into any correspondence.

Validation process

While the scope of the fire start report and the validation process are detailed in the Order In Council (as outlined below), the approach to be undertaken in assessing the accuracy of information provided is not specified. This section describes the process that ESV 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 In Council stipulates that ESV'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 In Council, 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 In Council 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, ESV broke these items into the 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 In Council].

- 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.

ESV validated the DNSP fire start reports as follows:

- *Preliminary review*

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

ESV 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, ESV 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 OSIRIS²
- all network-related fires listed in OSIRIS are included in the DNSP's fire start report.

Where there were differences identified, ESV contacted the DNSP to confirm the reasons for the difference.

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, ESV 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 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, ESV contacted the DNSP to confirm the reasons for the differences.

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.

² OSIRIS is ESV's incident reporting portal for the major electricity companies to report details of any serious electrical incidents to ESV. 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, ESV identified these in this validation report. The DNSP was able to comment on these differences in its response to the draft validation report.

Following the validation process, ESV 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.

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 ESV's OSIRIS. Where there are differences between the data reported in these two data sets, ESV 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.

ESV 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*

ESV 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 Country Fire Authority (CFA) and Melbourne Metropolitan Fire Brigade (MFB).

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/MFB to the DNSP and these are, in turn, reportable to ESV.

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

- *Independent verification of fire starts*

ESV does not have the resources available to routinely undertake independent assessments of the DNSP's electricity network in order 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, ESV 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

ESV undertook an assessment of the accuracy of the information provided in the United Energy fire start report in accordance with clause 7(3)(b) of the Order In Council. 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 United Energy's documentation, we undertook a preliminary review to ensure that all the required documents had been provided to ESV and that the fire reporting spreadsheet had no obvious issues with regard to incomplete or incorrect data.

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

Completeness assessment

We compared the records provided in the United Energy fire start spreadsheet with those available from ESV'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 two incidents where there were differences between the United Energy fire start report and ESV's OSIRIS records. Details are provided in Table 1. The differences for both reports related to the OSIRIS records not listing the incidents as fires; neither required amendment of the fire start report.

ESV wrote to United Energy on 17 October 2019 requesting review of these incidents and updating of OSIRIS accordingly. On 24 October 2019, United Energy updated the OSIRIS records.

Table 1: Variations between the fire start report and OSIRIS

OSIRIS report	Included in fire report	Listed as fire in OSIRIS	Comment
20181018UTD_03	Yes	No	Listed in OSIRIS as hung-up fuses (no fire) but both incidents involved candled fuses (fire)
20190702UTD_02	Yes	No	

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 and 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, ESV focused on those records where the differences could materially affect the IRU calculated for the fire start.

ESV 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.

As we started to apply these two tests to the United Energy data, we identified a number of errors in the United Energy fire start report involving:

- three pairs of incidents where the OSIRIS numbers had been swapped (20181019UTD_02 and 20181002UTD_03, 20190304UTD_02 and 20190304UTD_03, and 20190226UTD_02 and 20190227UTD_02)
- one set of three incidents where the OSIRIS numbers had been interchanged and addresses did not match the latitudes and longitudes provided (20190328UTD_02, 20190328UTD_04 and 20190416UTD_01)
- two incidents with minor typographic errors in the addresses (20190205UTD_02 and 20190429UTD_01)
- once report where the latitude, longitude and address differ significantly from OSIRIS (20190416UTD_01).

ESV wrote to United Energy on 19 November 2019 requesting that United Energy review these items and, where necessary, correct the fire start report and reissue it to the AER and ESV. A revised fire start report was provided by United Energy on 20 November 2019 (*UE F-Factor 2018-19 Final(Rev1).xlsx*).

Applying the two tests above to the new dataset, we identified five incidents where the differences in information have the potential to materially affect the IRU for the incident. Three were associated with the location data; two were associated with the date and time data. ESV then reviewed each of these five incidents in detail.

ESV wrote to United Energy on 27 November 2019 requesting that United Energy review these five items and, where necessary, correct the fire start report and reissue it to the AER and ESV or update OSIRIS.

Given the repeated issues with some incidents, ESV also reviewed the incidents where the differences were regarded as not material in more detail. This identified a further six incidents where there were significant differences in the location and timing data, but that were not flagged because the different locations fell in the same risk categories or the same Fire Danger Ratings applied at the two different times.

ESV wrote to United Energy on 28 November 2019 requesting that United Energy also review these six items and, where necessary, correct the fire start report and reissue it to the AER and ESV or update OSIRIS.

Table 2 presents the details of all eleven incidents, ESV's requirements to address the issues in the data and United Energy's response.

On 28 November 2019, United Energy issued an updated fire start report (*UE F-Factor 2018-19 Final(Rev2).xlsx*) to the AER and ESV

ESV then re-ran the two tests above on the new (third) fire start report. Four incidents were identified where the differences in information have the potential to materially affect the IRU for the incident.

- Incident 20180727UTD_01

The difference here is due to the coordinates in the OSIRIS incident report still needing to be updated. This will have no effect on the IRU calculated for this incident.

- Incidents 20181019UTD_02 and 20181002UTD_03

While the fire start report and OSIRIS are in agreement about the date and time of these incidents, the Fire Danger Rating differed between United Energy's assessment and ESV's assessment. United Energy has listed the rating for both fires as "no forecast", whereas ESV has identified the rating as being "high" for both incidents.

Both events occurred on 27 September 2019. The listing available of Bureau of Meteorology ratings available from the EM-COP website lists the rating at midnight on that day as "no forecast"; however, the rating at 6:30am lists the rating as "high". Given that both incidents occurred after 6:30am, the latter is the appropriate rating for use in calculating the IRUs for these fires.

It is possible that this is further complicated by erroneous records with "no forecast" appearing in the EM-COP records. This is discussed in detail later in this report.

The United Energy fire start report will need to be updated to amend the Fire Danger Rating applied to these two fires and, subsequently, the IRUs calculated for these incidents. The total IRU amount will increase due to these amendments.

- Incident 20190304UTD_03

ESV has referred this incident back to United Energy on multiple occasions. In reviewing this incident, United Energy has focused on the transposition of coordinates with another incident but has not reviewed the corrected coordinates of this incident. This needs to be further reviewed as the location in the fire start report is about 2.5 km from the location in OSIRIS. It is worth noting that the OSIRIS location is in agreement with the address provided for the incident. Figure 1 shows the location of the incident according to OSIRIS and the fire start report.

If the OSIRIS location is correct, the effect would be to reduce the IRU calculated for this incident and the total IRU amount.

ESV issued a draft report to the AER on 29 November 2019. This found that ESV could not complete the validation assessment due to these remaining discrepancies.

On 6 December 2019, ESV met with United Energy to discuss the findings of the draft validation report. At the meeting it was agreed that United Energy would provide a revised fire start report to the AER and ESV, and that ESV would review the report and issue a revised validation report to the AER by 13 December. ESV also volunteered to discuss with the AER the possibility of extending the period for United Energy to provide a formal response to the updated validation report.

United Energy provided an updated fire start report (*UE F-Factor 2018-19 Final(Rev3).xlsx*) on 11 December 2019. United Energy also updated several of the incident reports in OSIRIS between the meeting and submission of this fourth fire start report.

ESV then subjected the update fire start report to the tests above and found no material difference between the fire start report and the OSIRIS incident records. ESV also identified that the other six incidents with large, non-material differences in location data had also been updated in OSIRIS.

Table 2: Differences in the fire start report

Note: Comments in italics relate to the final fire start report (*UE F-Factor 2018-19 Final(Rev3).xlsx*)

OSIRIS report	Amend OSIRIS	Amend fire start report	ESV and United Energy commentary
20180727UTD_01	Possibly	No	<p>The two locations are approx. 1.4 km apart.</p> <p>United Energy amended the address in the final fire start report. No change was made to the coordinates so it is presumed that the OSIRIS report needs to be amended. This needs to be confirmed by United Energy.</p> <p><i>In responding to the original draft validation report, United Energy updated the latitude and longitude and amended the address in OSIRIS. The amended address is not reflected in the fire start report; however, this is not material to the calculation of the total IRU amount.</i></p>
20190226UTD_02	No	Yes	<p>The final report did not include changes to address concerns raised by ESV. It should be noted that the address listed is for 2 LABUAN STREET, SORRENTO VIC 3943; the coordinates are for 44 OGRADYS ROAD, CARRUM DOWNS VIC 3201.</p> <p>United Energy will be required to submit an updated fire start report with the correct address.</p> <p><i>This was rectified in the final fire start report provided by United Energy.</i></p>
20190227UTD_02	No	Yes	<p>The final report did not include changes to address concerns raised by ESV. It should be noted that the address listed is for 44 OGRADYS ROAD, CARRUM DOWNS VIC 3201; the coordinates are for 4 LABUAN STREET, SORRENTO VIC 3943.</p> <p>United Energy will be required to submit an updated fire start report with the correct address.</p> <p><i>This was rectified in the final fire start report provided by United Energy.</i></p>

OSIRIS report	Amend OSIRIS	Amend fire start report	ESV and United Energy commentary
20190304UTD_02 20190304UTD_03	No	Yes	<p>The two locations are over 40 km apart.</p> <p>ESV's assessment was that the coordinates provided for incidents 20190304UTD_02 and 20190304UTD_03 have been transposed.</p> <p>The incident times also differs between OSIRIS and the fire start report, and also appear to have been transposed.</p> <p>United Energy corrected the latitude, longitude and incident time in the Rev.2 fire start report.</p>
20181002UTD_03 20181019UTD_02	No	Yes	<p>The two locations are about 10-15 km apart.</p> <p>ESV's assessment was that the coordinates provided for incidents 20181002UTD_03 and 20181019UTD_02 have been transposed.</p> <p>The incident times also differs between OSIRIS and the fire start report, and also appear to have been transposed.</p> <p>United Energy corrected the latitude, longitude and incident time in the Rev.2 fire start report.</p>
20190416UTD_01	Possibly	No	<p>This was part of the set of three transposed incidents rectified by United Energy on 20 November. The times of the fire start report and OSIRIS differed by about 3 hours.</p> <p><i>The time in OSIRIS was updated accordingly.</i></p>
20190211UTD_03	Possibly	No	<p>The two locations are approx. 1.8 km apart. While not material to calculation of the IRU amount, this is only due to both locations falling in the same risk category.</p> <p>No change was made to the coordinates so it is presumed that the OSIRIS report needs to be amended. This needs to be confirmed by United Energy.</p> <p><i>The location in OSIRIS was updated accordingly.</i></p>
20181206UTD_04	Possibly	No	<p>The two locations are approx. 1.1 km apart. The times also differ by about 12 hours. While not material to calculation of the IRU amount, this is only due to both locations falling in the same risk category and the same FDR applying at the two times.</p> <p>No change was made to the coordinates and incident time so it is presumed that the OSIRIS report needs to be amended. This needs to be confirmed by United Energy.</p> <p><i>The location in OSIRIS was updated accordingly.</i></p>
20181206UTD_06 20190328UTD_02 20180725UTD_01	Possibly	No	<p>There were times differed by 2-12 hours. While not material to calculation of the IRU amount, this is only due to the same FDR applying at the two times.</p> <p>No change was made to the incident times so it is presumed that the OSIRIS reports need to be amended. This needs to be confirmed by United Energy.</p> <p><i>The times in OSIRIS were updated for 20181206UTD_06 and 20180725UTD_01. The fire start report was updated for 20190328UTD_02.</i></p>

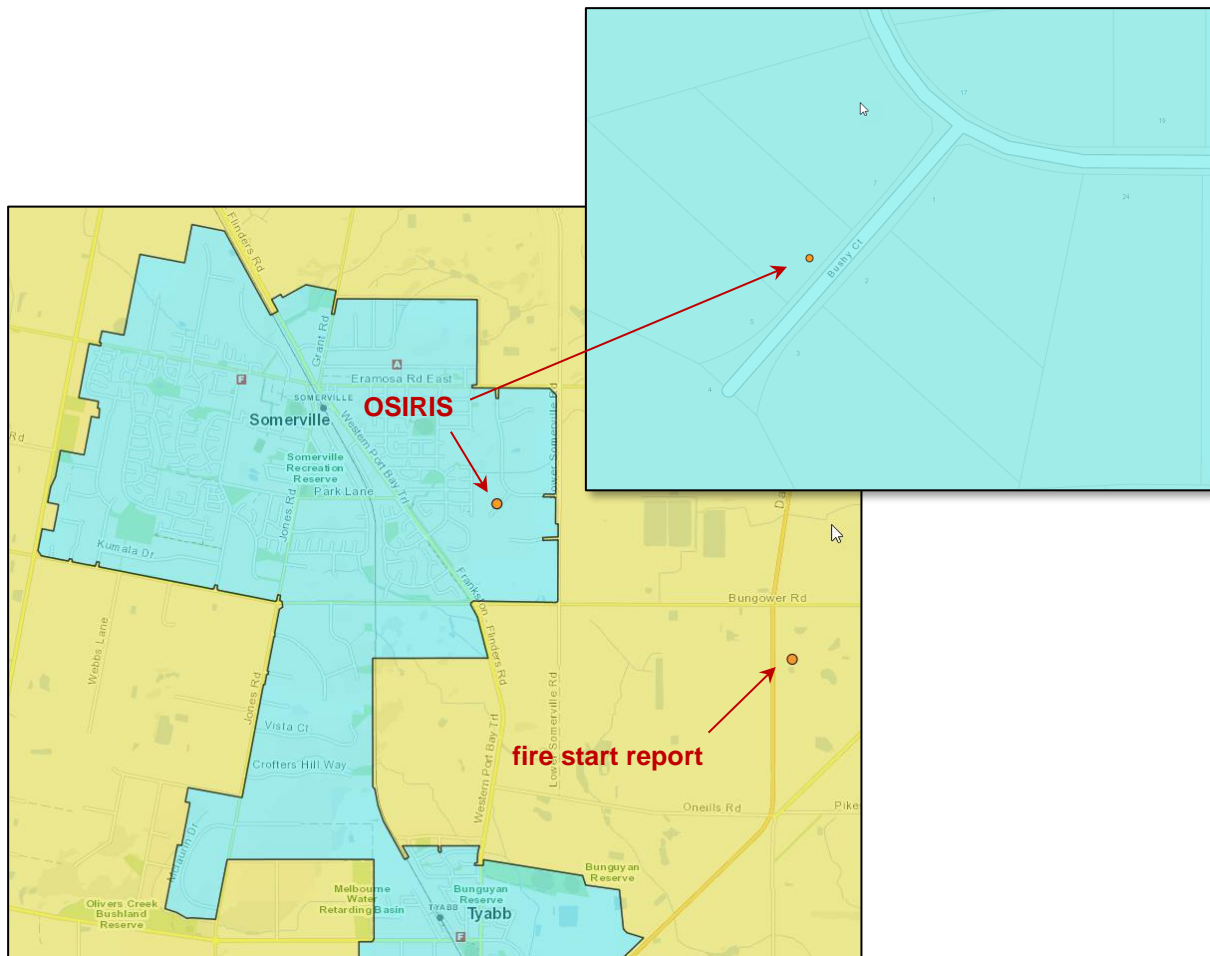


Figure 1: Differences in the fire start location for incident 20190304UTD_03

Comparative analysis — non-IRU factors

ESV undertook a comparison of the data in the United Energy 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 47 incidents with differences between the fire start report and OSIRIS. Of these, one related to typographic errors in either data set, three related to differences between the data sets and 44 were due to lack of data in OSIRIS.³

United Energy amended some of the OSIRIS reports in responding to the original draft validation report. By the time the final validation report (*UE F-Factor 2018-19 Final(Rev3).xlsx*) was submitted to the AER, there were 39 incidents with differences. Of these, three related to typographic errors in either data set and 36 were due to lack of data in OSIRIS;³ none involved differences in the data sets and none involved differences in the voltages. Table 3 provides a breakdown of these findings.

³ It should be noted that it is not mandatory for asset and pole identification numbers and voltages to be entered into OSIRIS.

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 ESV fire type category identified eight fire starts where ESV would have classified the fire differently to United Energy. These incidents were:

- Incident 20180929UTD_04

United Energy classified this incident as “started in or originated from a distribution system”, but ESV’s review identified this incident was “started by any person, bird, reptile or other animal coming into contact with a distribution system”. In the OSIRIS report for this incident, United Energy had noted that the incident was due to a possum making contact with a lightning arrester.

- Incident 20181227UTD_01, 20190130UTD_01, 20190131UTD_02, 20190214UTD_03, 20190218UTD_01 and 20190321UTD_01

United Energy classified these incidents as “started by any person, bird, reptile or other animal coming into contact with a distribution system”, but ESV’s review identified these incidents were “started by any other thing forming part of or coming into contact with a distribution system”. In all six instances, United Energy had reported in OSIRIS that the cause of the incident was vehicle contact with overhead powerlines, whether it be a high load, tip truck or excavator.

- Incident 20190304UTD_02

United Energy classified this incident as “started in or originated from a distribution system”, but ESV’s review identified this incident was “started by any other thing forming part of or coming into contact with a distribution system”. In reporting this incident in OSIRIS, United Energy noted the cause of the incident was a steel catenary wire making contact with the overhead powerlines, not a network fault as implied by the United Energy classification. While the cause of the contact may have been human error, this incident could not be classified as “started by any person, bird, reptile or other animal coming into contact with a distribution system” as it did not involve human contact.

In its final validation report, United Energy amended the classifications to reflect ESV’s classifications for these eight incidents.

None of the differences in pole and line identification numbers, voltages or classification of kind of fire start had a material impact on the total IRU calculation.

Table 3: Variations in pole and line identification numbers

OSIRIS report	Cause of the variation		
	typographic error	different data	data not in OSIRIS
20180716UTD_04			line id
20180730UTD_01			line id
20180828UTD_03			line id
20180828UTD_04			line id
20180828UTD_05			pole and line id
20180909UTD_06			line id
20180916UTD_04			line id
20180916UTD_06			line id
20181002UTD_03			pole id

OSIRIS report	Cause of the variation		
	typographic error	different data	data not in OSIRIS
20181018UTD_03			pole id
20181227UTD_02			pole and line id
20181231UTD_01			pole and line id
20190102UTD_01			pole and line id
20190114UTD_01			pole id
20190118UTD_01			line id
20190121UTD_01			pole id
20190121UTD_02			pole id
20190125UTD_02			pole and line id
20190125UTD_03			pole id
20190201UTD_01			pole id
20190211UTD_04			line id
20190211UTD_06			pole id
20190214UTD_01			pole id
20190226UTD_02	pole id		
20190227UTD_02			pole id
20190304UTD_01			pole id
20190304UTD_02			line id
20190305UTD_01			pole id
20190305UTD_02			line id
20190306UTD_02			line id
20190328UTD_04	pole and line id		
20190423UTD_01			line id
20190510UTD_01			line id
20190520UTD_01			line id
20190523UTD_01			line id
20190523UTD_02			line id
20190617UTD_01			line id
20190702UTD_01			line id
20190704UTD_01			line id

Verification of the IRU amount

The validation of the United Energy fire start report provided prior to 30 November (*UE F-Factor 2018-19 Final(Rev2).xlsx*) identified several outstanding errors in the report that meant that ESV was unable to finalise the validation process for the original draft validation report and confirm the total IRU amount at that time.

Following receipt of the updated fire start report (*UE F-Factor 2018-19 Final(Rev3).xlsx*), ESV was able to complete the validation analysis. ESV 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 United Energy to determine whether United Energy had correctly assigned the multipliers for each fire start. There were no differences in the multipliers or IRU amounts.

ESV can confirm that the total IRU amount of 18.14 provided in the United Energy 2018-2019 fire start report (*UE F-Factor 2018-19 Final(Rev3).xlsx*) is correct.

Note on EM-COP Fire Danger Ratings data

The EM-COP website provides a function whereby users can download a spreadsheet of the historic Fire Danger Ratings for use in the F-factor reporting process. The DNSPs use this data to determine the appropriate Fire Danger Ratings to attach to their fire start reports.

In undertaking the validation process, ESV identified that the spreadsheet included several types of suspect data:

- repeated rows the time stamp is the same as the previous row and the FDR data is duplicated
- new data the time stamp is the same as the previous row but the FDR data has been altered, generally to include a row of zeroes that is interpreted as “no forecast”
- backward step the time stamp for the row pre-dates the previous row, generally without changing the data

Repeated rows and backward steps generally do not affect the fire start reporting exercise. The insertion of new rows with “no forecast” data potentially can have a significant impact on the fire start reports.

In a review of records from 1 July 2014 to 20 November 2019, ESV identified 203 suspect entries in the data broken down as follows:

- two instances that occur before the 2018-2019 financial year; both of these are repeated rows
- 41 instances in 2018-2019, including six repeated rows, 24 rows with new data, nine backward steps with new data and two backward steps with repeated data
- 160 suspect rows in 2019-2020, including 40 repeated rows, 54 rows with new data, 34 backward steps with new data and 32 backward steps with repeated data.

The frequency of errors occurring seems to be escalating and potentially poses a significant risk to the accuracy of next year’s fire start reports.

This issue has been brought to the attention of the AER. It has also been raised with DELWP Powerline Bushfire Safety Program as the client for the EM-COP reporting.

Conclusion

In producing its fire start report this year, United Energy appears to have suffered from numerous quality control issues as evidenced by the need for four iterations of the fire start report. In raising issues with United Energy in multiple emails and in the draft validation report, ESV's role has extended beyond validation of the report; ESV has undertaken a significant quality control role that should not have been necessary.

That said, the final fire start report provided by United Energy on 11 December 2019 appears satisfactory.

As noted earlier, the Order In Council 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 4 identifies where these items have been assessed within this report and summarises the key findings of the validation assessment.

With the recent updates to OSIRIS that allow the DNSPs to report locations by latitude and longitude rather than address (with coordinates inferred from the address), ESV will be looking to extend the validation reporting for future years to a broader check of the location data in the fire start reports. We will still identify locations where there are material differences, as well as report on broader alignment of data between the AER and ESV data.

In its response to the draft validation report, United Energy acknowledged that there had been issues in its reporting this year, and has assured the AER that it is reviewing its processes and implementing additional validation checks to avoid a recurrence with the 2019-2020 fire start report.

Table 4: Summary of findings

Statistic	Relevant report section	Key findings
Clause 6(3)(d)	Request from AER	The fire start report addressed the United Energy distribution system separately from other systems managed by the service provider.
Clause 6(3)(e)(i)	Comparative analysis — non-IRU factors	There were no differences between the assessment of the fire type made by United Energy and that made by ESV.
Clause 6(3)(e)(ii)	Comparative analysis — IRU-specific factors	There are no material differences in incident locations and times between the fire start report and OSIRIS.
Clause 6(3)(e)(iii)	Comparative analysis — non-IRU factors	There were 19 differences between the fire start report and OSIRIS in relation to pole identification number. There were 26 differences between the fire start report and OSIRIS in relation to polyphase electric line identification number. These differences were not material to the calculation of the total IRU amount.
Clause 6(3)(e)(iv)	Comparative analysis — non-IRU factors	There were no differences between the fire start report and OSIRIS in relation to voltage of the line involved in the fire.
Clause 6(3)(e)(v)	Verification of IRU amount	The total IRU amount of 18.14 provided in the fire start report (<i>UE F-Factor 2018-19 Final(Rev3).xlsx</i>) is correct.
Clause 6(3)(f)	Completeness assessment	United Energy had reported all fires to ESV as the relevant entity.