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Creating a safer state with electricity and gas

# ESV Validation Report

## United Energy 2017-2018
## Fire Start Report

VICTORIA State Government

# Contents

# 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 3 October 2018, the AER provided ESV with the United Energy 2017-2018 fire start report for validation. This comprised the following documents:

- United Energy Statutory declaration 2017-18 F-factor RIN United Energy — PDF document
- United Energy F-Factor RIN 2017-18 Final — Excel spreadsheet
- F-Factor United Energy Audit Opinion 2017-18 — PDF document

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

The AER advised ESV that, where necessary for the purposes of validation, ESV should 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 OSIRIS[1]
  – 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.

[1] 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 eight 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 six incidents related to data entry issues in compiling the fire start report, one was an incident that is not reportable under the F-factor scheme and one was due to incomplete OSIRIS records.

ESV wrote to United Energy on 26 October 2018 seeking clarification and rectification of these incidents. On 7 November 2018, United Energy provided an amended fire start report to ESV, and ESV forwarded the report directly to the AER.

**Table 1: Variations between the fire start report and OSIRIS**

| OSIRIS report | Included in fire report | Listed as fire in OSIRIS | Comment |
|---|---|---|---|
| 20171012UTD_02 | Yes | Yes | The same OSIRIS number was provided for two separate fires. The address for one of these matched that for 20171020UTD_02 below. |
| 20171020UTD_02 | No | Yes | |
| 20171012UTD_03 | Yes | No | This is not an OSIRIS incident number. The address for 20171012UTD_03 matches 20171020UTD_03. There was a typo in the OSIRIS incident number. |
| 20171020UTD_03 | No | Yes | |
| 20171206UTD_02 | No | Yes | On further investigation, incident identified as occurring on customer asset. Not f-factor reportable. |
| 20180427UTD_04 | Yes | No | The incident is listed in OSIRIS but includes no details of fire. OSIRIS subsequently updated. |
| 20180531UTD_01 | Yes | No | The wrong incident number was provided in the fire start report. The address matches 20180531UTD_03. |
| 20180531UTD_03 | No | Yes | |

# 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.

Using these two tests, we identified two incidents where the differences have the potential to materially affect the IRUs for the incidents; one related to the location data and one related to the reported Fire Danger Rating.

The difference in the location data for 20170831UTD_01 was due to a transcription error in the longitude as the longitude was typed into the fire start report. This did not affect the IRU calculated for the incident as the IRU calculation was based on the correct location data.

The difference in the Fire Danger Rating for 20180112UTD_04 was due to United Energy reporting the rating declared by the BOM after the incident rather than the one that was current at the time of the incident.

ESV wrote to United Energy on 21 November 2018 with the details of these differences. United Energy responded the same day and provided an updated fire start report addressing these issues.

# 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 39 incidents with differences between the fire start report and OSIRIS. Of these, one related to typographic errors in either data set, five related to differences between the data sets and 34 were due to lack of data in OSIRIS.[2] Table 2 provides a breakdown of these findings.

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 seven fire starts where ESV would have classified the fire differently to United Energy. These incidents were:

- Incident 20170811UTD_02

  United Energy classified this incident as “started by any person, bird, reptile or other animal coming into contact with a distribution system”, but ESV’s review identified this incident was “started in or originated from a distribution system”. In the OSIRIS report for this incident, United Energy had noted that “the possum cause was never confirmed”.

- Incident 20180308UTD_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 reporting this incident in OSIRIS, United Energy noted the cause of the incident was possum contact with a krone switch.

- Incident 20180501UTD_06

  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 reporting this incident in OSIRIS, United Energy noted the cause of the incident was possum contact with the HV fuses.

- Incident 20180502UTD_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 tree, or part of a tree, falling upon or coming into contact with a distribution system”. In reporting this incident in OSIRIS, United Energy noted the cause of the incident was a branch blown onto a transformer in high winds.

- Incident 20180328UTD_01

  United Energy classified this incident as “started in or originated from a distribution system”, but ESV’s review identified this incident was “started by lightning striking a distribution system or a part of a distribution system”. In reporting this incident in OSIRIS, United Energy noted the cause of the incident was a lightning strike on a crossarm that subsequently resulted in a HV conductor making contact with the LV conductors below when the crossarm broke.

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

- Incident 20180427UTD_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 reporting this incident in OSIRIS, United Energy noted the cause of the incident was a possum making contact with the HV conductors.

- Incident 20180427UTD_05

  United Energy classified this incident as “started by any person, bird, reptile or other animal coming into contact with 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 the OSIRIS report for this incident, United Energy had noted the cause of the incident was a car colliding with a pole and damaging two cables going from the pole to an underground pit.

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.

No consultation was held with United Energy regarding these differences.

**Table 2: Variations in pole and line identification numbers**

| OSIRIS report | Cause of the variation | | |
|---|---|---|---|
| | typographic error | different data | data not in OSIRIS |
| 20170724UTD_02 | | | line id |
| 20170809UTD_01 | | | line id |
| 20170809UTD_02 | | | line id |
| 20170811UTD_02 | | | line id |
| 20170831UTD_01 | | | line id |
| 20171003UTD_03 | | | line id |
| 20171012UTD_01 | | line id | |
| 20171012UTD_02 | | | line id |
| 20171218UTD_04 | | | line id |
| 20171222UTD_01 | | | line id |
| 20180102UTD_01 | | | line id |
| 20180104UTD_01 | | | line id |
| 20180108UTD_01 | | | line id |
| 20180108UTD_03 | | | line id |
| 20180109UTD_01 | | | line id |
| 20180109UTD_03 | | | line id |
| 20180109UTD_04 | | | line id |
| 20180109UTD_05 | | line id | |
| 20180123UTD_02 | | | line id |
| 20180201UTD_03 | | | line id |

| OSIRIS report | Cause of the variation | | |
|---|---|---|---|
| | typographic error | different data | data not in OSIRIS |
| 20180205UTD_01 | | line id | |
| 20180205UTD_03 | | | line id |
| 20180219UTD_02 | | | line id |
| 20180219UTD_03 | pole id | line id | |
| 20180301UTD_04 | | line id | |
| 20180308UTD_01 | | | line id |
| 20180308UTD_04 | | | line id |
| 20180326UTD_02 | | | line id |
| 20180427UTD_05 | | | line id |
| 20180501UTD_03 | | | line id |
| 20180501UTD_04 | | | line id |
| 20180502UTD_03 | | | line id |
| 20180517UTD_01 | | | line id |
| 20180531UTD_03 | | | line id |
| 20180612UTD_02 | | | line id |
| 20180626UTD_01 | | | line id |
| 20180626UTD_02 | | | line id |
| 20180626UTD_03 | | | line id |
| 20180720UTD_02 | | | line id |

# Verification of the IRU amount

Following the validation of individual records, 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.

As part of the validation process, ESV identified differences in the fire start report that had a material impact on the total IRU amount and that required United Energy to issue an amended fire start report. The total IRU amount of 21.86 reported in the initial fire start report (*United Energy F-Factor RIN 2017-18 Final.xlsx*) needed to be amended as a result.

ESV can confirm that the total IRU amount of 21.96 provided in the final United Energy 2017-2018 fire start report (*United Energy F-Factor RIN 2017-18 (Ver 1.1) Final.xlsx*) is correct.

# Conclusion

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

**Table 3: 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 seven differences between the assessment of the fire type made by United Energy and that made by ESV.<br>These differences were not material to the calculation of the total IRU amount. |
| **Clause 6(3)(e)(ii)** | Comparative analysis — IRU-specific factors | There was one difference in the location and one difference in the date and time of incidents in the United Energy fire report.<br>There were two differences that were potentially material to the calculation of the total IRU amount —one related to location and one related to date and time. |
| **Clause 6(3)(e)(iii)** | Comparative analysis — non-IRU factors | There was one discrepancy between the fire start report and OSIRIS in relation to pole identification number.<br>There were 39 discrepancies between the fire start report and OSIRIS in relation to polyphase electric line identification number.<br>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 21.96 provided in the fire start report (*United Energy F-Factor RIN 2017-18 (Ver 1.1) Final.xlsx*) is correct. |
| **Clause 6(3)(f)** | Completeness assessment | United Energy had reported all fires to ESV as the relevant entity. |