29 March 2017

Chris Pattas
General Manager
Networks (Investment & Pricing)
Australian Energy Regulator
Level 35, 360 Elizabeth Street
Melbourne Victoria 3000

Via email: Chris.Pattas@aer.gov.au

Dear Mr Pattas

RE: Request for Fire Starts Report under clause 5 of the F-Factor Scheme Order 2011

CitiPower Pty Ltd and Powercor Australia Ltd (the **Businesses**) refer to the Australian Energy Regulators' (**AER**) letter dated 27 August 2012 and email dated 19 January 2017, requesting the Businesses to submit fire starts reports to the AER by 31 March each year.

As a result of the introduction of the new F-Factor Scheme, effective from 1 July 2016, this fire starts report contains the outcomes for the first six months of the 2016 regulatory year.

The fire starts reports for CitiPower and Powercor for January - June 2016 are set out in Appendix 1 and Appendix 2 of this letter respectively.

It should be noted that the information contained in these reports is currently subject to external audit as per the Fire Factor Regulatory Information Notice (**RIN**), which is due to be submitted to the AER by 30 April 2017.

If you have any questions in relation to these reports, please do not hesitate to contact Wendy Cotton on 03 9683 4288 or via email wcotton@powercor.com.au.

Yours sincerely

Hannah Williams
Manager Compliance & Projects

Attachments: 1 – CitiPower Jan - June 2016 fire start data.xlsx
2 – Powercor Jan - June 2016 fire start data.xlsx

Cc: David Chan (email: David.Chan@aer.gov.au)

Appendix 1 – CitiPower 2016 Fire Starts Report

1. *An explanation of the definition of a fire start*

The definition of a fire start used by CitiPower is in accordance with the Energy Safe Victoria (**ESV**) reporting guidelines. Please refer to the 'ESV Distribution Electricity Safety Performance Guideline, April 2011'.

2. *Summary (aggregate) tables showing the percentage and actual number of the fire starts in the following categories:*
   a. *Fire Hazard Rating assigned by the Country Fire Authority or Melbourne Fire Brigade under section 80 of the Electricity Safety Act 1998 (Vic)*
   b. *Element of the network that caused the fire, such as equipment type, feeder classification, voltage level*

Note: A description/explanation of the equipment type, feeder classification etc should be also provided

CitiPower has summarised the data into tables showing the actual number and the percentage of fire starts in the following categories:

- Table 1: Country Fire Authority (**CFA**) Fire Hazard Rating
- Table 2: Bushfire Risk Area[1]
- Table 3: Feeder Classification[2]
- Table 4: Fire Start by ESV Category
- Table 5: Fire Start by Asset
- Table 6: Kind of Fire Start

Table 1: Number of fire starts by CFA Fire Hazard Rating

CFA Fire Hazard Rating (i.e. the weather condition on the day)	No. of Fires	% of Fires
Extreme	0	0.00
Severe	0	0.00
Very high	0	0.00
High	0	0.00
Low Moderate	0	0.00
Nil (Fires outside declared fire season)	13	100.00
Total	**13**	**100%**

Source: CitiPower

[1] CitiPower has defined this to be the "Hazardous Bushfire Risk Area" as per the definition in the Electricity Safety Act 1998

[2] Feeders classifications that were defined in the service target performance incentive scheme (**STPIS**) have been used by CitiPower and are as follows:
- ***Central Business District (CBD)***: A feeder supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas
- ***Urban***: A feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3MVA/km

Table 2: Number of fire starts by Bushfire Risk Area

Bushfire Risk Area	No. of Fires	% of Fires
Low Bushfire Risk Area (**LBRA**)	13	100.00
Total	**13**	**100%**

Source: CitiPower

Table 3: Number of fire starts by Feeder Classification

Feeder Classification	No. of Fires	% of Fires
CBD	1	7.69
Urban	12	92.31
Total	**13**	**100%**

Source: CitiPower

Table 4: Number of fire starts by ESV Category

ESV Category	No. of Fires	% of Fires
Asset failures resulting in grass/vegetation fire	3	23.08
Grass/vegetation fires from assets (non-asset failures)	2	15.38
Asset failures resulting in asset fire (no grass/vegetation fire)	8	61.54
Any other Fire Start	0	0
Total	**13**	**100%**

Source: CitiPower

Table 5: Number of fire starts by Asset

Asset	No. of Fires	% of Fires
Pole and cross arm fire	1	7.69
Oil-filled plant	0	0
High Voltage (**HV**) Fuse	0	0
Any fire triggered by any asset failure caused by lightning	0	0
Fire starts in grass/vegetation resulting from animal contact with network assets	1	7.69
Fire starts in grass/vegetation resulting from trees contacting network assets	1	7.69

Asset	No. of Fires	% of Fires
Fire starts in grass/vegetation resulting from other causes (vehicle strikes, vandalism etc)	0	0
Other Assets Refer to table 5.1 below for a breakdown of Other Assets	10	76.93
Any additional fires, caused by any asset failure, not reported to the ESV and required to be reported by the f-factor Order	0	0
Total	**13**	**100%**

Source: CitiPower

Table 5.1: Breakdown of fire starts by Other Assets

Type of asset	No. of Fires	% of Fires
LV Fuse Box	2	20.0
LV Insulation Piercing Connector (IPC)	3	30.0
LV Bushing	1	10.0
LV Connection	1	10.0
LV Isolator	1	10.0
HV Isolator	1	10.0
Kiosk Sub-station	1	10.0
Total	**10**	**100%**

Source: CitiPower

Table 6: Number of fire starts by Kind of Fire Start

Kind of Fire Start	No. of Fires	% of Fires
Started by any tree, or part of a tree, falling upon or coming into contact with a distribution system	1	7.69
Started by any person, bird, reptile or other animal coming into contact with a distribution system	1	7.69
Started by lightning striking a distribution system or a part of a distribution system	0	0
Started by any other thing forming part of or coming into contact with a distribution system	0	0
Otherwise started by a distribution system	11	84.62
Total	**13**	**100%**

Source: CitiPower

3. *A table of all fire starts – showing, in each case, the kind of fire start (as per the AER's f-factor scheme determination), date, time, geographic location of the fire, and whether the fire was reported to the relevant authority.*

Please refer to Attachment 1 for the CitiPower Jan – June 2016 Fire Start table. This table shows the kind of fire start (as per the AER's f-factor scheme determination), date, time, geographic location of the fire, and whether the fire was reported to the relevant authority.

The total number of fire starts being reported by CitiPower under the f-factor scheme for January – June 2016 is well below the transitional benchmark of fire starts identified during the formulation of the F-Factor Scheme Order 2016. The major contributor for the lower number of fire starts is the favourable weather conditions experienced during the first half of 2016 which was non-conducive to fire starts (lower temperatures, reduced dust and pollutants on insulators/assets which reduced electrical leakage on days of light rain and mist[3]) combined with a lower rate of asset failures.

Historically, the majority of fire starts occur during January and February and set the overall trend for the coming year. Fires start numbers in January and February 2016 were very low compared to historical benchmark levels.

[3] As noted in previous F Factor Reports, temperatures well above the long term average coupled with well below average rainfall creates considerable accumulation of dust and other pollutants. Light rain and mist, without any steady rain events to wash the dust and pollutants away, causes electrical leakage as a result of the addition of moisture to the contaminates on a small number of days resulting in the ignition of pole/cross arm fires.

Appendix 2 – Powercor 2016 Fire Starts Report

1. *An explanation of the definition of a fire start*

The definition of a fire start used by Powercor is in accordance with the Energy Safe Victoria (**ESV**) reporting guidelines. Please refer to the 'ESV Distribution Electricity Safety Performance Guideline, April 2011'.

2. *Summary (aggregate) tables showing the percentage and actual number of the fire starts in the following categories:*
   a. *Fire Hazard Rating assigned by the Country Fire Authority or Melbourne Fire Brigade under section 80 of the Electricity Safety Act 1998 (Vic)*
   b. *Element of the network that caused the fire, such as equipment type, feeder classification, voltage level*

Note: A description/explanation of the equipment type, feeder classification etc. should be also provided

Powercor has summarised the data into tables showing the actual number and the percentage of fire starts in the following categories:

- Table 1: Country Fire Authority (**CFA**) Fire Hazard Rating
- Table 2: Bushfire Risk Area[4]
- Table 3: Feeder Classification[5]
- Table 4: Fire Start by ESV Category
- Table 5: Fire Start by Asset
- Table 6: Kind of Fire Start

Table 1: Number of fire starts by CFA Fire Hazard Rating

CFA Fire Hazard Rating (i.e. the weather condition on the day)	No. of Fires	% of Fires
Extreme	3	1.80
Severe	14	8.38
Very high	25	14.97
High	58	34.73
Low Moderate	39	23.35
Nil (Fires outside declared fire season)	28	16.77
Total	**167**	**100%**

Source: Powercor

[4] Powercor has defined this to be the "Hazardous Bushfire Risk Area" as per the definition in the Electricity Safety Act 1998

[5] Feeders classifications that were defined in the service target performance incentive scheme (**STPIS**) have been used by Powercor and are as follows:
- ***Urban***: A feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3MVA/km
- ***Rural short:*** A feeder which is not a CBD feeder or urban feeder with a total feeder route length less than 200km
- ***Rural long:*** a feeder which is not a CBD or urban feeder with a total feeder route length greater than 200km

Note: no definition of sub transmission is included in the STPIS.

Table 2: Number of fire starts by Bushfire Risk Area

Bushfire Risk Area	No. of Fires	% of Fires
High Bushfire Risk Area (**HBRA**)	78	46.71
Low Bushfire Risk Area (**LBRA**)	89	53.29
Total	**167**	**100%**

Source: Powercor

Table 3: Number of fire starts by Feeder Classification

Feeder Classification	No. of Fires	% of Fires
Urban	32	19.16
Rural short	37	22.16
Rural long	80	47.90
Sub transmission	18	10.78
Unclassified	0	0
Total	**167**	**100%**

Source: Powercor

Table 4: Number of fire starts by ESV Category

ESV Category	No. of Fires	% of Fires
Asset failures resulting in grass/vegetation fire	55	32.93
Grass/vegetation fires from assets (non-asset failures)	19	11.38
Asset failures resulting in asset fire (no grass/vegetation fire)	93	55.69
Any other Fire Start	0	0
Total	**167**	**100%**

Source: Powercor

Table 5: Number of fire starts by Asset

Asset	No. of Fires	% of Fires
Pole and cross arm fire	84	50.30
Oil-filled plant	3	1.80
High Voltage (**HV**) Fuse	14	8.38
Any fire triggered by any asset failure caused by lightning	3	1.80
Fire starts in grass/vegetation resulting from animal contact with network assets	12	7.19
Fire starts in grass/vegetation resulting from trees contacting network assets	2	1.20
Fire starts in grass/vegetation resulting from other causes (vehicle strikes, vandalism etc.)	5	2.99
Other Assets Refer to table 5.1 below for a breakdown of Other Assets	44	26.34
Any additional fires, caused by any asset failure, not reported to the ESV and required to be reported by the f-factor Order	0	0
Total	**167**	**100%**

Source: Powercor

Table 5.1: Breakdown of fire starts by Other Assets

Type of asset	No. of Fires	% of Fires
HV ABC cable	1	2.27
HV Bare conductor	6	13.64
HV connection	4	9.09
Cable Head	2	4.55
LV Service cable	4	9.09
LV bare conductor	1	2.27
LV Fuse Box (including FOLCB & FSD)	17	38.64
LV isolator	1	2.27
LV Fuse Board	2	4.55
LV transformer leads	1	2.27
Street light	5	11.36
Total	**44**	**100%**

Source: Powercor

Table 6: Number of fire starts by Kind of Fire Start

Kind of Fire Start	No. of Fires	% of Fires
Started by any tree, or part of a tree, falling upon or coming into contact with a distribution system	2	1.20
Started by any person, bird, reptile or other animal coming into contact with a distribution system	13	7.78
Started by lightning striking a distribution system or a part of a distribution system	3	1.80
Started by any other thing forming part of or coming into contact with a distribution system	5	2.99
Otherwise started by a distribution system	144	86.23
Total	**167**	**100%**

Source: Powercor

3. *A table of all fire starts – showing, in each case, the kind of fire start (as per the AER's f-factor scheme determination), date, time, geographic location of the fire, and whether the fire was reported to the relevant authority.*

Please refer to Attachment 2 for the Powercor January – June 2016 Fire Starts Table. This table shows the kind of fire start (as per the AER's f-factor scheme determination), date, time, geographic location of the fire, and whether the fire was reported to the relevant authority.

The total number of fire starts being reported by Powercor under the f-factor scheme for January – June 2016 is below the transitional benchmark of fire starts identified during the formulation of the F-Factor Scheme Order 2016.

Of the 167 fire starts reported for the year, 84 were attributed to by pole/cross arm fires. The major contributor for the decrease in the number of fire starts reported due to pole/cross arm fires is the favourable weather conditions experienced during the first half of 2016 which was non-conducive to fire starts (lower temperatures, reduced dust and pollutants on insulators/assets which reduced electrical leakage on days of light rain and mist[6]). Historically the majority of fire starts occur during January and February and set the overall trend for the coming year. Fires start numbers in January and February 2016 were very low compared to historical benchmark levels.

Powercor has conducted significant analysis into pole/cross arm fires over a number of years and has, in place, a number of mitigation strategies. In general, assets are susceptible to pole/cross arm fires under specific environmental conditions which occur from time to time. These conditions include the presence of moisture which reduces the direct consequences of a fire started in this way. Pole/cross arm fires are not usually associated with extreme fire danger days and in fact most do not burn material on the ground. Irrespective of the reduced consequences, Powercor takes the ongoing reduction of these events very seriously.

The replacement of high voltage (**HV**) wooden cross arms with steel equivalents has proven to be the most effective long term strategy for Powercor to mitigate pole/cross arm fires. Steel cross arms are used to replace HV wooden cross arms when the asset requires replacement as a result of a condition assessment undertaken during the cyclic inspection program. Steel HV cross arms currently make up approximately 83% of the total population of HV cross arms on the Powercor network.

[6] As noted in previous F Factor Reports, temperatures well above the long term average coupled with well below average rainfall creates considerable accumulation of dust and other pollutants. Light rain and mist, without any steady rain events to wash the dust and pollutants away, causes electrical leakage as a result of the addition of moisture to the contaminates on a small number of days resulting in the ignition of pole/cross arm fires.