

# Electricity Network Safety Management System Performance Report

1 July 2018 to 30 September 2018

October 2019



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## 1. Tier 1 – Major Incidents

Tier 1 incidents are defined as a 'Major Incident' in accordance with the Electricity networks reporting manual – Incident reporting (Incident reporting).

Table 1: Major incidents

ESSNM Objective		Description of major incident reported under the incident reporting requirements
Safety of members of the public		No major incidents reported
Safety of persons working on network		No major incidents reported
Protection of property	Third party property	No major incidents reported
	Network property	No major incidents reported
Safety risks arising from loss of electricity supply		27 August 2018 – South Boambee zone substation. Transmission outage affecting 29,558 customers for 2 hours 19 minutes. Interruption was due to the separation of NSW and QLD transmission networks causing a subsequent operation of automatic under frequency load shedding.

## 2. Tier 2 – Incidents

Table 2: Incidents

ESSNM Objective	Description of each incident reported under the incident reporting requirements
Safety of members of the public	No Incidents reported
Safety of persons working on the network	No Incidents reported
Protection of third-party property	<p>7 August 2018 – Wandella. Notification was received of a fire near Essential Energy power lines.</p> <p>20 August 2018 – Tyndale. A tree has been reported over low voltage conductors with a fire in the vicinity.</p> <p>20 August 2018 – Coopers Gully. Reported fire at base of Essential Energy pole.</p> <p>27 August 2018 – Coombadjha Road (Coombadjha). A fire was observed in the vicinity of Essential Energy assets after a HV PEC crossarm failure.</p> <p>12 September 2018 – Bemboka (Bega). A fire was observed within the vicinity of Essential Energy's overhead HV network.</p> <p>15 September 2018 – Quaama (Bega). A fire was observed in the vicinity of Essential Energy's overhead powerlines. Fire start is suspected to have been caused from a tree over HV lines.</p> <p>15 September 2018 – Bombala. A large limb has broken and made contact with 22kV conductors. A large fire (60Ha) started in close proximity to this incident.</p> <p>15 September 2018 – Princess Highway, Bega Lookout. A fire was observed within the vicinity of overhead 11kV power lines.</p> <p>15 September 2018 – Wingham. A crossarm has broken with a fire nearby.</p>
Safety risks arising from loss of electricity supply	No incidents reported

### 3. Tier 3 – Control failure near miss

Table 3: Network assets failures

Performance Measure	Population	5-year average annual functional failures	Annual functional failures (for reporting period)					
			Unassisted			Assisted		
			No fire	Fire		No Fire	Fire	
				Contained	Escaped		Contained	Escaped
Towers	189	-	0	0	0	0	0	0
Poles (including street lighting columns/poles & stay poles)	1,391,153	530	14	2	1	44	0	0
Pole-top structures	1,816,838	816 <sup>1</sup>	81	1	3	28	0	1
Cross Arm			67	0	3	22	0	1
Insulator			14	0	0	6	0	0
Other			0	1	0	0	0	0
Conductor – Transmission OH	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Conductor – Transmission UG	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Conductor – HV (including sub-transmission) OH	159,266 km	1,256 <sup>1</sup>	125	0	10	77	0	10
Splice			23	0	0	35	0	0
Tie			13	0	1	8	0	0

<sup>1</sup> Average annual functional failure based on 2 years of failure history

Performance Measure	Population	5-year average annual functional failures	Annual functional failures (for reporting period)					
			Unassisted			Assisted		
			No fire	Fire		No Fire	Fire	
				Contained	Escaped		Contained	Escaped
Other			89	0	9	34	0	10
Conductor – HV (including sub-transmission) UG	2,766km	361 <sup>1</sup>	43	0	1	17	0	0
Conductor – LV OH	21,616km	178 <sup>1</sup>	19	0	0	9	0	1
Conductor – LV UG	4,462km	261 <sup>1</sup>	48	0	0	34	0	0
Service line OH	494,075	2037 <sup>1</sup>	270	1	0	89	0	1
Service line UG	232,771	154 <sup>1</sup>	22	0	0	4	0	0
Power transformers	696	1.8	1	0	0	0	0	0
Distribution transformers	141,007	1059 <sup>1</sup>	61	3	0	66	0	0
Reactive plant	695	17 <sup>1</sup>	8	0	0	0	0	1
Switchgear – zone / sub transmission / transmission substation	14,726	4.4	1	0	0	0	0	0
Switchgear – distribution (Overhead)	447,374	5831	73	1	1	30	0	0
Switchgear – distribution (Ground based)	41,922	71	1	0	0	0	0	0

Performance Measure	Population	5-year average annual functional failures	Annual functional failures (for reporting period)					
			Unassisted			Assisted		
			No fire	Fire		No Fire	Fire	
				Contained	Escaped		Contained	Escaped
Protection relays or systems	5,440	40	16	0	0	0	0	0
Zone / sub transmission / transmission substation SCADA system	359	22.8	5	0	0	0	0	0
Zone / sub transmission / transmission substation Protection Batteries	415	-	37	0	0	0	0	0

**Table 4: Vegetation contact with conductors**

Performance measure	Event count – 1 July 2018 – 30 September 2018	Event count – Last reporting period	Event count – Two periods ago	Event count – Three periods ago	Event count – Four periods ago	Comments
Fire starts – grow in	2	-	-	-	-	
Fire start – fall in and blow in	6	-	-	-	-	
Interruption – grow in	33	-	-	-	-	
Interruption – fall in and blow in	191	-	-	-	-	

**Table 5: Unintended contact, unauthorised access and electric shocks**

Detail	Event count – 1 July 2018 – 30 September 2018	Event count – Last reporting period	Event count – Two periods ago	Event count – Three periods ago	Event count – Four periods ago	Comments
Electric shock and arc flash incidents originating from network assets including those received in customer premises						
Public	70	-	-	-	-	
Public worker	1	-	-	-	-	
Network employee / network contractor	0	-	-	-	-	
Accredited Service Provider	0	-	-	-	-	
Livestock or domestic pet	2	-	-	-	-	
Contact with energised overhead network asset (e.g. conductor strike)						
Public road vehicle	92	-	-	-	-	
Plant and equipment	24	-	-	-	-	
Agricultural and other	22	-	-	-	-	
Network vehicle	1	-	-	-	-	
Contact with energised underground network asset (e.g. conductor strike)						
Plant and equipment	10	-	-	-	-	
Person with handheld tool	1	-	-	-	-	
Unauthorised network access (intentional)						
Zone / BSP / Transmission substation / switching station	1	-	-	-	-	

Detail	Event count – 1 July 2018 – 30 September 2018	Event count – Last reporting period	Event count – Two periods ago	Event count – Three periods ago	Event count – Four periods ago	Comments
Distribution substation	0	-	-	-	-	
Towers / poles	8	-	-	-	-	
Other (e.g. communication sites)	2	-	-	-	-	
Safe Approach Distance (SAD)						
Network employee / network contractor	2	-	-	-	-	
Accredited Service Provider	0	-	-	-	-	
Public	0	-	-	-	-	
Public Worker	7	-	-	-	-	

**Table 6: Reliability and Quality of Supply**

Performance Measure	Event count – 1 July 2018 – 30 September 2018	Event count – Last reporting period	Event count – Two periods ago	Event count – Three periods ago	Event count – Four periods ago	Comments
High voltage into Low voltage	4	-	-	-	-	
Sustained voltage excursions outside emergency range	97	-	-	-	-	
Reverse polarity	1	-	-	-	-	
Neutral integrity due to poor workmanship or incorrect procedure	1	-	-	-	-	
Neutral integrity due to asset defect or failure	5	-	-	-	-	

**Table 7: Reliability and Quality of Supply – Critical infrastructure incidents**

Type of critical infrastructure (e.g. hospital, tunnel)	Minutes of supply lost	Cause	Consequential safety impacts associated with supply issue
Nil incidents for the period			

**Table 8: Network-initiated property damage events**

Detail	Event count – 1 July 2018 – 30 September 2018	Event count – Last reporting period	Event count – Two periods ago	Event count – Three periods ago	Event count – Four periods ago	Comments
Third party property (assets including vehicles, buildings, crops, livestock)						
Damage (e.g. Fire, Physical impact or Electrical)	2	-	-	-	-	
Network property (including non-electrical assets including vehicles, buildings)						
Damage (e.g. Fire, Physical impact or Electrical)	0	-	-	-	-	

## 4. Tier 4 - Control implementation

Table 9: Amendments and improvements to Formal Safety Assessments (FSA) or associated risk treatments

FSA	Amendments/Improvements
Loss of supply	Nil
Protection of property	Nil
Bushfire	Nil
Public Safety	Nil
Environmental Management	Nil
Worker Safety	Nil

Table 10: Design, construction and commissioning

Performance measure	1 July 2018 – 30 September 2018	Last reporting period	Two reporting periods ago	Three reporting periods ago	Four reporting periods ago
Designs for which Safety in Design (SiD) Reports have been completed	510	-	-	-	-
Designs for which Safety in Design (SiD) Reports have been audited	0	-	-	-	-
Contestable designs certified	115	-	-	-	-
Contestable installations reviewed	864	-	-	-	-
Project closeout reports completed	1,963	-	-	-	-
Project closeout reports audited	0	-	-	-	-

**Table 11: Inspections (assets)**

Performance measure	Inspection tasks		Corrective action tasks			Comments
	Annual target	Achieved	Tasks identified (all categories)	Open	Outstanding	
Transmission Substations	n/a	n/a	n/a	n/a	n/a	
Zone Substations	2,609	668	1,904	464	125	
Distribution Substations	2,224	1,284	764	4,379	1,761	Excludes overhead substations
Transmission OH	n/a	n/a	n/a	n/a	n/a	
Transmission UG	n/a	n/a	n/a	n/a	n/a	
Distribution OH	302,876	83,892	35,371	197,733	18,961	Includes overhead substations
Distribution UG	10,395	5,021	1,237	1,631	443	

**Table 12: Inspections (vegetation) Aerial/Ground based**

Bushfire risk category	Population (spans / poles)	Target	Achieved	Outstanding	Comments
Aerial					
LiDAR – Engineering (poles)	1,391,153	60,218	60,218	0	LiDAR not separated by bushfire risk category
LiDAR – Vegetation (poles)	1,391,153	99,256	99,256	0	LiDAR not separated by bushfire risk category
Pre-summer bushfire inspection (PSBI)	100,511	0	0	0	PSBI was completed prior to the reporting period
<b>Total</b>	<b>2,882,817</b>	<b>159,474</b>	<b>159,474</b>	<b>0</b>	
Ground-based (Spans)					
P1	120,975	1,358	3,678	388	Of the 15,138 spans classified as 'Outstanding'; - 11,941 spans were inspected since the reporting period ended. - 1,004 spans are scheduled for 2020 reporting period. - 2,193 spans to be rescheduled.
P2	390,254	40,658	46,488	423	
P3	606,751	54,413	46,349	2,571	
P4	270,664	111,130	149,964	11,756	
Unclassified <sup>2</sup>	2,509	19	19	0	
<b>Total</b>	<b>1,391,153</b>	<b>207,578</b>	<b>246,498</b>	<b>15,138</b>	

<sup>2</sup> Includes private assets

**Table 13: Public electrical safety plans and activities**

Network operator public safety programs / campaigns	Details
Electrical Safety Week	<p>2-6 September 2018.</p> <p>Electricity Safety Week raises awareness of the hazards associated with electricity and teaches students how to be safe around electricity. The resources have been developed in collaboration with the Department of Education to meet the Science and Technology and PDHPE curriculum requirements for years K - 6. The resources include an Electricity &amp; Safety Unit Lesson Book for Stage 3, Electricity Safety Lesson Book for K-6 and four interactive whiteboard lessons featuring activities, videos and teachers' notes that will engage students in learning about electricity and how to be safe around it.</p> <p>The five key safety messages promoted during the program include:</p> <ul style="list-style-type: none"> <li>&gt; Keep away from overhead powerlines (electricity can jump!)</li> <li>&gt; Never play on electrical equipment or trees near powerlines</li> <li>&gt; Stay at least 8m away from fallen powerlines</li> <li>&gt; Use electrical appliances safely and correctly</li> <li>&gt; Keep electrical appliances away from water</li> </ul> <p>This year, we had 96 per cent of schools register in our network area. Eleven school visits were completed by Essential Energy employees where they spoke to students about the hazards associated with electricity as well as providing real life examples relating to the five key safety messages of the program.</p>
Henty Field Days – Agriculture Electrical Safety	<p>17-19 September 2018 – attend field days to promote safety messages and engage with the community on public safety matters.</p> <ul style="list-style-type: none"> <li>&gt; <b>Look up and live.</b> Identify overhead powerlines and mark them at ground level. Essential Energy can provide electrical network maps showing the location of overhead powerlines on your property.</li> <li>&gt; <b>Always be aware.</b> Before accessing paddocks and work areas, check the location and condition of poles and wires. Conditions can change without notice and heat can affect powerline height.</li> <li>&gt; <b>Need to know.</b> Know the height of farm machinery in both the raised and lowered positions so you can maintain the required safety clearance distances. Powerlines can be as low as 5.5m so always lower machinery fully before moving off and check and observe clearances when working under or around powerlines.</li> <li>&gt; <b>Don't disembark.</b> If your machinery contacts overhead powerlines, stay in the vehicle (if it is safe to do so) and call Essential Energy immediately on 13 20 80.</li> </ul>

**Table 14: Internal audits performed on any aspect of the ENSMS (as per AS 5577 clause 4.5.4)**

Audit scope	Identified non-compliances	Actions
Nil		

**Table 15: External audits performed on any aspect of the ENSMS (as per AS 5577 clause 4.5.4)**

Audit scope	Identified non-compliances	Actions
Nil		