

## Rio Tinto Iron Ore – Pilbara Utilities Division

### Electricity (Network Safety) Regulations 2015 (WA) - Annual network safety performance objectives

2017

#### Executive summary

Pilbara Iron Network Operators annual network safety performance objectives

Network safety performance incident		2017/18	2018/19	2019/20
(a)	Electric shock/injury/death	0	0	0
(b)	Property damage (non-fire)	0	0	0
(c)	Property damage (fire)	0	0	0
(d)	Wood pole fire	T <sup>1</sup>	N/A	N/A
		D	0	0
(e)	Conductor clashing	T	0	0
		D	0	0
(f)	Unassisted pole failures <sup>2</sup>	T	0	0
		D	1	1
(g)	Unassisted overhead conductor failures	T	0	0
		D	0	0
(h)	Unassisted stay failures	T	0	0
		D	0	0
(i)	Unassisted cable failure	T	0	0
		D	3	2

<sup>1</sup> No wood pole in the transmission system.

<sup>2</sup> Refer to section 3.6 on failure rates.

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# Overview

## 1. Purpose

This report details the network safety performance objectives for the Pilbara Iron Network Operators with respect to the requirements of the *Electricity (Network Safety) Regulations 2015 (WA)*, and is compiled to meet the requirements of regulation 31.

## 2. Definitions

### 2.1 Pilbara Iron Network Operators

For the purpose of this report, Pilbara Iron Network Operators refer to the collective Network Operators listed in regulation 4(1)(c), 4(1)(d), 4(1)(e) and 4(2).

### 2.2 Pilbara Power Network

The Pilbara Iron Network Operators, trading as Rio Tinto, own, operate and maintain the generation, transmission and distribution electricity network within the Pilbara region which supplies power to its iron ore operations and to small-use customers in Dampier, Pannawonica, Paraburadoo, Tom Price and Wickham.



Figure 1: Pilbara Iron Network Operators' transmission and distribution networks

# Network Safety Performance

The following are network safety performance objectives to comply with regulation 31

## **3. Network Safety Performance Incidents**

### **3.1 Electric shock, injury or death**

*a discharge of electricity from the network that causes the electric shock, injury or death of a person or the death of livestock;*

Pilbara Iron Network Operator regularly inspects and maintains the networks to ensure the company's main safety objective of zero harm and therefore expect the target to be zero.

### **3.2 Property damage (non fire)**

*an incident caused by the network, other than a fire, that causes damage to property other than to the network;*

No historical property damage events have occurred. Inspection and maintenance program in place.

### **3.3 Property damage (fire)**

*a fire caused by the network that causes damage to property other than to the network;*

No historical property damage event occurred due to fire started by the network. Inspection and maintenance including vegetation management program in place.

### **3.4 Wood pole fire – transmission/distribution**

*a fire, on a wood pole that is a part of the network, that originated on the pole;*

#### **3.4.1 Transmission System**

No wood poles exist in the transmission system, therefore not applicable.

#### **3.4.2 Distribution System**

No historical event of wood pole fire started by the network. Ongoing pole replacement program in place to replace wooden poles with steel poles.

### **3.5 Conductor clashing – transmission/distribution**

*the contacting of 2 or more conductors of the network, of different phases, caused by temperature variations or wind;*

#### **3.5.1 Transmission System**

No evidence of fault triggered by conductor clashing. Aerial helicopter and acoustic surveys conducted every two years.

#### **3.5.2 Distribution System**

No evidence of fault triggered by conductor clashing. Visual inspection and acoustic survey program in place.

### **3.6 Unassisted pole failures – transmission/distribution including types & failure rate**

*an unassisted failure of a pole that is a part of the network;*

#### **3.6.1 Transmission System**

All steel construction. No historical evidence of reported incident with the steel construction. Failure rate is not applicable. Inspection and maintenance program in place.

#### **3.6.2 Distribution System**

Steel poles, wood poles with a 70/30 ratio of hardwood to softwood and concrete poles. One recorded pole failure event in 2015 and therefore the failure rate is less than 1 per 10,000 pa. Inspection and maintenance program in place.

### **3.7 Unassisted overhead conductor failures – transmission/distribution**

*an unassisted failure of an overhead conductor that is a part of the network;*

#### **3.7.1 Transmission System**

No evidence of conductor failure. Aerial helicopter and acoustic surveys were completed and identified high priority defects will be repaired.

#### **3.7.2 Distribution System**

No evidence of conductor failure. Power line acoustic survey was performed and identified high priority defects will be repaired.

### **3.8 Unassisted stay failures – transmission/distribution**

*an unassisted failure of a stay wire that is a part of the network;*

#### **3.8.1 Transmission System**

Nearly all steel tower configurations. Periodic structural integrity inspection carried out to identify any defects.

#### **3.8.2 Distribution System**

No evidence of failure. Inspection and maintenance program in place.

### **3.9 Unassisted cable failure – transmission/distribution**

*an unassisted failure of an underground cable that is a part of the network.*

#### **3.9.1 Transmission System**

Short section within Cape Lambert Bulk Substation is only a few years old and don't expect any issue to present in the next few years.

#### **3.9.2 Distribution System**

A few recorded events occurred in the past. Since town supplies undergone significant upgrades and asset replacement program completed, no event has occurred recently.