





LORD HOWE ISLAND BOARD

ELECTRICITY NETWORK SAFETY MANAGEMENT SYSTEM

ANNUAL PERFORMANCE REPORT FOR 2020/2021



Date	Name	Signed Approval
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Introduction

As the Electricity Network Operator for Lord Howe Island, the Lord Howe Island Board is required to have an Electricity Network Safety Management System (ENSMS). In accordance with clause 10 of the *Electricity Supply (Safety and Network Management) Regulation 2014* (the ESSNM Regulation), the Board is required to publish the results of its performance measurements against its ENSMS annually.

This report has been prepared according to the requirements in the *NSW Independent Pricing and Regulatory Tribunal Electricity network reporting manual Safety management system performance measurement*, September 2020 and uses the template supplied in Appendix A of the manual.

Tier 1 – Major incidents

Tier 1 incidents are defined as a ‘Major Incident’ in accordance with the *Electricity networks reporting manual – Incident reporting* (Reporting Manual - Incident Reporting).

Table 0.1 Major incidents

ESSNM Objective		Description of each major incident reported under the Reporting Manual - Incident Reporting requirements
Safety of members of the public		Nil to report.
Safety of persons working on network		Nil to report.
Protection of property	Third party property	Nil to report.
	Network property ^a	Nil to report.
Safety risks arising from loss of electricity supply ^b		Nil to report.

a Network property losses are not reportable under IPART’s Reporting Manual - Incident Reporting requirements. For the purpose of this Reporting Manual, a network operator is to report each event in which losses exceed \$500,000 in relation to damage caused to *electricity works* as defined in the *Electricity Supply Act 1995*.

b As defined for major reliability incidents in IPART’s Reporting Manual – Incident Reporting.

Tier 2 – Incidents

Tier 2 incidents are defined as an ‘Incident’ in accordance with the Reporting Manual - Incident Reporting.

Table 0.2 Incidents

ESSNM Objective	Description of each incident reported under the Reporting Manual - Incident Reporting requirements
Safety of members of the public	Nil to report.
Safety of persons working on network	Nil to report.
Protection of third party property	Nil to report.
Safety risks arising from loss of electricity supply ^a	Nil to report.

^a As defined for reliability incidents in IPART’s Reporting Manual – Incident Reporting.

Tier 3 – control failure near miss

Table 0.3 Network assets failures

Performance measure	Population	5-year average annual functional failures	Annual functional failures (for reporting period)					
			Unassisted ^a			Assisted ^a		
			No fire	Fire		No fire	Fire	
				Contained	Escaped		Contained	Escaped
Towers	0							
Poles (including street lighting columns/poles & stay poles)	0							
Pole-top structures ^b	0							
Conductor – Transmission OH ^c	0							
Conductor – Transmission UG ^c	0							
Conductor – HV ^d (including sub-transmission) OH	0							
Conductor – HV (including sub-transmission) UG	13km	0	0	0	0	0	0	0
Conductor – LV ^d OH	0							
Conductor – LV UG	10km	0	0	0	0	0	0	0
Service line ^e OH	0							
Service line ^e UG	0							
Power transformers ^f	3	0	0	0	0	0	0	0
Distribution transformers	11	0	0	0	0	0	0	0
Reactive plant ^g	0							
Switchgear – zone / subtransmission/transmission substation	0							

Performance measure	Population	5-year average annual functional failures	Annual functional failures (for reporting period)					
			Unassisted ^a			Assisted ^a		
			No fire	Fire		No fire	Fire	
				Contained	Escaped		Contained	Escaped
Switchgear – distribution (OH)	0							
Switchgear – distribution (Ground based)	15	0	0	0	0	0	0	0
Protection relays or systems	14	0	0	0	0	0	0	0
Zone / subtransmission/transmission substation SCADA system	1	0	0	0	0	0	0	0
Zone / subtransmission/transmission substation Protection Batteries	0							

a See Glossary for definitions of unassisted failures and assisted failures.

b Pole top structures/components are any structure that is attached to a pole to support electricity mains and apparatus.

c OH means 'overhead'; and UG means 'underground'. Transmission and sub-transmission voltages are generally 33kV AC nominal and above. Transmission conductors form part of a transmission network. Sub-transmission conductors form part of a distribution network.

d HV means 'high voltage', and LV means 'low voltage'. High voltage are voltages 1kV AC nominal and above. Low voltage are voltages below 1kV AC nominal.

e Overhead service and underground service as defined in the NSW Service and Installation Rules.

f Power Transformers are transformers where the secondary/output voltage is 5kV nominal or above.

g Reactive plants are reactors and capacitors.

Table 0.4 Vegetation contact with conductors

Performance measure ^a	Event count - Current reporting period	Event count - Last reporting period (19/20)	Event count - Two periods ago	Event count - Three periods ago	Event count - Four periods ago	Comments
Fire starts – grow-in	0	0	0			Nil OH conductors
Fire start – fall-in and blow-in	0	0	0			Nil OH conductors
Interruption ^b – grow-in	0	0	0			Nil OH conductors
Interruption – fall-in and blow-in	0	0	0			Nil OH conductors

a Vegetation hazard definitions as per the Industry Safety Steering Committee *Guide for the Management of Vegetation in the Vicinity of Electricity Assets* (ISSC3).

b Includes momentary interruptions.

Table 0.5 Unintended contact, unauthorised access and electric shocks

Detail	Event Count Current reporting period	Event Count Last reporting period (19/20)	Event Count Two periods ago	Event Count Three periods ago	Event Count Four Periods ago	Comments
Electric shock^a and arc flash incidents^b originating from network assets^c including those received in customer premises						
Public	0	0	0			
Public worker	0	0	0			
Network employee / network contractor ^d	0	0	0			
Accredited Service Provider	0	0	0			
Livestock or domestic pet	0	0	0			
Contact with energised overhead network asset^e (e.g. conductor strike)						
Public road vehicle ^f	0	0	0			
Plant and equipment ^g	0	0	0			
Agricultural and other ^h	0	0	0			
Network vehicle	0	0	0			

Detail	Event Count Current reporting period	Event Count Last reporting period (19/20)	Event Count Two periods ago	Event Count Three periods ago	Event Count Four Periods ago	Comments
Contact with energised underground network asset^e (e.g. conductor strike)						
Plant and equipment	0	0	0			
Person with hand held tool	0	0	0			
Unauthorised network access (intentional)						
Zone / BSP / Transmission substation / switching station	0	0	0			
Distribution substation	0	0	0			
Towers / poles	0	0	0			
Other (e.g. communication sites)	0	0	0			
Safe Approach Distance (SAD)ⁱ						
Network employee / network contractor	0	0	0			
Accredited Service Provider	0	0	0			
Public	0	0	0			
Public Worker	0	0	0			

a All electric shocks are to be reported except those resulting from static discharge, defibrillators, where the system is nominally extra low voltage or involving the DC rail traction system.

b Incidents that result in a burn or other injury requiring medical treatment and result from exposure to an arc.

c Events caused by network assets, network asset defects or network activities, including shocks received inside customer installations, are to be reported. Customer installation events not associated with network assets are not to be reported.

d Includes all classes of authorised persons (network employee and network contractor). Accredited Service Provider employees are not included.

e Would not normally include contact with a pole, pillar, distribution substation etc, unless the contact results in subsequent contact with an energised asset.

f Including plant and equipment packed up for travel (ie, plant and equipment travelling on a public road to or from worksite).

g Cranes, elevated work platforms, cherry pickers, excavators, hand held tools, etc.

h Examples include agricultural equipment, aircraft and watercraft.

i Encroachment into the applicable Safe Approach Distance for the type of individual involved.

Table 0.6 Reliability and Quality of Supply^a

Performance measure	Event count - current reporting period	Event count - last reporting period (19/20)	Event count - two periods ago	Event count - three periods ago	Event count - four periods ago	Comments
High voltage into Low voltage ^b	0	0	0			
Sustained voltage excursions outside emergency range ^c	0	0	0			
Reverse polarity	0	0	0			
Neutral integrity due to poor workmanship or incorrect procedure	0	0	0			
Neutral integrity due to asset defect or failure	0	0	0			

a Reporting is required by distribution network operators only.

b May also be referred to as HV LV intermix or HV injection.

c As defined by network operator with reference to the measurement methodologies used in Australian Standard AS61000.3.100.

Table 0.7 Reliability and Quality of Supply – Critical infrastructure incidents

Type of critical infrastructure ^a (e.g. hospital, tunnel)	Minutes of supply lost ^b	Cause	Consequential safety impacts associated with supply issue
Hospital	190	There were seven separate supply interruptions with total of 190 minutes supply lost. Planned supply interruptions (3) for substation maintenance. Customers had prior notification. Hybrid Generation System failure (35 min) Hybrid Generation System failure (40 min) Hybrid Generation System failure (20 min) Hybrid Generation System failure (15 min)	No adverse impacts to critical infrastructure on any of the seven occasions.
Airport terminal	190		
Aviation navigation equipment	190		

(Critical infrastructure defined as Gower Wilson Memorial Hospital, Airservices Australia aviation navigation equipment and the Lord Howe Island airport terminal.)

a Critical infrastructure as identified in the network operator's formal safety assessment in relation to the safety risks associated with loss of supply.

b Number of minutes that the critical infrastructure was without a network supply.

Note: Incidents include outages and supply quality events that adversely impact critical infrastructure.

Table 0.8 Network-initiated Property damage events

Detail	Event count - current reporting period	Event count - last reporting period (19/20)	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)						
Nil to report	0	0	0			
Network property (including non-electrical assets including vehicles, buildings)						
Nil to report	0	0	0			

Note: Event counts should include any event where there is a reasonable likelihood that damage was caused by *electricity works*.

Tier 4 Control implementation

Table 9 Amendments and improvements to Formal Safety Assessments (FSA) or Associated Risk Treatments^a

FSA	Amendments / improvements
	No changes – no incidents have occurred to prompt investigation/analysis.

^a Adjustment or modifications made by the network operator to formal safety assessments, or risk treatment action plans, including those changes informed by consideration of the results of the investigation and analysis of incidents, near misses or asset failures, where the network operator has assessed that existing assessments or risk treatments do not eliminate or reduce risk so far as is reasonably practicable.

Table 10 Design, construction and commissioning

Performance measure ^a	Current reporting period	Last reporting period (19/20)	Two reporting periods ago	Three reporting periods ago	Four reporting periods ago
Designs for which Safety in Design (SiD) Reports have been completed	0. Nil designs.	0	0		
Designs for which Safety in Design (SiD) Reports have been audited	0. Nil designs.	0	0		
Contestable designs certified ^b	0. None performed.	0	0		
Contestable level 1 project safety reviews performed ^c	0. Nil projects.	0	0		
Contestable level 2 project safety reviews performed ^c	0. Nil projects.	0	0		
Non-contestable project safety reviews performed ^c	0. Nil projects.	0	0		
Project closeout reports completed for contestable projects	0. Nil projects.	0	0		
Project closeout reports completed for non-contestable projects	0. Nil projects.	0	0		

Performance measure ^a	Current reporting period	Last reporting period (19/20)	Two reporting periods ago	Three reporting periods ago	Four reporting periods ago
Project closeout reports audited for contestable projects	0. Nil projects.	0	0		
Project closeout reports audited for non-contestable projects	0. Nil projects.	0	0		

a The unit of measure is the number of designs/projects.

b The network operator is to advise where no contestable designs have been performed.

c A safety review would include checking that work on or near the network is being performed safely.

Table 11 Inspections (assets)

Performance measure ^a	Inspection tasks				Corrective action tasks				Comments
	Planned inspection tasks ^b	Achieved ^c	Open ^d	Outstanding ^d	Tasks identified (all categories) ^c	Achieved	Open	Outstanding ^e	
Transmission Substations	0								Nil assets
Zone Substations	0								Nil assets
Distribution Substations	14	14	0	0	0				Nil corrective tasks identified
Transmission OH	0								Nil assets
Transmission UG	0								Nil assets
Distribution OH	0								Nil assets
Distribution UG	0								No scheduled inspection

Note: The network operator may provide more detailed information when reporting tasks. These can be added under the headline metrics. Field captured inspection data may require additional processing to identify the appropriate corrective action tasks.

a Table 11 should not include activities reported in Table B.3 (Vegetation tasks) and Table B.4 (Asset tasks).

b Includes all 'Open' and 'Outstanding' tasks from the previous reporting period.

c Inspection tasks must only be reported as 'Achieved' when all associated corrective action tasks to address the faults of a particular asset have been identified.

d 'Open' and 'Outstanding' tasks are those tasks categorised as such at the end of the reporting period.

e The network operator must provide commentary to explain how it is managing risk associated with outstanding tasks and when the outstanding tasks are expected to be completed.

Table 12 Inspections (vegetation) Aerial/Ground based

Bushfire risk category	Population (spans / poles)	Target	Achieved	Outstanding	Comments
Aerial					
Total	0	0	0	0	Nil OH conductors
Ground-based					
Total	0	0	0	0	Nil OH conductors

Note: Table 12 should not include activities reported in Table B.3 (Vegetation tasks) and Table B.4 (Asset tasks).

Table 13 Public electrical safety plans and activities^a

Network operator public safety programs / campaigns	Details
Nil undertaken.	

Note that as there are no full-time licensed electrical contractors on Lord Howe Island, the Board's Senior Electrical Officer provides a service for safety issues on a customer's installation (not related to the network). In this way this issue is promptly made safe until the customer can arrange for a licensed electrical contractor to carry out the full repair.

^a Network operator to provide details on the plans and other activities that the network operator undertook to provide safety information to the public. Examples may include a publication of a Public Electrical Safety Awareness Plan, advertisements associated with electrical safety and awareness, publication of a bushfire risk management plan, shocks and tingles awareness program, etc.

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

Audit scope	Identified non-compliances	Actions
Electricity Network Safety Management System Policy	ENSMS to be updated to incorporate governance arrangements. This would cover the RACI aspects of any changes to the ENSMS	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
	Section 4 to be updated to reflect changes as a result of the HREP	The Lord Howe Island Board has programmed this non-compliance and is currently being implemented by the Senior Electrical Officer.

Audit scope	Identified non-compliances	Actions
Planning, Design, Construction and Commissioning Plan	The LHIB should incorporate lifecycle safety considerations for new projects	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
	The year of the publication of any guidance documents/standards referenced by the ENSMS should be mentioned to ensure they have not been superseded or withdrawn (so that the latest version is being used).	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
Maintenance Plan	To be reviewed to reflect changes as a result of the HREP.	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
Operations Plan	To be reviewed to reflect changes as a result of the HREP	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
Emergency Management Plan	LHIB should incorporate its coordination activities with other emergency response representatives as part of the LEMC	The Lord Howe Island Board has incorporated its activities with other emergency response activities and is now part of the LEMC
	LHIB should incorporate any lessons learnt from the scenario testing carried out as part of LEMC's response and preparedness trials for the electricity network.	The Lord Howe Island Board has programmed this non-compliance and is currently being implemented by the Senior Electrical Officer.
	LHIB should consider aligning the next internal audit with an emergency scenario test to allow observations on performance and improvement opportunities by an independent.	The Lord Howe Island Board has implemented this for 2023 to align with the next internal audit performed by CutlerMerz
Monitoring, Measurement and Audit Plan	LHIB should incorporate the process it follows for identifying any emerging risks and their trigger events	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022

Audit scope	Identified non-compliances	Actions
Electrical Safety Rules	To be reviewed to reflect changes as a result of the HREP	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
Formal Safety Assessment	The FSA should also be reviewed to ensure hazards associated with the HREP have been identified to minimise the risk ALARP	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022
Single Line Diagram	To be reviewed to reflect changes as a result of the HREP	The Lord Howe Island Board has recently engaged Jacobs Group. Jacobs have included in their scope of work to cover this non-compliance. Jacobs will be arriving onsite mid 2022

Note: Network operators are only required to report internal audit non-compliances that are related to ENSMS or safety issues.

a AS 5577 is the Australian Standard *Electricity network safety management systems, 2013*, published by Standards Australia.

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 undertaken.		