



Independent Pricing and Regulatory Tribunal
New South Wales

Annual Compliance Report

Energy network operator compliance during 2018-19

Annual Report
Energy Networks Compliance

October 2019

© Independent Pricing and Regulatory Tribunal (2019)

With the exception of any:

- (a) coat of arms, logo, trade mark or other branding;
- (b) third party intellectual property; and
- (c) personal information such as photos of people,

This publication is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Australia Licence.



The licence terms are available at the Creative Commons website:
<https://creativecommons.org/licenses/by-nc-nd/3.0/au/legalcode>

IPART requires that it be attributed as creator of the licensed material in the following manner: © Independent Pricing and Regulatory Tribunal (2019).

The use of any material from this publication in a way not permitted by the above licence or otherwise allowed under the *Copyright Act 1968* (Cth) may be an infringement of copyright. Where you wish to use the material in a way that is not permitted, you must lodge a request for further authorisation with IPART.

Disclaimer

This report is published for the purpose of IPART meeting its reporting requirements to the Minister under section 88 of the *Electricity Supply Act 1994* and section 75A(3C) of the *Gas Supply Act 1996*. Use of this report for any other purpose is at the user's own risk, and is not endorsed by IPART.

This report is based on independent audit reports, network operators' self-reports and other compliance monitoring activity conducted by IPART throughout the 2018-19 financial year.

ISBN 978-1-76049-380-6

The Independent Pricing and Regulatory Tribunal (IPART)

IPART provides independent regulatory decisions and advice to protect the ongoing interests of the consumers, taxpayers and citizens of NSW. IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website: <https://www.ipart.nsw.gov.au/Home>.

Tribunal Members

The Tribunal members for this report are:

Dr Paul Paterson, Chair

Mr Ed Willett

Ms Deborah Cope

Enquiries regarding this report should be directed to a staff member:

Darren Holder (02) 9290 8441

Peter Cole (02) 9019 1934



Contents

1	Executive summary	1
1.1	Licensed electricity network operators' performance against licence conditions	3
1.2	Gas network operators fully complied with authorisation or licence conditions	4
1.3	Electricity network operators' performance against safety management requirements	4
1.4	Electricity network operators reporting of incidents related to safety, reliability and property	6
1.5	Report structure	6
2	Licensed electricity network operators' compliance with their licences	7
2.1	Critical infrastructure licence conditions	7
2.2	Reliability and performance standards licence conditions	12
2.3	NSW Code of Practice for environmental impact assessments	14
2.4	Distribution Districts	15
2.5	Reporting in accordance with reporting manuals	16
3	Gas network operators' compliance	18
3.1	Gas network operators - Compliance and reporting framework	18
3.2	Gas network operators' compliance	19
4	Electricity network operators' compliance with safety and other legislated obligations	20
4.1	Safety management system obligations	20
4.2	Incident reporting	26
4.3	Employment guarantee obligations	29
5	Our compliance approach and activities	31
5.1	We concluded the review of Essential Energy's operating licence	31
5.2	We updated our publications to reflect the licence variations	31
5.3	We identified, assessed and responded to safety risks	32
5.4	We amended our reporting requirements to reduce regulatory burden	33
5.5	We attended the annual black start simulation exercise	34
5.6	We engaged with other government departments and regulatory bodies	34
	Appendices	1
A	Network operators and information sources for this report	2
B	Overview of the legal framework for energy networks	6
C	Summary of electricity network operators' reliability and performance in 2018-199	



1 Executive summary

This is the Independent Pricing and Regulatory Tribunal's (IPART's) annual report on the NSW energy network operators'¹ compliance with their obligations for the year 2018-19, as required by section 88 of the *Electricity Supply Act 1995* (ES Act) and section 75A(3C) of the *Gas Supply Act 1996* (GS Act). It summarises our findings on the extent to which the network operators that are licensed or authorised to operate in NSW complied with the conditions of their licences or their gas reticulator authorisations during this year, based on self-reporting of non-compliances, the results of independent audits and our records.

The report also outlines our findings on whether network operators with electricity network assets in NSW (licensed, unlicensed, and interstate)² took all reasonable steps to ensure the safety of their networks during the year, in line with the *Electricity Supply (Safety and Network Management) Regulation 2014* (ESSNM Regulation). Refer to Table 4-1 for details of all network operators with assets in NSW.

Appendix B provides an overview of the legal framework applicable to the energy network operators' safety and reliability regulatory obligations.

IPART relies on its own information gathering activities, reports from the energy network operators and audit outcomes to monitor compliance in the industry. Where non-compliances have been self-reported or have not been assessed as material or non-material³ by an auditor, IPART has considered whether these are significant or minor in nature. Details of the compliance framework applicable to each condition is provided in the following chapters.

We also assessed the extent to which the licensed and unlicensed electricity network operators' safety management systems complied with the ESSNM Regulation. We consider that all electricity network operators have opportunities for continued improvement in their safety and network management functions. Refer to section 4.1 for further details.

We continued to refine our risk-based approach to compliance regulation, and to our reporting frameworks and guidance materials. In line with this approach, we have developed a five year audit and reporting schedule for each electricity network operator and amended these to reflect any recently identified priority areas for improving their compliance with safety management requirements.

¹ TransGrid, Ausgrid, Endeavour Energy and Essential Energy (electricity); Evoenergy, Allgas Energy Pty Ltd, Australian Gas Networks (Albury) Ltd, Australian Gas Networks (NSW) Ltd, Central Ranges Pipeline Pty Ltd, and Jemena Gas Networks (NSW) Ltd (natural gas); and Elgas Ltd and Elgas Reticulation Pty Ltd, and Origin Energy LPG Ltd (LPG).

² TransGrid, Ausgrid, Endeavour Energy and Essential Energy (licensed); Directlink, Lord Howe Island Board, Metro Trains Sydney, and Sydney Trains (unlicensed); Ausnet Services (Victoria), Energy Queensland, Evoenergy (ACT) and Powercor (Victoria) (interstate).

³ These terms are defined in IPART's audit guidelines.

Box 1.1 IPART's role and approach to regulation and compliance

IPART is responsible for administering the licensing regimes for electricity transmission and distribution network operators, natural gas reticulation network operators and LPG distribution network operators. We are also responsible for regulating the reliability and safety of NSW electricity assets. A further overview of the legal framework for electricity operators can be found in Appendix B.

IPART does not regulate the safety or reliability of the gas reticulation or gas distribution networks. We are not the economic regulator for the energy industry and we have no role in determining network charges. We do not regulate the electricity generators, gas transmission pipelines or processing or bulk storage facilities for gas, or the electricity or gas retailers.

Our Approach to compliance

Compliance is the responsibility of the network operators. IPART's role is to keep these regulated entities accountable in accordance with their regulatory requirements. We cooperate with interstate regulators and SafeWork NSW to reduce duplication of activity and regulatory burden on our regulated entities where possible.

When developing and implementing compliance and enforcement strategies, we:

- ▼ Follow our legislative mandate and seek to meet or support the achievement of the objectives of the legal instruments under which we regulate
- ▼ Consult with our regulated entities and other stakeholders to ensure that our compliance and enforcement strategies are relevant and targeted
- ▼ Apply a risk-based regulatory approach.

Our risk based regulatory model

We focus on allocating resources to areas of higher risk. We evaluate the risk by considering the likelihood of harm occurring in the absence of our regulatory controls and the potential consequence of that harm. We consider historical, current and emerging risks. We also:

- ▼ Focus our efforts on informing, educating and supporting regulated entities to comply. We hold them to account by monitoring compliance through reporting and a risk based audit approach.
- ▼ Consider a range of enforcement actions if required, having regard to the materiality of any non-compliance.

IPART considers there has been a general improvement in compliance by electricity network operators since 2015 (when we received our monitoring compliance function). We will remain vigilant as network operators revise their processes and procedures in response to incidents, audit recommendations, IPART directions and changes in the regulatory environment.

1.1 Licensed electricity network operators' performance against licence conditions

The electricity network operators' licences include conditions related to some or all of the following areas:

- ▼ Critical infrastructure
- ▼ Reliability and performance standards
- ▼ A code of practice related to environmental impact statements
- ▼ Compliance reporting and auditing.

The code of practice related to environmental impact assessments is discussed further in section 2.3 and compliance reporting and auditing is discussed throughout the report.

1.1.1 Critical infrastructure licence conditions

Performance against the critical infrastructure licence conditions is self-reported annually, and subject to an annual independent audit.⁴ In 2018-19, the audits found:

- ▼ TransGrid was fully compliant with all of its critical infrastructure licence conditions.
- ▼ Ausgrid had 14 non-compliances against five of its critical infrastructure licence conditions. The auditor noted that these non-compliances were non-material in nature, and that the nine non-compliances which were against two of the critical infrastructure licence conditions had been rectified by the conclusion of the audit period. The auditor made four key recommendations to Ausgrid to rectify the non-compliance.
- ▼ Endeavour Energy had five non-material non-compliances against three of its critical infrastructure licence conditions. The auditor made two key recommendations to Endeavour Energy to rectify the non-compliance.

Refer to section 2.1 for details of the critical infrastructure compliance framework and a summary of the network operators' performance against their critical infrastructure licence conditions.

1.1.2 Reliability and performance standards licence conditions

Performance against the reliability and performance standards licence conditions is self-reported quarterly by the licensed electricity network operators.⁵ The licensed distribution network operators are also subject to annual, independent audits. In 2018-19, the electricity network operators had the following non-compliances:

- ▼ Ausgrid, Endeavour Energy and Essential Energy all reported non-compliances with the timeframes for reporting stipulated in IPART's *Electricity Networks Reporting Manual – Incident Reporting*.

⁴ Following introduction of the critical infrastructure licence conditions in Essential Energy's distribution licence, IPART decided to defer by 12 months the deadline by which Essential Energy's audit report is due, to 30 September 2020.

⁵ The term 'licensed electricity network operators' includes both the transmission and distribution network operators.

- ▼ Ausgrid, Endeavour Energy and Essential Energy also had non-compliances with the customer service standards.
- ▼ Ausgrid and Essential Energy both had non-compliances with the network overall reliability standards due to minor errors related to excluded interruptions.
- ▼ TransGrid reported full compliance with its reliability and performance licence conditions.

Refer to section 2.2 for details of the reliability and performance standards compliance framework and for a summary of the network operators' performance against their reliability and performance standards licence conditions.

1.2 Gas network operators fully complied with authorisation or licence conditions

Gas network operators' performance against the conditions of their authorisations or licences is self-reported. There is no requirement for an audit against these licence conditions.

In 2018-19, all six natural gas reticulators and three liquid petroleum gas distributors reported they were compliant with their respective authorisation/licence conditions. Refer to section 3.1 for details of the gas reticulators and licence holders, and section 3.2 for details of their compliance.

1.3 Electricity network operators' performance against safety management requirements

Electricity network operators' compliance with the requirements of the ESSNM Regulation in 2018-19 was assessed by independent audits of the large network operators, TransGrid, Ausgrid, Endeavour Energy, Essential Energy and Sydney Trains.

The audits of TransGrid, Ausgrid, Endeavour Energy, and Essential Energy focused on implementation of the asset management component of their safety management systems. We also directed an audit of Sydney Trains to determine the extent to which its electricity network safety management system had been amended to rectify non-compliances identified in the 2018 electricity network safety management system (ENSMS) and bushfire risk management audits.

We assessed the electricity network operators' compliance with safety incident reporting requirements through their self-reporting and our records. Refer to section 4.1 for further details of safety management system obligations, and the network operators' compliance.

We assessed Lord Howe Island Board's compliance with the ESSNM Regulation by reviewing its 2019 audit report after an internal audit of the ENSMS.

For Metro Trains Sydney, we reviewed its progress reports of its rectification of the non-compliances from the 2017 ENSMS audit and issued a direction for it to modify the ENSMS to comply with the ESSNM Regulation.

We assessed Directlink's progress in addressing the non-compliances from its 2018 ENSMS audit by reviewing its progress reports to IPART.

For Ausnet Services (Victoria), Energy Queensland, Evoenergy (ACT) and Powercor (Victoria), whose networks span across NSW borders, we continued to engage with the interstate regulators to share information about interstate network operators' compliance with safety obligations.

Refer to section 4.1.1 for a summary of the network operators' obligations under the ESSNM Regulation and their performance against the stipulated safety management requirements.

1.3.1 Large network operators compliance with the ESSNM regulation

TransGrid was compliant with the implementation of the asset management component of the safety management systems.

Ausgrid, Endeavour Energy and Essential Energy were found to be progressing towards compliance with the asset management component of their safety management systems. Ausgrid and Essential Energy had several non-material non-compliances while Endeavour Energy had both material and non-material non-compliances. We issued a direction for Endeavour Energy to modify its ENSMS due to some outstanding material non-compliances from the previous ENSMS audit and some material findings from the 2019 audit.

Sydney Trains was found to have made some progress but still had a number of non-compliances.

Refer to section 4.1.2 for further details of the asset management audit outcomes.

1.3.2 Large network operators bushfire risk mitigation systems

TransGrid, Ausgrid, Endeavour Energy, Essential Energy and Sydney Trains all provided their 2018 bushfire preparedness reports to IPART as required. They reported having performed most of the required inspections for higher bushfire risk areas. Ausgrid, Endeavour Energy and Essential Energy reported having continued to improve their processes to manage inspections and risk assurance of private overhead consumer mains in bushfire prone areas. They, along with TransGrid, reported employing a risk-based approach to defect rectification to ensure that higher priority asset and vegetation defects would be addressed more urgently. As IPART continued to monitor all network operators' progress in implementing their systems for managing bushfire risk, the 2018 bushfire preparedness reports have also informed certain focus areas of the upcoming 2019/20 bushfire risk management audit.

Refer to section 4.1.3 for details of how IPART monitored the network operators' compliance with bushfire risk management requirements during 2018-19.

1.4 Electricity network operators reporting of incidents related to safety, reliability and property

During 2017-18, Ausgrid, Endeavour Energy and Essential Energy continued to report serious electricity works accidents, and other incidents related to safety, reliability and property, later than the timeframes required by legislation and our *Electricity networks reporting manual – Incident reporting* (Incident Reporting Manual). Further details are in section 4.2.

1.5 Report structure

The remainder of this report discusses the compliance performance of the network operators during 2018-19 in more detail:

- ▼ Chapter 2 discusses the electricity network operators' compliance with their licence conditions.
- ▼ Chapter 3 discusses the gas network operators' compliance with their authorisation or licence conditions.
- ▼ Chapter 4 discusses the electricity network operators' compliance with the ESSNM Regulation and other legislated obligations.
- ▼ Chapter 5 discusses our approach and activities in regulating energy networks' compliance.
- ▼ Appendix A provides details of the network operators covered by this report, and the information sources we have drawn on to assess their regulatory compliance.
- ▼ Appendix B discusses the legal frameworks applicable to electricity and gas networks operating within NSW.
- ▼ Appendix C provides a summary of electricity distribution network operators' reliability and performance in 2018-19. (In previous years, this was the subject of a separate report.)

2 Licensed electricity network operators' compliance with their licences

NSW transmission network operator, TransGrid, and the distribution network operators, Ausgrid, Endeavour Energy and Essential Energy, have been issued with operating licences. These licences set out their conditions and standards of operation, which relate to some or all the following areas: critical infrastructure, reliability and performance standards, compliance with the *NSW Code of Practice for Authorised Network Operators 2015* (Code of Practice), and compliance reporting and auditing.

During 2018-19, the then Minister for Energy and Utilities varied the operating licences of Ausgrid, Endeavour Energy and Essential Energy. See Appendix B for further details.

Under the *Electricity networks reporting manual – Annual reporting*, Ausgrid, Endeavour Energy, Essential Energy and TransGrid must self-report to IPART on all non-compliances against licence conditions by 31 August of each year. This includes reporting compliance with critical infrastructure licence conditions (TransGrid, Ausgrid, Endeavour Energy and Essential Energy) and compliance with the distribution reliability and performance licence conditions (Ausgrid, Endeavour Energy and Essential Energy).

2.1 Critical infrastructure licence conditions

TransGrid, Ausgrid, Endeavour Energy and Essential Energy have critical infrastructure licence conditions in their operating licences. Critical infrastructure licence conditions were included in Essential Energy's revised operating licence, which was issued on 5 February 2019. These conditions require these network operators to:

- ▼ Have a substantial presence in Australia, including having:
 - Maintenance, operation and control of the transmission or distribution system undertaken within Australia
 - Directors who are Australian citizens and responsible officers for operational technology, network and security operations, who hold security clearance
- ▼ Have certain data security measures related to load data and privacy of personal information
- ▼ Comply with certain reporting and auditing requirements.

On 5 February 2019, the Minister also varied the operating licence of Endeavour Energy so that its critical infrastructure licence conditions generally align with those in Ausgrid's operating licence.

Table 2-1 summarises the compliance of TransGrid, Ausgrid, Endeavour Energy and Essential Energy against their critical infrastructure licence conditions. Further details of their compliance are set out in the following table.

Table 2-1 Summary of critical infrastructure licence conditions compliance in 2018-19

Network operator	Non-compliant licence conditions	Compliance grade
TransGrid	N/A (full compliance)	Compliant
Ausgrid	Condition 9.2(a) Condition 9.3(b)(iii) Condition 10.1(a) Condition 10.1(b)(ii) Condition 10.1(c) Condition 11.1	Non-compliant (non-material) Non-compliant (non-material) Non-compliant (non-material) Non-compliant (non-material) Non-compliant (non-material) Non-compliant (non-material)
Endeavour Energy	Condition 9.1(b) Condition 10.1(b)(ii) Condition 10.1(c) Condition 11.1	Non-Compliant (non-material) Non-Compliant (non-material) Non-Compliant (non-material) Non-compliant (non-material)
Essential Energy	N/A – Essential Energy’s 2018 -19 audit report is due by 30 September 2020.	Essential Energy has provided a self-report detailing the steps it has undertaken to develop an Approved Plan.

2.1.1 Critical infrastructure – Compliance framework

In accordance with our *Electricity networks reporting manual – Critical infrastructure licence conditions*,⁶ TransGrid, Ausgrid, Endeavour Energy and Essential Energy must report annually to us on whether or not they have complied with critical infrastructure licence conditions over the preceding financial year to 30 June. Reports are due by 30 September each year and must be accompanied by a certification in writing supported by a resolution of the Board of the licence holder.

TransGrid, Ausgrid, Endeavour Energy and Essential Energy⁷ must also engage an approved critical infrastructure auditor from IPART’s Technical and Audit Services Panel, or have a nominated auditor approved by IPART, and submit an audit report for the preceding financial year by 30 September each year.⁸

Auditors must assess the network operators’ compliance against all applicable critical infrastructure licence conditions, and assign one of the following grades of compliance in accordance with IPART’s electricity networks grading system⁹:

⁶ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/audit-guideline-critical-infrastructure-licence-conditions-july-2019.pdf>

⁷ IPART has specified that Essential Energy’s audit report on its critical infrastructure licence conditions compliance during 2018-19 is due by 30 September 2020.

⁸ TransGrid Licence condition 8.1 and for Ausgrid, Endeavour Energy and Essential Energy; Licence condition 11.1.

⁹ As contained in IPART’s *Electricity networks audit guideline – Audit fundamentals, process and findings*. June 2019.

Table 2-2 IPART compliance gradings

Grades of compliance	Description
Compliant Compliant	Sufficient evidence to confirm that the requirements have been fully met.
Non-compliant (non-material) NC (NM)	Sufficient evidence to confirm that the requirements have generally been met apart from a number of minor shortcomings which do not compromise the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
Non-compliant (material) Non- Compliant	Sufficient evidence has not been provided to confirm that all major requirements are being met and the deficiency adversely impacts the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.
No Requirement No Requirement	The requirement to comply with the licence condition or other regulatory obligation does not occur within the audit period or there is no requirement for the network operator to meet this assessment criterion.

Note: Reliability and performance standards audits have different compliance gradings.

Source: *Electricity networks audit guideline – Audit fundamentals, process and findings.*

2.1.2 Compliance with critical infrastructure licence conditions

TransGrid complied with all critical infrastructure licence conditions

TransGrid has not reported any non-compliances against its critical infrastructure licence conditions during 2018-19, and an independent auditor did not identify any non-compliances against these licence conditions.

Ausgrid did not comply with all critical infrastructure licence conditions

Ausgrid had non-material non-compliances against five critical infrastructure licence conditions in relation to:

- ▼ Licence condition 9.2(a). Ausgrid did not adequately manage vulnerabilities for operational and associated technologies, and did not have adequate access monitoring controls to protect Ausgrid’s Operational Technology network.
- ▼ Licence condition 9.3(b)(iii). A senior officer did not hold an appropriate security clearance, as the granting of clearance was delayed. Ausgrid has since rectified this non-compliance.
- ▼ Licence condition 10.1(a). Ausgrid did not restrict its employees’ internet and application access, an issue which could potentially enable the exfiltration of data outside of Australia. Ausgrid also did not have adequate controls in place with data transfer tools to prevent exfiltration of data outside Australia. Ausgrid has since rectified these non-compliances.
- ▼ Licence condition 10.1(b)(ii). Ausgrid did not have adequate visibility over the handling of bulk personal data by third party suppliers to ensure that this data is held solely within

Australia. Ausgrid has advised that the rectification of this non-compliance is underway and it forms part of an organisation wide cyber security transformation program.

- ▼ Licence condition 10.1(c). Ausgrid did not have adequate controls to prevent authorised administrators of applications and third party suppliers from exfiltrating bulk personal data outside Australia. Ausgrid has advised that the rectification of this non-compliance is underway as part of an organisation wide cyber security transformation program.

Ausgrid also self-reported a non-compliance against licence condition 11.1 which requires submission of the annual critical infrastructure compliance report to the Commonwealth Representative by 30 September of each year. Ausgrid did not submit this report by the due date but has advised that this non-compliance has since been rectified.

Endeavour Energy did not comply with all critical infrastructure licence conditions

During 2018-19, Endeavour Energy had non-material non-compliances against three critical infrastructure licence conditions in relation to:

- ▼ Licence condition 9.1(b). Endeavour Energy did not follow the documented approval process for third party employees to access the distribution system.
- ▼ Licence condition 10.1(b)(ii). Endeavour Energy had an incident which demonstrated that it did not have adequate internet and email controls to ensure authorised users and administrators of bulk personal data records were not able to exfiltrate the data records overseas.
- ▼ Licence condition 10.1(c). Endeavour Energy did not impose appropriate preventive security controls for third party service providers who have access to its bulk personal data records to prevent exfiltration of the data records outside Australia.

Endeavour Energy also self-reported a non-compliance against licence condition 11.1, which requires submission of the annual compliance report to the Commonwealth Representative by 30 September of each year. Endeavour Energy did not submit this report by the due date but has advised that this has been rectified.

Revision of the 2017-18 Endeavour Energy critical infrastructure audit report

We note that there was a change to Endeavour Energy's critical infrastructure compliance status for 2017-18 as detailed below.

Box 2.1 Endeavour Energy's 2017-18 Critical Infrastructure Compliance

Following the submission of IPART's 2017-18 compliance report to the Minister, additional non-compliances were identified with Endeavour Energy's critical infrastructure licence conditions (as set out below). This was caused by a misunderstanding of the effect of Endeavour Energy's Ministerially-approved transition plan (Approved Plan) in relation to the licence conditions. Endeavour Energy fully cooperated with IPART and was proactive in rectifying the non-compliances.

Endeavour Energy's 2017-18 critical infrastructure audit report found it was fully compliant with the Approved Plan. The Approved Plan sets out a path for Endeavour Energy to transition to full compliance with its critical infrastructure licence conditions by 14 June 2020. IPART's annual compliance report to the Minister reflected this finding.

Following consultation with the Commonwealth Department of Home Affairs, we wrote to Endeavour Energy on 28 February 2019 to advise that Endeavour Energy was potentially non-compliant with five critical infrastructure licence conditions in 2017-18. This change was because, under the terms of the licence, compliance with the Approved Plan did not satisfy these five licence conditions.

The auditor subsequently reviewed the audit findings and released a revised 2017-18 audit report. We now consider that Endeavour Energy was non-compliant with three critical infrastructure licence conditions in 2017-18. In summary, compliance grades for licence conditions 9.1(a), 9.1(b) and 10.1(b)(ii) were changed from 'compliant' to 'non-compliant'. IPART subsequently issued a direction to Endeavour Energy to rectify the non-compliance with licence condition 10.1(b)(ii).

Endeavour Energy has since rectified all of these non-compliances. The 2017-18 audit report did not identify any instances where the non-compliances resulted in breaches of Endeavour Energy's network security.

Essential Energy met its requirements under the critical infrastructure licence conditions

Following the Minister's 5 February 2019 licence variations, Essential Energy is now subject to the critical infrastructure licence conditions. For the financial year ending 30 June 2019, Essential Energy was required to provide a report on the steps it has undertaken to develop an Approved Plan.¹⁰ Essential Energy has submitted a report detailing that it has:

- ▼ Mapped out the work required to achieve compliance and the areas of its network that would be involved
- ▼ Conducted consultation on the scope of the work to achieve compliance
- ▼ Determined the current state of its compliance to establish required actions and timeframes in line with the licence conditions and Approved Plan
- ▼ Drafted an implementation plan for Essential Energy to achieve compliance
- ▼ Received IPART's approval for its Approved Plan.

Essential Energy's Approved Plan is in place until 30 June 2024. Provided that Essential Energy is undertaking the steps outlined in its Approved Plan, it will be taken to have satisfied

¹⁰ Essential Energy licence condition 11.2.

its critical infrastructure licence conditions. IPART has also imposed several reporting requirements on Essential Energy to monitor its progress in accordance with the Approved Plan.

2.2 Reliability and performance standards licence conditions

TransGrid's reliability and performance standards licence conditions require it to plan its network to meet expected levels of unserved energy at each bulk supply point and to show that it had the prescribed level of redundancy built into its network to manage supply to the distribution networks.

Ausgrid's, Endeavour Energy's and Essential Energy's reliability and performance standards licence conditions require each of them to:

- ▼ Satisfy the requirements of the network overall reliability standards
- ▼ Investigate each individual feeder that exceeds the feeder performance standards, and consider both network and non-network solutions to improve the reliability of the feeder
- ▼ Where appropriate, implement a solution to improve reliability of the feeder
- ▼ Satisfy the requirements of the reliability standards for individual customers
- ▼ Investigate each instance where individual customer standards are not met, and consider both network and non-network solutions to improve the reliability of the feeder
- ▼ Make payments to customers if the interruption duration standard or interruption frequency standard is exceeded at the customers' premises
- ▼ Comply with certain reporting and auditing requirements.

2.2.1 Reliability and performance standards – Compliance framework

Under IPART's *Electricity networks reporting manual – Transmission reliability standard*, TransGrid must report by 31 August each year for the preceding financial year. Audits against the reliability standard are only required if requested by IPART.

Under IPART's *Electricity networks reporting manual – Distribution reliability and performance reporting*, Ausgrid, Endeavour Energy and Essential Energy must report quarterly to IPART against the reliability and performance licence conditions over the preceding 12-month period. Reports are due within one month of the end of each quarter. Further details on these reports are at Appendix C.

Ausgrid, Endeavour Energy and Essential Energy must also engage an independent auditor from IPART's reliability audit panel (or have their nominated auditor approved by IPART), and submit an annual audit report for the preceding financial year by 30 September each year. Auditors must assess the network operators against all applicable reliability and performance licence conditions.

2.2.2 Compliance with reliability and performance standards

TransGrid reported full compliance with the transmission reliability and performance standard.

Ausgrid, Endeavour Energy and Essential Energy submitted their reliability and performance standards quarterly reports by the required due dates. They also submitted their independent audit reports by the required due dates.

The audits of compliance with reliability and performance standards for Ausgrid, Endeavour Energy and Essential Energy found that all three network operators were non-compliant with some aspects of the reliability and performance standards. However, these non-compliances did not substantially detract from their data reliability measurement and data accuracy.

IPART will continue to monitor their compliance with the reliability and performance standards during the year. The non-compliances found during the independent audit are summarised in Table 2-3.

Table 2-3 Summary of compliance with reliability and performance standards in licence conditions 2018-19

Network operator	Non-compliant licence conditions	Compliance grade
Ausgrid	Condition 7.2	Non-compliant
	Condition 7.4	Non-compliant
	Condition 7.5	Non-compliant
Endeavour Energy	Condition 6.1	Non-compliant
	Condition 6.2	Non-compliant
	Condition 6.3	Non-compliant
	Condition 7.4	Non-compliant
	Condition 7.5	Non-compliant
Essential Energy	Condition 7.2	Non-compliant
	Condition 7.4	Non-compliant
TransGrid	N/A	Compliant (full compliance)

Note: Audits of reliability standards do not assess non-compliances as material or non-material.

Ausgrid, Endeavour Energy and Essential Energy also self-reported non-compliances against the reliability and performance licence conditions as part of their annual compliance reports. The summary below includes the self-reported non-compliances and those found during the independent audit.

Ausgrid's non-compliances

- ▼ **Network overall reliability standards** – Ausgrid did not exclude interruptions caused by customer electrical installation faults in its reported SAIDI¹¹ and SAIFI¹² metrics.
- ▼ **Customer service standards** – Ausgrid's reported statistics in one of its customer service standards reports had minor errors.
- ▼ **Incident reporting** – Ausgrid had a small percentage of incident reports that did not comply with incident reporting timeframes. Refer to 4.2.2 for further details.

Endeavour Energy's non-compliances

- ▼ **Customer service standards:**
 - Endeavour Energy miscategorised a customer service standard claim which resulted in an error in the quarterly report statistics.
 - It could not provide evidence that it had notified a customer of the determination of their claim within the required timeframe.
 - Endeavour Energy also failed to meet the timeframe for determination, and customer notification of that determination in accordance with licence condition 6.1 and 6.3.
- ▼ **Incident reporting** – Endeavour Energy had a significant number of incidents reports that did not comply with incident reporting timeframes. Refer to 4.2.2 for further details.

Essential Energy's non-compliances

- ▼ **Network overall reliability standards** – Essential Energy did not use the current excluded interruption period of 3 minutes and less, which resulted in insignificant errors in its quarterly reports submitted after 5 February 2019.¹³
- ▼ **Customer service standards** – Essential Energy over-reported customer service standards statistics which resulted in errors in the quarterly reports.
- ▼ **Incident reporting** – Essential Energy had a small percentage of incident reports that did not comply with incident reporting timeframes. Refer to 4.2.2 for further details.

2.3 NSW Code of Practice for environmental impact assessments

TransGrid, Ausgrid and Endeavour Energy are required to comply with Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). The Code of Practice published by the Department of Planning and Environment provides a framework for undertaking environmental impact assessments under Part 5 of the EP&A Act and is mainly process based.

¹¹ *System Average Interruption Duration Index* (SAIDI) is the average derived from the sum of the durations of each sustained customer interruption (measured in minutes), divided by the total number of customers (averaged over the year) of the licence holder.

¹² *System Average Interruption Frequency Index* (SAIFI) is the average derived from the total number of sustained customer interruptions divided by the total number of customers (averaged over the year) of the licence holder.

¹³ As part of the 5 February 2019 licence variations, the excluded interruption period to be deducted when determining performance against SAIDI and SAIFI average standards was increased from one minute to three minutes or less.

The Code of Practice aims to:

...ensure that assessments under Part 5 are conducted appropriately and in a manner that supports proper environmental assessment including appropriate community consultation.¹⁴

2.3.1 Code of Practice – Compliance Framework

As compliance with the Code of Practice is a condition of their licence, TransGrid, Ausgrid and Endeavour Energy are required to report any non-compliances with the Code of Practice in accordance with IPART's *Electricity networks reporting manual - Annual compliance reporting*.¹⁵

Under the Code of Practice, TransGrid, Ausgrid and Endeavour Energy can assess environmental impact and self-determine activities that are not likely to significantly affect the environment and are conducted by, or on behalf of, the network operator for the purpose of electricity transmission or distribution. The Code of Practice describes a five stage process for assessing the environmental impact of an activity.

2.3.2 Compliance with the Code of Practice

Ausgrid and TransGrid did not report any non-compliances with the Code of Practice. Endeavour Energy reported five non-compliances in relation to failing to achieve the outcomes required from the determination stage¹⁶ of the Environmental Impact Assessment as required under the Code of Practice. Endeavour Energy has advised that these non-compliances have since been rectified.

We will continue to monitor compliance with the Code of Practice, and consider whether it is necessary to undertake audits to enhance monitoring of compliance, or take action if appropriate.

2.4 Distribution Districts

In accordance with their licence conditions, Ausgrid and Endeavour Energy need to obtain approval and authorisation from IPART before they extend their network outside of their distribution district. Ausgrid and Endeavour Energy are also required to report in accordance with IPART's *Electricity networks reporting manual - Where Ausgrid and Endeavour Energy operate outside their distribution districts*.¹⁷ These reporting requirements state that Ausgrid and Endeavour Energy must report to IPART:

- ▼ All new network extensions outside of their respective distribution districts

¹⁴ Code of Practice p 6, available at <https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/nsw-code-of-practice-for-authorized-network-operators-2015-09-04.pdf?la=en>

¹⁵ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-networks-reporting-manual-annual-compliance-reporting-february-2019.pdf>

¹⁶ The determination stage is stage 4 of the environmental assessment process, and requires an authorised person to produce a decision statement.

¹⁷ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/reporting-manual-distribution-districts-august-2018.pdf>

- ▼ Any disconnection or removal of existing network assets that were previously approved by IPART or were in existence before the distribution district licence condition came into effect.

Ausgrid and Endeavour Energy were compliant with this reporting requirement and licence condition. Details of extensions outside of Ausgrid and Endeavour Energy’s distribution districts are shown in the table below.

Table 2-4 Extensions outside of Ausgrid and Endeavour Energy’s distribution Districts

Network Operator	Reported action
Ausgrid	Three new low voltage services that are permitted under IPART’s standing Instrument of Agreement and Authorisation dated 20 December 2017
	One new extension of a section of underground cable and ducts that is permitted under Schedule 1 to the licence conditions
	Disconnection of a high voltage cable
Endeavour Energy	Removal of a service connection
	One new network extension that is permitted under IPART’s standing Instrument of Agreement and Authorisation dated 20 December 2017

Source: Ausgrid and Endeavour Energy quarterly distribution district reports 2018-19

As of 1 July 2019, Essential Energy is also required to operate within its own distribution district and obtain approval and authorisation from IPART before it extends its network outside of its distribution district. This condition was introduced as part of the 5 February 2019 licence variations by the Minister. Consequently, Essential Energy is also required to report in accordance with the updated IPART’s *Electricity networks reporting manual - Where Ausgrid, Endeavour Energy and Essential Energy operate outside their distribution districts*.

2.5 Reporting in accordance with reporting manuals

TransGrid, Ausgrid, Endeavour Energy and Essential Energy’s licences require that they must prepare and submit reports in accordance with any reporting manual issued by IPART. Failure to report in accordance with IPART’s reporting manuals is a non-compliance with the applicable licence condition.

Ausgrid failed to meet the deadline for one of its quarterly out of distribution districts reports in accordance with IPART’s *Electricity Networks Reporting Manual - Where Ausgrid, Endeavour Energy and Essential Energy operate outside their distribution districts*.¹⁸ Ausgrid advised that it reviewed the cause of this delay to ensure it does not reoccur.

¹⁸ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-network-reporting-manual-operations-outside-of-distribution-districts-september-2019.pdf>

Endeavour Energy did not follow the sign-off requirements for the Bushfire Risk Management Report as stipulated in IPART's *Electricity Networks Reporting Manual – Safety Management Systems Reporting*.¹⁹ This non-compliance has since been rectified.

Endeavour Energy did not follow the sign-off requirements for the Safety Management System Performance Measurement Report that are stipulated in IPART's *Electricity Networks Reporting Manual – Safety Management System Performance Measurement*.²⁰ This non-compliance has since been rectified.

All licensed network operators failed to report one or more incidents in accordance with the timeframes stipulated in IPART's *Electricity Networks Reporting Manual – Incident Reporting*.²¹ Refer to 4.2.2 for further details.

¹⁹ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-networks-reporting-manual-safety-management-systems-reporting-april-2018.pdf>

²⁰ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-electricity-reporting-review-of-safety-management-system-reporting-requirements/publications/revise-electricity-networks-reporting-manual-safety-management-system-performance-measures.pdf>

²¹ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-networks-reporting-manual-incident-reporting-march-2019.pdf>

3 Gas network operators' compliance

The gas network operators have each been issued with either a reticulator authorisation or a distributor licence. A reticulator authorisation is for the operation of a distribution pipeline for the purpose of conveying natural gas. A distributor licence is for the operation of a distribution system for liquid petroleum gas (LPG) and other gases.²² This authorisation/licence sets out their conditions of operation.

The licensed LPG distributors are Elgas Ltd, Elgas Reticulation Pty Ltd and Origin Energy LPG Ltd. The gas reticulators are detailed in Table 3.1.

IPART is responsible for administering the licensing regimes for natural gas reticulation network operators and LPG distribution network operators and monitoring compliance against licence and authorisation conditions. However, IPART does not regulate the safety or reliability of the gas reticulation or gas distribution networks. We also note that gas network operators' licences do not include requirements for the network operator to audit against licence conditions.

3.1 Gas network operators - Compliance and reporting framework

The gas network operators are required to provide an annual compliance report to IPART. The natural gas reticulators are also required to provide their operating statistics as part of their annual compliance reports. Table 3-1 provides details of the natural gas reticulators and the operating statistics that they are required to report.

²² Gas transmission pipelines are regulated under the *Pipelines Act (NSW) 1967*.

Table 3-1 Overview of natural gas reticulators and operating statistics, 2018-19

Reticulator	Number of customers			Kilometres of gas mains
	DPIs ^a supplied as at 30 June 2018	DPIs ^a taking less than 1 TJ	DPIs ^a taking more than 1 TJ	
Allgas Energy Pty Ltd	1,254	1,242	12	37
Australian Gas Networks (Albury) Ltd	29,027	28,920	107	763
Australian Gas Networks (NSW) Ltd	30,456	30,384	72	1,244 ^b
Central Ranges Pipeline Pty Ltd	3,763	3,730	33	252
Jemena Gas Networks (NSW) Ltd	1,406,047	1,402,641	3,406	25,198
Evoenergy ^c	19,356	19,298	58	690
Total	1,489,903	1,486,215	3,688	28,184

^a Delivery Point Identifier.

^b Excludes 64 km for the Tumut Valley pipeline.

^c Formerly ActewAGL Distribution Ltd.

Source: 2018-19 annual compliance reports of the natural gas reticulators.

3.2 Gas network operators' compliance

3.2.1 Natural gas reticulators were compliant

The natural gas reticulators reported no non-compliances in 2018-19, and we did not identify any non-compliances with the conditions of the reticulator authorisations.

3.2.2 LPG distributors were compliant

The LPG distributors reported no non-compliances in 2018-19, and we did not identify any non-compliances with the conditions of the reticulator authorisations.

4 Electricity network operators' compliance with safety and other legislated obligations

Since 2015, IPART has monitored licensed and unlicensed electricity network operators' compliance with legislated obligations in relation to safety management systems (including bushfire risk management), incident reporting,²³ and employment guarantees. This chapter summarises the compliance information regarding these obligations.

4.1 Safety management system obligations

The ESSNM Regulation requires all electricity network operators to have a safety management system in place that complies with the Australian Standard AS 5577 *Electricity network safety management systems 2013* (AS 5577) and covers certain areas of safety risk.

Safety management system obligations apply to all network operators with electricity assets in NSW, both licensed and unlicensed.²⁴ Table 4-1 provides details of the network operators with assets in NSW.

Table 4-1 Electricity network operators with assets in NSW, 2018-19

Large electricity network operators		
TransGrid (licensed transmission network operator)	Ausgrid (licensed distribution network operator)	Endeavour Energy (licensed distribution network operator)
Essential Energy (licensed distribution network operator)	Sydney Trains (unlicensed distribution network operator)	
Small electricity network operators		
Directlink (unlicensed transmission network operator)	Lord Howe Island Board (unlicensed distribution network operator)	Metro Trains Sydney (unlicensed distribution network operator)
Interstate electricity network operators with distribution network assets in NSW		
Evoenergy (ACT)	Ausnet Services (Victoria)	Powercor (Victoria)
Energy Queensland (Queensland)		

²³ IPART became the regulator of these safety management obligations in June 2015. The Department of Industry previously administered safety management system and incident reporting obligations.

²⁴ Under Part 2 of the ESSNM Regulation.

The primary objective of an electricity network operator's safety management system is to assist network operators to ensure safety of their distribution and transmission systems and in particular to support the safety of the:

- ▼ Public and people working on its network
- ▼ The protection of property
- ▼ The management of safety risks arising from the protection of the environment and the loss of electricity supply. (See Appendix B for more detail.)

4.1.1 Safety management system - Compliance framework

We take a risk-based approach to prioritise how we target compliance, including auditing the safety management systems. This means that we target our compliance resources toward the areas of highest risk and where we can have the biggest impact.

We may direct audits of the electricity network operators' safety management systems. Auditors must assign one of the following grades of compliance:

- ▼ Compliant
- ▼ Non-Compliant (non-material)
- ▼ Non-Compliant (material).

Based on the results of these audits, we have directed the network operators to amend or implement their safety management systems within a specified timeframe.

For 2018-19, we assessed electricity network operators' compliance with the obligations of the ESSNM Regulation based on the findings of independent audits that focused on the following high-risk areas:

- ▼ The extent to which TransGrid, Ausgrid, Endeavour Energy and Essential Energy's asset management systems have been implemented, and their effectiveness in supporting the primary objectives of the ENSMS. The auditors considered all aspects of the asset management systems over the full life cycle of network assets (including asset management strategies and policies, asset inspection, maintenance and replacement program reviews) that are being used to meet the primary objectives of the ENSMS and to ensure the safety of the networks.
- ▼ The extent to which Sydney Trains' electricity network safety management system has been amended to rectify non-compliances identified in the 2018 ENSMS and bushfire risk management audits.
- ▼ The extent to which Metro Trains Sydney has addressed non-compliances identified during the 2017 ENSMS audit, and whether or not it has modified its ENSMS to be fully compliant with the ESSNM Regulation.

Instead of directing audits, IPART monitored the compliance of other smaller and interstate electricity networks as follows:

- ▼ We reviewed an independent internal audit report of the Lord Howe Island Board's ENSMS. We will monitor ongoing compliance with the Regulation by monitoring annual safety reports, future biennial internal audit reports and any serious electrical work accidents reported by the Lord Howe Island Board.
- ▼ Directlink advised that it had addressed non-compliances identified in a 2018 ENSMS audit. We will continue to monitor Directlink's compliance with the ESSNM Regulation by reviewing annual safety reports and any reported serious electrical work accidents reported by Directlink.
- ▼ Evoenergy (ACT) advised that it is undertaking a major project to construct a new ENSMS by December 2019. Evoenergy also advised that it will engage an auditor to undertake an independent audit of the new system once complete, and will provide the audit report to IPART.
- ▼ The networks of Ausnet Services and Powercor span across the Victorian border into NSW, and Energy Queensland's network similarly spans across the Queensland border. These interstate network operators have a relatively small amount of assets in NSW, and these assets are mostly in lower risk areas. To minimise regulatory duplication for these interstate network operators, we engaged with the Victorian and Queensland regulators to share information about the interstate network operators' compliance with safety obligations.

4.1.2 Compliance with safety management systems obligations

Large electricity network operators

Through effective asset management, many safety risks can be identified, managed and controlled to help ensure the safe operation of networks and provision of energy to customers. In 2018-19, we directed each large electricity network operator to have an independent audit of the asset management component of their safety management system. These audits resulted in the following outcomes:

- ▼ **TransGrid** was found to be fully compliant with the requirements of AS 5577 and the ENSSM Regulation that were tested in the 2018-19 audit. While some opportunities for improvement were identified, it was reported that there was evidence of continuous improvement of TransGrid's ENSMS which added to the maturity of the system and resulted in its full compliance. TransGrid was also found to have rectified all non-compliances from the previous ENSMS audit.
- ▼ **Ausgrid** was found to be mostly compliant with the requirements of AS 5577 and the ENSSM Regulation that were tested in the 2018-19 audit. It had a few non-material non-compliances on the absence of documented procedures for trend identification and tracking maintenance tasks. Ausgrid also had a repeat non-material non-compliance as it did not have a system to manage and track departures from standards. Ausgrid provided a rectification plan, progress of which will be assessed as part of the next ENSMS audit.

- ▼ **Endeavour Energy** was found to have several material and non-material non-compliances as it has not sufficiently integrated its Asset Management System (AMS) with its ENSMS. This was found to undermine the ability of the AMS to deliver the objectives of the ESSNM Regulation in full compliance. Endeavour Energy was also found not to have consistently implemented its ENSMS across its organisation.

Endeavour Energy was found not to have rectified the three non-compliances (two material) from the previous ENSMS audit. These related to Endeavour Energy's Public Safety and Loss of Supply Formal Safety Assessments (FSA) requiring enhancement, the lack of a live high-voltage work planning framework and the need for better risk management of dedicated street light circuits.

In response to the audit findings, IPART has issued a proposed direction for Endeavour Energy to implement and modify its safety management system in relation to three of the non-compliances.

- ▼ **Essential Energy** was found to have several non-material non-compliances stemming from issues including its lack of integration between ENSMS and AMS decision-making, lack of clear ownership of the ENSMS and the absence of a framework to identify activities that require change management and post implementation reviews. Essential Energy was however found to have rectified all non-compliances for the 2017/18 planning and preparation audit. Essential Energy provided a rectification plan, progress of which will be assessed as part of the next ENSMS audit.

We expect the electricity network operators to continually review and update their safety management systems to ensure that they are fully implemented and effectively support the primary objective of the ENSMS.

Sydney Trains

IPART directed an audit of Sydney Trains' progress to rectify the outstanding non-compliances from the 2017-18 planning and preparation audit. Sydney Trains was found to have made some progress, but was still non-compliant due to some of its Formal Safety Assessments being incomplete. There were also identified inconsistencies between the documented processes to support the interface of the ENSMS with other systems, and the processes followed in practice. At the time of this report, Sydney Trains had committed to engaging an expert to assist to map out an effective rectification plan to ensure its compliance.

We intend to continue to work with Sydney Trains and monitor its progress to ensure it achieves full compliance with the regulatory requirements for the electricity distribution component of its business.

4.1.3 Bushfire risk mitigation

Bushfire risk management is an ongoing key risk management focus for IPART, and each year we review the extent of compliance monitoring required to maintain visibility in this area. IPART closely monitors bushfire risk management through review of the annual bushfire risk management reports, information gathering and through audits which we direct. IPART specifically established an audit schedule whereby it currently directs bushfire risk management audits every two years unless it identifies non-compliances or other risks that

necessitate more frequent audits. With the exception of Sydney Trains (see below), we did not direct any of the other network operators to undertake bushfire risk management audits during 2018-19. We did however, review the network operators' annual bushfire risk management reports and did not identify any non-compliances or other risks that necessitated more frequent audits.

In accordance with the *Electricity Networks Reporting Manual – Safety Management Systems Reporting*, TransGrid, Ausgrid, Endeavour Energy, Essential Energy, Sydney Trains, Lord Howe Island Board, Directlink and Metro Trains Sydney submitted annual bushfire risk management reports for 2017-18.²⁵ The contents of these reports are summarised below.

Large electricity network operators

All licensed network operators performed the required inspections in higher bushfire risk areas, and they took a risk-based approach to rectifying defects, with only higher priority asset and vegetation defects being fully addressed prior to the start of the season.

TransGrid brought forward asset inspections for areas where an early declaration of the bushfire danger season applied and was working to address a relatively small number of vegetation and asset defects on a risk-prioritisation.

Ausgrid reported an improvement in the management of bushfire risk assurance for its high voltage customers. Ausgrid also developed a *Bushfire Risk Management Strategy*, which is a high-level document supported by internal vegetation management policies. The effectiveness of this strategy to meet the requirements of the ESSNM Regulation formed part of the 2019-20 bushfire risk management audit scope.

Endeavour Energy's report did not contain the numbers for lower priority vegetation defects because it decided these defect types do not require rectification prior to the start of the bushfire danger season. Following a request from IPART, Endeavour Energy provided this information and a timeline to rectify the defects.

Endeavour Energy also advised that it was commencing a trial of Fault Anticipation technology, as a potential mitigation of bushfire ignition.

Essential Energy reported that it completed several targeted hazard tree inspections and noted that some of these hazard trees required treatment. It has undertaken most of the required hazard tree tasks. Essential Energy also reported that it is continuing to work with private line and site owners to address the vegetation and asset defects identified on private lines and sites.

Sydney Trains reported no open higher vegetation defects and a small number of lower risk defects that were underway for rectification at the time of the report.

IPART also directed Sydney Trains to undertake an independent audit of its progress in rectifying the non-compliances from its previous bushfire risk management audit. Sydney

²⁵ The due date for the annual bushfire risk management reports coincides with the due date for the energy networks' annual compliance report to the Minister on 31 October. As a result, the bushfire risk management reports for the 2017-18 financial year were reported on 31 October 2018, after the previous report to the Minister had been finalised. As such, details of the 2017-18 bushfire risk management reports are included in this report.

Trains was found to have made some progress, but was yet to complete its bushfire FSA and publish its performance measurement results for its performance against its safety management system.

Small electricity network operators

Metro Trains Sydney, Lord Howe Island Board and Directlink reported no issues around bushfire risk management. In particular, Lord Howe Island Board and Directlink reported that they had no outstanding actions in relation to their bushfire risk management.

4.1.4 Large electricity distribution network operators – Management of work on energised assets

In 2017-18, we reported having directed Ausgrid, Endeavour Energy and Essential Energy to have independent audits undertaken of their live work processes, and the implementation of these processes.²⁶ Given the significant risk presented by inadequate risk assessment and management when performing work on energised assets (live work), we have continued throughout 2018-19 to closely monitor Ausgrid, Endeavour Energy and Essential Energy's progress to rectify their non-compliances from that audit.

We note that there was a fatality of an employee who was performing work on an energised asset. This has increased our focus on ensuring that Ausgrid, Endeavour Energy and Essential Energy are effectively managing the risks associated with live work. Following this fatality, IPART engaged with Ausgrid, Endeavour Energy and Essential Energy to ensure that they consider live work risks rigorously, and ensure that the safety of persons, property and the environment is prioritised through their risk analysis and decisions.

IPART also issued several safety alerts regarding this incident to ensure that network operators and the public were informed of the circumstances. The safety alerts also assisted the network operators in their review of their live work policies and procedures. Ausgrid, Endeavour Energy and Essential Energy were responsive to our requests and enquiries throughout this process, and also took the initiative to implement a pause on live work to review their policies and procedures before proceeding with their live work tasks.

At the time of the above incident, Ausgrid had not rectified identified non-compliances in relation to adequately analysing the risks when determining whether work should be undertaken energised or de-energised and its lack of a plan to improve controls for high voltage live work. We therefore issued a direction for Ausgrid to undertake an independent audit of its ENSMS to check that these non-compliances from the previous audit have been addressed. This audit is expected to take place in the first half of 2020.

We accepted the proposed actions and timeframes provided by Endeavour Energy and Essential Energy in relation to their non-compliances from the live work audits. We also intend to follow up their progress in rectifying the non-compliances through the next ENSMS audit.

²⁶ TransGrid is not discussed in this section as it is subject to a different set of Electrical Safety Rules that permit it, as a transmission network, to perform live work where it is not practical to de-energise its assets. Such live work is usually limited to being performed within substations as opposed to externally in the public sphere.

We will continue to monitor Ausgrid's progress and any emerging risks that Ausgrid, Endeavour Energy and Essential Energy need to consider in relation to performance of work on energised assets to ensure that safety is prioritised in their decision-making processes.

Small electricity network operators - Safety management systems

In accordance with AS 5577, a safety management system should be proportional to the size of the electricity network. IPART takes a balanced approach to monitoring compliance with the ESSNM Regulation, having regard to the risk of harm presented by a small network's assets and the adequacy of its mitigation strategies, to determine the best approach to monitor the compliance of the network's safety management systems. IPART considered the small network operators' (ie, Lord Howe Island Board, DirectLink and Metro Trains Sydney) previous audit findings and reports, and had regard to the size of their networks and the risk of causing harm, in deciding not to direct audits of their safety management systems during the reporting period. Instead, IPART requested various reports from each of these networks to monitor their compliance with the ESSNM Regulation.

Lord Howe Island Board and Metro Trains Sydney submitted their annual safety management system performance reports by the due date. These reports did not highlight any non-compliances with the ESSNM Regulation. Lord Howe Island Board and Metro Trains Sydney also subsequently published their network performance reports on their websites in accordance with the Regulation.

Directlink provided a progress report regarding the actions it has taken to address the findings of the 2018 safety management system audit. This report indicated that most non-compliances had been rectified with one action noted as an on-going activity. IPART considers that DirectLink made adequate progress to achieve compliance.

4.2 Incident reporting

All network operators have a legislated requirement to report serious electricity works accidents (SEWAs) to IPART within seven days of them occurring, under section 63R of the ES Act. SEWAs are defined as accidents "in which electricity works are involved" and as a consequence of which "a person dies or suffers permanent disability, is hospitalised, receives treatment from a health practitioner or is unable to attend work for any period of time."²⁷ Table 4.3 sets out the network operators that have missed the SEWA 7-day reporting deadline.

In addition to this legislated requirement, TransGrid, Ausgrid, Endeavour Energy and Essential Energy as licensed network operators are required as a condition of their licence to report safety incidents, and incidents which affect reliability and third party property in accordance with our *Electricity networks reporting manual - Incident reporting*.²⁸

²⁷ Dictionary to the ES Act.

²⁸ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-networks-reporting-manual-incident-reporting-march-2019.pdf>

Significant safety incidents occurred

In 2018-19, there were three fatalities on the electricity networks. Details of these incidents are shown in the following table.

Table 4-2 Details of fatalities on the electricity networks, 2018-19

Date of incident	Location and Network Operator	Details of incident
5 January 2019	Punchbowl (Ausgrid)	The fatality occurred when a member of the public came into contact with energised conductors which had fallen to the ground after an incident involving a bat.
11 February	Moorebank (Endeavour Energy)	The fatality occurred when a public worker on the roof of an industrial building holding a 6 metre long piece of metal tubing, made contact with energised 11kV conductors
2 April 2019	Riverview (Ausgrid)	Ausgrid line worker received fatal injuries after making contact with two phases of the low voltage network.

Source: Incident reports submitted by Ausgrid and Endeavour Energy

Aside from the incident detailed above, the electricity network operators reported 19 other major incidents. These included:

- ▼ Two incidents involving serious injuries, including one which resulted from an attempt to steal copper busbars from a live asset
- ▼ One major bushfire in the vicinity of network assets
- ▼ An interruption of a 220kV busbar
- ▼ Seven incidents involving loss of supply to significant community infrastructure including dams, water treatment facilities and hospitals
- ▼ Eight other reliability issues resulting in outages to a significant number of customers, mostly due to adverse weather conditions.

4.2.1 Incident reporting – Compliance framework

Our Incident Reporting Manual details the types of safety, third party property and reliability incidents that licensed network operators must report. For each type of incident, the timeframes for reporting are detailed. For some incidents, details are reported in up to three stages, and our reporting manual details the timeframes for each stage.

IPART monitors the incidents reported to ensure:

- ▼ Incidents are reported within the timeframes detailed in the reporting manual
- ▼ Adequate details are provided in the report, and where appropriate, preventive and mitigative actions are identified.

Failure to report incidents on time is considered a non-compliance against licence conditions.

4.2.2 Compliance with incident reporting obligations

Network operators mostly reported electricity works incidents in accordance with the legal framework and our Incident Reporting Manual requirements. In a number of instances they failed to report in accordance with the required timeline. However, some late reports were due to mitigating circumstances. For example, in some of these cases, the network operator may not have been able to identify whether reporting was required until information became available, and failed to report within the timeframe because of this.

Table 4-3 presents the number of late SEWA reports and Table 4-4 presents the total number of reports related to incidents detailed in our Incident Reporting Manual that were not submitted on time.

Table 4-3 Total number of SEWA 7-day reporting deadlines missed, 2018-19

	Number of reports that missed the s63R deadline	Total number of reports made under s63R	Percentage of reports that were late
Ausgrid	10	71	14%
Endeavour Energy	20	30	67%
Essential Energy	2	51	4%
TransGrid	1	2	50%
Sydney Trains ^a	0	0	0%

Source: IPART data

^a This table applies to both licensed and unlicensed network operators and includes Sydney Trains. Table 4.4 below only applies to licensed network operators.

Table 4-4 Total number of reporting deadlines missed (licensed network operators only), 2018-19

	Number of reports that missed Reporting Manual deadlines ^a	Total number of reports made ^b	Proportion of reports that were late
Ausgrid	16	503	3%
Endeavour Energy	227	497	46%
Essential Energy	29	515	6%
TransGrid	2	7	28%

Source: IPART and Network operators' data

^a This table includes all late reports, including those listed in Table 4-3.

^b Most incident types require multiple reports to present information at different stages of investigation. The total number of reports therefore exceeds the number of incidents.

Note: Unlicensed network operators are not required to comply with our Incident Reporting Manual requirements.

We note the following key points about the missed reporting deadline:

- ▼ Ausgrid and Essential Energy improved the timeliness of their reporting compared to 2017-18.

- ▼ Endeavour Energy submitted a significantly larger proportion of its reports late than it did in the previous reporting year. Endeavour Energy informed us that delays in notification and details of incidents have prevented timely reporting. It is currently reviewing the relevant procedure. This procedure will clearly identify responsibilities and actions required in accordance with IPART's Incident Reporting Manual. IPART will continue to monitor Endeavour Energy's incident reporting and take action if required to improve the timeliness of reporting.

4.3 Employment guarantee obligations

On 1 July 2015, employment guarantee obligations under Schedule 4 of the *Electricity Network Assets (Authorised Transactions) Act 2015* commenced, and these apply to TransGrid, Ausgrid and Endeavour Energy. These obligations include minimum employee numbers and some conditions of employment such as restrictions on changes to workplace locations.²⁹ There is also an obligation to employ apprentices if the number of full time equivalent (FTE) staff is less than 110% of the minimum number required.

4.3.1 Employment guarantee – Compliance framework

In accordance with IPART's *Electricity networks reporting manual - Employment guarantees*,³⁰ TransGrid, Ausgrid and Endeavour Energy must report quarterly to IPART against their employment guarantee obligations over the preceding quarter. Reports are due within one month of the end of each quarter.

4.3.2 Compliance with employment guarantee obligations

TransGrid, Ausgrid and Endeavour Energy's reporting obligations commenced from the quarter of January to March 2016 to provide quarterly reports on their compliance with the employment guarantees. Since then, IPART publishes quarterly Fact Sheets on the IPART website to provide a summary of the quarterly compliance reports. TransGrid, Ausgrid and Endeavour Energy reported full compliance with the employment guarantee provisions in 2018-19.

TransGrid, Ausgrid and Endeavour Energy had more than 110% of the minimum required staff

Table 4-5 shows the reported number of full time equivalent employees (FTEs) in the final quarter of 2018-19, compared to the minimum number required.

²⁹ Under Schedule 4 of the *Electricity Network Assets (Authorised Transactions) Act 2015*.

³⁰ Available at: <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/energy-network-regulation-administrative-energy-licensing-website-documents/electricity-networks-reporting-manual-employment-guarantees-april-2018.pdf>

Table 4-5 Reported full time equivalent staff numbers, 2018-19

	Required minimum FTE staff	FTE staff reported for Q4, 2018-19
Ausgrid	3,570	4,274
Endeavour Energy	2,100	2,460
TransGrid	1,000	1,114

Source: *Electricity Network Asset (Authorised Transaction) Act 2015* and network operators' quarterly compliance reports by Ausgrid, Endeavour Energy and TransGrid.

As TransGrid, Ausgrid and Endeavour Energy reported having more than 110% of the minimum FTE number in the final quarter of 2018-19, the requirement to employ apprentices will not be triggered for 2019-20.³¹

We did not audit compliance with the employment guarantees in 2018-19

In late 2017, we requested that TransGrid, Ausgrid and Endeavour Energy have an independent audit to assess their compliance with the obligations that relate to the minimum number of employees, forced redundancies, existing locations, and future and existing apprentices. The 2017 audit results and quarterly reports to date have not raised any concerns regarding TransGrid, Ausgrid and Endeavour Energy's compliance with the employment guarantees. We therefore did not direct any of the electricity networks to conduct independent audits in 2018-19.

³¹ Clause 15(1) of Schedule 4 to the *Electricity Network Asset (Authorised Transaction) Act 2014* provides that, "if the number of full time equivalent employees of a network operator for the final quarter of a financial year (within the employment guarantee period) is less than, or equal to 110% of the appropriate staffing level for the network operator, a sufficient number of apprentices must be employed during the following financial year (as new employees of the network operator)".

5 Our compliance approach and activities

Our primary role is to monitor the electricity network operators' compliance with their obligations using a risk-based reporting and auditing regime. However, we often undertake additional functions to enhance our approach and increase our effectiveness. We consider that this is important in order to maintain visibility of, and address, issues that are pertinent to our role but maybe secondary to our regulatory function.

During 2018-19, we undertook the following:

- ▼ Concluded the review of Essential Energy's licence
- ▼ Updated our publications to reflect the Minister's licence variations
- ▼ Identified, assessed and responded to safety risks
- ▼ Continued to reduce regulatory burden
- ▼ Attended TransGrid's black start simulation exercise.

5.1 We concluded the review of Essential Energy's operating licence

At the Minister's request, IPART undertook a review of Essential Energy's operating licence for consistency with the National Electricity Rules and to better align it with those of Ausgrid and Endeavour Energy. We consulted with Ausgrid, Endeavour Energy, Essential Energy, the Department of Planning and Environment and the Commonwealth Department of Home Affairs on IPART's proposed approach and included their input as a consideration in making our final recommendations to the Minister.

We made recommendations for Essential Energy's licence to include conditions which we considered necessary to support the safe and reliable supply of electricity to NSW citizens without duplicating obligations that already existed in the National Electricity Rules. The recommendations included the following:

- ▼ Critical infrastructure conditions ie, data security and ensuring substantial presence in Australia (in consultation with the Commonwealth Department of Home Affairs)
- ▼ Certification of environmental and asset management systems against Australian standards
- ▼ A reliability and performance licence condition that covers individual customers whose specific connection arrangements preclude them from being readily monitored under the individual feeder performance condition.

The Minister has since varied Essential Energy's licence to this effect as of 5 February 2019.

5.2 We updated our publications to reflect the licence variations

In addition to the specific review of Essential Energy, the Minister also consulted with IPART on his proposed changes to Ausgrid and Endeavour Energy's operating licences. On

5 February 2019, the Minister issued instruments to vary Ausgrid, Endeavour Energy and Essential Energy's operating licences.

The variations included the introduction of licence conditions requiring compliance with the NSW Public Lighting Code, individual customer service standards and several definition amendments. These changes required the amendment of several of IPART's publications including Reporting Manuals and Audit Guidelines to include the new licence conditions and reflect application to Essential Energy. We updated these publications and notified the network operators and other stakeholders.

5.2.1 IPART now monitors compliance with the NSW Public Lighting Code

As of 1 July 2019, Ausgrid, Endeavour Energy and Essential Energy (as service providers) are required to comply with the NSW Public Lighting Code (Code)³² which outlines an agreed level of service between Public Lighting Customers,³³ and Ausgrid, Endeavour Energy and Essential Energy in relation to the provision of public lighting services. Given this is a new licence condition, it required us to draft a new reporting manual to enable us to monitor the compliance of Ausgrid, Endeavour Energy and Essential Energy with the terms of the Code.

We consulted Ausgrid, Endeavour Energy and Essential Energy, their Public Lighting Customers, the Department of Planning and Environment and the general public on our proposed approach to monitoring compliance by publishing our draft reporting manual. We considered the feedback and made amendments where appropriate. We have since published the final reporting manual.

We will continue to work with Ausgrid, Endeavour Energy and Essential Energy to clarify their obligations under the Code to aid towards their compliance with it.

5.3 We identified, assessed and responded to safety risks

During 2018-19, we continued to carefully consider audit findings, emerging risks in the electricity industry and incident reports to inform our identification and consideration of risks.

Audit findings are particularly useful because they are based on an independent assessment of the network operator's performance against relevant Standards and/or the Regulations. Issues that we may not be immediately aware of and requiring urgent rectification are often highlighted during audits for our consideration. For example, some of the issues with network operators' risk analysis in determining whether to perform work on de-energised or live assets, were highlighted during an ENSMS audit. This outcome was a key consideration in IPART's decision on the focus areas of upcoming audits.

During 2018-19 we also liaised with the regulators from different jurisdictions to discuss common or emerging risks and how we are managing these to ensure safety outcomes are consistently prioritised. Incidents from other jurisdictions have also provided learnings for us

³² Available at: <https://energy.nsw.gov.au/sites/default/files/2018-10/Final%20-%20Public%20Lighting%20Code%20-%20Clean.PDF>

³³ Councils and Public Authorities of Local, State or Federal Government.

as the NSW regulator and for network operators to better manage their networks in the safest manner possible.

Our review of incident reports highlighted trends, risks and issues which informed our further requests for information and sometimes, the scope of audits to ensure any critical risks are adequately addressed.

5.3.1 Participation in the NSW Industry Safety Steering Committee

IPART participates in the NSW Industry Safety Steering Committee (ISSC), which was established to identify opportunities to improve electricity network safety. During 2018-19, IPART continued to provide summarised information to the ISSC on incidents and near-misses reported by the large network operators, and provided analysis of incidents to draw out emerging trends and issues. IPART's participation and collaboration with network operators has helped to facilitate solutions to improve safety in the electricity industry.

5.3.2 Vegetation management report by Cutler Merz

Noting the extent to which bushfires are one of the key risks to the community from the operation of electricity networks, we engaged Cutler Merz to review bushfire risk management guidance material and its effectiveness in the network operators' mitigation of bushfire risks. Vegetation clearance requirement in NSW are outlined in ISSC 3 (2016)³⁴ and the review found that this guideline is appropriate and consistent with the requirements in other states. The review also made several recommendations including the trialling of different technologies to reduce bushfires initiated by asset failures. Some of the outputs from this review will be considered in designing the scope of the next bushfire risk management audits.

5.4 We amended our reporting requirements to reduce regulatory burden

During 2018-19, we consolidated our Code of Practice reporting requirements into two of our existing Reporting Manuals: *Electricity networks reporting manual – annual compliance reporting* and *Electricity networks reporting manual – incident reporting*. We initially undertook a review of the *Electricity networks reporting manual – NSW Code of Practice for authorised network operators* to identify which IPART reporting requirements were critical to exercising its monitoring and enforcement function. We subsequently removed those that did not fit this criterion such as the provision of statistical information on the classes of the environment assessments performed by the network operators.

Of the remaining reporting requirements that we concluded were critical to IPART monitoring and enforcing compliance with the Code of Practice, we:

- ▼ Identified instances of duplication resulting from the network operators needing to provide two separate annual reports on compliance with the Code of Practice. Consequently, we incorporated the Code of Practice annual reporting requirements into the *Electricity networks reporting manual – annual compliance reporting*.

³⁴ Industry Safety Steering Committee – *Guide for managing vegetation near power lines* (November 2016).

- ▼ Incorporated the requirement for separately reporting serious breaches of the Code of Practice into the *Electricity networks reporting manual – incident reporting* to remove the additional procedure to report such breaches.

We reviewed our requirements for the reporting of network incidents, and updated our *Electricity networks reporting manual – incident reporting* to not only change the focus of incident reporting, but to significantly reduce the reporting burden on the licenced network operators.

We also reviewed the reporting requirements for TransGrid to report against the transmission reliability standard. Detailed information now only needs to be reported if the Transmission Reliability and Performance Standard is updated. Otherwise TransGrid need only provide annual variation reports and updates to any approved flexibility plans.

5.5 We attended the annual black start simulation exercise

We accepted TransGrid’s invitation to attend its black start simulation exercise in June 2019. This event facilitates training for transmission and distribution network operators’ personnel as to how to respond if there is a state-wide blackout. We attended the simulation as observers and engaged with the industry to further understand how a whole of transmission system failure could be best handled and what risks could undermine the successful restoration of energy supply in the state.

5.6 We engaged with other government departments and regulatory bodies

We maintain working relationships with the Department of Planning, Industry and Environment, SafeWork NSW, and share information with other Government departments and regulators, (in NSW, interstate, and at the Commonwealth level) as necessary to ensure effective and efficient regulation.

We also provided incident information to the ISSC, which is hosted by the Department of Planning, Industry and Environment, and participated as an observer. We will continue to collaborate with other government departments and regulatory bodies to share ideas, learnings and enhance our regulatory approaches.



Appendices

A Network operators and information sources for this report

The sections and tables below provide more details on network operators covered by this report, and the information sources we have drawn on to assess their regulatory compliance.

A.1 Electricity network operators – licensed

Table A-1 Overview of electricity licence holders, 2018-19

Licence holder	Network type	Approximate number of customers	Area of operation
TransGrid	Transmission	20 directly connected	TransGrid owns and operates the major high voltage electricity transmission network in NSW and the ACT, connecting generators, distributors and major end users.
Ausgrid	Distribution	1.7 million	Sydney, Central Coast, Newcastle and Hunter regions.
Endeavour Energy	Distribution	0.95 million	Wollongong, Western Sydney. Most of the NSW south coast, Southern Highlands, the Blue Mountains, and parts of the mid-west of NSW.
Essential Energy	Distribution	0.8 million	95% of NSW (areas not covered by Ausgrid and Endeavour Energy.)

Source: TransGrid website, 'Our Network', accessible [here](#); Ausgrid website, 'About us', accessible [here](#); Endeavour Energy website, 'Who we are', accessible [here](#); Essential Energy website, 'Our Network Area', accessible [here](#).

Electricity network operator licences are available on IPART's website.³⁵ During 2018-19, the Minister varied the Ausgrid, Endeavour Energy and Essential Energy's operators' licences. Major changes include:

- ▼ An update to the Reliability and Performance Conditions to set standards for electricity supply reliability to individual customers who are not captured under the existing definition of feeder³⁶
- ▼ A requirement for distribution network operators to comply with the NSW Public Lighting Code 2018 (published by the Department of Planning and Environment), from 1 July 2019
- ▼ An update of Endeavour Energy's operating licence so that its critical infrastructure licence conditions generally align with those in the Ausgrid operating licence

³⁵ Available at <https://www.ipart.nsw.gov.au/Home/Industries/Energy/Energy-Networks-Safety-Reliability-and-Compliance/Electricity-networks/Licence-conditions-and-regulatory-instruments>

³⁶ A feeder is defined in the licence as a high voltage line operating at over 1 Kilovolt and generally at or below 22 kilovolts that connects between a zone substation and a distribution substation.

- ▼ An update to the Essential Energy's operating licence so that its licence conditions are aligned to Ausgrid and Endeavour Energy's licence conditions. Since 5 February 2019, Essential Energy is required to comply with critical infrastructure licence conditions and as of 1 July 2019 it must obtain approval and authorisation from IPART before it extends its network outside of its distribution district.

A.2 Electricity network operators – unlicensed and interstate

The unlicensed electricity network operators that have electricity network assets within NSW are:

- ▼ Ausnet Services (Victoria)
- ▼ Directlink
- ▼ Energy Queensland
- ▼ Evoenergy (ACT)
- ▼ Lord Howe Island Board
- ▼ Metro Trains Sydney
- ▼ Powercor (Victoria)
- ▼ Sydney Trains.

A.3 Gas network operators

Table A-2 Overview of gas authorisation holders in 2018-19

Authorisation holder	Network type	Number of customers	Area of operation ^a
Evoenergy ^b	Natural gas reticulation	19,356	Eastern Capital City Regional, Greater Queanbeyan, Shoalhaven, Tumut
Allgas Energy Pty Ltd	Natural gas reticulation	1,254	Tweed, Narrabri
Australian Gas Networks (Albury) Ltd	Natural gas reticulation	29,027	Riverina and Murray regions
Australian Gas Networks (NSW) Ltd	Natural gas reticulation	30,456	Canberra Region (within NSW), Murrumbidgee and Riverina regions
Central Ranges Pipeline Pty Ltd	Natural gas reticulation	3,763	North Western, Northern and Central West Regions
Jemena Gas Networks (NSW) Ltd	Natural gas reticulation	1,406,047	Metropolitan Sydney, Murray, Central West, South West, North West, Northern, Illawarra, Canberra Region (within NSW), Murrumbidgee and Hunter regions
Elgas Ltd and Elgas Reticulation Pty Ltd	LPG distribution	1,429	Elgas: Adelong, Batlow, Gundagai, Tumut Elgas Reticulation: Hunter, Richmond-Tweed and Mid North Coast regions Murray Downs Estate, Shire of Tweed, City of Armidale
Origin Energy LPG Ltd	LPG distribution	880	Glen Innes, Broken Hill, Banora Point, Jindabyne, Cooranbong, Lennox Head, Murrumbateman

^a A general description of the area operation is provided in this table. Detailed descriptions can be found in the respective licences and authorisations.

^b Formerly ActewAGL Distribution Ltd.

Source: Distributor licences, reticulator authorisations and information provided by licence/authorisation holders.

A.4 Information sources

For this report we have relied on information provided from licensees' self-reporting, from independent audits of the electricity network operators, and our own records from our enquiries and investigations.

A.5 Self-reporting

Licensees are required to keep records relating to their activities, and to report any licence breaches to us. This information is primarily provided in licensees' annual compliance reports.

Electricity network operators and gas reticulators are required (as a condition of their licence) to provide annual compliance reports in accordance with our published reporting manuals. We request gas distributors provide these reports, even though they are not required by law to do so. We have not published a reporting manual for these licensees as gas distribution authorisations are not standardised.

Further, all electricity network operators, including those that are unlicensed, report to us regarding:

- ▼ Serious electrical works accidents and near misses
- ▼ The performance of their safety management systems
- ▼ Bushfire risk mitigation activities.

The three electricity network operators subject to employment guarantees also report on their compliances with these obligations.

A.6 Audits of electricity network operators

Certain electricity network operator licence conditions are subject to an annual independent audit:

- ▼ Compliance with the distribution 'reliability and performance' licence conditions in Ausgrid, Endeavour Energy and Essential Energy' licences is subject to annual limited assurance audits.
- ▼ Compliance with the critical infrastructure licence conditions in the TransGrid, Ausgrid, and Endeavour Energy licences is subject to a full compliance audit.³⁷

³⁷ Critical infrastructure licence conditions were introduced for Essential Energy on 5 February 2019. IPART has specified that Essential Energy's audit report on its critical infrastructure licence conditions compliance during 2018-19 is due by 30 September 2020.

In addition, we can (if satisfied that the licence holder has contravened a licence condition) direct an audit of other electricity network operator licence conditions.³⁸ We also have a role in monitoring compliance with other relevant legislated obligations (beyond the licence conditions) of electricity network operators, and have the powers to conduct or request ad hoc audits of compliance with:

- ▼ The *Electricity Network (Safety and Network Management) Regulation 2014*
- ▼ Schedule 4 of the *Electricity Networks Assets (Authorised Transactions) Act 2015*, which prescribes employment guarantee obligations.

We have produced audit guidelines to inform the network operators and auditors of our expectations in the conduct of an audit, and this is available on our website at <https://www.ipart.nsw.gov.au/Home/Industries/Energy/Energy-Networks-Safety-Reliability-and-Compliance/Electricity-networks/Auditing>

A.7 Audits of gas network operators

We do not have an audit function for the gas network operators.

³⁸ Clause 8A of Schedule 2 to the *Electricity Supply Act 1995 (NSW)*.

B Overview of the legal framework for energy networks

B.1 IPART's role in monitoring compliance

IPART is responsible for administering the licensing regimes for energy network operators in NSW – including the electricity transmission and distribution network operators, natural gas reticulation network operators and LPG distribution network operators. As part of this role, we are required to monitor the extent to which:

- ▼ Electricity network operators comply with the conditions of their licences, which are imposed by the Minister for Energy and Environment (the Minister), and the ES Act.
- ▼ Gas network operators comply with the conditions of their authorisations and licences, which are imposed by the Minister and the GS Act.
- ▼ Each year, we are required to prepare and forward to the Minister a report on the network operators' compliance with their licence conditions during the 12 months ending on 30 June in that year. In 2015, we became responsible for regulating the reliability and safety of NSW electricity assets. In this role, we monitor compliance with the requirements of the ESSNM Regulation by both licensed and unlicensed network operators with electricity network assets within NSW. We are not required to report our findings, as compliance with the ESSNM Regulation is not a licence condition. However, given the potential safety risks that electricity network operations inherently present, we consider it prudent to keep the Minister informed of the work we undertake and the compliance levels.
- ▼ In addition, we monitor both licensed and unlicensed network operators' serious electricity works accidents, under section 63R of the ES Act.
- ▼ Appendix A provides more detail on the electricity and gas network operators covered by this report, and the information we use to assess their compliance performance.

B.2 The energy network safety and reliability legal framework

Licensed electricity networks

Ausgrid, Endeavour Energy and Essential Energy each hold a distributor's licence. TransGrid holds a transmission operator's licence. All four of these network operators are required to comply with the conditions of their licence and to report to IPART on compliance with those conditions at the end of each financial year.

Critical infrastructure licence conditions applied only to TransGrid, Ausgrid and Endeavour Energy in 2018-19, but will also apply to Essential Energy from 1 July 2019. These licence conditions specifically require that compliance with critical infrastructure requirements be audited each year and the audit report provided to IPART.

The three licensed distribution network operators, Ausgrid, Endeavour Energy and Essential Energy have *reliability and performance standards* and *customer service requirements* specified in

their licence conditions. The licensed distributors are required to report on compliance with those conditions quarterly, to conduct an independent compliance audit of those conditions at the end of each financial year, and to provide the audit report to IPART. Since 2017, TransGrid has also been required to comply with a *Transmission reliability and performance standard*, and is required to submit a compliance report to IPART annually.

Safety regulation

The ESSNM Regulation requires **all** electricity network operators to have in place, and implement, safety management systems that comply with AS 5577 and deal with specified matters. This regulation applies to the four licensed network operators listed above as well as unlicensed electricity network operators: Directlink, Sydney Trains, Metro Trains Sydney and Lord Howe Island Board. It also covers those network operators that are based in other states but have assets located within NSW's borders.

The ESSNM Regulation also requires network operators to measure their performance against their safety management systems and publish the results of their performance measurements annually.

IPART may require the network operators to audit their safety management systems or aspects of their safety management systems, and the network operators must provide the audit reports to IPART. IPART may, based on an audit report, direct an electricity network operator to amend its safety management system or to take specified action to implement its safety management system.

Additional obligations that relate to TransGrid, Ausgrid and Endeavour Energy

TransGrid, Ausgrid and Endeavour Energy are required to comply with:

- ▼ Employment guarantees that apply to their employees for a five year period, ending on 30 June 2020
- ▼ The Code of Practice for Authorised Network Operators (2015) for environmental assessment of activities they undertake (as a condition of their licences).

TransGrid, Ausgrid and Endeavour Energy must also report to IPART on any non-compliance with the Code of Practice (or an immediate report if the breach is serious in nature).

Licensed gas networks

Origin LPG and Elgas Ltd hold three distributor licences that allow the supply of liquid petroleum gas (LPG), while Allgas Energy Ltd, Australian Gas Networks (Albury and NSW), Central Ranges Pipeline Pty Ltd, Jemena Gas Networks (NSW) Ltd and Evoenergy hold gas authorisations that allow the supply of natural gas.

The licensees and authorisation holders are required to comply with the conditions of their licence or authorisation and report to IPART on the extent to which they have complied each year.

B.3 Summary of safety management system obligations

Under Part 2 of the *Electricity Supply (Safety and Network Management) Regulation 2014*:

- ▼ A network operator must take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of its network (or any part of its network) is safe.
- ▼ A network operator must have a safety management system in place and implemented that is in accordance with AS 5577, takes into account the primary objective of a safety management system and any code, standard or guideline specified by the Minister, and deals with:
 - The safety and reliability of the network
 - Advice to the public about electrical hazards related to the network
 - Bushfire ignition risk management, where electricity lines and other assets are capable of initiating bushfire.
- ▼ The primary objective of a safety management system is to support:
 - The safety of the public and of people working on the networks
 - The protection of property
 - The management of safety risks arising from the protection of the environment, and from loss of electricity supply.
- ▼ A network operator is to measure performance against its safety management system and publish the results, giving prior notice to IPART of its intention to publish the results.
- ▼ Apart from an initial audit of the safety management system, (that was due by April 2015), audits must be carried out as directed by IPART in writing to the network operator. IPART may require the audit concerned to relate to either specified aspects of a network operator's safety management system, or to the safety management system as a whole.

B.4 Summary of the employment guarantees

The employment guarantees are under Schedule 4 of the *Electricity Network Assets (Authorised Transactions) Act 2015*. They set out provisions relating to minimum employee numbers and some conditions of employment such as restrictions on changes to workplace locations and, for continuing employees, protections for current employment conditions during the transfer from a State-owned corporation to a private operator. The employment guarantees obligations are in force until 30 June 2020.

C Summary of electricity network operators' reliability and performance in 2018-19

C.1 Reporting requirements

The NSW electricity distribution network operators, Ausgrid, Endeavour Energy and Essential Energy (**Distributors**) are required to provide quarterly reports to IPART detailing their compliance with the reliability and performance standards set out in their respective licences.³⁹

The quarterly reports provided by the Distributors must address compliance with licence conditions for:

- ▼ Network overall reliability standards
- ▼ Individual feeder performance
- ▼ Customer service standards.

As of 5 February 2019, the distributors are also required to comply with individual customer standards. However, reporting for this does not commence until the third quarter of 2020.

C.2 Distributors' performance against overall network reliability standards

The Distributors must not, when excluded interruptions are disregarded, exceed in a financial year the *System Average Interruption Duration Index*⁴⁰ (**SAIDI**) and/or *System Average Interruption Frequency Index*⁴¹ (**SAIFI**) average standards that apply to its feeder types.⁴²

Feeder types are defined in the Distributors' licences as shown in the following table.

³⁹ Refer to conditions of 4 to 7 of each of the Distributors' current licences. In addition to the quarterly reports, an independent audit of Distributors' performance against these standards is required at the end of each financial year. Audit findings are discussed in section 2.2 of IPART's *Annual Compliance Report to the Minister – Energy network operator compliance during 2018-19 (October 2019)*.

⁴⁰ See footnote 11.

⁴¹ See footnote 12.

⁴² Refer to licence conditions 4.1 and 4.2 of each of the Distributors' current licences.

Table C-1 Feeder definitions as per the Distributors' licences

Feeder Type	Definition
Feeder	means a high-voltage line operating at over 1kV and generally at or below 22 kV that connects between a zone substation and a distribution substation.
CBD Sydney	means a feeder forming part of the triplex 11kV cable system supplying predominantly commercial high-rise buildings, within the City of Sydney.
Urban	means a feeder with actual maximum demand over the reporting period per total feeder route length greater than 0.3 MVA/km and which is not a CBD Sydney Feeder.
Short-rural	means a feeder with a total feeder route length less than 200 km, and which is not a CBD Sydney feeder or an urban feeder.
Long-rural	means a feeder with a total feeder length greater than 200 km which is not a Sydney CBD feeder or an urban feeder.

Table C-2 identifies network performance against the SAIDI average standards as reported by the Distributors for the 12 month period from 1 July 2018 to 30 June 2019. Table C-3 identifies performance against the SAIFI average standards as reported by the Distributors for the 12 month period from 1 July 2018 to 30 June 2019. We note that the data reported in each quarterly report is for the cumulative data of the current quarter and the previous three quarters. Therefore, the data reported in Q4 2018-19 is for the 12 month period up to 30 June 2019. All three Distributors performed better or equal to their respective standards for both SAIDI and SAIFI in 2018-19. No other issues related to overall network reliability were reported.

Table C-2 Performance against the SAIDI average standards (minutes per customer) for 2018-19

Distributor	Feeder Type	Required Standard	Reported Performance	Complied with licence requirement
Ausgrid	CBD Sydney	45	25	✓
	Urban	80	66	✓
	Short-rural	300	132	✓
	Long-rural	700	466	✓
Endeavour Energy	Urban	80	54	✓
	Short-rural	300	154	✓
	Long-rural	NA	363	-
Essential Energy	Urban	125	80	✓
	Short-rural	300	214	✓
	Long-rural	700	554	✓

Source: Q4 2018-19 quarterly reliability reports for Ausgrid, Endeavour Energy, Essential Energy.

Note: A feeder type is performing better or equal to the standard if its reported performance is equal to, or below the standard value.

Table C-3 Performance against the SAIFI average standards (number per customer) for 2017-18

Distributor	Feeder Type	Required Standard	Reported Performance	Complied with licence requirement
Ausgrid	CBD Sydney	0.3	0.11	✓
	Urban	1.2	0.60	✓
	Short-rural	3.2	1.04	✓
	Long-rural	6.0	2.22	✓
Endeavour Energy	Urban	1.2	0.64	✓
	Short-rural	2.8	1.37	✓
	Long-rural	NA	4.45	-
Essential Energy	Urban	1.8	1.00	✓
	Short-rural	3.0	1.82	✓
	Long-rural	4.5	3.35	✓

Source: Q4 2018-19 quarterly reliability reports for Ausgrid, Endeavour Energy, Essential Energy.

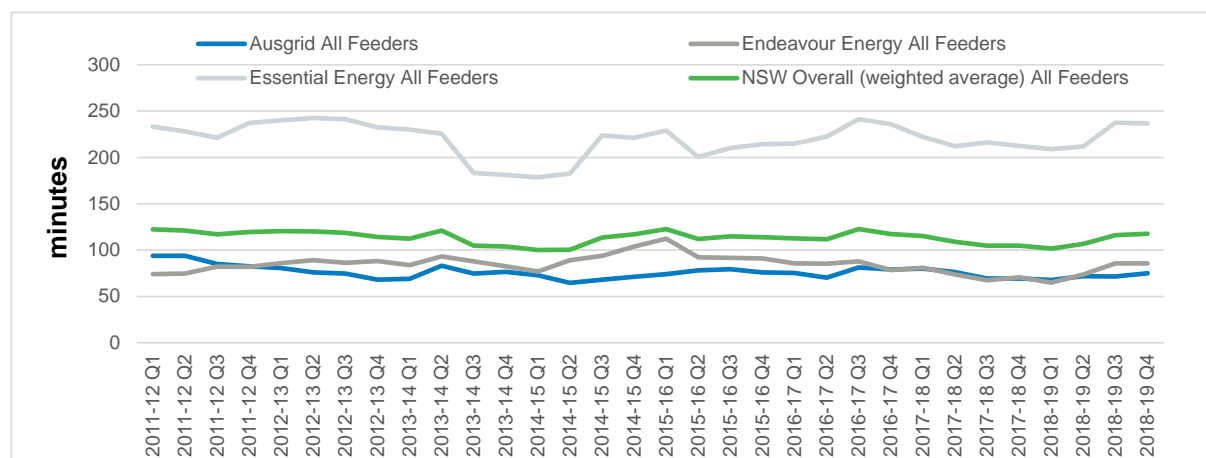
Note: A feeder type is performing better or equal to the standard if its reported performance is equal to, or below the standard value.

Long-term SAIDI and SAIFI trends

The Distributors have previously advised that variability in SAIDI and SAIFI occurs due to factors beyond their control, such as weather events, random asset failures, and other external factors. We recognise this, and therefore do not consider it useful to compare annual statistics or to attempt to identify short term trends.

Figure C-1 shows longer term trends of the SAIDI for each Distributor and a weighted average SAIDI for NSW.

Figure C-1 SAIDI, quarterly results by Distributor



Data source: Quarterly reliability reports for Ausgrid, Endeavour Energy, Essential Energy, and data provided to IPART by the then Department of Industry

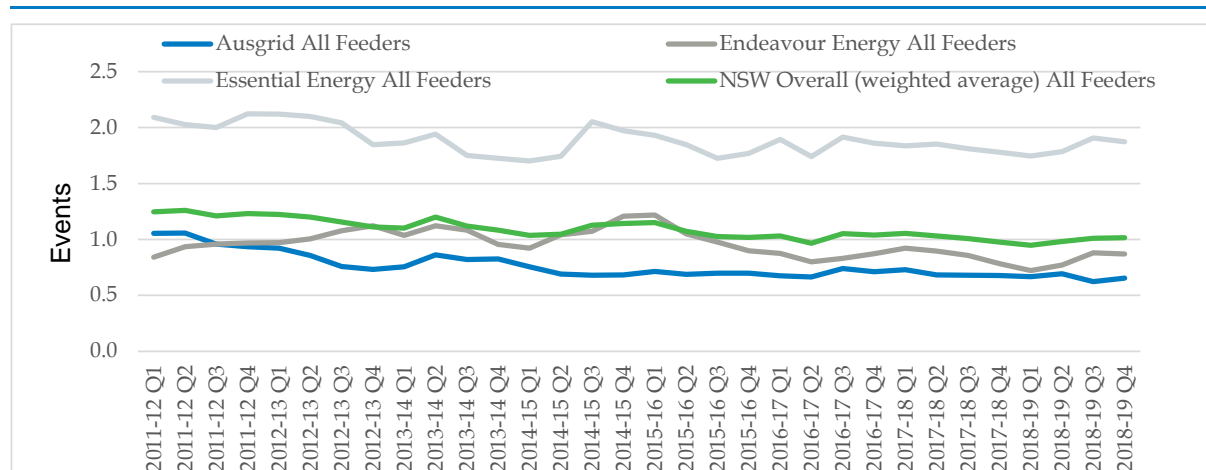
Note: the NSW weighted average is calculated using the customer numbers from each of the Distributors.

Overall, for NSW:

- ▼ The 5 year average interruption time is 114.2 minutes per customer.
- ▼ There are no significant 5-year SAIDI trends over the last five years.

Figure C-2 shows longer term trends of the SAIFI for each Distributor and a weighted average SAIFI for NSW.

Figure C-2 SAIFI, quarterly results by distributor



Data source: Quarterly reliability reports for Ausgrid, Endeavour Energy, Essential Energy, and data provided to IPART by the Department of Industry.

Overall, for NSW:

- ▼ The 5 year average is 1.04 interruptions per NSW customer.
- ▼ There are no significant 5-year SAIFI trends over the last five years.

C.3 Individual feeder performance reports

Where one or more of the feeders of a Distributor exceed the relevant individual feeder standards,⁴³ that Distributor must investigate the causes of the feeder exceeding the standard and take action to improve performance as appropriate.

Table C-4 shows the feeders that exceeded the maximum standards in 2018-19. This data is provided for information only, as exceeding the individual feeder standard is not a breach of licence conditions, but is a trigger for a Distributor to investigate and undertake remedial action under the licence.

⁴³ Individual feeder standards are defined in Schedule 3 of the Distributors licences. These are SAIDI and SAIFI standards that apply to individual feeders of each of the Distributor's feeder types.

Table C-4 Feeders not meeting performance standards by category in 2018-19

Feeder type	Ausgrid	Endeavour Energy	Essential Energy	Total
CBD	5 of 59 (8%)	N/A	N/A	5 of 59 (8%)
Urban	63 of 1936 (3%)	18 of 1059 (2%)	7 of 296 (2%)	88 of 3291 (3%)
Short-rural	9 of 372 (2%)	5 of 445 (1%)	41 of 926 (4%)	55 of 1743 (3%)
Long-rural	0 of 6 (0%)	0 of 1 (0%)	18 of 243 (7%)	18 of 250 (7%)
Total	77 of 2373 (3%)	23 of 1505 (2%)	66 of 1465 (5%)	166 of 5343 (3%)

Note: Data in brackets are percentages of underperforming feeders by type.

Source: Q1 to Q4 2018-19 Ausgrid, Endeavour Energy and Essential Energy reports.

In summary, for 2018-19:

- ▼ Non-performing feeders in each category made up less than 10% of feeders.
- ▼ Ausgrid's CBD feeders had the highest percentage of underperforming feeders.
- ▼ Essential Energy reported the highest percentage of underperforming feeders.

C.4 Customer service standards

A Distributor is required to make payments to a customer when the Distributor has exceeded the customer service standards.⁴⁴ The customer is required to make a claim,⁴⁵ and this claim must be processed within the defined timeframe in the Distributor's licence. Two Distributors have reported issues with their quarterly customer service standards. Ausgrid reported in its 2018-19 Q3 report that nine claims were not processed within the 30 day timeframe due to a clerical error and the high volume of claims in late 2018 and early 2019. Essential Energy identified a clerical error in its submitted reports and has provided updated reports for all four quarters at the end of the financial year. This error led to over-counting of the number of claims but did not affect evaluation of claims or the payment of eligible claims.

Table C-5 shows the customer claims paid and claims denied by the Distributors for 2018-19. The Distributors paid 83% of claims made in 2018-19. Ausgrid advised in its Q3 report that it had a significant number of claims in 2018-19 due to higher than normal outage levels, mainly from significant weather events⁴⁵ during late 2018 and early 2019. This may explain why a significant number of claims have been denied.

⁴⁴ Customer service standards (interruption duration and frequency standards) are set out in Schedule 5 of the Distributors' licences. The interruption duration standard is the maximum allowable duration of an interruption to a customer's premises. The interruption frequency standard is the maximum number of interruptions in a financial year to a customer's premises. Different standard values are applicable depending on whether the customer's premises is located in metropolitan or non-metropolitan areas.

⁴⁵ A claim is not payable if the interruption duration or frequency was not exceeded, or there was no evidence of the interruption, or exclusions applied due to third party actions or severe weather.

Table C-5 Summary of customer claims paid and denied for 2018-19

Distributor	Claims paid (year)	Claims denied (year)	Total claims
Ausgrid	1469	229	1698
Essential Energy	26	48	74
Endeavour Energy	3	9	12
Total	1673	338	1784

Note: Essential Energy's initial 2018-19 Q1 to Q4 customer services report contained errors. This Table contains updated values provided by Essential Energy.

Source: 2018-19 Q4 reliability reports for Ausgrid, Endeavour Energy and Essential Energy.