Submission No 24

THE ELECTRICITY OUTAGES AFFECTING FAR WEST NSW IN OCTOBER 2024

Organisation: Independent Pricing and Regulatory Tribunal NSW (IPART)

Date Received: 10 February 2025

IPART Independent Pricing and Regulatory Tribunal | NSW

Submission to Inquiry into the electricity outages affecting Far West NSW in October 2024

February 2025

Energy »

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Tribunal Members

The current Tribunal members are:

Carmel Donnelly PSM, Chair
Dr Darryl Biggar
Jonathan Coppel
Sharon Henrick

The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

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Executive summary

The Independent Pricing and Regulatory Tribunal (IPART) welcomes the opportunity to provide a submission to the Committee on Environment and Planning's Inquiry into the electricity outages affecting Far West NSW in October 2024 (the Inquiry).

The electricity supply interruptions to Broken Hill and surrounding areas caused significant disruption for both residents and businesses. We heard reports that businesses lost thousands of dollars' worth of products that spoiled when fridges and freezers failed. Local mines shut down, leaving workers without pay or forced to use accrued leave. We also heard reports that the related interruptions to telecommunications services and the uncertainty as to when power would be restored caused anxiety for some residents and business owners.

Efforts to manage the load, such as requesting residents to limit power usage during peak hours with reduced supply and encouraging daytime electricity consumption when solar energy was available, underscored the challenges of balancing demand and supply.

IPART's submission aims to provide relevant background on IPART's role in regulating electricity networks, reliability and performance standards for transmission operators, our current investigation into the Broken Hill tower failures and power outages and Transgrid's compliance history.

IPART regulates electricity networks operators in NSW

The reliable supply of electricity is crucial. IPART oversees and enforces licences granted to operators of electricity networks and regulates the safety of NSW electricity networks. Network operators are responsible for complying with the conditions of their licences, including reliability obligations, and taking all reasonable steps to operate their electricity network safely. IPART holds network operators accountable for meeting their licence and other regulatory obligations. It does this through its risk-based compliance and enforcement framework.

Electricity network operators are also subject to regulation by other national, state and territory energy and safety regulators, and to a broad range of other legislation (for example, directors and officers of corporations that own, control or operate electricity networks are subject to corporations legislation).

IPART is investigating the October 2024 outages affecting the Far West

IPART commenced its investigation into the Broken Hill tower failures and power outages in October 2024. The terms of reference for our investigation include whether Transgrid has breached its obligations under the *Electricity Supply Act 1995*, *Electricity Supply (Safety and Network Management) Regulation 2014* and its licence. We are investigating the circumstances of the tower failures, backup generators and other matters we consider to be relevant, such as the restoration of the towers, backup generators and any system gaps.

We are committed to ensuring that lessons are learnt, and actions are taken to mitigate the risk of similar events happening in the future. As part of our investigation, we will consider whether to make recommendations to improve the regulatory and licensing framework for electricity network operators in NSW for the NSW Government's consideration.

We are also working with the Australian Energy Regulator who is conducting a separate investigation.

To ensure the integrity of the investigation, IPART is limited in what it can say publicly while the investigation is ongoing. We will conduct the investigation as swiftly as possible and provide public updates at appropriate points in time. We published an update on our investigation in December 2024.

1 About IPART and its role in regulating electricity network operators

1.1 About IPART

IPART was established under the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). IPART is an independent, strategic agency of the NSW Government that regulates key markets and NSW Government services to ensure effective social, environmental and economic outcomes.

IPART undertakes investigations and makes reports to the NSW Government on a range of issues set out in legislation, and on issues the Government refers to it.

IPART has statutory and commissioned roles across the water, energy and transport sectors, local government, human services and other areas such as the NSW biodiversity credits market. IPART helps the people of NSW get value for money through licensing, price setting and monitoring of essential services, as well as industry and market sector reviews and investigations.

IPART operates independently of the government. IPART's determinations and recommendations are not subject to the control or direction of the NSW Government.

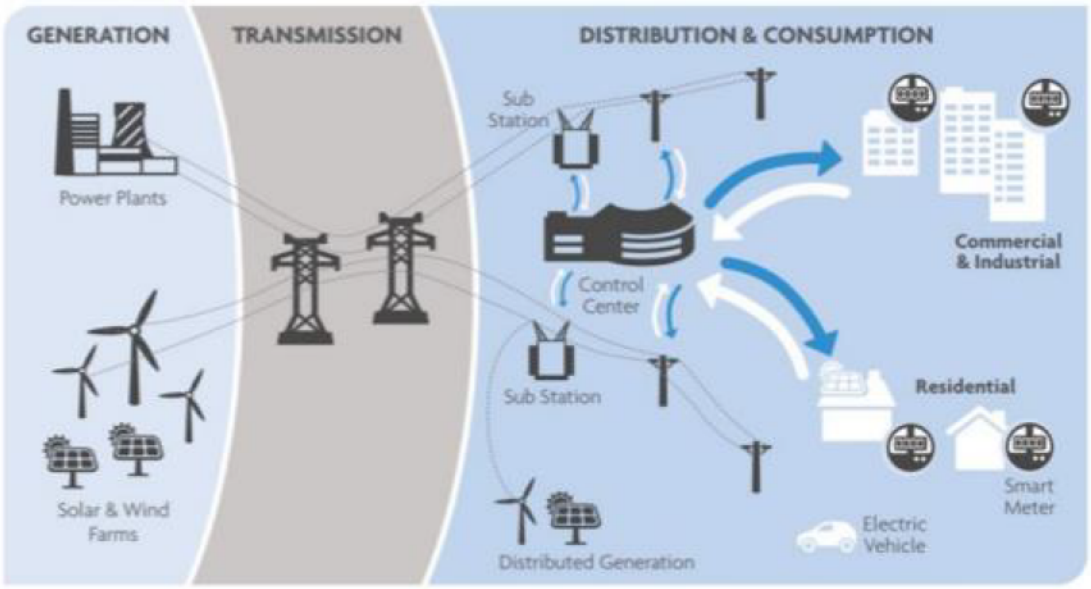
IPART's role in regulating electricity networks is set out in section 1.3.

1.2 Overview of electricity networks

1.2.1 Electricity generation, transmission, distribution and consumption

In the Australian energy sector, the terms generation, transmission, distribution and consumption have traditionally described the various stages involved in producing and delivering electricity to end users. This is distinct from the *sale* of electricity to end users, which involves retailers (see section 1.2.2).

Below is a diagram illustrating these stages. However, we note the Australian energy sector is undergoing considerable transformation to move towards greater renewable generation and investment in transmission, generation, storage and firming infrastructure as coal-fired power stations close, for example, to deliver the NSW Electricity Infrastructure Roadmap. This may result in changes to the traditional delineation between generation, transmission, distribution and consumption outlined in the below diagram.



Source: Oregon Public Utility Commission, Integrated Distribution Planning, April 2020, p 2.

Note: The directional arrows signify a multi-directional network with regard to the flow of energy, information, and financial transactions.

Generation: This is the process of producing electricity, typically at power stations (such as coal, gas, or renewable energy plants like wind and solar farms). Power stations convert energy sources into electricity.

Transmission: Once electricity is generated, it is sent through high-voltage power lines over long distances to reach different regions. The electricity travels at high voltage to minimise energy loss, from power stations to major distribution hubs.

Distribution: After transmission, electricity is delivered to homes and businesses through lower-voltage power lines. Distribution networks manage the last part of the journey, stepping down the voltage so that electricity can safely be used by consumers.

Consumption: This is the final stage, where electricity is used by homes, businesses, and industries.

IPART regulates distribution and transmission network operators in NSW, as detailed in section 1.3 below. IPART does not regulate generators.

1.2.2 National Electricity Market

The National Electricity Market is the wholesale electricity market and physical power system that operates in New South Wales, the Australian Capital Territory, Queensland, South Australia, Victoria and Tasmania. In the National Electricity Market, electricity is sold by generators (such as power stations) and bought by retailers (who sell electricity to consumers).

The National Electricity Market operates in real-time, balancing electricity supply and demand across the grid to ensure reliable and efficient delivery of power. It is managed by the Australian Energy Market Operator, which oversees the operation of the grid and ensures the system is secure and reliable. The National Electricity Market also facilitates Australia's transition to renewable energy by integrating a growing share of solar, wind, and other renewable sources, while maintaining reliability and managing the complexities of a changing energy system.

The National Electricity Market is governed by the National Electricity Law (NEL) and National Electricity Rules (NER), which have the force of law in each of the states that the National Electricity Market operates in. This national regulatory framework exists in parallel to State-specific legislation such as NSW's *Electricity Supply Act 1995* (ES Act) discussed in section 1.3 below.

1.2.3 National electricity market operator and regulators

There are three market bodies that oversee national electricity and gas markets.

The Australian Energy Market Commission is responsible for making the rules by which the National Electricity Market (and the Northern Territory), gas markets, and retail energy sector operate.

The Australian Energy Market Operator is responsible for operating the National Electricity Market and gas systems, and the financial markets for the sale and purchase of electricity and gas.

The Australian Energy Regulator monitors performance and enforces compliance with the rules. It is also the pricing regulator for major network operators in NSW, and sets the Default Market Offer which is a price cap on standing offer energy contracts.

1.2.4 Other regulators of electricity networks

In fulfilling our regulatory responsibilities, we operate in conjunction with other NSW Government departments and regulators, as well as interstate and Commonwealth agencies to ensure effective and efficient regulation.

In NSW, for example, the NSW Rural Fire Service and other emergency services bodies also have responsibilities in relation to bushfire safety, the NSW Environment Protection Authority has responsibilities in relation to environmental safety risks, and SafeWork NSW has responsibilities in relation to workplace safety.

Network operators in NSW may also have assets and be subject to regulation in other states and territories. Where appropriate, we will engage and work cooperatively with peer regulators in other states and territories, such as, in relation to electrical safety, Energy Safe Victoria or the Queensland Electrical Safety Office.

1.3 IPART's regulatory functions relating to electricity networks

IPART administers the licensing regimes for electricity transmission and distribution network operators in NSW. It is also responsible for regulating the safety of NSW electricity networks and assets.

The ES Act sets out the powers and duties of electricity network operators in NSW, provides a framework for licensing network operators and confers functions on IPART (refer s77) in connection with energy network regulation. The *Electricity Supply (Safety and Network Management) Regulation 2014* (Safety Regulation) sets out the duties of electricity network operators in NSW to ensure the safety of transmission and distribution systems and confers functions on IPART (refer clause 42B).

Certain regulatory and licensing functions conferred on IPART are subject to Part 4B of the IPART Act. This means the Tribunal must comply with these provisions in undertaking its electricity network regulatory functions.

The Tribunal has delegated its regulatory functions in relation to electricity networks under the ES Act and the Safety Regulation to the Energy Networks Regulation Committee (ENR Committee), except the function of imposing a monetary penalty. The ENR Committee meets regularly to exercise these statutory decision-making powers as appropriate and provide strategic direction to IPART officers in relation to energy networks regulation.

1.3.1 Licensing

The Minister for Energy issues licences for the transmission and distribution of electricity in NSW. IPART administers the licences, including making recommendations to the Minister on licences and licence conditions and monitoring and enforcing compliance with licences.

There are 5 network operator licence holders in NSW: Ausgrid, ACEREZ, Endeavour Energy, Essential Energy and Transgrid. The licences authorise the holders to operate a distribution system or, in the case of Transgrid and ACEREZ, a transmission system, and impose conditions that the network operators must comply with. Current licences can be found on IPART's register of distribution and transmission licences for electricity network operators.

Licence conditions generally relate to the following areas: critical infrastructure, reliability and performance standards, compliance with the NSW Public Lighting Code, distribution districts, compliance reporting and auditing, a requirement to follow a framework for undertaking environmental impact assessments and a requirement to pay a licence fee.

Licensees must report to IPART on all non-compliances against licence conditions annually in accordance with reporting manuals published by IPART. Reporting manuals are published on the Electricity Networks Reporting page of IPART's website. Each year, IPART is required to prepare and forward to the Minister a report on the network operators' compliance with the conditions of their licences.

Applications for distributor and transmission operator's licences are made to IPART and IPART makes recommendations to the Minister with respect to:

- the granting, variation, transfer or cancellation of licences,

- the imposition, variation or cancellation of licence conditions,
- action to be taken, and sanctions to be applied, in respect of a contravention of licence conditions,
- any remedial action that may be warranted as a result of a contravention of licence conditions, and
- annual licence fees.

The Minister must consider, but is not bound by, IPART's recommendations.

IPART reports to the Minister every 5 years on whether the results of IPART's compliance monitoring indicate that a review of licences should be conducted. The Minister considers the Tribunal's report and may direct the Tribunal to conduct a review of licences.

Following a direction from the then Minister for Energy and Environment, in 2022, IPART conducted a review of the licences in force under the ES Act. The review assessed whether the network operators' existing licences remained appropriate and made recommendations to ensure that the licences reflect current public expectations and regulatory practice.

Our report *Review of electricity network operators' licences – Final Report* and revised draft licences were provided to the then Minister for Energy and Environment in September 2022 for consideration. Amendments to the network operators' licences were made by the current Minister for Energy in September 2023.

The Minister for Energy made minor amendments to the NSW Electricity Transmission Reliability and Performance Standard 2017 (set out in Appendix 2 of Transgrid's Licence) as part of this review (see section 4.2 for further details).

1.3.2 Safety

Safety Regulation

All network operators must comply with the Safety Regulation (whether or not they hold a licence). Failure to comply with the Safety Regulation is an offence. IPART holds network operators accountable for compliance with these obligations, through our risk-based compliance and enforcement regime (including through reporting and auditing).

The Safety Regulation requires network operators to:

- take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of their network are safe
- have a safety management system (also referred to as an electricity network safety management system or "ENSMS") that complies with Australian Standard *AS 5577–2013 Electricity network safety management systems* (AS 5577-2013) and deals with certain matters
- implement their safety management system and ensure that it is brought to the attention of and made readily accessible to the persons involved in its implementation
- measure their performance against their safety management system and publish the results of their performance measurements annually, giving prior notice to IPART of its intention to publish the results

- ensure that audits of their safety management system are carried out and an audit report provided to the Tribunal as soon as practicable after the audit
- review and modify their safety management system any time there is a significant change to the design, operation or maintenance of their network, and at least every 5 years.

The primary objective of a safety management system is to assist a network operator to comply with its obligation to take all reasonable steps to ensure the design, construction, commissioning, operation and decommissioning of its network is safe. In particular, a safety management system supports the management of safety risks arising from protection of the environment (including preventing bush fires that may be ignited by network assets), as well as the safety of the public, people working on the network, protection of property and safety risks arising from the loss of electrical supply.

Other safety functions

The Tribunal has several other functions in relation to electricity networks safety under the ES Act, including:

- **Electrical equipment**: The Tribunal may arrange for an inspector to examine and test whether electricity delivery equipment can be, and is being, operated safely and in accordance with any relevant safety management system.
- **Serious electricity works accidents**: Network operators must notify the Tribunal of serious electricity works accidents. The Tribunal may arrange for an inspector to investigate and report on a serious electricity works accident. It may also publish information about serious electricity works accidents as it considers necessary in the interests of public information and safety.

The Tribunal can appoint any person as an inspector for the purposes of any provision of the ES Act or the Safety Regulation.

IPART has a Memorandum of Understanding and Service Level Agreement with SafeWork NSW in recognition of the overlapping jurisdictional responsibilities of both regulators in relation to the response to, and investigation of, serious electricity works accidents in NSW. This framework supports a co-operative relationship between co-regulators and ensures the effective and targeted use of resources.

Under the Service Level Agreement, SafeWork NSW provides IPART with services including operating a 24/7 contact centre for receiving notifications of serious electricity works accidents, determining and communicating triaged response outcomes, managing requests for site disturbances before inspection, and conducting site visits and investigations as required under the ES Act.

1.3.3 Incident reporting

Under the ES Act, NSW network operators must notify IPART of serious electricity works accidents.[a]

Licensed electricity network operators are also required to comply with IPART's *Incident reporting - Electricity networks reporting manual* (Incident Reporting Manual) as a condition of their licence, which includes reporting reliability and power quality incidents and significant near miss incidents.

The information gathered through network incident reporting arrangements allows IPART to:

- determine whether network operators are consistently and effectively meeting statutory obligations, and
- identify immediate risks and long-term trends, including trends that signify emerging issues across the industry.

We use this information to monitor the safety and reliability of networks, the effectiveness of network operators' safety management systems, and to inform our compliance and enforcement approach.

Network operators must submit incident reports when required by the Incident Reporting Manual. Four event categories have been established for incident and significant near miss reporting:

1. Major incident
2. Incident
3. Other serious electricity works accidents, and
4. Significant near miss.

Network operators must submit reports to IPART and, in some cases, the Minister and SafeWork NSW. For example. all major incidents must be notified to the Minister within 24 hours and serious electricity works accidents must be notified to SafeWork NSW within 24 hours.

The reporting process has been designed to deliver timely reporting of an incident in a staged manner without compromising the network operators' ability to investigate and respond to the incident. Depending on the event category, up to 3 stages may apply to an incident report – Initial report, Interim report, Final report. Only the more significant events require reports at all 3 stages.

We review each incident report to ensure that network operators have taken appropriate action in response to the incident and all required information has been provided. When necessary, we seek additional information about the nature and cause of the incident and consider if any compliance action is appropriate.

Network operators also have reporting obligations to other regulators, for example, SafeWork NSW in relation to incidents that involve a worker or workplace resulting in a fatality or a serious injury or illness of a person under work health and safety legislation.

[a] Serious electricity works accidents 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".

1.4 IPART adopts a risk-based approach to regulation

Electricity network operators are responsible for meeting their statutory obligations, including:

- complying with the conditions of their licences, including reliability obligations
- taking all reasonable steps to operate their electricity network safely, and complying with specific safety obligations.

IPART's role is to hold network operators accountable for meeting their obligations. It does this by developing and implementing an effective risk-based compliance and enforcement framework.

Network operator compliance is assessed based on the required self-reporting from network operators, annual self-assessed compliance reports signed by the Chair of the Board of Directors and the CEO, notification of particular events, and a program of audits and enquiries conducted by IPART.

IPART reports to the Minister for Energy by 31 October each year on energy network operators' compliance.

1.4.1 2022-25 Energy Networks Regulation Strategic Plan

In consultation with stakeholders, IPART developed a 2022-25 Energy Networks Regulation Strategic Plan (ENR Strategic Plan) to allow us to better adapt to meet challenges and ensure we are meeting the expectations of our stakeholders, including the people of NSW.

We identified regulatory outcomes as part of our ENR Strategic Plan. These are reproduced on the next page.

Our regulatory outcomes

01	Minimise safety incidents to the public and workers on or near the network by holding electricity network operators accountable for reducing safety risks to as low as reasonably practicable.
02	To achieve licenced electricity network operators compliant with critical infrastructure licence conditions.
03	To develop a culture where electricity network operators proactively comply with all regulatory and licence obligations and achieve timely rectification of non-compliances.
04	Ensure that our regulatory activities are proportionate to manage the risks identified and outcomes sought.
05	To be recognised as an effective regulator through best practice regulation and engaging with stakeholders.
06	Ensure network operators understand climate change risk and are positioned to proactively and efficiently manage it.

1.4.2 Compliance priorities approach

One of our strategic priorities is regulatory excellence. In pursuit of this, we have published our Compliance Priorities.

Each year, we determine our compliance priorities by evaluating the key risk areas and assessing their relative risks. We also consider historical compliance trends, and the frequency and effectiveness of previous regulatory interventions.

We focus on the areas that have the highest potential impact, prioritising those that are most likely to result in significant consequences. Our risk-based approach ensures that resources are directed toward these high-risk areas. This helps us allocate resources effectively and address the most pressing risks. However, we continue to also regulate other areas actively and react to events as they occur.

We update our priorities annually and maintain a rolling 3-year horizon to increase transparency and focus network operator attention on the risks we consider most critical.

1.4.3 Compliance priorities - 2024–25

Bush fire risk mitigation

Bush fire risk continues to present the greatest consequence for harm to the people of NSW

Critical Infrastructure

Licence condition compliance

Critical infrastructure conditions aim to address cyber security risk and overseas threats to electricity infrastructure

Worker safety risk

The electricity supply industry presents numerous and critical health and safety risks to workers.

Public safety

Asset management

Assets need to be managed to ensure the long term safety of the network for the public.

Note: Our priorities for 2023-24 were bush fire risk management (field inspections), critical infrastructure (licence condition compliance), climate change adaptation (loss of supply risk), and public lighting (licence condition compliance). While climate change is not a compliance and enforcement priority for 2024-25, it remains an ongoing focus. We expect network operators to be considering climate risks, along with other risks related to the safety of members of the public, workers and property, the environment and loss of supply as part of their electricity network safety management system.

1.4.4 Compliance and enforcement approach

Network operators are responsible for achieving and maintaining compliance with regulatory requirements. IPART's role is to hold these entities accountable, using a range of compliance tools based on the risks associated with their activities and the expected level of compliance.

Our compliance and enforcement principles

The following principles—detailed in our *Compliance and Enforcement Policy*—underpin our approach to compliance and enforcement:

- We focus on outcomes—we follow our legislative mandate and the objectives of the legal instruments under which we regulate, consider our core purpose, and assess the options available to us
- We prioritise according to risk—by allocating our resources to deliver the greatest benefit, or to focus on the biggest risks to safety, public health, customers, consumers, or the environment
- We are fair and transparent—we consult with stakeholders, including before making key decisions about compliance or enforcement actions, and explain our decisions.

Our risk-based regulatory model

We monitor the electricity network operators' compliance with their obligations using a risk-based reporting and auditing regime. We apply a risk-based regulatory model which allows us to focus on allocating resources to areas of higher risk, increase our efficiency, and tailor our enforcement response. This allows us to make the best use of our resources and minimise excessive costs to the regulated entities, and therefore to the people of NSW.

In some cases, the regulatory framework is prescriptive and limits IPART's discretion to adapt its regulatory approach – for example, where licences require an annual audit against critical infrastructure licence conditions, or the Public Lighting Code specifies the frequency of reporting.

We focus our efforts on informing, educating and supporting the regulated entities to comply with their obligations. Our approach is built on fairness and transparency, consulting stakeholders and regulated entities to ensure our actions are relevant, targeted, and clearly communicated. We continue to proactively engage with all electricity network operators to identify opportunities for continued improvement.

We consider the materiality of any non-compliance when determining what enforcement actions might be appropriate. The enforcement actions available to us are detailed in section 1.4.5 below.

We require self-reporting as part of our regulatory framework

Licensed network operators are required to keep records relating to their activities, and self-report to us on their performance and compliance in accordance with IPART's reporting manuals. Failure to report in accordance with IPART's reporting manuals constitutes a non-compliance with the applicable licence condition. Reporting is used in addition to our auditing framework.

The information gathered through reporting allows IPART to:

- determine whether network operators are consistently and effectively meeting statutory obligations
- identify immediate risks
- identify trends that signify emerging issues across the industry with a view to developing safety measures or supporting industry safety initiatives where appropriate.

Reporting can be quarterly, annual, or in some cases, soon after a particular event or non-compliance occurs. The amount of information we collect varies depending on the area of regulation and, in the case of a breach, the severity of that breach. In accordance with IPART's Electricity Networks - Annual Compliance Reporting Manual annual self-assessed compliance reports must be signed by the Chair of the Board of Directors and the CEO.

For each non-compliance, network operators must include details of:

- the extent and nature of the non-compliance including whether and how many customers and/or other network operators are affected
- the reasons for the non-compliance
- the actions taken, or proposed, to rectify the non-compliance and to prevent it reoccurring
- the anticipated date of full compliance and the state of the remedial action as of 30 June of the reporting year.

These reports and their results are analysed by IPART staff and reported to the ENR Committee for their consideration. The ENR Committee can decide to take further action for any non-compliance, in the form of:

- enforcement action, such as issuing directions or imposing monetary penalties (refer to section 1.4.5 for details of enforcement powers for contravention of a licence condition); or
- in addition to or instead of enforcement action:
  - directing further audits,
  - requesting or requiring further information, or
  - official correspondence, such as a warning letter.

We use independent audits in our compliance work

An important part of IPART's electricity network compliance framework is to have independent audits undertaken at the direction or specification of IPART to test compliance with regulatory obligations.

We maintain a 5-year audit and reporting schedule for each electricity network operator which we amend to reflect any recently identified priority areas for improving their compliance with requirements. We regularly update our audit schedule to reflect our Energy Networks Regulation Strategic Plan and the accompanying compliance priorities.

For these audits, all auditors must be independent of the regulated business and approved by IPART before undertaking an audit. The auditees are required to nominate a preferred auditor, either from our approved Audit Services Panel, or they can nominate another auditor for approval.

Auditors are approved to undertake specific types of audits in one or more of our regulatory areas. In some cases, depending on the audit scope, they may be required to engage additional expertise relevant to the scope of works. Our regulatory areas for auditing include:

- electricity network safety management systems
- compliance with reliability and performance licence conditions

- compliance with critical infrastructure security licence conditions (including data security), and
- compliance with environmental impact assessment obligations.

Auditors must assess the network operators' compliance against all applicable obligations as directed by IPART, and assign grades of compliance in accordance with IPART's electricity networks grading system, published in IPART's Audit Guideline - Audit fundamentals:

Table 1 Compliance grades

Grades of compliance	Description
Compliant	Sufficient evidence to confirm that the requirements have been fully met.
Non-compliant (non-material)	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)	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	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.

IPART requires network operators to take actions to address any non-compliances identified by an auditor. We also check during future audits that the non-compliances have been adequately rectified.

Audits are undertaken according to our Audit Guidelines

We have developed a number of Audit Guidelines outlining the processes and principles that apply and minimum audit criteria to be used during electricity networks independent audits.

The Audit Guideline – Audit fundamentals:

- assists auditees in engaging auditors and preparing for audits, and
- provides lead auditors and their teams with an understanding of IPART's approach to third party audits.

Audit Guidelines specific to particular types of audit are published on the Electricity Networks Auditing page of IPART's website. From time to time, we review the Audit Guidelines and consult on the changes.

1.4.5 Compliance and enforcement powers

As noted above, we monitor compliance through regular reporting and a risk-based audit process. When high risks are identified and regulated entities fail to comply, we escalate our efforts, considering a variety of enforcement actions depending on the materiality of the non-compliance. This strategy is designed to ensure that entities meet their obligations and are held accountable for any breaches.

Once we establish non-compliance has occurred, we can take enforcement action.

When deciding whether to take enforcement action, we follow a risk-based approach, guided by several key factors. First, we consider our regulatory objectives and the materiality of the non-compliance, including the potential consequences of the breach. We also assess the conduct and culpability of the regulated entity, taking into account their compliance history, whether the non-compliance is a repeat occurrence, the steps taken to remedy the breach, and the entity's level of cooperation. Additionally, we factor in whether any action has already been taken by the Minister or other relevant bodies regarding the non-compliance. When deciding whether to take action for breach of a licence condition, the ES Act specifies some of the above as factors that IPART must consider.

Where the conduct may constitute an offence, the same factors are considered, with the addition of stricter evidentiary requirements to guide the decision on whether to pursue prosecution.

Enforcement powers and penalties related to electricity network operators are outlined below.

Enforcement powers for contravention of a licence condition

IPART is responsible for monitoring and enforcing compliance with the network operators' licences.

Under the ES Act, if IPART is satisfied, on the balance of probabilities, that the holder of a licence has contravened a condition of its licence, IPART may do one or more of the following:

- direct the licensee to take specified action to remedy or mitigate the consequences of the contravention or to prevent the continuance or recurrence of the contravention,
- impose a monetary penalty not exceeding $20,000 for the first day on which the contravention occurs and a further $1,000 for each subsequent day the contravention continues (not exceeding 30 days), if satisfied that the licensee knowingly contravened the licence condition,
- impose a monetary penalty on a person who is a director or concerned in the management of the licensee not exceeding $20,000 for the first day on which the contravention occurs and a further $1,000 for each subsequent day the contravention continues (not exceeding 30 days), if satisfied that the person knowingly authorised or permitted the contravention,
- cancel the licence.

If a licensee is aggrieved by a decision of IPART to take enforcement action, it may apply to the NSW Civil and Administrative Tribunal for a merits review of the decision.

IPART can also accept a written undertaking from a licensee in connection with a contravention of a licence condition. IPART can enforce compliance with an undertaking by applying for an order from the Supreme Court.

IPART must not take action if the Minister has already taken action in respect of the contravention of a licence condition. The Minister also holds the compliance and enforcement powers listed above. However, the Minister has the power to impose larger monetary penalties; $250,000 for a licensee and $50,000 for a person who is a director or concerned in the management of the licensee.

Enforcement powers for breaches of the *Electricity Supply (Safety and Network Management) Regulation 2014*

Since 2015, IPART has been responsible for regulating the safety of NSW electricity networks. In this role, IPART monitors compliance with the requirements of the Safety Regulation by both licensed and non-licensed network operators with electricity network assets within NSW. Examples of non-licensed network operators include Sydney Trains, Directlink and ALTRAC (Sydney light rail).

IPART may take enforcement action if a network operator breaches the Safety Regulation. IPART has powers to:

- Issue a direction: IPART may direct modification or implementation of the network operators' safety management system.
- Prosecute offences: IPART may prosecute a network operator by commencing proceedings in the Local Court or the Supreme Court. Proceedings must be commenced within 2 years. If the Court is satisfied beyond reasonable doubt that the network operator has committed an offence against the Safety Regulation, it may impose a substantial penalty. The maximum penalty available for proceedings commenced in the Supreme Court is 10,000 penalty units or $1.1 million. The available penalty will depend on the nature of the offence.
- Accept a written undertaking: IPART can accept written undertakings given by a licensed network operator to carry out the activities specified in the undertaking. If the network operator breaches the terms of its undertaking, IPART may apply to the Supreme Court for an order directing compliance.

2 IPART's investigation into the tower collapses and power outages in Broken Hill and surrounding areas

2.1 Background of the incident

The Broken Hill 220/22 kV substation is supplied by a single 220 kV transmission line (X2 line), from Buronga, approximately 300 km to the south. There are two bulk supply points in Broken Hill—a 22 kV bulk supply point to supply the town and surrounding areas, and a 220 kV bulk supply point for a mine.

There are no other transmission lines that supply Broken Hill or the surrounding areas from the national electricity grid.

The backup of the 22 kV bulk supply load is provided by 2 x 25 MW (nameplate rating) gas turbine generators owned and operated by Transgrid. Supply to the 220 kV bulk supply point servicing the Perilya Mine by the two generators is only provided on an "opportunity basis" (i.e. supply is only provided to the mine where there is spare generator capacity or during an emergency).

A privately owned solar farm is connected to Transgrid's 22 kV substation, and a privately owned wind farm is connected to Transgrid's 220 kV substation via a radial 220kV transmission line (X6 line). These connections are automatically disconnected during an outage of the X2 line.

Transgrid reported that near midnight on 16 October 2024, some transmission towers failed on its X2 line supplying its Broken Hill 220/22 kV substation due to a severe storm event. This resulted in the loss of supply to Broken Hill, surrounding areas and the Perilya Mine.

One of the Transgrid generators was unavailable during the incident and the other experienced shutdowns. Essential Energy and Transgrid reported that supply to Broken Hill and surrounding areas was gradually restored by Transgrid and Essential Energy using additional backup generation to reduce reliance on the gas turbine. A large battery electric storage system was also integrated into the network which helped to draw on excess rooftop solar energy during the day and feed it back into the grid during the evening peak.

The NSW Government activated an emergency response plan and coordinated assistance across a number of emergency services and government agencies, as well as the electricity companies, to support the community with access to essential support such as small generators and satellite communications.

In the following period, Transgrid erected new temporary towers to replace the failed towers. By 31 October 2024, the X2 line was re-energised, and supply was progressively switched over from local generators to the main network supply through to 1 November 2024.

2.2 Investigation Terms of Reference

IPART is investigating the safety and reliability of transmission infrastructure supplying Broken Hill and surrounding areas following the incident. Our Terms of Reference for this investigation are to investigate:

1. Whether there has been a breach of regulatory obligations, including the *Electricity Supply Act 1995* (ES Act) and the *Electricity Supply (Safety and Network Management) Regulation 2014* (Safety Regulation) and whether any breach is continuing.
2. Whether there has been a breach of Transgrid's licence, including:
   a. condition 3 and appendix 2 concerning reliability and performance standards
   b. condition 6 concerning the maintenance of certified management systems
   c. condition 7 concerning the implementation of management systems
   d. any other conditions relevant; and

   whether any breach is continuing.
3. The circumstances of the failure of the towers, including the asset management system compliance.
4. The circumstances of the backup generators, including the availability and asset management system compliance.
5. Any other matters considered relevant.

Below we provide more information about each aspect of the investigation.

Whether there has been a breach of regulatory obligations, including the ES Act and the Safety Regulation and whether any breach is continuing

The ES Act sets out various obligations for network operators, including Part 5D of the ES Act in relation to electricity safety.

The Safety Regulation requires network operators to take all reasonable steps to ensure that the design, construction, commissioning, operation and decommissioning of their networks are safe. The primary objective of safety management systems is to assist network operators to comply with this obligation and, in particular, to manage safety risks including any safety risks arising from the loss of electricity supply.

Whether there has been a breach of Transgrid's licence, including (a) condition 3 and Appendix 2 concerning reliability and performance standards

Reliability standards are included in network operator licences to keep the number and duration of electricity outages within certain limits. Transgrid's licence requires it to design its system to meet the reliability standards in the licence.

The standards provide:

- a required level of redundancy (that is, the number of backup arrangements that must be in place to support continued supply of electricity in the event that part of the transmission network fails), and

- an allowance within the standard for Transgrid to plan for having some "expected unserved energy" at each bulk supply point (that is, an expected amount of energy that cannot be supplied in a year because of a network failure).

Transgrid may meet the requirements for redundancy and expected unserved energy using any combination of transmission network assets, non-network solutions (like backup power generation) or agreements with distribution network service providers to use part of an attached distribution network.

(b) condition 6 concerning the maintenance of certified management systems

The Transgrid licence requires Transgrid to certify and maintain an asset management system to a recognised standard.

(c) condition 7 concerning the implementation of management systems

The Transgrid licence requires Transgrid to ensure that its asset management system is fully implemented, and all relevant activities undertaken are carried out in accordance with the asset management system.

(d) any other conditions relevant

In addition to the specific licence conditions identified in the terms of reference above, IPART will consider any other conditions that become relevant as the investigation progresses.

The circumstances of the failure of the towers, including the asset management system compliance

IPART is investigating why the towers failed.

The circumstances of the backup generators, including their availability and asset management system compliance

IPART is investigating why one of the backup gas turbine generators was not available and why the remaining gas turbine generator was not able to supply the full load.

Any other matters considered relevant.

IPART is conducting a broad investigation and will consider all matters relevant to the investigation. In conducting the investigation, IPART may identify matters relating to regulation of network operators more broadly which need to be responded to. For example, this might include recommendations to the Minister for changes to the regulatory framework or licences.

Further information about Transgrid's obligations to provide reliable supply and maintain assets is provided in section 3.

2.2.1 IPART has regulatory powers to conduct our investigation

IPART has a range of regulatory powers to enable it to monitor and enforce compliance of network operators with their regulatory obligations. IPART is using these powers, in accordance with its *Compliance and Enforcement Policy,* to conduct this investigation, including to obtain information from network operators or other relevant persons. To ensure the fairness of the process, IPART will provide a reasonable period of time for responses to be provided.

The nature of an investigation can be iterative. As information is provided, IPART's investigation may identify areas of further interest, prompting a need to seek further information to ensure the investigation is thorough and comprehensive.

IPART may also require a licensed network operator or its officers or any other person to attend a meeting of the Tribunal to give evidence in relation to compliance with a network operator's licence.[b] This provides the opportunity for verbal enquiry with people who hold information relevant to the investigation.

IPART is engaging experts to assist during the investigation. Experts may be involved in conducting tests, providing advice, reviewing material or otherwise assisting.

2.2.2 Investigation progress

As part of our investigation, in October 2024, Tribunal member and ENR Committee Chair, Jonathan Coppel, travelled with two IPART inspectors to Broken Hill. This included visits to the sites of the collapsed towers and the gas turbine generators, which provide backup generation to the area.

We also continue to engage with a wide range of stakeholders to understand what happened and how people were impacted. Mr Coppel met with the Broken Hill City Council while in Broken Hill, including Mayor Tom Kennedy. Mr Coppel has also met with local state member, Mr Roy Butler MP. IPART staff have met with a number of other stakeholders including representatives of a local mine, local business owners, the Electrical Trades Union and the operator of a large battery installation at Broken Hill.

We are engaging with other regulators such as the Essential Services Commission of South Australia and Energy Safe Victoria (who have experienced recent tower collapses and power outages in their respective states), the Australian Energy Regulator and the NSW Department of Climate Change, Energy, the Environment and Water.

We are engaging specialised advisors where needed to ensure our investigation is thorough and informed by relevant independent technical expertise and knowledge.

IPART has also sought information from Transgrid. We are also making enquiries of other persons with information relevant to the investigation.

Transgrid has provided IPART with Stage 1, Stage 2 and Stage 3 reports relating to the incident as required by IPART's Incident Reporting Manual.

[b] Through s87B of the *Electricity Supply Act 1995*.

IPART is committed to maintaining integrity throughout this investigation and ensuring compliance with legal and ethical standards.

IPART published an update on its progress relating to the investigation in December 2024.

To ensure the integrity of the investigation, IPART is limited in what it can say publicly while the investigation is ongoing. We know that the people of Broken Hill and surrounding areas want to know why this incident happened and what is being done to prevent it happening again. We will conduct the investigation as swiftly as possible and provide updates at appropriate points in time.

2.3 Australian Energy Regulator investigation

The Australian Energy Regulator has a role in regulating electricity networks, including Transgrid. The Australian Energy Regulator announced an investigation into the Broken Hill incident in October 2024. The Australian Energy Regulator investigation will review whether there have been any potential breaches of the National Electricity Rules. IPART has been liaising with the Australian Energy Regulator throughout our investigations. We visited Broken Hill together and will continue to work together, as appropriate, to complete our investigations.

3 Transgrid's obligations to provide reliable supply and maintain assets

3.1 All licensed network operators are subject to reliability and performance standards

All of the NSW electricity network operator licences include reliability and performance conditions. These conditions help ensure that licensed network operators design and maintain their systems to provide customers with an acceptable level of reliability and keep the number and duration of electricity outages within certain limits. These licence conditions operate in a complementary way to other reliability regimes, such as the Australian Energy Regulator's *Service target performance incentive scheme*.

Distribution network operators report quarterly on performance against the reliability and performance standards licence conditions and are also subject to annual independent audits.

The two licensed transmission operators in NSW, Transgrid and ACEREZ, have different reliability and performance obligations, reflecting the differences in the nature and characteristics of their networks. Transgrid's obligations are set out below in section 3.2.

3.2 Transgrid's reliability and performance standards

Transgrid's reliability and performance standards licence conditions came into force on 1 July 2018. These are outlined in the NSW Electricity Transmission Reliability and Performance Standard 2017 in Appendix 2 of Transgrid's Licence. Transgrid's reliability and performance standards were developed by applying an economic assessment that aims to identify the level of reliability that would provide the most value to customers. This assessment takes into account both the cost of providing reliability, which is paid for by customers through their electricity prices, and the costs to customers of experiencing outages. Further information about the development of these standards is provided in section 4.

These conditions require Transgrid to design its network:

- to achieve the prescribed level of redundancy (that is, the number of backup arrangements that must be in place to support continued supply of electricity in the event that part of the transmission network fails) at each bulk supply point[c]; and
- to not exceed expected levels of unserved energy (that is, an expected amount of energy that cannot be supplied in a year because of a network failure) at each bulk supply point.

Transgrid may meet the requirements for redundancy and expected unserved energy using any combination of transmission network assets, non-network solutions (like backup power generation) or agreements with distribution network service providers to use part of an attached distribution network.

[c] A bulk supply point is a location where electricity is supplied to a distribution network or directly connected customer(s).

Details of the reliability and performance standards for the Broken Hill bulk supply points are set out below. There are two bulk supply points in Broken Hill—a 22 kV bulk supply point for the township, and a 220 kV bulk supply point for a mine.

Bulk Supply Point	Level of redundancy[d]	Unserved energy allowance, maximum minutes per year at average demand
Broken Hill 220 kV	A supply interruption may occur following the outage of a single system element.	10 minutes (grouped)[e]
Broken Hill 22 kV	A supply interruption may occur following the outage of a single system element.	

Transgrid reports annually on its performance against the transmission reliability and performance standards licence conditions. IPART may direct audits of compliance with the reliability and performance standards under Transgrid's licence.

Transgrid is required to report:

- any non-compliance with these licence conditions, and
- incidents relating to reliability and power quality of their network in accordance with IPART's reporting manuals.

Under the licence, there is flexibility in planning for the levels of redundancy and expected unserved energy, and Transgrid can develop and submit to the Tribunal a plan regarding measures for altering the reliability of the supply capacity of a bulk supply point. If the Tribunal is satisfied that the plan (if implemented) would be likely to provide greater net-benefit than compliance with the standards and would not result in a material reduction in the level of expected unserved energy, then Transgrid is not required to comply with the standards for that bulk supply point.

The Tribunal has not given such approval for any plan to alter the reliability of the supply capacity of the Broken Hill bulk supply point since the standards came into effect on 1 July 2018.

[d] There are three categories for redundancy. The Broken Hill bulk supply points are category 1. A supply interruption may occur following the outage of a single system element.

[e] The Broken Hill 220 kV and 22 kV bulk supply points have a grouped unserved energy allowance because the two bulk supply points are related in terms of the available backup arrangements (backup generation).

3.3 Electricity network tower standards and requirements

Standards Australia is the primary body responsible for developing and maintaining national standards, including those for electricity network towers. It collaborates with industry groups, experts, and regulators to ensure the standards reflect current technology and practices. The current standards governing electricity network towers in Australia are primarily outlined in *AS/NZS 7000:2016 – Overhead line design* and related Australian Standards.

Network operators must adopt relevant standards and codes in their electricity network safety management system or identify and document where an adopted alternative will ensure a better or equal safety level. Australian Standard *AS 5577-2013* outlines the standard for Electricity Network Safety Management Systems.

Networks must implement their safety management systems and IPART is responsible for directing audits to test whether the safety management system is appropriate and being properly implemented.

Transgrid must also have an asset management system that is consistent with the Australian Standard *AS ISO 55001-2014 Asset Management – Management Systems – Requirements* and have the asset management system certified by an appropriately qualified person. Certification requires periodic audits by an independent qualified auditor.

Older transmission structures in the National Electricity Market were designed in the 1950s to 1980s to handle synoptic wind events (horizontal pressure gradients), including the transmission towers in Broken Hill (which were designed and constructed in 1979). The intensity and frequency of weather risk - e.g. severe convective winds (vertical air movement such as downdrafts), bushfires, flooding, etc is increasing with climate change.[1] Under their electricity network safety management system, networks are responsible for assessing changing risks and responding over time.

4 Transgrid's compliance history

4.1 Introduction

IPART's compliance activities have largely focused on Transgrid's compliance with its critical infrastructure licence conditions and its electricity network safety management system, consistent with our compliance and enforcement priorities. The results of previously completed audits have found no material non-compliances. However, some opportunities for improvement were identified. Opportunities for improvement may be identified where auditors feel they can add value to a network operator's processes.

This chapter provides an overview of Transgrid's compliance history against:

- Reliability and performance standards
- Safety regulation of Transgrid's electricity network safety management system, including:
  - safety risks relating to loss of supply
  - bush fire risk management and preparedness
  - asset management
- Critical infrastructure.

Transgrid is subject to compliance activities from other co-regulators. Its annual safety performance reports detail these audits, compliance activities and internal audits including any outcomes. These are published on Transgrid's website: Latest Corporate Reports and Publications | Transgrid.

4.2 Reliability and performance standards

Under the transmission reliability and performance standard, Transgrid is required to:

- report annually to IPART on any non-compliance with the reliability and performance standards relating to expected unserved energy and redundancy, and
- submit reports of incidents to IPART (and in some cases the Minister) relating to reliability and power quality of their network.

4.2.1 Licence conditions – Annual reliability and performance standard compliance

Transgrid reported full compliance with the transmission reliability and performance standard for each financial year from 2017-18 to 2023-24 (inclusive).

Transgrid's report for the 2017-18 financial year was the first report against the reliability and performance standards, completed in accordance with the Transmission reliability standard - Reset reporting manual.

At that time, IPART assessed the information provided and was satisfied that Transgrid was compliant with the reliability and performance standards for 2017-18. In its 2017-18 report, Transgrid confirmed that alternate supply for the Broken Hill bulk supply points was available from the two gas turbines (owned by Essential Energy at the time, since acquired by Transgrid).

The compliance information detailed in the 2017 reporting manual was only required in the first financial year after the introduction of the new reliability and performance standards. Subsequent reports are only required where the calculated expected unserved energy has changed or where there are design changes to consider that impact compliance with the standards.

No changes have been reported to date and subsequent reports have been completed in accordance with the Transmission reliability standard – Annual reporting manual.

4.2.2 Reliability – self-reported reliability and power quality incidents

Transgrid reports annually on its reliability and loss of supply events in accordance with IPART's Safety management system performance reporting manual. These Electricity Safety Management System and Bushfire Reports are published on Transgrid's website: Latest Corporate Reports and Publications | Transgrid.

Where required by the IPART Incident reporting manual, some events may also be reported at the time of the event occurring.

During 2018-19 to 2023-24 (inclusive) Transgrid has reported some loss of supply incidents relating to the Broken Hill bulk supply points. IPART is considering these reported events as part of its current investigation.

4.3 Transgrid's electricity network safety management system

4.3.1 Safety risks relating to loss of supply

In July 2024, IPART directed Transgrid to carry out an independent audit of its electricity network safety management system, including in relation to Transgrid's management of safety risks arising from loss of electricity supply. This audit is currently underway.

IPART will consider the findings of the audit along with information gathered as part of its own investigation to determine whether Transgrid's safety management system appropriately addressed risks arising from loss of supply and was implemented during the Broken Hill incident.

4.3.2 Safety management including bush fire risk management and preparedness

Transgrid's electricity network safety management system was audited in 2019-20 and 2021-22:

- The 2019-20 audit of asset / vegetation bush fire risk management controls and public / worker safety controls identified no non-compliances and 12 opportunities for improvement.
- The 2021-22 audit of bush fire preparedness identified no non-compliances.

An audit of Transgrid's bush fire risk management is currently underway, in conjunction with the audit of safety risks arising from loss of supply audit referred to in section 4.3.1 above.

4.3.3 Asset management

Transgrid reports to IPART annually through its safety performance and bush fire preparedness reports on its activities relating to the inspection and maintenance of its transmission network. Transgrid's asset management reports have consistently shown a high completion rate of asset inspections and corrective actions, with few overdue tasks reported.[f] Where there are outstanding tasks, a substantive explanation has been provided that has satisfied the ENR Committee that Transgrid is managing its risks accordingly, requiring little further follow-up compliance action from IPART.

IPART directed an audit of Transgrid's implementation of the asset management component of its electricity network safety management systems in 2018-19, which found no non-compliances.

4.4 Critical infrastructure

Transgrid is required to ensure annual independent audits are undertaken of its compliance with critical infrastructure licence conditions. The audit for 2020-21 identified 1 non-material non-compliance and 7 opportunities for improvement. Audits for all other financial years since 2018-19 identified no non-compliances.

[f] Transgrid reported higher than usual levels of outstanding corrective tasks for 2023-24. Transgrid advised that protected industrial action has delayed completion of its backlog of inspection and corrective tasks, and that the volume of outstanding work has been subjected to regular reviews to prioritise the work by risk level.

5 Other relevant IPART reviews

5.1 IPART recommended the transmission reliability and performance standards

In 2015, the NSW Government asked IPART to recommend reliability standards for electricity transmission in NSW to apply from 1 July 2018. Our Terms of Reference asked us to develop an economic framework to evaluate reliability standards and to use this approach to make recommendations on what standards should apply.

The review was carried out under s 12A of the IPART Act.

Stakeholder engagement included release of an Issues Paper, Draft Reports and a public hearing, and the review was completed with the publication of a Final Report and Supplementary Final Report in December 2016.

For the approximately 100 bulk supply points in NSW (or group supply points in several cases), we recommended a level of redundancy and an allowance for minutes of annual unserved energy.

- **The level of redundancy**[g] specifies the number of backup arrangements that must be in place to support continued supply of electricity in the event that part of the transmission network fails.
- **The unserved energy allowance** is the expected time that energy may not be supplied per year, taking into account the probability and expected impact (including expected outage duration and forecast load) of different types of system failures. We recommended unserved energy allowances ranging from 0.6 minutes per year in Inner Sydney to 115 minutes in one area in NSW's south-west (Balranald).

Each bulk supply point has its own level of redundancy and allowance for expected unserved energy, as a result of differences in the cost of providing reliability and the mix of customers at each bulk supply point. IPART developed an optimisation model to determine the recommended amount (in MWh and minutes) of expected unserved energy.

The optimal amount of expected unserved energy calculated by IPART's model is influenced by the level of redundancy assumed at the bulk supply point, the existing mix of assets serving that point, the cost of replacing those assets and the value of customer reliability (which is the value customers place on having reliable supply) at each bulk supply point, which depends on the mix of customers.

[g] **Level of redundancy** means:
(i) for category 1 bulk supply points, a supply interruption may occur following the outage of a single system element;
(ii) for category 2 bulk supply points, a non-zero amount of load must be supplied following the outage of a single system element; and
(iii) for category 3 bulk supply points, a non-zero amount of load must be supplied following the outage of a single system element. In addition, for Inner Sydney, a non-zero amount of load must be supplied following the simultaneous outage of a single 330 kV cable and any 132 kV feeder or 330/132 kV transformer.

The standards provide flexibility to promote the most efficient network or non-network solution to meet the unserved energy allowance, which may include the transmission network, distribution network, network support arrangements, backup supply capability, or a combination of these. To demonstrate compliance, Transgrid undertakes probabilistic simulation modelling of the network taking into account system elements (including non-network elements), a defined set of combinations of asset failures, asset failure rates and assumed maximum demand/load profile at each bulk supply point. IPART may test the reasonableness of these assumptions through its compliance activities.

The standards aim to strike the appropriate balance between the cost of providing reliability, which is paid for by customers through their electricity prices, and the costs to customers of experiencing outages.

The reliability and performance standards are 'planning' standards, rather than 'performance' standards. The difference between these two types of standards is at what point compliance with the standard is assessed. A planning standard means that Transgrid must plan its network according to specified criteria and compliance is assessed by reviewing planned network performance using modelling. In contrast, a performance standard would require Transgrid to deliver outcomes that meet the specified standard of reliability and compliance is assessed by reviewing actual network performance.

We considered a planning standard to be more appropriate for Transgrid's transmission system than a performance standard (which are used to regulate distribution reliability). This is because of fundamental differences between the characteristics of a transmission system compared to distribution systems. Our 2016 report notes that "*Unlike distribution networks, transmission networks tend to have a low number of outages, which means that focusing on output measures may provide a false view of their reliability. There may be no outward signs that there is a major vulnerability in a transmission network until reliability is badly affected*".[2] In earlier reports, the Australian Energy Market Commission and the Australian Government Productivity Commission made similar findings.[3] See section 2.4 of our Final Report for further information.

The Minister for Energy made minor amendments to the reliability standards as recommended by IPART in its review of network operator licences in 2022. Further information on these changes is at section 3.3 of our Final Report on the 2022 review.

5.2 Our approach to assessing compliance with the standards

Following the 2015-16 review of reliability standards for electricity transmission in NSW to apply from 1 July 2018, in 2017 we developed and consulted on our approach to assessing compliance with the new standards. Further information is published on the Electricity Transmission Reliability Standard compliance page of IPART's website.

In order to demonstrate compliance with the standards, Transgrid must demonstrate that it has planned and implemented its transmission system to meet the standards. This is done by undertaking simulation modelling at each bulk supply point.

The simulation modelling considers:

- the range of assets available to provide supply, including transmission system assets and other supply elements (including non-network solutions and complementary networks that provide backup)
- the probability of different assets failing, alone and in combination with each other, and the impact of these failures on Transgrid's ability to maintain supply, and
- the load not served and the duration of outages (including the measures in place for switching to backup arrangements and how long this switching takes, as well as repair and replacement arrangements).

If Transgrid is using non-transmission network system elements to meet the standards, as part of its compliance assessment (such as backup generators owned and operated by another party) it must provide to IPART evidence of the agreements in place relating to non-network arrangements or distribution assets.

Our Electricity Transmission Reliability Compliance report and Reporting Manual describes Transgrid's reporting obligations in more detail and sets out the information IPART uses to assess compliance with the reliability standards.

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1 Lee, D, *Down for the count: eight separate transmission tower failure incidents in less than five years*, Watt Clarity® for Global Roam, 30 October 2024.
2 IPART, Electricity transmission reliability standards - Final Report, August 2016, p 2.
3 Australian Energy Market Commission, Review of the national framework for transmission reliability - Final report, 1 November 2013, p 33. Australian Government Productivity Commission, Electricity Network Regulatory Frameworks – Inquiry Report, 9 April 2013, Volume 2, p 591.