



Electricity

## Consultation Paper

# Transmission Regulatory Framework Review 2028-2033

In accordance with the *Essential Services Commission Act 2002* (**ESC Act**), the Essential Services Commission (**Commission**) has commenced a review of the electricity transmission regulatory framework that applies in South Australia, which includes the Electricity Transmission Code (**Code**) and Electricity Guideline 3 – Transmission and System Control (**Guideline 3**).

Under section 28(8) of the ESC Act, the Commission must keep these regulatory instruments under review with a view to supporting their continued relevance and effectiveness.

Submissions to this consultation paper are invited by 21 February 2025. The Commission plans to publish a draft decision by June 2025.

Further information is available on the Commission's website at: <https://www.escosa.sa.gov.au/projects-and-publications/projects/electricity/electricity-transmission-framework-review-2028-2033>

This consultation paper outlines the purpose and scope of the review of the electricity transmission regulatory framework, provides background information regarding the role and regulation of the providers of electricity transmission services, outlines the scope of the Code and Guideline 3,

and seeks to obtain comments and feedback from stakeholders on key matters to inform the Commission's draft and final decisions.

### Purpose and scope of review

ElectraNet Pty Ltd (**ElectraNet**) is the primary monopoly provider of electricity transmission services in South Australia and is licenced by the Commission pursuant to Part 3 of the *Electricity Act 1996* (**Electricity Act**).

The Code and Guideline 3 are crucial for protecting South Australian consumers. The standards and obligations outlined in the Code and Guideline 3 pertain to the quality, safety, and reliability of electricity transmission services.

ElectraNet's licence requires compliance, pursuant to Part 3 of the ESC Act, with all standards and obligations made under the Code and Guideline 3.<sup>1</sup>

There are other providers of electricity transmission services in South Australia that are licensed by the Commission.<sup>2</sup> Other providers must also comply, pursuant to Part 3 of the ESC Act, with standards and obligations under the Code and Guideline 3; however, there are various exemptions specified by the Commission in their respective licenses.<sup>3</sup>

In accordance with section 28(8) of the ESC Act, the Commission must keep the contents and operations of codes and rules, such as those

<sup>1</sup> Section 14D of the Electricity Act declares the electricity supply industry to be a regulated industry for the purposes of the ESC Act. Section 28(1) of the ESC Act provides the Commission with the power to make industry codes and rules relating to the conduct or operations of a regulated industry or regulated entities.

<sup>2</sup> Pursuant to Part 3 of the Electricity Act 1996, the Commission is responsible for licensing electricity transmission services in South Australia.

<sup>3</sup> The nature and economic circumstances (for example, their size, connectivity to the main network and level of risk) of these other providers of electricity transmission services are such that they are generally considered to be quite different from that of the primary provider of electricity transmission services, ElectraNet.

relating to the electricity supply industry, under review with a view to supporting their continued relevance and effectiveness.

The purpose of this review is to assess:

- ▶ whether amendments may be required to the Code to maintain its relevance and promote consumers' long-term interests, and
- ▶ whether the reporting framework in Guideline 3 remains fit-for-purpose.

The timing of this review allows any consequential financial impacts arising from amendments to be included in ElectraNet's revenue proposal to the Australian Energy Regulator (AER) for the regulatory period 1 July 2028 to 30 June 2033.<sup>4</sup> The Code was last reviewed in [2021](#) while Guideline 3 was last reviewed in [2013](#).<sup>5</sup>

## Background

### Role of electricity transmission networks

Providers of electricity transmission services are a key part of the electricity supply industry, transporting electricity between generators and distributors and/or to direct customers (typically large industrial consumers).

ElectraNet is the primary provider of electricity transmission services in South Australia. Its network comprises:<sup>6</sup>

- ▶ 91 substations, where the voltage of the electricity is either raised for efficient transportation through the electricity transmission network, or lowered for safe transportation through the distribution network

- ▶ over 200,000 square kilometres of area serviced by transmission lines and cable, which transport electricity around South Australia, and
- ▶ 75 connection points (also referred to as **exit points**), which connect the electricity transmission network to the distribution network or directly to certain large customers.

The other main provider of electricity transmission services in South Australia is Murraylink Transmission Company (**Murraylink**).<sup>7</sup>

### Regulation in a national and state context

Providers of electricity transmission services are crucial for maintaining the function and security of the National Electricity Market (NEM).

For instance, ElectraNet's electricity transmission network is linked with the electricity transmission networks in Victoria and New South Wales. Also, Murraylink's interconnector provides a link between transmission networks in Victoria and South Australia.<sup>8</sup> Further, there are plans currently underway to enhance interstate connectivity, through the establishment of an additional interconnector (known as Project EnergyConnect) between South Australia and New South Wales with an added connection to Victoria.<sup>9</sup>

Nationally, the regulatory framework includes:

- ▶ The AER being responsible for, among other things, the economic regulation of electricity networks, including transmission businesses, and administering the National Electricity Rules (NER). It makes a revenue determination for ElectraNet every five years. In doing so,

<sup>4</sup> ElectraNet's revenue proposal is due to the AER on 31 January 2027.

<sup>5</sup> Essential Services Commission of South Australia, *Electricity Transmission Code Review 2021*, Final decision, June 2021, pp. 1-11, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/electricity/electricity-transmission-review-2021>, and Essential Services Commission of South Australia, *Electricity Regulatory Information Requirements – Transmission and System Control*, Electricity Industry Guideline No. 3, September 2013, pp. 1-25, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/electricity/review-of-electricity-guideline-no-3-transmission-and-system-control>.

<sup>6</sup> ElectraNet Pty Ltd, *Transmission Lines Fact Sheet 2016*, April 2016, pp. 1-2, available at <https://electranet.com.au/wp-content/uploads/2024/10/2016-Fact-Sheet-Transmission-Lines.pdf>, ElectraNet Pty Ltd, *Transmission Substation Fact Sheet 2016*, August 2016, pp. 1-2, available at <https://electranet.com.au/wp-content/uploads/2024/10/ElectraNet-Fact-Sheet-Substations-2016.pdf> and Australian Energy Regulator, *ElectraNet 2023-24 – Economic Benchmarking RIN – templates*, available at <https://www.aer.gov.au/documents/electranet-2023-24-economic-benchmarking-rin-templates>.

<sup>7</sup> In addition, BHP Olympic Dam Corporation and OzMinerals Prominent Hill Operations are both licensed electricity transmission operators in South Australia under the Electricity Act. Both operators are responsible for the generation, transmission and distribution of electricity at their respective operations. In this respect, neither operates a standalone transmission network. Each operator has certain exemptions from standards and obligations under the Code and Guideline 3. Examples of exemptions include the fact that these providers' transmission services are not categorised into the reliability standards set out in the Code, and as such have no requirement to report their performance with the reliability standards through Guideline 3 on an annual basis.

<sup>8</sup> Murraylink operates the interconnector that links the Victorian transmission grid at Red Cliffs to the ElectraNet grid at Monash.

<sup>9</sup> Project EnergyConnect is currently under construction.

- ▶ it must provide for regulatory obligations (including jurisdictional standards) to be met.
- ▶ The Australian Energy Market Commission (**AEMC**) being responsible for making and changing the NER, including rules which relate to technical matters for providers of electricity transmission services (such as specifications relating to network frequency, system stability, voltage quality and fault clearance).
- ▶ The Australian Energy Market Operator (**AEMO**) being the electricity systems and market operator. It is responsible under the NER for managing energy system security.

In South Australia, the regulatory framework includes:

- ▶ The Commission being responsible for the development and administration of jurisdictional standards and obligations, as set out in the Code and Guideline 3.
- ▶ The Office of the Technical Regulator (**OTR**) being responsible for specified technical and safety matters in relation to the electricity supply industry including as it relates to electricity transmission operators. It is also responsible for a state-based planning and forecasting function to support power system decision making.
- ▶ The Energy & Water Ombudsman South Australia (**EWOSA**) scheme providing customers of licensed transmission businesses with access to dispute resolution mechanisms.

These state-based economic regulations form part of the broader national regulatory framework.

### The general role of reliability standards

Reliability standards are a feature across most states and territories. Reliability refers to the extent to which consumers have a continuous supply of electricity. Prolonged interruptions can disrupt the supply of electricity to large areas and numbers of customers. This can result in direct economic impacts on households and businesses.

Reliability standards are therefore set by governments and/or economic regulators for providers of electricity transmission services with the intent of keeping interruptions low.

Moreover, given that providers of electricity transmission services are known to be natural monopolies (for instance, have high and sunk fixed costs, low variable costs, and exhibit the potential to exercise market power), there can be a role for economic regulators to determine the maximum revenues or prices that can be earned and to set the reliability standards and obligations to be met.

### Electricity Transmission Code

As mentioned earlier, the Code establishes service standards for providers of electricity transmission services in South Australia. This includes specifying reliability standards and operational requirements.<sup>10</sup>

### Reliability standards under the Code

In South Australia, reliability standards under the Code apply only to ElectraNet.

The reliability standards incorporate:

- ▶ an input standard – the level of redundancy (*N* or *N-X*) that must be built into the network, and
- ▶ an output standard – the timeframes for restoration of supply should an interruption occur.

The *N* or *N-X* standard requires ElectraNet to build its infrastructure to support sufficient redundancy such that supply is not interrupted if *X* elements of the network fail.<sup>11</sup> Higher levels of redundancy are required where there is likely to be greater economic cost (that is, when more customers would be affected and the cost to customers of those supply interruptions is likely to be higher).

Chapter 2 of the Code specifies reliability standards for exit points. ElectraNet's exit points are categorised from 1 to 5, with 1 being the lowest and 5 being the highest.

Exit points are assigned to a reliability category based on the following factors listed in Clause 2.12.2 of the Code:

<sup>10</sup> *Electricity Transmission Code Review 2021*, pp. 1-11.

<sup>11</sup> For example, an *N* standard refers to the minimum required components for the supply of electricity. An *N-1* standard means ElectraNet is to build sufficient redundancy (through, for example, building an additional transmission line, or installing and maintaining a back-up generator) so that supply is not interrupted if one element of the transmission network fails.

- ▶ any recommendations from AEMO
- ▶ the size of its load
- ▶ the value of lost load<sup>12</sup> and types of customers
- ▶ the number of customers, and
- ▶ the cost of installation of transmission assets relevant to the exit point.

A key aspect of this review is to undertake an assessment of the current categorisation of exit points. For instance, if economic circumstances change (for example, demand has increased or costs have changed), there may be a case to reclassify an exit point into a different reliability category. The analysis, however, will not assess these factors in isolation. For example, an increase in demand may not justify an upgrade if the mix of customer type also changed and the overall value to customers of reliability was lower.

The Commission will use the same methodology as used in previous reviews to assess the categorisation of exit points.<sup>13</sup> It plans to use information in relation to demand forecasts, the value of customer reliability and the estimated costs of upgrading standards at exit points. This information can allow for a cost-benefit assessment of upgrading an exit point (see Box 1).

Notwithstanding the assessment of costs and benefits, it is important to note that a key point of interaction between the Code and the NER arises from the NER requirement that any new assets constructed by ElectraNet, including those required to meet a standard mandated under the Code, must satisfy a regulatory test referred to as a Regulatory Investment Test – Transmission (RIT-T).

Accordingly, if ElectraNet were to propose an upgrade over a certain value to satisfy a reliability standard in the Code, the Code requires ElectraNet

to submit its analysis for the Commission's review. The cost threshold for the RIT-T is currently set at \$8 million (in nominal terms).<sup>14</sup> In the previous regulatory period ElectraNet did not submit a proposal to the Commission under the RIT-T.

#### **Box 1: Methodology for calculating expected benefits and costs of upgrading an exit point**

There will be four key steps involved.

1. The first step is to estimate reductions in outages from an update to an exit point – for example, if supply was expected to be disrupted for 10 hours per year at category 1 and one hour at category 2, the improvement from upgrading an exit point would be nine hours.
2. The second step is to derive a value for the hours of customer reliability – for example, the Commission will derive a customer value for reliability of supply which will then be multiplied by the average exit point demand.
3. The third step is to compare expected costs and benefits – the Commission will compare the value of the expected benefit gained by customers should an exit point be upgraded (the value of the hours multiplied by the reduction in outage hours) with the capital cost of upgrading.
4. The fourth step is to undertake sensitivity analysis – for example, the Commission will use sensitivity analysis to assess forecasts, assumptions and risks.

<sup>12</sup> Lost load refers to the situation where the available generation capacity in an electrical grid is insufficient to meet the system load, resulting in power outages or interruptions. AEMO and the AER often use the term "unserved energy" to quantify the amount of energy that cannot be supplied due to these capacity shortfalls.

<sup>13</sup> *Electricity Transmission Code Review 2021*, pp. 1-11, and Essential Services Commission of South Australia, *Electricity Transmission Code Review 2016*, Final decision, September 2016, pp. 1-65, available at <https://www.escosa.sa.gov.au/projects-and-publications/projects/electricity/electricity-transmission-code-review-2018-2023-regulatory-period/electricity-transmission-code-review-2018-2023-regulatory-period>. In 2021, the Commission's assessment noted that, based on several assumptions, for exit points in categories 2 to 5, expected outage times are relatively small (generally less than one hour per year), because of redundancies already built into the network. This meant that for these exit points, only a much larger than expected increase in demand would trigger the need for an upgrade. For category 1 exit points, based on the assumptions and inputs described above, it was estimated that no exit points required further investigation for higher reliability obligations. The assessment provided evidence in support of ElectraNet's submission in 2021 that a full review of individual exit point reliability standards was not warranted.

<sup>14</sup> Australian Energy Regulator, *2024 RIT and APR cost thresholds review Final determination*, November 2024, pp. 1-8, available at <https://www.aer.gov.au/industry/registers/resources/reviews/2024-cost-thresholds-review-regulatory-investment-test>.

### Questions for stakeholders

- ▶ Do you have any comments and/or suggestions on the proposed methodology to be used to assess the costs and benefits of upgrading an exit point? Are there additional factors that could be considered as part of the methodology?
- ▶ Do you have any comments and/or suggestions on the continued use and effectiveness of the five reliability categories as set out in the Code? Are there alternative categorisations that could be considered?
- ▶ Are there any other matters or issues you consider are relevant to the Commission's assessment of reliability standards?
- ▶ Should the Commission continue to have the requirement in the Code for ElectraNet to submit upgrade proposals for review under the RIT-T?

Please provide evidence and reasons to support your positions.

### Operational requirements

The Code specifies protections for customers and operational requirements for providers of electricity transmission services.

#### Interruptions

Providers of electricity transmission services may interrupt or restrict electricity transmission services for various reasons including maintenance and system augmentation. The provider must use its best endeavours to coordinate planned interruptions with affected parties and it must use best endeavours to minimise the number and duration of unplanned interruptions.

#### Design and technical requirements

Providers of electricity transmission services must ensure that all new connections to the network are of an appropriate standard and are properly tested, inspected and maintained to prevent safety risks

and unplanned interruptions. All extensions of the network must be compatible with the existing system. This includes, but is not limited to, compatibility with NER requirements, earthing systems and voltages and frequencies.

#### Emergencies

The Code outlines the responsibilities and actions that must be taken by providers of electricity transmission services during an emergency event. The Code defines an emergency, sets a timeframe for restoration once the emergency has passed, and sets requirements for the provider to provide notifications to affected stakeholders and the Commission (with details and an expected resolution timeframe).

### Questions for stakeholders

- ▶ Do you have any comments and/or suggestions on the current protections, requirements and obligations (for example, related to interruptions, design and technical requirements and emergencies) in the Code?
- ▶ Should any operational requirements be improved, changed or removed? What would the benefits and costs be of any proposed changes?
- ▶ Are there any other matters or issues you consider are relevant to the Commission's assessment of operational requirements under the Code?

Please provide evidence and reasons to support your positions.

### Electricity Guideline 3 – Transmission and System Control

Given the natural monopoly characteristics of providers of electricity transmission services, the Commission mandates specific levels of information disclosure and reporting requirements in Guideline 3.<sup>15</sup> Guideline 3 was initially designed as a joint information disclosure instrument providing for the requirements of both the Commission and the OTR. It requires reporting on reliability, safety, and technical operation of the electricity transmission network.<sup>16</sup> In a previously

<sup>15</sup> For example, according to ElectraNet's reporting to the Commission, in the past six years there has been, on average, seven interruptions per year.

<sup>16</sup> Across all exit point categories, since 2018 there has been one incident where ElectraNet did not meet reliability standards. That incident occurred in 2022-23. More information on that incident and ElectraNet's recent performance is available here:

completed review, the Commission removed reporting requirements relating to information for the OTR.<sup>17</sup>

**Questions for stakeholders**

- ▶ Do you have any comments and/or suggestions on the current information disclosure and reporting requirements in Guideline 3 (including the frequency and type of information to be provided)?
- ▶ Would you support removal of the OTR operational reporting requirements detailed Section 3.1.9 of Guideline 3?
- ▶ Are there any other matters or issues you consider are relevant to the Commission's review of Guideline 3?

Please provide evidence and reasons to support your positions.

**Stakeholder consultation**

The Commission welcomes submissions from stakeholders on the review of the electricity transmission regulatory framework that applies in South Australia. The Commission will consult with transmission network operators and all other interested stakeholders. Written submissions are invited by 21 February 2025, and the Commission welcomes meetings with stakeholders regarding this review.

Responses to this call for submissions should be directed to:

- ▶ Transmission Regulatory Framework Review 2028-2033

It is preferred that submissions and requests for stakeholder meetings are sent electronically to:

- ▶ [reviews@escosa.sa.gov.au](mailto:reviews@escosa.sa.gov.au)

Please refer to the [Submission Policy](#) on the Commission's website for further information about making a submission.

**Timetable for this review**

Stage	Timing
Consultation on Consultation Paper	December 2024 – February 2025
Commission Draft Decision	June 2025
Consultation on Draft Decision	June 2025 – August 2025
Commission Final Decision	December 2025
ElectraNet to submit revenue proposal to AER	31 January 2027
New regulatory period	1 July 2028

**Contact officer**

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<sup>17</sup> The Commission stopped collecting information about major interruptions for gas (which Australian Gas Networks is required to provide to the Technical Regulator under the *Gas Regulations 2012*, Regulation 50(1)) and detailed technical information (which the Technical Regulator requires under Gas Regulation 38) in July 2017.