

Final decision

Transgrid transmission determination
1 July 2023 to 30 June 2028

Attachment 10 – Service target performance
incentive scheme

April 2023

© Commonwealth of Australia 2023

This work is copyright. In addition to any use permitted under the *Copyright Act 1968* all material contained within this work is provided under a Creative Commons Attributions 3.0 Australia licence with the exception of:

- the Commonwealth Coat of Arms
- the ACCC and AER logos
- any illustration diagram, photograph or graphic over which the Australian Competition and Consumer Commission does not hold copyright but which may be part of or contained within this publication.

The details of the relevant licence conditions are available on the Creative Commons website as is the full legal code for the CC BY 3.0 AU licence.

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601
Tel: 1300 585 165

AER reference: 202187

Contents

10	Service target performance incentive scheme	4
10.1	Final decision.....	4
10.2	Transgrid’s revised proposal.....	6
10.3	Submissions on Transgrid’s revised proposal.....	7
10.4	Assessment approach.....	7
10.5	Reasons for final decision.....	7
	Glossary	12

10 Service target performance incentive scheme

The service target performance incentive scheme (STPIS) provides a financial incentive to transmission network services providers (TNSPs) to maintain and improve service performance. The current version of the STPIS, version 5, will apply to Transgrid for the 2023–28 regulatory control period, including the three standard components of the STPIS—the service component (SC), the market impact component (MIC) and the network capability component (NCC).

The SC provides a reward/penalty of +/-1.25% of maximum allowed revenue (MAR) to improve network reliability, by focussing on unplanned outages. The SC is designed to encourage TNSPs to seek to reduce the number of unplanned network outages and to promptly restore the network in the event of unplanned outages that result in supply interruptions. This component is also designed to indicate potential reliability issues.¹

The MIC provides an incentive to TNSPs to minimise the impact of transmission outages that can affect wholesale market outcomes. Under the MIC, TNSPs receive a reward/penalty of up to +/-1% of MAR for the relevant calendar year. The MIC measures performance against the market impact parameter which is the number of dispatch intervals where an outage on the TNSP's network results in a network outage constraint with a marginal value greater than \$10/MWh (MIC count).²

Each TNSP's annual MIC count is measured against its target, where the target is calculated by averaging the median 5 of the last 7 years' performance. Further, the dollars per dispatch interval (\$/DI) associated with the reward/penalty for each count can be directly calculated for the regulatory control period from the MIC target, and the MAR. Both the target and the \$/DI are fixed for the regulatory control period.³

The NCC is designed to encourage TNSPs to develop projects (up to a total of 1% of the proposed MAR per year) in return for a pro-rata incentive payment of up to 1.5% of MAR depending on the successful completion of proposed projects. This component encourages TNSPs to examine their networks to identify suitable low cost one-off operational and capital expenditure projects that improve the capability of the transmission network at times when it is most needed.

10.1 Final decision

We will apply all components of version 5 of the STPIS to Transgrid for the 2023–28 regulatory control period. We will apply the STPIS to Transgrid in accordance with the details set out below.⁴

¹ AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 2.2(a)(1–3).

² AER, *Final – Service Target Performance Incentive Scheme*, October 2015, Appendix C.

³ The target will be calculated from the average of the 5 values remaining from the last 7 years of data excluding the largest and smallest annual values.

⁴ AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 2.2.

Table 10.1 Final decision — Service Component caps, floors and target for 2023–28

Parameter	Floor	Target	Cap
Unplanned outage circuit event rate %			
Transmission line - fault	21.84	14.29	8.80
Transformer - fault	14.98	9.66	5.87
Reactive plant - fault	18.72	12.14	6.81
Transmission line - forced	15.24	8.68	3.76
Transformer - forced	17.45	9.87	5.05
Reactive plant - forced	13.68	9.82	6.88
Loss of supply events frequency			
No. of events > 0.05 system minutes	3	1	0
No. of events > 0.25 system minutes	1	0	0
Average outage duration			
Average outage duration	107	62	34
Proper operation of equipment			
Failure of protection system	19	13	7
Material failure of SCADA	0	0	0
Incorrect operational isolation of primary or secondary equipment	9	5	2

Source: AER Analysis

Table 10.2 Final decision — Market Impact Component parameter values for 2023–28

Parameter	
Target	6476
Unplanned outage event limit	1101
Dollar per dispatch interval	1427

Source: AER Analysis

Table 10.3 Final decision — Network Capability Component for 2023–28

Priority project name	Proposed capex (\$ million)	Proposed opex (\$ million)	Amount approved (\$ million)
1. Increase capacity for Generation between Darlington Point and Wagga	0.0	0.0	0.0
2. Darlington Point 330/220 kV transformer tripping scheme	0.3	0.1	0.4
3. Increase capacity for generation X5 voltage stability constraints	5.0	0.5	5.4
4. 94T line dynamic ratings.	0.4	0.1	0.5
5. Yass 330/132 kV transformer dynamic ratings	1.5	0.1	1.7
6. Maintain capacity during Climate Change – install dynamic line ratings on multiple lines	4.4	1.5	5.9
Total	11.7	2.1	13.9

Source: AER Analysis, AEMO review of Transgrid Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2023 to 30 June 2028 (endorsement letter), and the relevant option analysis reports.
 Note: Values rounded up to one decimal point of millions. Totals may not tally due to rounding up.

10.2 Transgrid’s revised proposal

Transgrid’s revised revenue proposal:

- Accepted our draft decision for the SC parameters, except for the “Average outage duration” parameter. Transgrid considered that we had incorrectly calculated the data for this parameter and therefore proposed a revised cap, target and floor.⁵
- Accepted our draft decision of the MIC performance parameters.⁶
- Updated business cases for two of the Network Capability Incentive Parameter Action Plan (NCIPAP) projects (Darlington Point 330/220 kV transformer tripping scheme, and Yass 330/132 kV transformer dynamic ratings) we did not accept in our draft decision.⁷

We also note that in the executive summary in its revised proposal, Transgrid stated that it accepted the AER’s draft decision on STPIS targets on the basis that we will update the STPIS targets to reflect actual 2022–23 data when it becomes available.⁸ We queried this with Transgrid and it confirmed by email that this was a typographical error. Instead, the sentence should have read that it accepts the AER’s draft decision on STPIS targets on the basis that we will update the STPIS targets to reflect actual calendar year 2021 data. The data periods we have used in our final decision are discussed in section 10.5.

⁵ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 144.

⁶ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 145.

⁷ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 145.

⁸ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. iv.

10.3 Submissions on Transgrid’s revised proposal

None of the submissions received to our draft decision or Transgrid’s revised proposal commented on the STPIS.

10.4 Assessment approach

A revenue determination for a TNSP is to specify, amongst other things, the annual building block revenue requirement for each regulatory year of the regulatory control period. In turn, the annual building block revenue requirement must be determined using a building block approach, under which, one of the building blocks is the revenue increments or decrements (if any) for that year arising from the application of any STPIS (and other schemes). We have assessed Transgrid’s revenue proposal against the requirements of STPIS version 5.

Our approach to assessing Transgrid’s SC, MIC and NCC is explained in detail in our draft decision document.⁹

10.5 Reasons for final decision

We calculated Transgrid’s performance target values as follows:

- For the SC, we used performance data from 2017–2021.
- For the MIC, we used data from 2015–2021, in accordance with our guidance note on TNSP STPIS data periods.¹⁰

We will apply version 5 of the STPIS with the AusNet Services MIC exclusions clarification (see section 10.5.2). The reasons for our final decision are outlined below.

10.5.1 Service component

In its revenue proposal, Transgrid proposed that the SC’s loss of supply parameter should be amended to better incentivise it to further improve network reliability.¹¹ Our draft decision did not accept Transgrid’s proposed change, instead requiring Transgrid to consult with stakeholders and provide analysis and reasons, on why it will be in the long term interests of consumers to accept Transgrid’s proposal.

For its revised proposal, Transgrid consulted its key stakeholder engagement group, the Transgrid Advisory Council (TAC), about whether it should re-propose its alternate target for the loss of supply events (y) system minutes parameter.¹² Giving effect to the TAC’s concern of affordability and cost of living pressures on customers, Transgrid’s revised proposal accepted our draft decision on the loss of supply parameter. Therefore, our final decision is consistent with our draft decision for this SC parameter.

⁹ AER, *Draft decision, Transgrid transmission determination 2023 to 2028, Attachment 10, STPIS*, September 2022, pp. 4,5.

¹⁰ AER, *Guidance note: Transmission Service Target Performance Incentive Scheme (clarification of data period and exclusions definitions in the market impact component)*.

¹¹ Transgrid, *Revenue Proposal 2023–28*, 31 January 2022, p. 152.

¹² Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 144.

However, in its revised proposal, Transgrid stated that our draft decision on the average outage duration (AOD) parameter values of the SC were incorrect.¹³

We engaged with Transgrid to understand its submission. Our analysis revealed that the 2021 calendar year performance value of 72.24 minutes we used in our simulations was incorrect.

In its revised proposal, Transgrid stated the correct AOD to be 99.58 minutes.¹⁴ However, the correct AOD value in the historical performance data is 99.31. This number was accepted by Transgrid and we used this number in our simulations.

Final SC parameter values are outlined in Table 10.4.

Table 10.4 Final decision — Service Component probability distribution, caps and floors for 2023–28

Parameter	Distribution	Floor	Cap
Unplanned outage circuit event rate %			
Transmission line - fault	LogLogistic	21.84	8.80
Transformer - fault	LogLogistic	14.98	5.87
Reactive plant - fault	Gamma	18.72	6.81
Transmission line - forced	Gamma	15.24	3.76
Transformer - forced	Pearson5	17.45	5.05
Reactive plant - forced	Pearson5	13.68	6.88
Loss of supply events frequency			
No. of events > 0.05 system minutes	Poisson	3	0
No. of events > 0.25 system minutes	Poisson	1	0
Average outage duration			
Average outage duration	Pearson5	107	34
Proper operation of equipment			
Failure of protection system	Poisson	19	7
Material failure of SCADA		0	0
Incorrect operational isolation of primary or secondary equipment	Poisson	9	2

Source: AER Analysis

¹³ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 144

¹⁴ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 144

10.5.2 Market impact component

Our January 2022 final decision on the transmission determination for AusNet Services considered the impact changes in the energy mix in the National Electricity Market have had on the way semi-dispatch generators bid into the market. We recognised the potential for generator bidding behaviour to appear as a constraint when this is not within a TNSP's control. In such cases, we considered these should be excluded from the measurements of MIC performance.¹⁵

Transgrid initially considered that the exclusion clarification should also apply to scheduled and non-scheduled renewable generators because it also has no control over the bidding behaviour of these generators.¹⁶ Our draft decision deferred this issue until stakeholders were consulted on whether constraints caused by both types of renewable generators should also be excluded from the MIC performance measure.

Transgrid consulted its TAC about whether the exclusion clarification should be re-proposed in its revised proposal. The TAC considered that the generator behaviour was ultimately an issue for the AER to consider. As such, Transgrid's revised proposal accepted our draft decision on the MIC performance parameters. Our final decision is, thus, to uphold our draft decision on the MIC for Transgrid.¹⁷

The final decision dollar per dispatch interval differs from the draft decision to reflect Transgrid's final decision smoothed MAR amount.

10.5.3 Network capability component

In our draft decision, we rejected two of the six priority projects proposed by Transgrid under the NCIPAP because we considered that they were unlikely to deliver a material benefit to consumers as required by the STPIS.¹⁸ The projects were:

- Priority project 1: Upgrading Darlington Point 330-132kV Transformers
- Priority project 5: Yass 330/132 kV transformer dynamic ratings.

Transgrid submitted updated business cases for the two projects as part of its revised proposal, including additional information on proposed market benefits arising from the projects.

We engaged with Transgrid and sought further information on the two priority projects as part of our assessment process. Based on our assessment of all information provided by Transgrid in relation to the two projects against section 5.2 requirements of the STPIS, our final decision is to:

- not approve the inclusion of priority project 1: N2176 – Upgrading Darlington Point 330-132kV Transformers

¹⁵ AER, *Final decision, Ausnet Services transmission determination 2022 to 2027, Attachment 10, STPIS*, January 2022, pp. 12-19.

¹⁶ AER, Information request IR#015, STPIS - MIC target setting, 17 February 2022; AER, Information request IR#038 - STPIS - MIC target setting, 1 July 2022.

¹⁷ Transgrid, *2023-28 Revised Revenue Proposal*, 2 December 2022, p. 145.

¹⁸ AER, *Final – Service Target Performance Incentive Scheme*, October 2015, clause 5.2 (c).

- approve the inclusion of priority project 5: N2471 - Yass 330/132 kV transformer dynamic ratings for the 2023–28 regulatory period.

Priority Project 1: N2176 - Upgrading Darlington Point 330-132kV Transformers

We still consider that the information provided by Transgrid for priority project 1 does not demonstrate that this project meets the requirements in 5.2 of the STPIS.

This project involves the installation of additional cooling radiators to the transformers, resulting in an increase in firm capacity from 280 MVA to 375 MVA. The estimated total cost for this project is \$4.4 million. Transgrid stated that additional generation has increased the loading on the Darlington Point 330/132/11 kV transformers, such that for loss of one Darlington Point 330/132/11 kV transformer would result in a 10-25% overloading of all other elements and committed generators in-service¹⁹.

Our analysis has shown that Transgrid's assumption that it would need to curtail generation under normal conditions in case of an outage of a Darlington Point 330/132/11 kV transformer would not be justified. In response to the AER's further information request, the transformer pre-contingent loading tables provided by Transgrid show that for an ambient temperature of 45 degrees each transformer can withstand an increase from 168 MVA to 330 MVA for up to 30 minutes.

We consider that Transgrid has overstated the severity of the problem and consequently the benefits of undertaking the project. Specifically, we consider there to be adequate time for Transgrid to instigate curtailment of generation to reduce the load on the remaining transformer. Generator re-scheduling can be carried out without undue burden on the remaining transformer after an outage occurs and, therefore, the cost to consumers would exceed the benefits arising from the project. Therefore, our final decision is to reject this project.

Priority Project 5: N2471 - Increase Capacity of Yass Transformers

We accept priority project 5 because the additional information provided by Transgrid shows that it is likely to deliver a material benefit to consumers as required by 5.2 of the STPIS.

This project involves the implementation of a dynamic rating system with a total cost of \$1.7 million for the Yass No.1 and No.2 330/132 kV transformers to potentially reduce the constraints on low-cost renewable generation in the Southern and Central-West area by increasing the transfer capability of these units under contingency conditions.²⁰

Yass 330/132 kV transformers have nameplate ratings of 200 MVA each and a maximum short-term rating of each unit of 300 MVA. The additional power flow from generation will increase the loading on the Yass 330/132 kV transformers to such an extent that there are times where these transformers are loaded close to the normal rating of 200 MVA under

¹⁹ Options Evaluation Report, Transgrid - OER-N2176 Rev 3 Upgrading DNT 330-132kV Transformers - 12 Oct 2022 – PUBLIC, p. 2.

²⁰ Options Evaluation Report, Transgrid - OER-N2471 Rev 2 Increase Capacity in Yass Transformers - 12 Oct 2022 - PUBLIC, p. 2.

system normal conditions. Hence, the power flow through a single transformer under ‘N-1’ outage conditions would be approximately 200 MVA above the rating of a single unit.

As the maximum short-term rating of each transformer is only 300 MVA, it is appropriate that Transgrid curtail generation under normal conditions prior to any event to keep the load below 300 MVA. This would justify the cost-benefit analysis to include curtailment of generation under normal conditions and deliver economic (market) benefits. As such, our final decision is to approve the inclusion of this priority project.

Glossary

Term	Definition
AOD	Average outage duration
Capex	Capital expenditure
DI	Dispatch interval
kV	Kilovolt
LoS	Loss of Supply
MAR	Maximum allowed revenue
MVA	Megavolt amperes
MIC	Market impact component
NCC	Network capability component
NCIPAP	Network capability incentive parameter action plan
Opex	Operating expenditure
SC	Service component
STPIS	Service target performance incentive scheme
TAC	Transgrid Advisory Council
TNSP	Transmission network service provider
