FINAL DECISION
Powerlink transmission determination 2017–22

Attachment 11 – Service target performance incentive scheme

April 2017

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on Powerlink's transmission determination for 2017–22. It should be read with all other parts of the final decision.

This final decision consists of an Overview and 11 attachments. As many issues were settled at the draft decision stage or required only minor updates we have not prepared final decision attachments for:

- Regulatory depreciation
- Operating expenditure; and
- Corporate income tax.

The AER's final decision on these matters is set out in the Overview. For ease of reference the remaining attachments have been numbered consistently with the attachment numbering in our draft decision.

The final decision includes the following documents:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Value of imputation credits

Attachment 6 – Capital expenditure

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment 11 – Service target performance incentive scheme

Attachment 12 – Pricing methodology

Attachment 13 – Pass through events

Attachment 14 – Negotiated services

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	annual service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DMIA	demand management innovation allowance
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
NTSC	negotiated transmission service criteria
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice

Shortened form	Extended form
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

11 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, includes three components: a service component, market impact component and network capability component.[1]

The service component provides a reward/penalty of +/- 1.25 per cent of MAR to improve network reliability, by focussing on unplanned outages. The service component 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.

The market impact component (MIC) provides an incentive to TNSPs to minimise the impact of transmission outages that can affect wholesale market outcomes. 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 five of the last seven years' performance.[3] 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.

TNSPs receive a reward or penalty of up to 1 per cent of MAR for the relevant calendar year. Under clause 4.2(a), a TNSP must submit 7 calendar years of data to calculate the target as noted above.

The network capability component is designed to encourage TNSPs to develop projects (up to a total of one per cent of the proposed MAR per year) in return for a pro-rata incentive payment of up to 1.5 per cent 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.

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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 five values remaining from the last seven years of data excluding the largest and smallest annual values.

11.1 Final decision

We will apply all components of version 5 of the STPIS to Powerlink for the 2017–22 regulatory control period.

Our final decision on Powerlink's STPIS is to:

- Apply our draft decision on the STPIS service component. This is consistent with Powerlink's revised revenue proposal.
- Apply the latest version of STPIS to the market impact component–the performance target for 2017–22 is 333 DIs per annum, which is $22,062/DI. We accepted evidence Powerlink submitted in its revised proposal, on the classification of one dispatch interval as unplanned. The unplanned outage event limit in the final decision is therefore 57 DIs.
- Accept Powerlink's proposed project to increase the design temperature of two 275kV transmission lines under the STPIS network capability component. This project complies with version 5 of the STPIS and the cost estimates are relative with industry prices.

Table 11-1 Final decision — Service Component Caps, floors and targets for 2017–2022

Parameter		Floor	Target	Cap
Average circuit outage rate				
Lines event rate – fault	Pearson5	27.17	20.88	15.86
Transformer event rate – fault	LogNormal	20.84	18.91	17.09
Reactive plant event rate – fault	LogLogistic	43.42	29.85	19.49
Lines event rate – forced	Weibull	24.09	20.39	15.90
Transformer event rate – forced	Weibull	23.49	19.17	13.96
Reactive plant event rate – forced	LogLogistic	34.25	24.23	15.95
Loss of supply events				
Number of events > 0.05 system minutes per annum	Poisson	7	3	1
Number of events > 0.4 system minutes per annum	Poisson	3	1	0
Average outage duration	Exponential	282.00	94.14	4.83

Source: AER analysis

Table 11-2 Final decision — MIC parameter values for 2017–2022

Parameter values - MIC	2009–2015
Performance target	333
Unplanned outage event limit	57
Dollar per dispatch interval	$22,062

Source: AER analysis

Table 11-3 Final decision — Network capability priority project for 2017–2022 ($ real 2016-17)

Project	Target	Completion date	Capex	Opex	Total
Increase design temperature of Bouldercombe to Raglan and Larcom Creek to Calliope River 275kV transmission lines	Increasing the ground clearance of the 14[4] spans from 82oC to 90oC this increases the Summer Emergency cyclic rating of the feeders to 593MVA.	30 June 2019	0	$606,000	$606,000

Source: AER analysis

11.2 Powerlink's revised proposal

Powerlink's revised revenue proposal:

- accepted our draft decision on the STPIS service component
- disputed our draft decision on the STPIS market impact component
- revised its forecast for the STPIS network capability component.[5]

11.3 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.[6] In turn, the annual building block revenue requirement must be determined using a building blocks approach, under which one of the building blocks is the revenue increments or decrements (if any) for that year arising from the application of

4 These spans are listed in Powerlink's Revised Revenue Proposal 2018–22, Appendix 3.02–Confidential, 12 October 2015, table 1, p. 5.

5 Powerlink, *Revised Revenue proposal 2018–22, December 2016*, p. 16–20.

6 NER, cl. 6A.4.2(a)(2).

any STPIS (and other schemes).[7] We have assessed Powerlink's revenue proposal against the requirements of version 5 of the STPIS.

11.3.1 Service component

We assessed whether Powerlink's proposed performance targets, caps and floors comply with the STPIS requirements for:[8]

- average circuit outage rate, with six sub parameters[9]
- loss of supply event frequency, with two loss of supply event sub-parameters[10]
- average outage duration
- proper operation of equipment, with three sub-parameters.[11]

Under the STIPS, we must accept Powerlink's proposed parameter values if they comply with the requirements of the STPIS. We may reject them if they are inconsistent with the objectives of the STPIS.[12] We measure actual performance for the 'average circuit outage rate' and 'average outage duration' parameters on a two calendar year rolling average in accordance with appendix E of the STPIS.

We assessed Powerlink's service component proposal against the requirements of the STPIS — that is, whether:

- Powerlink's data recording systems and processes produce accurate and reliable data and whether the data is recorded consistently based on the parameter definitions under the STPIS[13]
- the proposed performance targets were equal to the average of the most recent five years of performance data[14]
- any adjustments to the proposed targets are warranted and reasonable[15]
- Powerlink applied a sound methodology, with reference to the performance targets, to calculate the proposed caps and floors[16]
- any adjustment to a performance target was applied to the cap and floor of that parameter.[17]

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7 NER, cll. 6A.5.4(a)(5), 6A.5.4(b)(5) and 6A.7.4.

8 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* clause 3.2.

9 Six parameters include Line event rate–fault, Reactive plant event rate – fault, Lines event rate – forced, Transformer event rate –forced and Reactive plant event rate – forced.

10 They are the number of events greater than 0.05 system minutes per annum and the number of events greater than 0.30 system minutes per annum.

11 They are failure of protection system, material failure of SCADA system and incorrect operational isolation of primary or secondary equipment.

12 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2.

13 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2(d).

14 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2(g).

15 AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 3.2(j).

16 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2(e).

11.3.2 Market impact component

We assessed Powerlink's market impact component proposal against the requirements of the STPIS — that is, whether:

- data used to calculate the market impact parameter is accurate and reliable, and consistently recorded based on the parameter definition in Appendix C.[18]
- the proposed performance target was calculated in accordance with the requirements of clause 4.2(f) in version 5 of the STPIS.[19]
- the proposed unplanned outage event limit has been calculated in accordance with the requirements of clause 4.2(h) in version 5 of the STPIS.
- the proposed dollar per dispatch interval has been calculated in accordance with clause 4.2(j) in version 5 of the STPIS.

Where Powerlink's proposed values for the market impact parameter does not comply with the requirements of the STPIS or is otherwise inconsistent with the objectives of the scheme[20], we will reject the proposed values and provide substitute values which comply with the STPIS.

11.3.3 Network capability component

We assessed Powerlink's network capability component against the STPIS requirements to take into account:[21]

- the likely effect of the priority project improvement on wholesale market outcomes, including inter-regional outcomes
- the likely effect of the priority project improvement in ensuring that the transmission network can meet demand at an injection point without major network augmentation or replacement
- whether the priority project improvement is appropriate, taking into account the forecast changes in demand at a relevant injection point
- the benefits to consumers resulting from the priority project improvement
- the extent to which a TNSP would be incentivised or required to undertake such a project under the NER or any other applicable regulatory obligations
- the time taken for a project to have a net positive benefit
- any relevant information contained in the TNSP's most recent annual planning report.

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17 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2(e).

18 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* clause 4.2(c).

19 Clause 4.2(f) applies as this is the first time Powerlink has applied version 5 of the STPIS.

20 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl 4.2(d).

21 AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cll. 5.2(l) and 5.2(m).

11.4 Interrelationships

The STPIS takes into account any other incentives provided for in the NER that TNSPs have to minimise capital or operating expenditure. One of the objectives of the STPIS is to assist in the setting of efficient capital and operating expenditure allowances by balancing the incentive to reduce actual expenditure with the need to maintain and improve reliability for customers and reduce the market impact of transmission congestion.

The STPIS will interact with the Capital Expenditure Sharing Scheme (CESS) and the opex Expenditure Benefit Sharing Scheme (EBSS). The STPIS allows us to adjust the performance targets of the service component for the expected effects on the TNSP's performance from any increases or decreases in the volume of capital works planned during the regulatory control period. In conjunction with CESS and EBSS, the STPIS will ensure that:

- any additional investments to improve service quality are based on prudent economic decisions
- reductions in capex and opex are achieved efficiently, rather than at the expense of service levels to the network users.

11.5 Reasons for Final decision

We will apply version 5 of the STPIS to Powerlink in the next regulatory control period without any variation to the service component. The reasons for our decision are outlined below.

11.5.1 Service component

Performance targets must equal the TNSP's average performance history over the past five years unless they are subject to adjustment under clause 3.2(i) or (j) of the STPIS.[22] We generally approve performance targets that are the arithmetic mean of the past five years' performance data.

We accept Powerlink's performance targets for the next regulatory control period as it is consistent with the methodology outlined in version 5 of the STPIS.[23]

Caps and floors

Proposed caps and floors must be calculated with reference to the proposed performance targets using a sound methodology.[24] In the past, we have generally accepted approaches that use five years of performance data to determine a statistical distribution that best fits that data—with the caps and floors set at two standard

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22 AER, *Final – Service Target Performance Incentive Scheme, October 2015,* cl. 3.2.

23 Powerlink, *Revenue proposal 2018–22*, January 2016, p. 114.

24 AER, *Final – Service Target Performance Incentive Scheme, October2015*, cl. 3.2(e).

deviations either side of the mean (if using a normal distribution); or at the 5th and 95th percentiles (if using a distribution other than the normal distribution).

We accept Powerlink's performance cap and floor values for the next regulatory control period as it is consistent with version 5 of the STPIS. We tested Powerlink's data using our @risk software and our outputs were consistent with Powerlink's revenue proposal.

Table 11-4 sets out the caps and floors for Powerlink.

Table 11-4 Final decision — Caps and floors and targets for 2017–2022

Parameter		Floor	Target	Cap
Average circuit outage rate				
Lines event rate – fault	Pearson5	27.17	20.88	15.86
Transformer event rate – fault	LogNormal	20.84	18.91	17.09
Reactive plant event rate – fault	LogLogistic	43.42	29.85	19.49
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Transformer event rate – forced	Weibull	23.49	19.17	13.96
Reactive plant event rate – forced	LogLogistic	34.25	24.23	15.95
Loss of supply events				
Number of events > 0.05 system minutes per annum	Poisson	7	3	1
Number of events > 0.4 system minutes per annum	Poisson	3	1	0
Average outage duration	Exponential	282.00	94.14	4.83

Source: AER analysis

11.5.2 Market impact component

Powerlink accepted most of the adjustments made in our draft decision, with the exception of the two matters set out below:

- the classification of the one count attributed as a planned outage,
- the removal of 100 counts related to planned network outages associated with affected generators.[25]

[25] Powerlink, *Revised Revenue proposal 2018–22*, December 2016, pp. 16–18.

Classification of the one count attributed as a planned outage

Following our draft decision, Powerlink sought and obtained verification from the Australian Market Operator (AEMO) that the outage on the Braemar Static VAr Compensator was submitted with less than 24 hours' notice.[26]

We accept this evidence[27] and agree with Powerlink that the one count should be classified as an unplanned outage.

Removal of 100 counts related to planned network outages associated with affected generators

We have reviewed Powerlink's revised revenue proposal, to include 100 counts related to planned network outages, but maintain our position in our draft decision, which is to remove 99 counts in 2012 and one count in 2015 (100 counts in total) related to planned network outages associated with affected generators.

In its 2012 and 2015 annual STPIS compliance reviews, Powerlink submitted that these 100 counts should be excluded under the exclusion clause 3, which is:

> Any outage shown to be **caused** by a fault or other event on a third party system–e.g. intertrip signal, generator outage, customer installation.
> (STPIS, version 3, exclusion clause 3).

Clause 5.2 of the STPIS requires the TNSP to report to the AER information regarding its annual performance against parameters applicable to it under this scheme in accordance with the information guidelines.

However, in its revised revenue proposal, Powerlink stated that it had in fact initiated the very same outages on its prescribed assets; and therefore that previous advice that the outages were caused by an event on the third party system was inaccurate.[28]

Powerlink's statement in its revised revenue proposal is therefore in direct conflict with its compliance review submission (for 2012 and 2015) which sought exclusion on the basis that the outages were *caused* by a third party system. Including these counts will make the target easier to achieve.

In version 5, exclusion clause 3 is as follows:

> Any outage of an asset that is providing *prescribed transmission services* shown to be caused by a fault or other event on a third party asset that is not *providing prescribed transmission services*–e.g. intertrip signal, generator outage, customer installation.
> (STPIS, version 5, exclusion clause 3).

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[26] Powerlink, *Revised Revenue proposal 2018–22*, December 2016, p. 17.

[27] Powerlink, *Revised Revenue proposal 2018–22*, December 2016, Appendix 3.01 (confidential).

[28] Powerlink, *Revised Revenue proposal 2018–22*, December 2016, p. 17.

The intention of the exclusion clause 3 in version 3 and 5 of the STPIS is not materially different. While this clause was materially altered in version 4, these alterations were removed for version 5 which essentially reverted largely to its previous incarnation under version 3. In its revised revenue proposal, Powerlink has referred to a reference guide from version 4 of the STPIS. However, version 4 has not, and will not, apply to Powerlink.

Thus, we consider that the assessment of Powerlink's calendar year performance measure in version 3 and version 5, with respect to clause 3 exclusions, should be consistent with its previous 2012 and 2015 compliance review submission.

11.5.3 Network capability component

Consistent with our draft decision:[29]

- We accept Powerlink's network capability incentive parameter action plan (NCIPAP) project to increase the design temperature of two 275kV transmission lines because it facilitates improvements in the capability of transmission assets.
- We reject Powerlink's proposed system integrity protection scheme at Greenbank because it does not facilitate improvements in the capability of transmission assets.[30]
- We reject Powerlink's proposed load model enhancement and validation project because it does not result in a material benefits or facilitate improvements in the capability of transmission assets.[31]

Powerlink's revised revenue proposal accepted our draft decision on the Network capability component but revised its cost estimates for the Bouldercombe to Calliope River priority project.

Increase design temperature of two 275kV transmission lines

We accept Powerlink's NCIPAP project to increase the design temperature of two 275kV transmission lines because it facilitates improvements in the capability of transmission assets.

In its revised revenue proposal, Powerlink sought changes to the project scope as well as a moderate increase in the total costs (from $506,000 to $606,000) and increase the payback period (from 3.5 years to 4.1 years) for this project.[32]

This project involves increasing conductor ground clearance on 14 spans of the 275kV lines from Bouldercombe to Calliope River. The increased ground clearance would

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29 AER, *Draft decision Powerlink transmission determination 2017−18 to 2021−22. Attachment 11 − Service target performance incentive scheme*, September 2016, pp. 18–20.

30 AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 5.2(0).

31 AER, *Final – Service Target Performance Incentive Scheme*, October 2015, cl. 5.2(0).

32 Powerlink, *Revised Revenue Proposal*, December 2016, p. 19.

allow for higher conductor operating temperature so that the summer emergency rating of the lines could be increased from 541MVA to 593 MVA, an increase of about 10 per cent.[33]

Consumer Challenge Panel member David Headberry submitted that this project would provide value to consumers in its submission to Powerlink's revised revenue proposal. It however questioned whether the increases in the cost allowance should be allowed for in the final decision after the projects costs were approved in our draft decision.[34]

The purpose of a revised revenue proposal is to incorporate the substance of any changes required by, or to address matters raise in the draft decision. We are required under the NER to assess the cost estimates provided by Powerlink included in its revised revenue proposal.[35]

We assessed the information provided by Powerlink on the change in project scope.[36] We found that the revised scope and the cost estimates are reasonable and within the expected range. Furthermore, this priority project met the STPIS requirement to facilitate improvements in the capability of transmission assets.[37] Table 11-3 sets out the targets and approved amount for this priority project.

11.5.4 Submission

We received a submission from David Headberry of the Consumer Challenge Panel noting that Powerlink received a high level of replacement capex historically to improve network reliability—which also allowed it earn a bonus under the service component of the STPIS.[38]

The purpose of the STPIS is to provide balanced incentives to encourage TNSPs to improve their service levels where there are net benefits to the NEM and the network users. To the extent that Powerlink has previously improved network reliability in this way, any expenditure related to these reliability improvements is expected to be funded through the STPIS rather than through capex.

The ex-ante forecast is intended to reasonably reflect the prudent and efficient costs of maintaining the reliability of the network, subject to any jurisdictional obligations. The business is incentivised to outperform the forecast. However, the regulatory arrangements are also intended to provide an incentive for Powerlink to consider the

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33 Powerlink, *2018–22 Powerlink Queensland Revenue Proposal, Appendix 15.03 Powerlink Queensland Network Capability Incentive Parameter Action Plan*, January 2016, pp. 9–10; Powerlink, *Appendix 3.02 (confidential) Revised revenue proposal* , 12 October 2015.

34 CCP (David Headberry), *Response to the AER Draft Decision and Revised Proposal to Powerlink's electricity transmission network for a revenue reset for the 2017-2019 regulatory period*, 19 December 2016, pp. 19–20.

35 NER, cl. 6A.14.3 (d)

36 Powerlink, *Powerlink information request #026*, 20 February 2017.

37 AER, *Final – Service Target Performance Incentive Scheme, October 2015*, cl. 5.2(n).

38 CCP (David Headberry), *Response to the AER Draft Decision and Revised Proposal to Powerlink's electricity transmission network for a revenue reset for the 2017-2019 regulatory period*, 19 December 2016, pp. 18–19.

economic trade-offs between the level of expenditure and level of reliability (for example, the cost penalties from higher than forecast expenditure versus the rewards from improved reliability performance).

Past expenditure by Powerlink is likely to deviate from the ex-ante forecast during the regulatory period due to changes in circumstances, which may include changes identifying further opportunities for reliability improvements.