

Draft Decision

Transgrid Transmission Determination 2023 to 2028

(1 July 2023 to 30 June 2028)

Attachment 6 Operating expenditure

September 2022

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Note

This attachment forms part of the AER’s draft decision on Transgrid’s 2023–28 transmission determination. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

Attachment 8 – Efficiency benefit sharing scheme

Attachment 9 – Capital expenditure sharing scheme

Attachment 10 – Service target performance incentive scheme

Attachment 11 – Demand management innovation allowance mechanism

Attachment 12 – Pricing methodology

Attachment 13 – Pass through events

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6 Operating expenditure

Operating expenditure (opex) refers to operating, maintenance and other non-capital expenses. Forecast opex for prescribed transmission services is one of the building blocks we use to determine a service provider's total revenue requirement.

This attachment outlines our assessment of Transgrid's proposed total opex forecast for the 2023–28 regulatory control period.

6.1 Draft decision

Our draft decision is to not accept Transgrid's proposed opex forecast of \$1,015.0 million (\$2022–23)¹ for the 2023–28 regulatory control period because we are not satisfied that it reflects the opex criteria.²

Our alternative estimate of total opex is \$1,038.5 million (\$2022–23). This is \$23.5 million, or 2.3%, higher than Transgrid's forecast. We are satisfied that our alternative estimate of forecast opex reasonably reflects the opex criteria. The alternative estimate is higher due to updated inflation figures which conceal the differences between our alternative estimate of total opex and Transgrid's proposal. If we apply our updated inflation numbers to Transgrid's proposal to compare the two on like-for-like terms, our alternative estimate of total opex is 2.9% lower than Transgrid's proposal.

Table 6.1 sets out Transgrid's proposal, our alternative estimate that is the basis for the draft decision, and the difference between our draft decision and the proposal.

Table 6.1 Comparison of Transgrid's proposal and our alternative estimate of forecast opex (\$ million, 2022–23)

Opex category	Transgrid's proposal	AER draft decision	Difference (\$)
Base (reported opex in 2021–22)	1,092.2	1,026.6	-65.6
Base year non-recurrent efficiency gain	-100.8	29.7	+130.5
Base year adjustments	-111.9	20.4	+132.4
Final year increment	8.1	-139.0	-147.1
Remove category specific forecasts	-2.9	-3.2	-0.3
<i>Output growth</i>	47.3	46.0	-1.2
<i>Price growth</i>	12.7	21.0	+8.3
<i>Productivity growth</i>	-13.2	-14.2	-1.0
Total trend	46.8	52.8	+6.1
<i>Insurance premiums</i>	30.0	13.8	-16.1
<i>Cyber and critical infrastructure</i>	25.0	13.9	-11.1
<i>ISP preparatory activities</i>	2.9	-	-2.9
Total step changes	57.8	27.7	-30.1

¹ Transgrid, *Transgrid – 2023–28 Opex Forecast model - Public*, 31 January 2022.

² NER, cl. 6A.6.6(c)–(d).

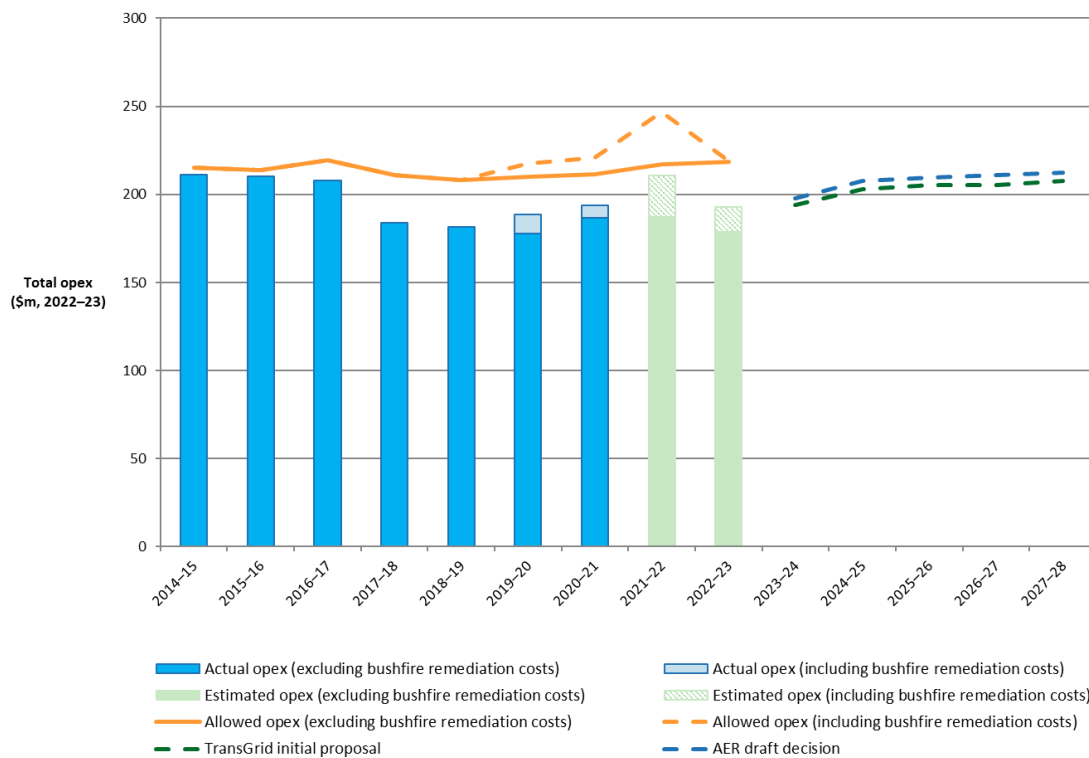
Debt raising costs	25.7	23.4	-2.3
Total opex	1,015.0	1,038.5	23.5
Percentage difference to proposal			+2.3%

Note: Numbers may not add up to total due to rounding. Values of '0.0' and '-0.0' represent small non-zero amounts and '-' represents zero.

Source: Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022; AER analysis.

Figure 6.1 compares Transgrid’s opex forecast to its past actual opex, our previous regulatory decisions and our alternative estimate that is the basis for our draft decision.

Figure 6.1 Historical and forecast opex (\$million, 2022–23)



Note: Includes debt raising costs and movements in provisions. We have removed software as a service opex and added capitalised leases to estimated opex for 2021–22 and 2022–23 to align with accounting standards applied in the 2018–23 final determination (see section 6.4.1.3.1).

Source: Transgrid, *Regulatory accounts 2014–15 to 2020–21*; Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022; AER, *Transgrid revenue determination, PTRM (multiple periods 2014–18, 2018–22, 2023–28)*; AER analysis.

The key drivers of our higher alternative estimate of total opex compared to Transgrid’s opex proposal are that:

- We have used the latest available actual and forecast inflation inputs for 2021–22 and 2022–23, which were not available at the time of Transgrid’s proposal. Accordingly, we have applied 6.1%³ inflation for 2021–22 and 6.2%⁴ inflation for 2022–23. This is

³ Australian Bureau of Statistics (ABS), *Consumer Price Index, Australia*, released on 27 July 2022 (accessed on 28 July 2022).

⁴ Reserve Bank of Australia (RBA), *Statement on monetary policy - Forecast table*, August 2022.

significantly higher than Transgrid’s inflation inputs of 2.8% and 2.3% for 2021–22 and 2022–23, respectively. These inflation updates have increased our alternative estimate by \$52.7 million (5.2%) compared to Transgrid’s proposal.

- We have forecast a higher price growth of 0.7% compared to Transgrid’s proposed 0.5%. This is because we have applied superannuation guarantee increases for 2023–24 to 2025–26 in our alternative estimate, which were not accounted for in Transgrid’s proposal.⁵

However, these increases have been partially offset by our alternative estimate of opex step changes, being \$30.1 million (\$2022–23) lower than Transgrid’s proposal. We have not included Transgrid’s proposed Integrated System Plan (ISP) preparatory activities step change in our alternative estimate. Further, we have also included lower forecasts for the insurance premiums and cyber and critical infrastructure security step changes.

6.2 Transgrid’s proposal

Transgrid used a ‘base-step-trend’ approach to forecast opex for the 2023–28 regulatory control period in its initial proposal, consistent with our standard approach.

In applying our base-step-trend approach to forecast opex for the 2023–28 period, Transgrid:⁶

- used opex in 2021–22 as the base from which to forecast (\$1,092.2 million (\$2022–23))
- removed \$212.7 million (\$2022–23) from base opex to reflect:
 - bushfire remediation costs incurred in 2021–22 of –\$111.9 million (–\$22.4 million annually) which are not expected to be recurring costs
 - non-recurrent software as a service (SaaS) costs of –\$100.8 million (–\$20.2 million annually), which were one-off costs relating to Transgrid’s ‘Digital Core’ initiative to replace its previous enterprise resource planning system
- added \$8.1 million to reflect the change in opex between 2020–21 and 2022–23
- removed \$2.9 million of network support costs and debt raising costs, accounted as category specific opex
- applied a rate of change comprising of:
 - output growth (\$47.3 million)
 - real price growth (\$12.7 million)
 - productivity growth (–\$13.2 million) of 0.5% per year.
- added three step changes totalling \$57.8 million (\$2022–23) for:
 - increased insurance premiums (\$30.0 million)
 - cyber and critical infrastructure security costs to comply with new legislation (\$25.0 million)

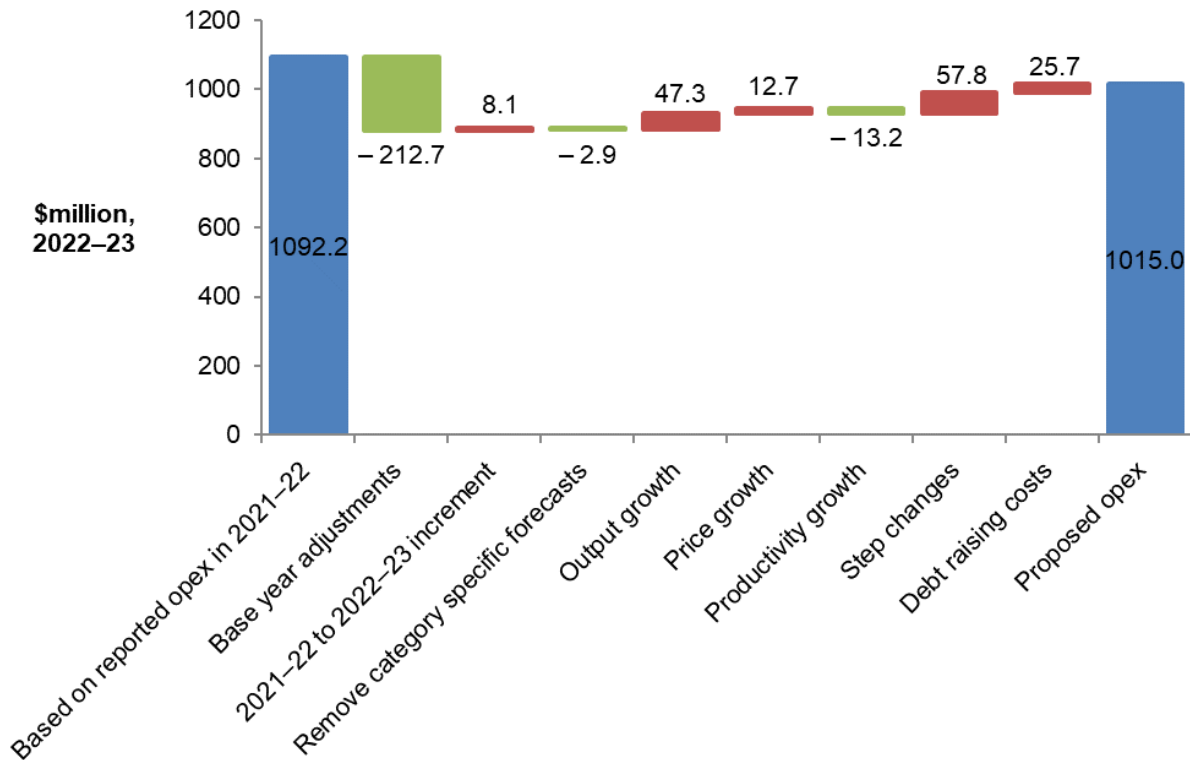
⁵ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁶ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

- preparatory activities for future ISP projects (\$2.9 million)
- added \$25.7 million of debt raising costs to arrive at total forecast opex of \$1,015.0 million over the 2023–28 period.

Figure 6.2 sets out Transgrid’s total opex proposal.

Figure 6.2 Transgrid’s proposed opex (\$million, 2022–23)



Source: Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022; AER analysis.

6.2.1 Submissions on Transgrid’s proposal

We received 4 submissions on Transgrid’s 2023–28 proposal, including one from the AER’s Consumer Challenge Panel, sub-panel 25 (CCP25), which discussed Transgrid’s opex proposal.

CCP25 did not provide any opinion on whether Transgrid’s forecast opex for the 2023–28 period reasonably reflects the efficient costs of a prudent operator and did not raise any issues with Transgrid’s proposed step changes.⁷ However, it raised that Transgrid may have potentially misrepresented the views of its ‘Transgrid Advisory Council’ (TAC).⁸ It noted that some TAC members were not comfortable with how their views were presented by Transgrid. For example, Transgrid’s proposal noted that the TAC supported its proposed step changes. However, TAC members only agreed that step changes appeared to be in line

⁷ CCP25, *Transgrid – Advice to the AER on the 2023–28 Electricity Transmission Regulatory Revenue Proposal*, 11 May 2022, pp. 7–8.

⁸ CCP25, *Transgrid – Advice to the AER on the 2023–28 Electricity Transmission Regulatory Revenue Proposal*, 11 May 2022, p. 4.

with what they had seen in other recent regulatory proposals. CCP25 suggested that an independent report by the TAC may be a transparent mechanism for reporting the outcomes of Transgrid's engagement with the TAC, rather than relying solely on Transgrid's self-assessment.

CCP25 also noted that while it understood the rationale for keeping cyber security information (associated with Transgrid's proposed 'cyber and critical infrastructure security' step change) confidential, it would be useful to include further information and justification on the \$25.0 million step change for consumers to understand the level of risk reduction Transgrid proposes, and the security level Transgrid deems appropriate in respect to government and AER guidelines and wider industry practice.⁹ Our assessment of Transgrid's proposed cyber and critical infrastructure security step change is set out in section 6.4.3.2.

CCP25 also raised concern that labour and materials cost escalations are subject to a high degree of sensitivity to emerging market conditions, and that it looks forward to updates on these assumptions during our assessment of Transgrid's proposal.¹⁰ Our assessment of Transgrid's proposed labour and non-labour price growth factors is set out in section 6.4.2.1.

We have taken submissions on Transgrid's proposal, and any other concerns stakeholders identified, into account in developing the positions set out in this draft decision.

6.3 Assessment approach

Our role is to decide whether to accept a business's total opex forecast. We are to form a view about whether a business's forecast of total opex 'reasonably reflects the opex criteria'.¹¹ In doing so, we must have regard to the opex factors specified in the National Electricity Rules (NER).¹²

The *Expenditure forecast assessment guideline* (the Guideline), together with an explanatory statement, sets out our assessment approach in detail.¹³ While the Guideline provides for greater regulatory predictability, transparency and consistency, it is not mandatory. However, if we make a decision that is not in accordance with the Guideline, we must state the reasons for departing from the Guideline.¹⁴

Our approach is to assess the business's forecast opex over the regulatory control period at a total level, rather than to assess individual opex projects. To do so, we develop an alternative estimate of total opex using a 'top-down' forecasting method, known as the 'base-step-trend' approach.¹⁵ We compare our alternative estimate with the business's total

⁹ CCP25, *Transgrid – Advice to the AER on the 2023–28 Electricity Transmission Regulatory Revenue Proposal*, May 2022, p. 7.

¹⁰ CCP25, *Transgrid – Advice to the AER on the 2023–28 Electricity Transmission Regulatory Revenue Proposal*, May 2022, p. 18.

¹¹ NER, cl. 6A.6.6(c).

¹² NER, cl. 6A.6.6(e).

¹³ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013; AER, *Expenditure forecast assessment guideline, Explanatory statement*, November 2013.

¹⁴ NER, cl. 6A.2.3(c).

¹⁵ A 'top-down' approach forecasts total opex at an aggregate level, rather than forecasting individual projects or categories to build a total opex forecast from the 'bottom up.'

opex forecast to form a view on the reasonableness of the business's proposal. If we are satisfied the business's forecast reasonably reflects the opex criteria, we accept the forecast.¹⁶ If we are not satisfied, we substitute the business's forecast with our alternative estimate that we are satisfied reasonably reflects the opex criteria.¹⁷

In making this decision, we take into account the reasons for the difference between our alternative estimate and the business's proposal, and the materiality of the difference. Further, we take into consideration interrelationships between opex and the other building block components of our decision.¹⁸

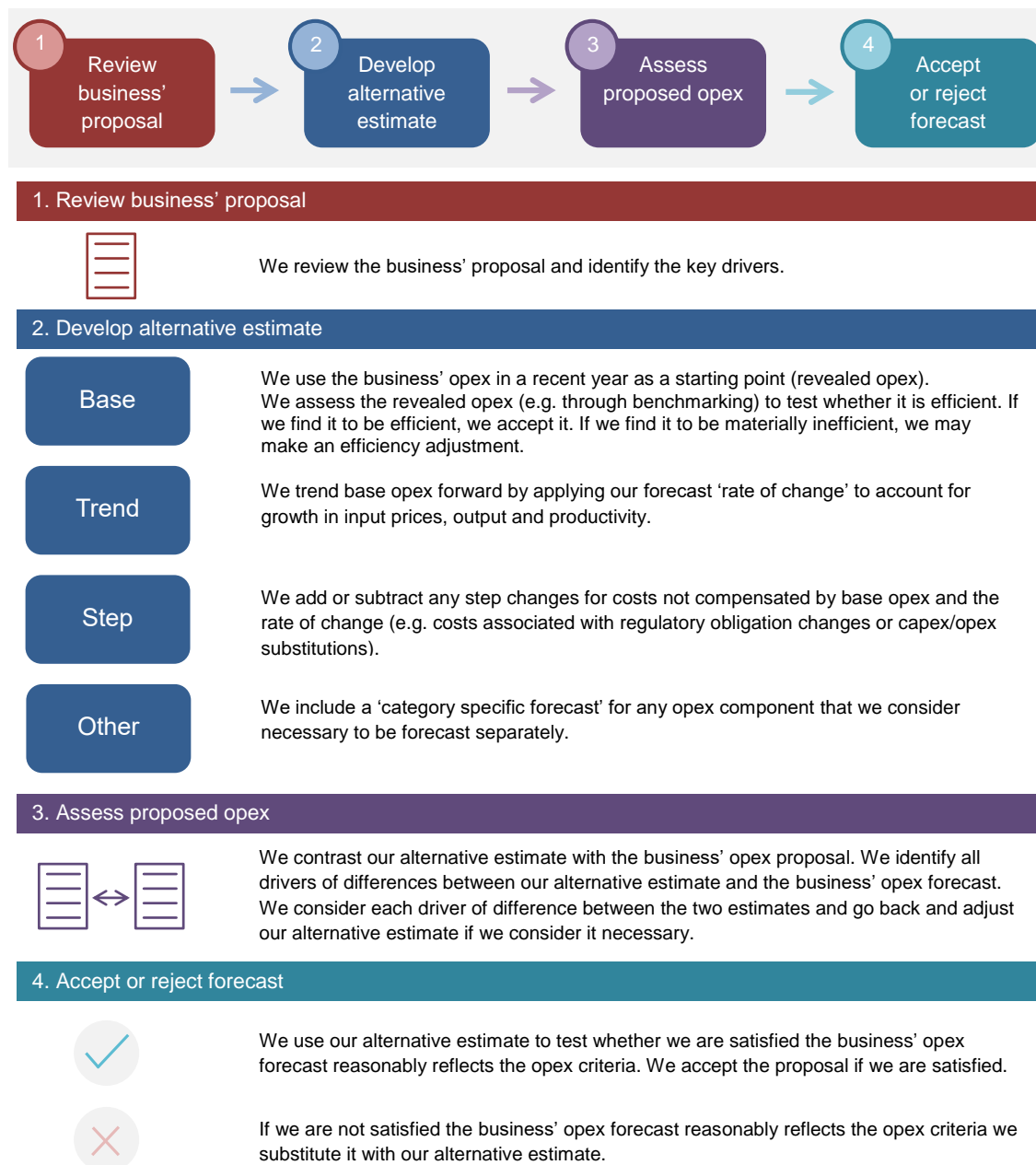
Figure 6.3 summarises the 'base-step-trend' forecasting approach.

¹⁶ NER, cl. 6A.6.6(c).

¹⁷ NER, cl. 6A.6.6(d) and 6A.14.1(3)(ii).

¹⁸ NEL, s. 16(1)(c).

Figure 6.3 Our opex assessment approach



6.3.1 Interrelationships

In assessing Transgrid's total forecast opex, we took into account other components of its proposal and our determination, including:

- the efficiency benefit sharing scheme (EBSS) carryover—the level of opex used as the starting point to forecast opex (the final year of the current regulatory control period (2018–23)) should be the same as the level of opex used to forecast the EBSS carryover. This consistency ensures that the business is rewarded (or penalised) for any efficiency gains (or losses) it makes in the final year the same as it would for gains or losses made in other years
- the operation of the EBSS in the 2018–23 regulatory control period, which provided Transgrid an incentive to reduce opex in the base year

- the impact of cost drivers that affect both forecast opex and forecast capital expenditure (capex). For instance, forecast labour price growth affects forecast capex and our forecast price growth used to estimate the rate of change in opex
- the approach to assessing the rate of return, to ensure there is consistency between our determination of debt raising costs and the rate of return building block
- concerns of electricity consumers identified in the course of Transgrid’s engagement with consumers.

6.4 Reasons for draft decision

We do not accept Transgrid’s proposed opex forecast of \$1,015.0 million (\$2022–23)¹⁹ for the 2023–28 regulatory control period because we are not satisfied that it reflects the opex criteria.²⁰

Our draft decision is to include our alternative total opex forecast of \$1,038.5 million (\$2022–23). This is \$23.5 million, or 2.3%, higher than Transgrid’s forecast. We are satisfied our alternative estimate of total forecast opex for Transgrid reasonably reflects the opex criteria.

Table 6.2 sets out Transgrid’s proposal, our alternative estimate that is the basis for the draft decision and the difference between our draft decision and the proposal.

Table 6.2 Comparison of Transgrid’s proposal and our alternative estimate of forecast opex (\$million, 2022–23)

Opex category	Transgrid’s proposal	AER draft decision	Difference (\$)
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Remove category specific forecasts	–2.9	–3.2	–0.3
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<i>Productivity growth</i>	–13.2	–14.2	–1.0
Total trend	46.8	52.8	+6.1
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<i>Insurance premiums</i>	30.0	13.8	–16.1
<i>ISP preparatory activities</i>	2.9	–	–2.9
Total step changes	57.8	27.7	–30.1
Debt raising costs	25.7	23.4	–2.3
Total opex	1,015.0	1,038.5	23.5
Percentage difference to proposal			+2.3%

¹⁹ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

²⁰ NER, cl. 6A.6.6(c)–(d).

Note: Numbers may not add up to total due to rounding. Values of '0.0' and '-0.0' represent small non-zero amounts and '-' represents zero.

Source: Transgrid, *Transgrid –2023–28 Opex Forecast model – Public*, 31 January 2022; AER analysis.

The main drivers for the differences are set out in section 6.1 and we discuss the components of our alternative estimate below. Full details of our alternative estimate are set out in our opex model, which is available on our website.

6.4.1 Base opex

This section provides our view on the prudent and efficient level of base opex that we consider Transgrid would need for the safe and reliable provision of services over the 2023–28 regulatory control period.

6.4.1.1 Base year

We have relied on Transgrid's proposed base year, 2021–22, for our alternative estimate of total forecast opex over the 2023–28 regulatory control period. Transgrid stated that it has chosen 2021–22 because it represents a realistic expectation of the efficient and sustainable ongoing opex that it will require to provide prescribed transmission services in the 2023–28 period. This is because it would be the most recent year for which audited accounts will be available at the time of our final decision. Transgrid relied on its 2021–22 Board-approved budget opex as an estimate of 2021–22 opex in its proposal, as actual data was not available at the time Transgrid submitted its proposal.²¹

We have considered whether Transgrid's chosen base year is reasonable given 2021–22 actual opex is currently unknown and will require updating in our final decision. Despite this, we are comfortable that Transgrid's choice of base year is a reasonable basis to determine our alternative estimate of base opex. While there will be year-to-year fluctuations in reported opex over the current regulatory period, due to the interaction with the EBSS, we do not have concerns with the choice of base year, provided we find Transgrid's opex in the base year to be efficient.

6.4.1.2 Efficiency of base opex

As outlined in section 6.3, and in the Guideline, our standard approach for forecasting opex is to use a single year revealed cost approach.²² This is because opex is largely recurrent and stable at a total level. Where a transmission business is responsive to the financial incentives under the regulatory framework, the actual level of opex it incurs should provide a good estimate of the efficient costs required for it to operate a safe and reliable network and meet its relevant regulatory obligations.

In assessing base opex efficiency, we consider a range of information, including Transgrid's actual opex over time and the benchmarking analysis we undertake. The benchmarking analysis is limited by the small sample size of transmission businesses in the National Electricity Market (NEM), and the limited international data available, among other things. It also does not account for all the operating environment factor differences between the

²¹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 84.

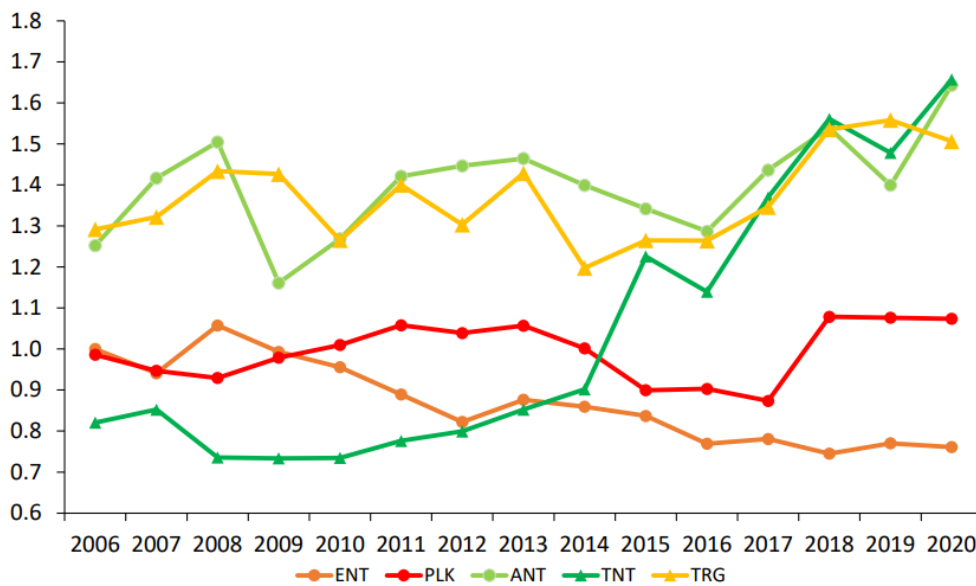
²² AER, *Expenditure forecast assessment guideline - transmission*, November 2013, p. 22.

networks. Reflecting this, we have taken the benchmarking into account, but not solely relied on it, in forming a view on the efficiency of Transgrid’s 2021–22 estimated opex.

Analysis of revealed costs as illustrated in Figure 6.1 shows that Transgrid underspent its allowance in the first 3 years (2018–2021) of the current regulatory control period. Transgrid’s estimated opex in 2021–22 is 4.3% lower than the allowance we approved in that year.

The multilateral partial factor productivity (MPFP) benchmarking results over the 2006–20 period indicates that Transgrid has performed relatively efficiently over time and is grouped closely with the top three transmission networks in the most recent years.²³ While Transgrid’s opex MPFP score in 2019–20 has decreased relative to its score in 2018–19, it has improved significantly relative to 2016–17 (its previous base year). This is shown in Figure 6.4 below.

Figure 6.4 Opex MPFP index, 2006–20



Source: AER, 2021 transmission network service provider benchmarking report, November 2021, p. 22.

In contrast, Transgrid’s multilateral total factor productivity (MTFP) results show it has been grouped with the bottom performers over time, with it recording the highest decline in productivity in 2020. This was driven by a single major reliability incident, and in 2020 it was the lowest ranked transmission operator in terms of MTFP.²⁴ However, as the MTFP considers both opex and capital inputs, we rely more heavily on Transgrid’s opex MPFP results for our assessment of base opex.

The partial performance indicator benchmarking results show that Transgrid is the top 2 ranked transmission network business under each measure we presented in our 2021

²³ AER, 2021 transmission network service provider benchmarking report, November 2021, pp. 20–22.

²⁴ AER, 2021 transmission network service provider benchmarking report, November 2021, pp. 14–17.

Annual Benchmarking Report. Transgrid improved its performance in every category since 2016–17 (its previous base year).²⁵

Transgrid's opex was subject to the incentives of an ex-ante regulatory framework, including the application of the EBSS in the 2018–23 regulatory control period. This gave it a continuous incentive to reduce its opex, including in its proposed base year.

Given these considerations, we are satisfied that the revealed expenditure is not materially inefficient and that it is appropriate to use 2021–22 opex as the starting point for forecasting opex for the 2023–28 regulatory control period.

We expect Transgrid to use audited actual 2021–22 opex in its revised proposal, which we will also use to update our alternative estimate for the final decision.

We did not receive any submissions from stakeholders raising issues with the choice or efficiency of Transgrid's base year.

6.4.1.3 Adjustments to base year opex

We have adjusted our alternative estimate of base opex of \$1,026.6 million by –\$92.0 million (\$2022–23) over 5 years to:

- remove capitalised leases worth \$1.1 million. This reduces our alternative estimate of total opex by \$5.6 million over 5 years. We explain this adjustment in section 6.4.1.3.1
- add \$5.2 million of recurrent SaaS opex. This increases our alternative estimate of total opex by \$26.1 million over 5 years. We explain this adjustment in section 6.4.1.3.1
- reduce base year opex by \$27.8 million for the forecast change in opex between 2021–22 and 2022–23 (the final year increment). This reduces our alternative estimate of total opex by \$139.0 million over 5 years. We explain this adjustment in section 6.4.1.3.2
- add a non-recurrent efficiency gain of \$5.9 million related to bushfire remediation costs. This reduces our alternative estimate of total opex by \$29.7 million over 5 years. We explain this adjustment in section 6.4.1.3.2
- remove \$0.6 million of category specific opex relating to network support costs. This reduces our alternative estimate of total opex by \$3.2 million over 5 years. This is consistent with Transgrid's proposal and our base-step-trend approach. We do this because we forecast these costs on a category specific basis, not a single year revealed cost basis.

This produces an estimate of opex for 2022–23 of \$186.9 million (\$2022–23), excluding costs we forecast on a category specific basis. Our alternative estimate of total base opex of \$934.6 million (\$2022–23) is \$49.9 million (5.6%) higher than Transgrid's proposal. This difference is solely driven by our use of actual inflation for 2021–22 and a more up-to-date forecast for 2022–23. While some of the adjustments we have applied in our alternative estimate are different to Transgrid's proposal, they have the same net impact on forecast opex (keeping inflation constant), as Transgrid's proposal. However, they result in a different EBSS outcome as we explain in Attachment 8 and sub-sections below.

²⁵ AER, *2021 transmission network service provider benchmarking report*, November 2021, pp. 23–27.

6.4.1.3.1 Treatment of SaaS and leases accounting changes

There are two accounting changes implemented by the Australian Accounting Standards Board (AASB) and the International Financial Reporting Interpretations Committee (IFRIC) that affect Transgrid’s expenditure reporting in the 2018–23 regulatory period. These are:

1. SaaS was treated as capex at the time of our determination for Transgrid’s 2018–23 period.²⁶ Depending on its nature, it is now considered as opex under new International Financial Reporting Standards (IFRS) guidance published in April 2021
2. leases were included in forecast opex for the 2018–23 period. Under AASB16, which came into effect 1 July 2019, leases are now treated as capex.

In its proposal, Transgrid adopted the new accounting standards for SaaS and leases in 2021–22, which is its base year to forecast opex for the 2023–28 period. Therefore, its base year included \$24.1 million (\$ nominal) in SaaS, but did not include \$1.0 million (\$ nominal) in leases. Transgrid’s proposal also removed \$20.2 million (\$2022–23) of non-recurrent SaaS expenditure from the base year (as a non-recurrent efficiency loss), leaving SaaS costs of \$4.9 million per year (\$2022–23) in Transgrid’s proposed opex forecast.²⁷

Transgrid provided an independent report from KPMG that confirmed its current accounting policy conforms to the latest IFRS guidance.²⁸ Transgrid proposed to implement the IFRS guidance change in its regulatory accounts mid-period (in its proposed base year of 2021–22).²⁹ In response to our information requests, Transgrid provided the associated net present value (NPV) analysis, business cases, and cost build-ups of the proposed IT projects and their SaaS components.³⁰

We have reviewed Transgrid’s proposal after receiving additional information as part of our information request process. We are satisfied that the increase in base year opex due to the recurrent SaaS cost is accompanied by the appropriate decrease in capex, and that these costs have not been double-counted in other aspects of Transgrid’s proposal. We believe that the costs identified by Transgrid fall within the relevant categories impacted by the recent IFRS accounting guidance and the reclassification of these expenses is appropriate.

However, as discussed in Attachment 8, we have undertaken analysis which demonstrates that the movement of expenditure from opex to capex, and vice-versa, can cause windfall gains/losses for businesses under the incentive schemes in the case of short-lived assets, such as SaaS and leases. Therefore, we consider it is more appropriate to align the accounting treatment of expenditure within a period with the approved expenditure for that period. In other words, we consider mid-period accounting changes should not be implemented until the start of the new period. Accordingly, in developing our alternative estimate, we removed \$24.1 million (\$ nominal) of SaaS-related expenditure from Transgrid’s proposed base year opex.³¹ We have instead treated it as capex. To account for these costs

²⁶ Transgrid, *OER-Operational Evolution – 15 November 2021 - Public*, 31 January 2022, p. 3.

²⁷ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 84.

²⁸ KPMG, *Memorandum on SaaS Product Accounting – 12 November 2021*, 31 January 2022.

²⁹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 84.

³⁰ Transgrid, *Information request 5 - Confidential*, 8 April 2022.

³¹ Under our approach, SaaS costs will be treated as capex in the regulatory accounts until the end of the 2018–23 regulatory control period.

being opex from the start of the new period, we have made a base adjustment of \$5.2 million (\$2022–23) to include recurrent SaaS costs in our alternative estimate of forecast opex for the 2023–28 period. This matches the amount submitted by Transgrid in its 2023–28 revenue proposal as the recurrent SaaS costs.³²

Similarly, in order to implement the accounting standard change for leases at the start of the new period, we have treated leases as opex for the remainder of the current period. To account for them being treated as capex from the start of the new period, we have removed \$1.1 million (\$2022–23) from each year of our alternative estimate of forecast opex.

Our approaches for SaaS and leases have the same net impact on our alternative estimate of forecast opex as Transgrid’s proposal. However, it does impact the regulatory asset base, EBSS, and Capital Expenditure Sharing Scheme (CESS) calculations, as discussed in Attachments 2, 8 and 9, respectively.

6.4.1.3.2 Treatment of 2019–20 bushfire cost pass through costs

Transgrid removed \$21.6 million (\$ nominal) in actual bushfire remediation costs incurred in its base year, which are not expected to be recurring costs. We have not removed actual bushfire remediation costs in our alternative estimate. Instead, we have removed the impact of the bushfire remediation costs from forecast opex for the 2023–28 period through our calculation of final year opex and a non-recurrent efficiency gain adjustment. These mechanical adjustments to Transgrid’s proposal offset each other and don’t impact total forecast opex. However, the corresponding adjustments in the EBSS reduce the total EBSS carryovers we have calculated by \$29.7 million (see Attachment 8).

One of the opex factors we must have regard to when assessing forecast opex is whether the opex forecast is consistent with the EBSS.³³ Under the approach we outlined in our Expenditure forecast assessment guideline, the level of opex used as the starting point to forecast opex (that is, 2022–23) should be consistent with the opex used to calculate the EBSS rewards and penalties. This consistency is essential to ensure that the business is only rewarded (or penalised) for any efficiency gains (or losses) that are passed on to network users through lower (higher) forecast opex.

Transgrid did not include the opex approved in the 2019–20 bushfire cost pass through in its approved forecast opex for the 2018–23 period in its opex model.³⁴ But it did include it in its EBSS model. Due to this inconsistent treatment, Transgrid in effect assumed it will have bushfire remediation costs of –\$5.9 million (\$2022–23) in the final year in the EBSS model. This resulted in approximately \$38.2 million of EBSS benefits for efficiency gains that it would not pass on to consumers through lower opex forecasts under its proposal. We have corrected this in our alternative estimate by including the approved bushfire cost pass through to the 2018–23 forecast opex. This reduced the alternative forecast opex for the 2023–28 period by \$5.9 million per year (or \$29.7 million over 5 years) through the final year

³² The difference between the recurrent SaaS reported in Transgrid’s proposal (\$4.9 million) and our draft decision (\$5.2 million) is explained by the different inflation forecasts used in our draft decision.

³³ NER, cl. 6A.6.6(e)(8).

³⁴ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

increment calculation.³⁵ The net impact of the \$38.2 million EBSS carryover, and the \$29.7 million reduction to forecast opex, is \$8.6 million. This is the amount Transgrid has overspent its approved bushfire remediation pass through costs. This allows it to recover the overspent costs 6 years after incurring them, thus sharing the overspend between Transgrid and network users. However, Transgrid submitted that this approach understates its efficient opex over the 2023–28 period, given it effectively assumes bushfire remediation costs of -\$5.9 million (\$2022–23) in each year of the 2023–28 period.³⁶

To address this, we assumed a non-recurrent efficiency gain of \$5.9 million (\$2022–23) in the base year. This increased our estimate of opex for 2022–23 by the same amount. Under this approach, we effectively assume zero bushfire remediation costs going forward in both the opex forecast and the EBSS. This results in the same forecast opex outcome as Transgrid’s proposal, all else equal. However, when this non-recurrent efficiency gain is consistently applied in the EBSS, it reduces the EBSS carryover by \$29.7 million (\$2022–23). Therefore, our draft decision includes EBSS carryovers of \$8.6 million (\$2022–23) for Transgrid’s bushfire remediation costs, instead of the \$38.2 million (\$2022–23) assumed under Transgrid’s approach. We advised Transgrid that this was our preferred approach, and it did not raise any concerns.³⁷

6.4.2 Rate of change

Having determined an efficient starting point, or base opex, we trend it forward to account for the forecast growth in prices, output, and productivity. We refer to this as the rate of change.³⁸

Transgrid’s proposed forecast rate of change is a function of the forecast change in network outputs, changes in real input costs and changes in productivity,³⁹ consistent with our standard approach.⁴⁰

We have included a rate of change that increases opex, on average, by 1.45% each year in our alternative estimate. This contributes \$52.8 million (\$2022–23), or 5.1%, to our alternative estimate of total forecast opex of \$1,038.5 million. In contrast, Transgrid proposed an annual average rate of change of 1.39%.⁴¹ Our relatively higher average annual price growth is primarily driven by us reflecting the growth in the wage price index (WPI) forecast by our consultant, KPMG, and applying the superannuation guarantee increases. Transgrid did not account for the superannuation guarantee increases in its proposal.⁴²

³⁵ We forecast opex for the 2023–28 period by applying the rate of change to our opex estimate in the final year of the current period (2022–23). Our standard approach to calculating the final year opex is to add the final year increment to base year actual opex. The final year increment is the difference between the approved forecast opex in the final year of the current period (2022–23) and the approved forecast opex in the base year (2021–22).

³⁶ Transgrid, *Information request 29*, 6 June 2022, pp.1–2.

³⁷ Transgrid, *Information request 29*, 9 June 2022.

³⁸ AER, *Expenditure forecast assessment guideline – transmission*, November 2013, pp. 23–24.

³⁹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, pp. 86–89.

⁴⁰ AER, *Expenditure forecast assessment guideline – transmission*, November 2013, pp. 23–24.

⁴¹ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁴² Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

We have not received any submissions relating to the opex rate of change.

Table 6.3 shows both Transgrid's proposal, and our alternative estimate for each component of the rate of change. We set out the reasons for our forecasts below.

Table 6.3 Forecast rate of change, %

	2023–24	2024–25	2025–26	2026–27	2027–28
Transgrid's proposal					
Price growth	0.3	0.5	0.6	0.6	0.4
Output growth	1.3	4.4	0.4	0.4	0.5
Productivity growth	0.5	0.5	0.5	0.5	0.5
Overall rate of change	1.1	4.4	0.5	0.5	0.4
AER's alternative estimate					
Price growth	0.6	1.0	1.0	0.5	0.4
Output growth	1.2	4.2	0.1	0.4	0.5
Productivity growth	0.5	0.5	0.5	0.5	0.5
Overall rate of change	1.3	4.7	0.6	0.3	0.4
Overall difference	0.1	0.3	0.1	-0.2	0.0

Note: The rate of change = $(1 + \text{price growth}) \times (1 + \text{output growth}) \times (1 - \text{productivity growth}) - 1$. The rate of change is reported year-on-year.

Numbers may not add due rounding. Values of '0.0' and '-0.0' represent small non-zero amounts and '-' represents zero.

Source: Transgrid, *Transgrid - 2023–28 Opex Forecast model – Public*, 31 January 2022; AER analysis.

6.4.2.1 Forecast price growth

We have used a forecast average annual real price growth of 0.7% which increases our alternative estimate of total opex by \$21.0 million (\$2022–23). This compares to Transgrid's proposed average annual price growth of 0.5%.⁴³

Our real price growth forecast is a weighted average of forecast labour price growth and non-labour price growth:

- to forecast labour price growth, we have used the forecast WPI for the NSW electricity, gas, water and waste services (utilities) industry. Specifically, we have used an average of forecasts from our consultant KPMG⁴⁴ and the BIS Oxford Economics forecasts submitted by Transgrid, to which we have added the superannuation guarantee increases as relevant. In contrast, Transgrid only used WPI forecast by BIS Oxford Economics and did not reflect the superannuation guarantee increases⁴⁵
- both we and Transgrid applied a forecast non-labour real price growth rate of zero⁴⁶

⁴³ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁴⁴ KPMG, *Wage Price Index Forecasts*, September 2022, p.10

⁴⁵ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 88; Transgrid, *TransGrid – 2023-28 Opex Forecast model – Public*, 31 January 2022.

⁴⁶ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

- both we and Transgrid applied benchmark input price weights of 70.4% and 29.6% for labour and non-labour, respectively.⁴⁷

Table 6.4 compares our forecast labour price growth with Transgrid's proposal.

Table 6.4 Forecast labour price growth, %

	2023–24	2024–25	2025–26	2026–27	2027–28
Transgrid's proposal					
AER consultant	–	–	–	–	–
BIS Oxford Economics (including superannuation guarantee increases)	0.5	0.8	0.9	0.8	0.6
AER's alternative estimate					
KPMG	0.2	1.1	0.9	0.5	0.5
BIS Oxford Economics (excluding superannuation guarantee increases)	0.5	0.8	0.9	0.8	0.6
Average, excluding superannuation guarantee increases	0.3	0.9	0.9	0.6	0.5
Superannuation guarantee increases	0.5	0.5	0.5	–	–
Average, including superannuation guarantee increases	0.8	1.4	1.4	0.6	0.5
Overall difference	0.4	0.7	0.5	-0.2	-0.1

Note: Numbers may not add up to totals due to rounding. Values of '0.0' and '-0.0' represent small non-zero amounts and '-' represents zero.

Source: Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022; KPMG, *Wage Price Index Forecasts*, September 2022, p.10, AER analysis.

6.4.2.2 Forecast output growth

We have included forecast average annual output growth of 1.3% in our alternative opex estimate. This increases our alternative estimate of total opex by \$46.0 million (\$2022–23). In contrast, Transgrid proposed an average annual output growth of 1.4%.⁴⁸ Our forecast output growth is lower than Transgrid's proposal because we have adjusted growth in ratcheted maximum demand to reflect that maximum demand is not expected to be higher than the 2010–11 level prior to 2026–27 (see below).

We and Transgrid have forecast output growth by:

- forecasting the growth rates for four outputs (customer numbers, circuit line length, energy throughput, and ratcheted maximum demand)
- calculating the weighted average of output growth rates using the output weights from our opex MPFP benchmarking model (see Table 6.5).

We discuss these below.

⁴⁷ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁴⁸ Transgrid, *Transgrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

6.4.2.2.1 Forecast growth of the individual output measures

In developing our alternative estimate, we have used the same forecasts of the individual output measures as Transgrid used in its proposal for circuit length, customer numbers and energy throughput.⁴⁹ However, we have adjusted ratcheted maximum demand as set out below.

Table 6.5 Forecast growth in individual output measures, %

	2023–24	2024–25	2025–26	2026–27	2027–28
Transgrid's proposal					
Customer numbers	1.3	1.3	1.3	1.3	1.3
Circuit length	2.2	7.7	–	–	–
Ratcheted maximum demand	0.5	0.7	1.0	1.0	1.2
Energy throughput	–0.5	0.0	0.0	0.4	0.7
AER's output growth					
Customer numbers	1.3	1.3	1.3	1.3	1.3
Circuit length	2.2	7.7	–	–	–
Ratcheted maximum demand	–	–	–	0.8	1.2
Energy throughput	–0.5	0.0	–	0.4	0.7
Difference					
Customer numbers	–	–	–	–	–
Circuit length	0.0	0.0	–	–	–
Ratcheted maximum demand	–0.5	–0.7	–1.0	–0.2	–
Energy throughput	–	–	–	–	–

Note: Numbers may not add up to totals due to rounding. Values of '0.0' and '–0.0' represent small non-zero amounts and '–' represents zero.

Source: Transgrid, *TransGrid – 2023–28 Opex Forecast model – Public*, 31 January 2022; AER analysis.

We are satisfied that our forecasts reflect a realistic expectation of the forecast growth in the above output measures because they are largely consistent with forecast trends from external sources that have been previously tested and validated.

- **Customer numbers:** we and Transgrid have based the forecasts on the aggregate number of customers forecast for the NSW and ACT electricity distributors (Endeavour Energy, Essential Energy, Ausgrid, and Evoenergy), as well as customers who are directly connected to its network.⁵⁰ Transgrid projected historical customer numbers by applying a linear regression.⁵¹ This resulted in an average annual growth of 1.3% in customer numbers.⁵² We consider the proposed modest increase reasonable and the

⁴⁹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, pp. 86–87.

⁵⁰ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 87.

⁵¹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 87.

⁵² Transgrid, *Transgrid – 2023–28 Opex Forecast model - Public*, 31 January 2022.

adjustment we applied to augmentation capex in this draft decision is unlikely to significantly change the proposed customer number forecasts.⁵³

- **Circuit length:** We and Transgrid forecast circuit length to increase from 13,058 km to 14,426 km, consistent with additional circuit line length associated with Project EnergyConnect.⁵⁴
- **Energy delivered:** Transgrid used the forecast growth in energy delivered within NSW and the ACT plus energy delivered through interconnectors to / from Queensland (QNI), Victoria (VNI) and South Australia (SA) (Project EnergyConnect).⁵⁵ To forecast this output measure, Transgrid relied on its 2021 Regulatory Information Notice (RIN) as the base, then applied growth rates in accordance with its 2021 Transmission Annual Planning report.⁵⁶ Transgrid forecast a small growth for energy delivered within NSW over the 2023–28 period, with an average annual increase of 0.1%.⁵⁷ This is not significantly different from the marginal decrease reflected in the central scenario of Australian Energy Market Operator’s (AEMO) 2021 Electricity Statement of Opportunities (ESOO).⁵⁸
- **Ratcheted maximum demand:** we have forecast zero growth between 2023–24 and 2025–26, reflecting that maximum demand is not expected to surpass the level achieved in 2010–11 over the first 3 years of the 2023–28 regulatory control period. We consider this outcome reasonable as it is consistent with the central scenario in the AEMO’s 2021 ESOO,⁵⁹ which forecast maximum demand in NSW to decrease over the next 5 years. In contrast, Transgrid forecast positive growth in these years of the 2023–28 period despite its maximum demand forecast over 2023–25 being expected to be lower than the ratchet point achieved in 2010–11.⁶⁰ Our standard approach in such circumstances is to report zero growth for ratcheted maximum demand. Transgrid agreed to our approach in its response to our request for clarification.⁶¹

The output weights that both we and Transgrid have used are in Table 6.6. These are the weights we use in our economic benchmarking of transmission networks.⁶²

⁵³ AER, *Draft decision, Transgrid Transmission Determination 2023 to 2028 (1 July 2023 to 30 June 2028), Attachment 5 – Capital expenditure*, September 2022, p. 24.

⁵⁴ AER, *Draft decision, Transgrid Transmission Determination 2023 to 2028 (1 July 2023 to 30 June 2028), Opex model*, September 2022; Transgrid, *2023–28 Revenue Proposal, RIN Workbook 1 forecast*, 31 January 2022.

⁵⁵ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 87.

⁵⁶ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 87.

⁵⁷ Transgrid, *TransGrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁵⁸ AEMO, *2021 Electricity statement of opportunities*, August 2021, p. 72.

⁵⁹ AEMO, *2021 Electricity statement of opportunities*, August 2021, p. 72.

⁶⁰ Transgrid, *TransGrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁶¹ Transgrid, *Information request 20 – Q3*, 9 May 2020 p. 5.

⁶² Economic Insights, *Economic Benchmarking Results for the Australian Energy Regulator’s 2020 TNSP Annual Benchmarking Report*, 15 October 2020, pp. 6-7.

Table 6.6 Output weights, %

Customer numbers	Circuit length	Ratcheted maximum demand	Energy delivered
7.6	52.8	24.7	14.9

Source: Transgrid, *TransGrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

6.4.2.3 Forecast productivity growth

We and Transgrid have included forecast productivity growth of 0.5% per year in our alternative estimate of opex, consistent with our 2021 Annual Benchmarking Report.⁶³ This reduces our alternative estimate of total opex by \$14.2 million (\$2022–23).

We will update our productivity growth forecast for the final decision in line with our 2022 Annual Benchmarking Report, which is due to be published in November 2022.

6.4.3 Step changes

In developing our alternative estimate, we typically include step changes for cost drivers, such as new regulatory obligations or efficient capex/opex trade-offs. As we explain in the Guideline, we will generally include a step change if the efficient base opex and the rate of change in opex of an efficient service provider do not already include the proposed cost for such items.⁶⁴

Transgrid proposed 3 step changes totalling \$57.8 million (\$2022–23) or 5.7% of its proposed total opex forecast.⁶⁵ These are shown in Table 6.7 along with our alternative estimate for the draft decision, which is to include step changes totalling \$27.7 million (\$2022–23).

Table 6.7 Transgrid's proposed step changes and the AER's draft decision (\$million, 2022–23)

Step change	Transgrid's proposal	AER's draft decision	Difference
Insurance premiums	30.0	13.8	-16.1
Cyber & Critical Infrastructure Security	25.0	13.9	-11.1
ISP Preparatory Activity	2.9	–	-2.9
Total step changes	57.8	27.7	-30.1

Note: Numbers may not add up to totals due to rounding. Values of '0.0' and '-0.0' represent small non-zero amounts and '-' represents zero.

Source: Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 17; AER analysis.

The following sections set out the reasons for our draft decision, including the alternative estimates we have developed.

⁶³ Transgrid, *TransGrid – 2023–28 Opex Forecast model – Public*, 31 January 2022.

⁶⁴ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013, p. 24.

⁶⁵ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, pp. 90–91.

6.4.3.1 Insurance premiums

We have included a step change of \$13.8 million (\$2022–23) for insurance in our alternative estimate. This is \$16.1 million (53.8%) lower than Transgrid’s proposal.

Table 6.8 Insurance step change (\$million, 2022–23)

Step change	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Transgrid’s proposal	3.8	5.1	6.1	7.0	8.0	30.0
AER’s draft decision	1.0	2.0	2.8	3.6	4.4	13.8
Difference	-2.7	-3.1	-3.3	-3.4	-3.6	-16.1

Source: Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 7; AER analysis.

Transgrid initially proposed a step change of \$30.0 million (\$2022–23) based on cost forecasts provided by its consultant, AON.⁶⁶ The cost forecasts provided by AON relate to the full spectrum of Transgrid’s insurance program.⁶⁷

We engaged Taylor Fry to assist our review of Transgrid’s proposal. Taylor Fry’s key conclusions was that the forecasts provided by AON are directionally consistent with Taylor Fry’s expectations of future premiums, given its understanding of the prevailing market conditions, and can be considered reasonable.⁶⁸

While we accept Taylor Fry’s findings, we have adjusted the proposed step change amount to avoid double-counting relating to growth in the scale of Transgrid’s network and to apply a different calculation method. Specifically, we have calculated the step change as the difference between the cost forecasts prepared by AON (which we have adjusted to remove the scale factor) and the total cost of insurance estimated in the final year of the current regulatory period (2022–23). This approach ensures that the final year equation of our base-step-trend approach treats all efficiency rewards and penalties in a similar manner. This is essential to ensure that the EBSS, which is intrinsically linked to our approach to forecast opex, provides a continuous incentive for Transgrid to pursue efficiency improvements in opex and to share efficiency gains with the network users.

In contrast, Transgrid calculated the proposed step change as the difference between the insurance costs in its base year, and the cost forecasts prepared AON,⁶⁹ which included a factor for growth in the network (scale). Transgrid subsequently removed the scale factor from its calculation in response to our request for additional information.⁷⁰

We consider that a step change should not include elements of growth in network scale as this is already compensated through output growth. Furthermore, Transgrid’s calculations

⁶⁶ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 88.

⁶⁷ AON, *Premium Cost Forecast NSW Electricity Networks Pty Ltd*, November 2021, pp. 2–3.

⁶⁸ Taylor Fry, *Insurance step change - Review summary – Transgrid*, 20 June 2022, p. 3.

⁶⁹ Transgrid, *Information request 9 – Q1–Confidential*, 12 April 2022.

⁷⁰ Transgrid, *Information request 30 – Q3*, 9 June 2022.

(relative to the base year) assumed that any efficiency benefits related to this step change are treated differently from the other efficiency benefits captured by the EBSS.

6.4.3.2 Cyber & Critical Infrastructure Security

Our draft decision is to include a step change of \$13.9 million (\$2022–23) for cyber and critical infrastructure security in our alternative estimate of total forecast opex. This is \$11.1 million lower than proposed by Transgrid, and reflects that we are not satisfied that the proposed costs are prudent and efficient.

Table 6.9 Cyber security step change (\$million, 2022–23)

Step change	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Transgrid's proposal	5.2	4.7	5.2	4.7	5.2	25.0
AER's draft decision	2.8	2.8	2.8	2.8	2.8	13.9
Difference	-2.4	-1.9	-2.4	-1.9	-2.4	-11.1

Source: Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 17; AER analysis.

Transgrid proposed a step change of \$25.0 million (\$2022–23)⁷¹ to uplift its cyber and critical infrastructure security maturity, including to implement the Australian Energy Sector Cyber Security Framework (AESCSF) to achieve Security Profile 3 (SP–3) maturity within the 2023–28 period.⁷² This security uplift will allow Transgrid to comply with the *Security of Critical Infrastructure Act 2018* (Cwth), the *Security Legislation Amendment Critical Infrastructure Act 2021*,⁷³ the *Security Legislation Amendment (Critical Infrastructure Protection) Act 2022*⁷⁴ and the *Energy Legislation Amendment Act 2021* (NSW).⁷⁵

The AESCSF was developed by AEMO in conjunction with industry and government stakeholders, and provides a self-assessment framework for measuring cyber security maturity levels against 11 domains. These domains represent groupings of cyber security practices that cover a broad range of areas such as risk management, event and incident response and external party practices such as supply chain and external dependencies management.⁷⁶

In developing this step change, Transgrid engaged KPMG to assist its analysis of the cyber security uplift requirement, including completing a bottom-up analysis of the activities and cost requirement. Transgrid further completed an in-house assessment of the physical security uplift required in the 2023–28 period. KPMG's and Transgrid's analyses are confidential as it is based on sensitive information relating to Transgrid's cyber and critical infrastructure security. To the extent that we have relied on this confidential information to

⁷¹ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 90.

⁷² Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 12.

⁷³ Australian Government, *Security Legislation Amendment (Critical Infrastructure) Act 2021*, December 2021.

⁷⁴ Australian Government, *Security Legislation Amendment (Critical Infrastructure Protection) Act 2022*, April 2022.

⁷⁵ New South Wales Government, *Energy Legislation Amendment Act 2021*, November 2021.

⁷⁶ AEMO, *Australia Energy Sector Cyber Security Framework – quick reference guide*, AEMO website, accessed 26 May 2021.

arrive at our draft decision, the details of this information are contained in **Confidential Appendix A**.

In its submission to Transgrid's proposal, CCP25 noted that while it understood the rationale for keeping cyber security information confidential, it would be useful to include further information and justification on the \$25.0 million step change for consumers to understand the level of risk reduction Transgrid proposes, and the security level Transgrid deems appropriate in respect to government and AER guidelines and wider industry practice. We provide this information below.⁷⁷

We assessed the information provided in Transgrid's proposal, including subsequent information received through information requests and a workshop, to justify its costs of \$25.0 million (\$2022–23). We are not satisfied that these costs proposed by Transgrid represent the efficient costs of a prudent operator. Our draft decision instead includes a lower step change amount of \$13.9 million (\$2022–23).⁷⁸

We agree with Transgrid and consider it prudent for Transgrid, as a transmission network service provider, to uplift its security and particularly to achieve SP–3 maturity. This is also supported by our consultant, Energy Market Consulting associates (EMCa), who provided expert advice on the assessment of this step change. EMCa considers that it is appropriate for Transgrid to achieve an AESCSF maturity indication level of SP–3 based on the combination of legislation, appropriate risk management, and the urgent request of the Australian Cyber Security Centre to adopt an enhanced cyber security posture.⁷⁹

Given the cyber security threat landscape, we consider it prudent for a transmission network service provider to uplift its cyber security maturity with appropriate urgency. Transgrid provided information that showed it had achieved progress in its cyber security maturity in the early years of the 2018–23 period.⁸⁰ However, our assessment indicates Transgrid has subsequently deferred progress of some work from the current 2018–23 period to the 2023–28 period. Transgrid submitted that this was reasonable based on the delay in the issuing of the relevant Acts and their associated regulation.⁸¹ However, we are not satisfied that the profile of expenditure proposed by Transgrid reasonably reflects the efficient costs of a prudent operator. This view is supported by advice from EMCa, who considers that this represents an unnecessary risk and does not represent the approach of a prudent network operator of the NSW transmission system.⁸² EMCa further notes that Transgrid provided no business-related reason for having slowed its security enhancement program in the final 2 years of the current 2018–23 period. We have, therefore, made a reduction of \$2.4 million (\$2020–21) to the step change amount associated with enhancement work we consider Transgrid should reasonably have undertaken in the current 2018–23 period. We consider

⁷⁷ CCP25, *Transgrid – Advice to the AER on the 2023–28 Electricity Transmission Regulatory Revenue Proposal*, May 2022, p. 7.

⁷⁸ Transgrid's proposal step change values were calculated in \$2020–21 terms. For our draft decision, we have escalated our alternative estimate value based on the latest CPI estimates available from the ABS and RBA to bring it to \$2022–23 terms as per the requirements of the opex model.

⁷⁹ EMCa, *Review of aspects of Transgrid's Revenue Proposal: Public Version*, July 2022, pp. 87-88.

⁸⁰ Transgrid, *Information request 6 – Q2(a)–(c)–Confidential*, 31 March 2022, pp. 8–11.

⁸¹ Transgrid, *Information request 16 – Q2(a)–Confidential*, 2 May 2022, pp. 1–2.

⁸² EMCa, *Review of aspects of Transgrid's Revenue Proposal, July 2022: Public Version*, p. 92.

that if Transgrid’s actual cyber security costs vary from the efficient costs identified in our draft decision, then it can manage these variances within its total opex forecast.

Transgrid’s proposed step change amount also included \$1.0 million (\$2020–21) of costs for which, based on EMCa’s analysis, we are not satisfied that Transgrid has provided sufficient information to demonstrate that the costs are both efficient and prudent. We have, therefore, made a commensurate reduction to the opex step change in our alternative assessment. In its revised proposal, Transgrid may provide evidence of these costs being prudent and efficient. In this case, Transgrid should also provide a risk analysis to support these costs.

In reviewing the efficiency of Transgrid’s proposed step change amount for new cyber and critical infrastructure security regulatory obligations in the 2023–28 period, EMCa also considered the extent (if any) to which these costs may be accounted for within base opex. EMCa noted that in developing its proposed step change, Transgrid deducted estimates of the costs already accounted for in its base year opex. However, EMCa found that Transgrid had higher-than-average expenditure for these costs in its base year compared to its average spend in the 2018–23 period and did not deduct the correct estimates for amount already included in its base opex when calculating the step change.⁸³ Accordingly, we have made a further reduction of \$9.8 million (\$2022–23) to account for the incremental cyber and critical infrastructure security costs already included in Transgrid’s base opex.⁸⁴

6.4.3.3 ISP Preparatory Activities

Our draft decision is to not include a forecast for the proposed ISP preparatory activities step change in our alternative estimate.

We have not included this step change in our alternative estimate as we consider Transgrid has not demonstrated the prudence or efficiency of the proposed step change.

Table 6.10 ISP preparatory activities step change (\$million, 2022–23)

Step change	2023–24	2024–25	2025–26	2026–27	2027–28	Total
Transgrid’s proposal	1.0	1.0	1.0	–	–	2.9
AER’s draft decision	–	–	–	–	–	–
Difference	–1.0	–1.0	–1.0	–	–	–2.9

Note: Numbers may not add up to totals due to rounding. Differences of '0.0' and '-0.0' represent small variances and '-' represents no variance.

Source: Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 18; AER analysis.

Transgrid proposed a \$2.9 million (\$2022–23) opex step change to undertake preparatory activities to design ISP projects and investigate the costs and benefits of these projects, as instructed by AEMO. These costs are included as part of the contingent project costs if a contingent project is triggered. However, Transgrid submitted that it is unable to recover these costs if the contingent project trigger is not met.⁸⁵ Therefore, Transgrid proposed a

⁸³ Transgrid, *Information request 32 – Q1–Confidential*, 29 June 2022, pp.1–2.

⁸⁴ EMCa, *Review of aspects of Transgrid’s Revenue Proposal: Public Version*, July 2022, p. 101.

⁸⁵ Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 19.

step change to recover costs of any potential future preparatory activities associated with actionable ISPs which may not convert into contingent projects.

Transgrid estimated that preparatory activities for each ISP project will cost around \$0.9 million based on costs previously incurred for similar projects. Transgrid assumed that it will be required to complete preparatory activities on 3 future ISP projects in the first 3 years of the 2023–28 period. Therefore, the proposed step change amount totals to \$2.9 million.⁸⁶ Transgrid did not submit any analysis to demonstrate how these costs are recurrent, efficient or meet the requirements of a step change.

We observe that Transgrid’s proposed costs associated with ISP preparatory activities form a small part of the overall opex, and we consider these costs should be considered business-as-usual (BAU) within Transgrid’s total opex forecast. We consider Transgrid’s base opex includes transmission planning expenditure, and costs associated with ISP preparatory activities should be managed within Transgrid’s BAU transmission planning expenditure. We consider that Transgrid has not demonstrated that ISP preparatory costs have caused a significant increase to its BAU costs. This is evidenced through Transgrid’s estimate of these costs which make up only 0.3% of its total opex forecast for the 2023–28 period. This is a relatively immaterial increase to Transgrid’s planning expenditure which would not fundamentally change Transgrid’s opex requirements.

We further consider that, in addition to base opex, the output growth forecast captures costs associated with network planning activities. If Transgrid’s network was not growing, then it would not need to do as much planning activities, including the ISP preparatory activities. We consider our standard approach to forecasting output growth will provide Transgrid sufficient opex to undertake ISP preparatory activities, noting that these costs are accounted for in our base opex and rate of change.

6.4.4 Category specific forecasts

We have included category specific forecast for debt raising costs in our alternative estimate of total opex which we did not forecast using the base-step-trend approach.

6.4.4.1 Debt raising costs

We have included debt raising costs of \$23.4 million (\$2022–23) in our alternative estimate. This is \$2.3 million lower than the \$25.7 million proposed by Transgrid in its forecast.⁸⁷

Debt raising costs are transaction costs incurred each time a business raises or refinances debt. The appropriate approach is to forecast debt raising costs using a benchmarking approach rather than a service provider’s actual costs in a single year. This provides consistency with the forecast of the cost of debt in the rate of return building block.

We used our standard approach to forecast debt raising costs, which is discussed further in Attachment 3 to the draft decision.⁸⁸

⁸⁶ Transgrid, *Opex Step Change Overview Paper 2022–28 Revenue Proposal*, 31 January 2022, p. 18.

⁸⁷ Transgrid, *2023–28 Revenue Proposal*, 31 January 2022, p. 91.

⁸⁸ AER, *Draft decision, Transgrid Transmission Determination 2023 to 2028 (1 July 2023 to 30 June 2028), Attachment 3 – Rate of return*, September 2022, section 3.4.2.

6.4.5 Assessment of opex factors

In deciding whether we are satisfied the service provider's forecast reasonably reflects the opex criteria we have regard to the opex factors.⁸⁹ Table 6.11 summarises how we have taken the opex factors into account in making our draft decision.

Table 6.11 AER consideration of opex factors

AER consideration of opex factors	AER consideration
<p>The most recent annual benchmarking report that has been published under rule 6A.31 and the benchmark operating expenditure that would be incurred by an efficient network service provider over the relevant regulatory control period.</p>	<p>There are 2 elements to this factor. First, we must have regard to the most recent annual benchmarking report. Second, we must have regard to the benchmark operating expenditure that would be incurred by an efficient transmission network service provider over the period. The annual benchmarking report is intended to provide an annual snapshot of the relative efficiency of each service provider.</p> <p>The second element, that is, the benchmark operating expenditure that would be incurred by an efficient provider during the forecast period, necessarily provides a different focus. This is because this second element requires us to construct the benchmark opex that would be incurred by a hypothetically efficient provider for that particular network over the relevant period. The benchmarking analysis is limited by the small sample size of transmission businesses in the NEM, and the limited international data available, among other things. It also does not account for all the operating environment factor differences between the networks. Noting these limitations, we have taken the benchmarking results into account but not solely relied on them when assessing the efficiency of Transgrid's proposed total forecast opex</p>
<p>The actual and expected operating expenditure of the transmission network service provider during any proceeding regulatory control periods</p>	<p>Our forecasting approach uses the service provider's actual opex as the starting point. We have compared several years of Transgrid's actual past opex with that of other service providers as a part of forming a view about whether its revealed expenditure is sufficiently efficient to rely on.</p>
<p>The extent to which the operating expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the Network Service Provider in the course of its engagement with electricity consumers</p>	<p>We understand the intention of this particular factor is to require us to have regard to the extent to which service providers have engaged with consumers in preparing their revenue proposals, such that they factor in the needs and preferences of consumers.⁹⁰</p> <p>We consider the Deep Dive workshop Transgrid conducted with members of the TAC covered a number of areas related to opex including some of Transgrid's proposed step changes. The TAC comprises of representatives from consumer groups, business, finance, academia and the energy industry.</p> <p>We have summarised CCP25's feedback on Transgrid's opex proposal in section 6.2.1.</p>
<p>The relative prices of capital and operating inputs</p>	<p>We have had regard to multilateral total factor productivity benchmarking when deciding whether or not forecast opex reflects the opex criteria. Our multilateral total factor productivity analysis considers the overall efficiency of networks in the use of both capital and operating inputs with respect to the prices of capital and operating inputs.</p>
<p>The substitution possibilities between operating and capital expenditure</p>	<p>Some of our assessment techniques examine opex in isolation—either at the total level or by category. Other techniques consider service providers' overall efficiency, including their capital efficiency. We have had regard to several metrics when assessing</p>

⁸⁹ NER, cl. 6A.6.6(e).

⁹⁰ AEMC, *Rule Determination*, 29 November 2012, pp. 101, 115.

	<p>efficiency to ensure we appropriately capture capex and opex substitutability.</p> <p>In developing our benchmarking models, we have had regard to the relationship between capital, opex and outputs.</p>
<p>Whether the operating expenditure forecast is consistent with any incentive scheme or schemes that apply to the network service provider under clauses 6A.6.5, 6A.7.4 or 6A.7.5</p>	<p>The incentive scheme that applied to Transgrid's opex in the 2018–23 regulatory control period, the EBSS, was intended to work in conjunction with a revealed cost forecasting approach.</p> <p>We have applied our estimate of base opex consistently in applying the EBSS and forecasting Transgrid's opex for the 2023–28 regulatory control period.</p>
<p>The extent the operating expenditure forecast is preferable to arrangements with a person other than the network service provider that, in the opinion of the AER, do not reflect arm's length terms</p>	<p>Some of our techniques assess the total expenditure efficiency of service providers and some assess the total opex efficiency.</p> <p>Given this, we are not necessarily concerned whether arrangements do or do not reflect arm's length terms. A service provider which uses related party providers could be efficient or it could be inefficient. Likewise, for a service provider that does not use related party providers. If a service provider is inefficient, we adjust their total forecast opex proposal, regardless of their arrangements with related providers.</p>
<p>Whether the operating expenditure forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6A.8.1(b).</p>	<p>This factor is only relevant in the context of assessing proposed step changes (which may be explicit projects or programs). We did not identify any contingent projects in reaching our draft decision.</p>
<p>The most recent Integrated System Plan and any submissions made by AEMO, in accordance with the NER, on the forecast of the Transmission Network Service Provider's required operating expenditure.</p>	<p>We have had regard to AEMO's most recent Electricity Statement of Opportunities and consider this to be consistent with Transgrid's forecast opex (see section 6.4.2.2.1).</p>
<p>The extent the network service provider has considered, and made provision for, efficient and prudent non-network alternatives.</p>	<p>We have not found this factor to be significant in reaching our draft decision.</p>
<p>Any relevant project assessment conclusions report required under clause 5.16.4 or 5.16A.4.</p>	<p>We have not identified any RIT–T project that has been submitted by Transgrid that is not already accounted for in total forecast opex, including through forecast output growth.</p>
<p>Any other factor the AER considers relevant and which the AER has notified the service provider in writing, prior to the submission of its revised Revenue Proposal under 6A.12.3, is an operating expenditure factor.</p>	<p>We did not identify and notify Transgrid of any other opex factor.</p>

Source: AER analysis.

Glossary

Term	Definition
AASB	Australian Accounting Standards Board
ABS	Australian Bureau of Statistics
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Opex	Operating expenditure
ABS	Australian Bureau of Statistics
AESCSF	Australian Energy Sector Cyber Security Framework
BAU	Business-as-usual
Capex	Capital expenditure
CCP25	Consumer Challenge Panel, sub-panel 25
CESS	Capital Expenditure Sharing Scheme
EBSS	Efficiency Benefit Sharing Scheme
EMCa	Energy Market Consulting associates
ESOO	Electricity Statement of Opportunities
Guideline	Expenditure forecast assessment guideline
IFRIC	International Financial Reporting Interpretations Committee
IFRS	International Financial Reporting Standards
SP–3	Security Profile 3
ISP	Integrated System Plan
MPFP	Multilateral Partial Factor Productivity
MTFP	Multilateral Total Factor Productivity
NEM	National Electricity Market
NER	National Electricity Rules
NPV	Net present value
opex	Operating expenditure
RBA	Reserve Bank of Australia
RIN	Regulatory Information Notice
SaaS	Software as a service
TAC	Transgrid Advisory Council
WPI	Wage Price Index