

Draft Decision

Endeavour

Electricity Distribution

Determination 2024 to 2029

(1 July 2024 to 30 June 2029)

Attachment 6

Operating Expenditure

September 2023

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6 Operating expenditure

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

This attachment outlines our assessment of Endeavour Energy (Endeavour)'s proposed opex forecast for the 2024–29 regulatory control period.

6.1 Draft Decision

Our draft decision is to accept Endeavour's total opex forecast of \$1,497.6 million (\$2023–24), including debt raising costs, for the 2024–29 regulatory control period. Our alternative estimate of \$1,525.0 million (\$2023–24) is not materially different (\$27.4 million, \$2023–24, or 1.8% higher) from Endeavour's total opex forecast proposal. Therefore, we are satisfied that Endeavour's total opex forecast satisfies the opex criteria, having regard to the opex factors.¹

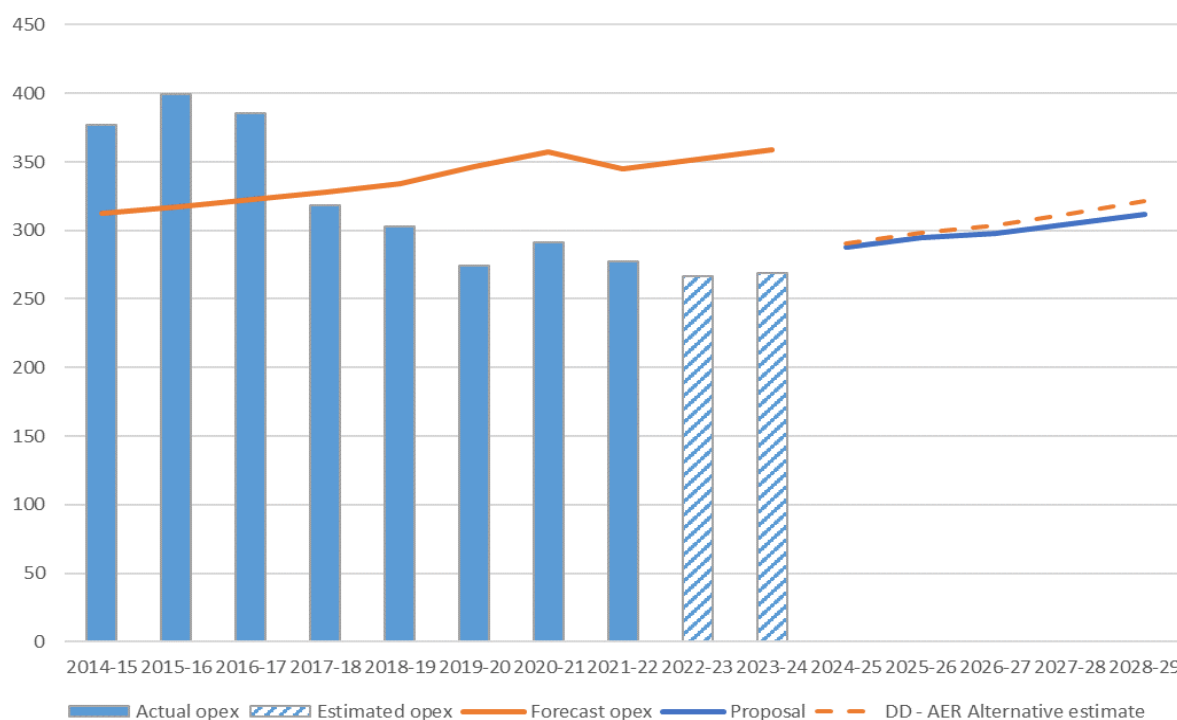
Our draft decision, which is the same as Endeavour's proposed total opex forecast, is:

- \$119.7 million (\$2023–24) (or 8.7%) higher than Endeavour's actual (and estimated) opex in the 2019–24 regulatory control period.
- \$261.8 million (\$2023–24) (or 14.9%) lower than the opex forecast we approved in our final decision for the 2019–24 regulatory control period.

In Figure 6.1 we compare our alternative estimate of opex to Endeavour's proposal for the next regulatory control period. We also show the forecasts we approved for the last two regulatory control periods and Endeavour's actual and estimated opex over these periods.

¹ NER, cl. 6.5.6(c) and cl. 6.5.6(e).

Figure 6.1 Historical and forecast opex (\$2023–24)



Source: Endeavour, *Economic benchmarking – Regulatory Information Notice response 2009–22*; AER, *Final decision PTRM 2009–14*; AER, *Final decision 2014–19 PTRM*; AER, *Final decision 2019–24 PTRM and Opex model*; Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

Note: Reported and forecast opex including debt raising costs but excluding movements in provisions.

Table 6.1 sets out Endeavour’s opex proposal that we accept in this draft decision, our alternative estimate, and the differences between these forecasts.

Table 6.1 Comparison of Endeavour’s proposal and our draft decision on opex (\$million, 2023–24)

	Endeavour’s proposal and AER draft decision	AER alternative estimate	Difference
Base (reported opex in 2022–23)	1332.6	1330.5	-2.1
Base year adjustments	-24.7	-24.7	-
Remove category specific forecasts	-0.2	-0.2	0.0
Final year increment	35.7	35.6	-0.1
Trend: Real price growth	28.8	26.9	-1.9
Trend: Output growth	65.7	99.0	33.3
Trend: Productivity growth	-20.3	-20.3	0.0
Total trend	74.2	105.6	31.5

	Endeavour's proposal and AER draft decision	AER alternative estimate	Difference
Solar Soak / Off-Peak Conversion	5.8	5.8	–
Network visibility	14.2	12.2	–2.0
Insurance premium	36.6	36.6	–0.0
Demand management	3.4	3.4	–
Total Step changes	60.0	58.0	–2.0
Category specific forecasts	–	–	–
Total opex (excluding debt raising costs)	1477.6	1504.8	27.2
Debt raising costs	20.0	20.2	0.2
Total opex (including debt raising costs)	1497.6	1525.0	27.4
Percentage difference to updated proposal			+ 1.8%

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

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

While there is not a material difference between our alternative estimate of total opex and Endeavour's proposed opex, we have arrived at our alternative estimate in a different way to Endeavour. The key difference between Endeavour's opex proposal, which we have accepted, and our alternative estimate is due to the rate of change, specifically output growth which is further discussed in section 6.4.2.2. We have included higher forecast for output growth in our alternative estimate (\$99.0 million, \$2023–24) than that proposed by Endeavour (\$65.7 million, \$2023–24).

Endeavour is one of the first two businesses to participate in the early signal pathway process. As part of this process, Endeavour provided us with early access to data and information relevant to the expectations set out in our Better Resets Handbook (the Handbook).² In turn, we and Consumer Challenge Panel 26 (CCP26) provided feedback through check-ins prior to Endeavour submitting its regulatory proposal. At the check-ins, we provided feedback indicating where the Handbook expectations were likely to be met, or where more work or adjustments were needed to meet these expectations.

We consider that Endeavour has shown restraint in proposing new expenditures for the 2024–29 regulatory control period, which is important in ensuring that opex efficiencies achieved by Endeavour in the 2019–24 period are shared with consumers. For example, Endeavour constrained its proposed step changes (see section 6.4.3) and output growth (see section 6.4.2.2). Its proposed expenditures are modest when compared to past levels.

² AER, [Better Resets Handbook – Towards consumer-centric network proposals](#), December 2021, pp. 24–29.

We also note that Endeavour’s stakeholder engagement has been of a high standard, and it has the support of the customers it has consulted.

Table 6.2 provides our assessment of Endeavour's proposal against the opex expectations included in the Better Reset Handbook.³

Table 6.2 Assessment of proposal against Better Reset Handbook opex expectations

Opex expectations	Our view about how the expectations have been met
1. Opex forecasting approach	Endeavour applied our standard base-trend-step forecasting approach to forecast opex for the 2024–29 period. Endeavour’s opex forecast is consistent with the opex forecast used in the EBSS.
2. Base opex	<p>Endeavour used 2022–23 as the base year. Audited actual opex for this year is not yet available. For the final decision, we will update the base year opex estimate used in the draft decision.</p> <p>As discussed below, we consider Endeavour’s opex in the base year (2022–23) to be not materially inefficient. As a result, we have not applied an efficiency adjustment.</p>
3. Trend	Endeavour broadly applied our standard approach to forecast the trend growth forecast for price, output, and productivity growth, but we have identified some inconsistencies in the detailed application relating to output growth. Specifically, Endeavour proposed the use of ratcheted maximum demand data that was below its forecast level in the trend component of its opex forecast. This was done to constrain the price impact for its customers and is discussed further in section 6.4.2.2.1.
4. Step changes	<p>Endeavour proposed four step changes, representing 4.0% of total forecast opex. We consider this did not meet our expectation of few or no proposed step changes.</p> <p>We have undertaken a targeted review of the two step changes related to Endeavour’s Consumer Energy Resources (CER) integration strategy: the ‘Network visibility’ step change and ‘Solar Soak / Off-Peak conversion’ step change.</p> <p>As discussed below, we have adjusted the amount proposed for the ‘Network visibility’ step change.</p>
5. Category specific forecasts	Endeavour has applied our standard approach to forecast debt raising costs.
6. Genuine consumer engagement on operating expenditure forecasts	Overall, we consider Endeavour has demonstrated a genuine approach to consumer engagement in relation to its opex proposal. Stakeholder submissions have generally commended Endeavour’s engagement.

Source: AER analysis

³ AER, [Better Rests Handbook – Towards consumer-centric network proposals](#), December 2021, pp. 24–29.

6.2 Endeavour’s proposal

Endeavour’s proposal applied a “base-step-trend” approach to forecast opex for the 2024–29 regulatory control period, consistent with our standard approach.⁴

In applying our base step trend approach to forecast opex, Endeavour:⁵

- used reported opex in 2022–23 as the base from which to forecast (\$266.5 million (\$2023–24) or \$1,332.6 million (\$2023–24) over the next regulatory control period)
- adjusted its total base forecast opex by:
 - removing \$24.7 million (\$2023–24) to reflect adjustments to base year opex, including:
 - -\$5.9 million (or -\$29.3 million over five years) for a change in accounting of leases which are now required to be capitalised
 - \$0.9 million (or \$4.6 million over five years) to clarify the treatment of Software as a Service costs as opex rather than capex, capturing these costs within its opex as they no longer form part of its information and communication technology (ICT) capex forecast
 - removing \$0.2 million (\$2023–24) of debt raising costs, accounted as category specific opex.
- added an estimate of the difference between the base year opex and the opex it will incur in the final year of the current regulatory period, increasing opex by \$35.7 million (\$2023–24)
- applied its overall rate of change forecast to its final year adjusted opex estimate, increasing opex by \$74.2 million (\$2023–24). This included:
 - output growth (\$65.7 million)
 - price growth (\$28.8 million)
 - productivity growth (-\$20.3 million)
- added four step changes totalling \$60.0 million (\$2023–24) for:
 - insurance premium (\$36.6 million)
 - network visibility (\$14.2 million)
 - solar soak / off peak conversion (\$5.8 million)
 - demand management (\$3.4 million)
- added \$20.0 million (\$2023–24) of debt raising costs to arrive at a total opex forecast of \$1,497.6 million (\$2023–24) over the 2024–29 regulatory control period.

⁴ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, p. 224.

⁵ Endeavour Energy, *11.01 Opex Model*, January 2023.

Table 6.3 Endeavour’s opex for the 2024–29 period (\$million, 2023–24)

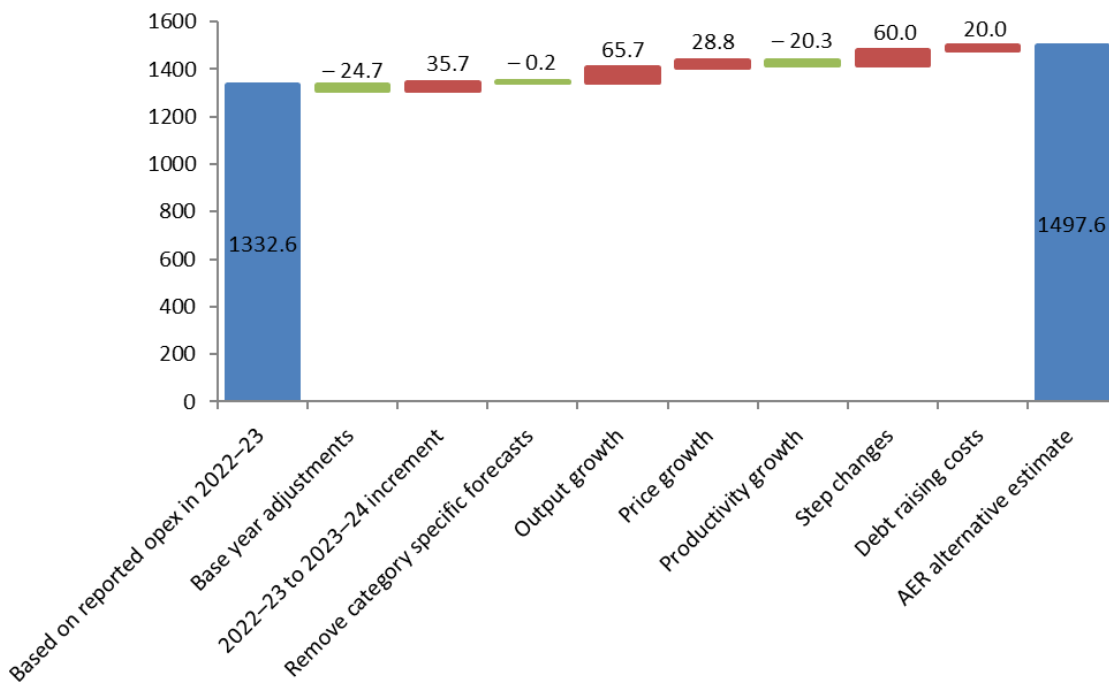
	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Total Opex, excluding debt raising costs	283.7	290.6	294.2	301.0	308.1	1477.6
Debt raising costs	4.1	4.0	4.0	4.0	4.0	20.0
Total Opex, including debt raising costs	287.8	294.7	298.2	305.0	312.0	1497.6

Source: Endeavour, *11.01 Opex Model*, January 2023

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.

Figure 6.6.2 shows the different components that make up Endeavour’s opex forecast for the 2024–29 period.

Figure 6.6.2 Endeavour's proposed opex for the 2024–29 period (\$million, 2023–24)



Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

6.2.1 Innovation fund

Endeavour also proposed an Innovation Fund of \$5 million (\$20 million of capex) to trial and invest in innovative solutions and technologies to support the energy transition.⁶ The opex component of this fund was not included in Endeavour's total forecast opex, but rather as a revenue adjustment in Endeavour's PTRM. As discussed in Attachment 5, we have not accepted Endeavour's proposed innovation fund expenditure in this draft decision.

⁶ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, pp. 78 and 225; Endeavour Energy, *0.04 Post-Tax Revenue Model*, January 2023.

6.2.2 Stakeholder views

We received four submissions on Endeavour’s proposal which discussed opex issues.

We have taken these submissions into account in developing the positions set out in this draft decision. Table 6.4 summarises the stakeholder issues raised in the submissions in relation to opex.

Table 6.4 Submissions on Endeavour's 2024–29 opex proposal

Stakeholder(s)	Issue	Description
Consumer Challenge Panel, sub-panel 26 (CCP26), RED Energy and Lumo, PIAC	Step changes	<p>CCP26 supported our targeted review of Endeavour’s step changes, relating to network visibility and solar soak / off peak conversion.</p> <p>Public Interest Advocacy Centre (PIAC) raised a concern about uplifts in expenditure to acquire smart meter data to improve low voltage network visibility and deliver CER integration programs. While it supported the networks proposals to acquire the data required to implement consumer priorities, PIAC is concerned that networks are being required to acquire relatively limited meter data which should be provided to networks consistently, in a timely manner, at no additional cost.</p> <p>Red Energy and Lumo submitted that the AER should conduct a forensic examination of the new and emerging areas of capital and operating expenditure in the regulatory proposals across resilience, CER integration and innovation expenditure. Red Energy and Lumo raised a concern that the proposed expenditures are excessive and may not deliver the benefits claimed.</p> <p>Western Sydney Regional Organisation of Councils Ltd (WSROC) strongly supported Endeavour’s proposal for an Innovation Fund. It stated it would require innovation and solutions beyond business as usual to address challenges posed by climate change, both in terms of impacts from natural hazards as well as the need for a rapid transition to a low emissions future.</p>
CCP26	Consumer engagement	CCP26 submitted it is satisfied that Endeavour’s consumer engagement has met the expectations set out in the Handbook in delivering a consumer-centric proposal.

Source: Consumer Challenge Panel 26, *Advice to the AER - 2024-29 Electricity Determination - Endeavour*, May 2023, pp. 12-13; PIAC - Submission in response to AER issues papers for NSW DNSPs - 1 June 2023, pp. 10-11; Red Energy and Lumo, *Submission - 2024-29 Electricity Determination - NSW*, May 2023, p. 2; Western Sydney Regional Organisation of Councils, *2024-29 Electricity Determination - Endeavour*, May 2023, pp. 12-13; Consumer Challenge Panel 26, *Advice to the AER - 2024-29 Electricity Determination - Endeavour*, May 2023, p. 10.

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'.⁷ In doing so, we must have regard to the opex factors specified in the National Electricity Rules (NER).⁸

The Expenditure forecast assessment guideline (the Guideline), together with an explanatory statement, sets out our assessment approach in detail.⁹ 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.¹⁰

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.¹¹ We compare our alternative estimate with the business's total 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.¹² If we are not satisfied, we substitute the business's forecast with our alternative estimate that we are satisfied reasonably reflects the opex criteria.

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.¹³

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

⁷ NER, cl. 6.5.6(c).

⁸ NER, cl. 6.5.6(e).

⁹ AER, *Expenditure forecast assessment guideline for electricity transmission*, November 2013; AER, *Expenditure forecast assessment guideline, Explanatory statement*, November 2013.

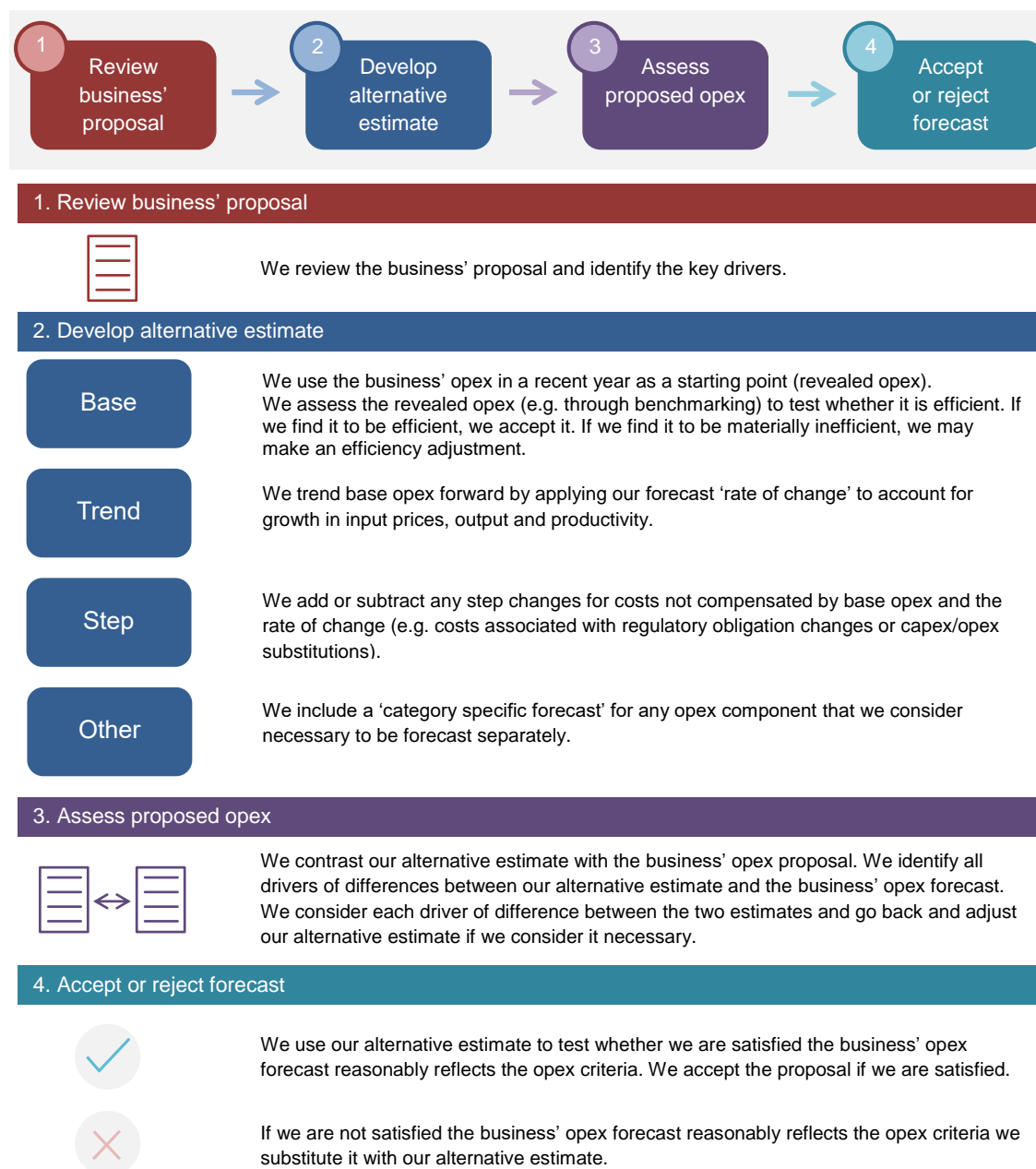
¹⁰ NER, cl. 6.2.8(c).

¹¹ 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.'

¹² NER, cl. 6.5.6(c).

¹³ NEL, s. 16(1)(c).

Figure 6.3 Our opex assessment approach



6.3.1 Interrelationships

In assessing Endeavour's total forecast opex, we also take into account other components of its proposal that could interrelate with our opex decision. The matters we considered in this regard included:

- the EBSS carryover—the estimate of opex for 2023–24 (the final year of the current regulatory control period) that we use to forecast opex should be the same as the level of opex used to calculate EBSS carryover amounts. 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 2019–24 access arrangement period, which provided Endeavour's 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
- the outcomes of Endeavour’s engagement with consumers and stakeholders in developing its proposal and any feedback we have had.

6.4 Reasons for draft decision

Our draft decision is to accept Endeavour’s total opex forecast of \$1,497.6 million (\$2023–24), including debt raising costs, for the 2024–29 regulatory control period. Our alternative estimate of \$1,525.0 million (\$2023–24) is not materially different (\$27.4 million, \$2023–24, or 1.8% higher) from Endeavour’s total opex forecast proposal. Therefore, we are satisfied that Endeavour’s total opex forecast reasonably reflects the opex criteria, having regard to the opex factors.¹⁴

Table 6.1 above set out Endeavour’s proposal, our alternative estimate that is the basis for the draft decision, and the difference between our draft decision and the proposal.

The main drivers for the differences are also set out in section 6.1 and we discuss the components of our alternative estimate, and our assessment of Endeavour’s proposal, 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 Endeavor Energy would need for the safe and reliable provision of electricity services over the 2024–29 regulatory control period. We discuss the choice of base year in section 6.4.1.1 and set out our analysis of the efficiency of base year opex in section 6.4.1.2.

6.4.1.1 Proposed base year

Endeavour proposed a base year of 2022–23 and used an estimate of base year opex of \$266.5 million (\$2023–24) or \$1,332.6 million (\$2023–24) over the five years of the next regulatory period.¹⁵ Endeavour stated that it selected 2022–23 as its base year because it will be the most recent year with audited actual data by the time of our final decision, and this year will best reflect the efficient expenditure required to achieve its operating objectives.¹⁶

We consider it is feasible to use 2022–23 as the base year. This is because it will be based on actual opex in the final decision. Based on the estimate provided by Endeavour, it appears representative of base opex required for the next regulatory control period. While there will be year to year fluctuations in reported opex, due to the interaction with the EBSS we do not have concerns with the choice of base year, provided we find actual opex in the

¹⁴ NER, cl. 6.5.6(c) and cl. 6.5.6(e).

¹⁵ Endeavour Energy, *11.01 Opex Model*, January 2023.

¹⁶ Endeavour Energy, *2024-29 Expenditure Forecast Methodology Statement*, June 2022, p. 56.

base year to be not materially inefficient. However, because we do not yet have audited opex for 2022–23, we will not be able to confirm this until our final decision.

We have adjusted the proposed base year opex amount consistent with Endeavour's proposal. However, we have applied the most up-to-date inflation forecast published by the Reserve Bank of Australia. This is further discussed in section 6.4.1.3.

6.4.1.2 Efficiency of Endeavour's opex

As summarised in section 6.3, and in our *Expenditure Forecast Assessment Guideline*, our preferred approach for forecasting opex is to use a revealed cost approach. This is because opex is largely recurrent and stable at a total level. Where a distribution 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 to operate a safe and reliable network and meet its relevant regulatory obligations. However, we do not rely on the a priori assumption that the business's revealed opex is efficient. We examine the trend in opex and use our top-down benchmarking tools, and other assessment techniques, to test whether the business is operating efficiently historically and particularly in the base year.

Endeavour proposed that its base year is efficient because its revealed costs over the current period demonstrate it is responding to the incentive framework by reducing its opex while maintaining its level and quality of service provision.¹⁷ Endeavour also noted that its actual opex over the current period is forecast to be less than the efficient forecast set by the AER in our previous decision, and that its base year will reflect efficiency initiatives it has implemented under its ICT & Digital transformation program and other efficiency measures.¹⁸

As set out below, we consider Endeavour's estimated opex in the 2022–23 base year is not materially inefficient as indicated by Endeavour's opex trend and our benchmarking results. We have used Endeavour's 2022–23 estimate of base opex to develop our alternative opex estimate.

6.4.1.2.1 Analysis of Endeavour's revealed costs

As shown in Figure 6.1, Endeavour's opex has declined significantly in recent years, from a peak in the previous regulatory control period of \$399.7 million (\$2023–24) in 2015–16, to \$274.1 million (\$2023–24) in 2019–20, and has only increased slightly to \$277.7 million (\$2023–24) in 2021–22, the most recent year of the current regulatory period for which actual data is available. This overall downward trend is reflected in Endeavour's average annual opex, which has decreased by 22.7% from an average of \$356.7 million per year (\$2023–24) over 2014–19 (the previous regulatory control period) to an estimated average of \$275.6 million per year (\$2023–24) over 2019–24 (the current regulatory control period).

Further, Endeavour's actual and estimated opex in the current regulatory control period (2019–24) is 21.7% below our opex forecast.¹⁹ This includes Endeavour's estimated opex in the base year (2022–23) which is 24.3% below our forecast for that year.

¹⁷ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, p. 230.

¹⁸ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, p. 230.

¹⁹ AER, *Endeavour Energy Final decision 2019–24 PTRM*; Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

We consider this trend analysis demonstrates the significant reductions in opex Endeavour has achieved over time, which, as set out below in the benchmarking analysis, have resulted in improved relative efficiency.

6.4.1.2.2 Benchmarking the efficiency of Endeavour’s opex over time

We have used our benchmarking tools and other cost analysis to assess and establish whether Endeavour is operating relatively efficiently, both over time and in the base year. Our benchmarking results indicate there is sufficient evidence that Endeavour’s revealed opex has become relatively efficient in recent years. While Endeavour was historically amongst the lower performing distributors in terms of its benchmarking results, it has shown significant improvement since 2016, including in its proposed base year. From this, we have concluded that Endeavour performs well compared to other networks in relation to its opex in the base year, which we do not consider is materially inefficient.

We have used a variety of economic benchmarking tools to test the efficiency of Endeavour’s opex. Benchmarking broadly refers to the practice of comparing the economic performance of a group of service providers that all provide the same service as a means of assessing their relative performance. Our annual benchmarking reports include information about the use and purpose of economic benchmarking, and details about the techniques we use to benchmark the efficiency of distribution businesses in the NEM.²⁰

While opex at the total level is generally recurrent, year-to-year fluctuations can be expected. To shed light on Endeavour’s general level of operating efficiency, in this section we first look at the efficiency of Endeavour’s opex over a period of time, using our top-down benchmarking tools. This is followed in section 6.4.1.2.3 by looking at the efficiency of opex in the base year (2022–23).

Period-average econometric opex cost function and productivity index number efficiency results

This section presents the results of four econometric opex cost function models that compare the relative opex efficiency of DNSPs in the NEM. These model the relationship between opex (as the input) and outputs, and so measure opex efficiency. The results presented reflect an average efficiency score for each DNSP over a specified period – the long period (2006 to 2021) and the short period (2012 to 2021). We examine the short period as it can take some time for more recent improvements in efficiency by previously poorer performing distribution businesses to be reflected in period-average efficiency scores. These efficiency scores do not account for the presence of operating environment factors (OEFs), as discussed further below.

The results in our *2022 Annual Benchmarking Report* from the four econometric opex cost function models indicate that when examined over time Endeavour’s opex has been relatively inefficient. Over the long and short periods Endeavour was ranked tenth out of 13 DNSPs (with an efficiency score of 0.60 in the long period and 0.63 in the short period).²¹ Our standard approach is to use an efficiency score 0.75 comparison point, rather than 1.0, to recognise data and modelling imperfections when assessing the relative efficiency of

²⁰ AER, *Annual Benchmarking Report, Electricity distribution network service providers*, November 2022.

²¹ Quantonomics, *Benchmarking results for the AER*, November 2022, pp. 35 & 39; AER analysis.

distribution businesses. Where the econometric model-average score is below 0.75, we take this as prima facie evidence that a DNSP has been operating materially inefficiently over the relevant period. With Endeavour having model-average scores below 0.75 (i.e. 0.60 and 0.63) this is the case with Endeavour's efficiency score performance.

For this draft decision, we have updated the econometric opex cost function model results from the *2022 Annual Benchmarking Report*. Most importantly, this is for our approach to addressing the impact of differences in capitalisation on the benchmarking results.²² We consider making these updates is appropriate for this draft decision as it reflects the most up-to-date data/approaches which will be incorporated into the *2023 Annual Benchmarking Report* that will inform our final decision. These updated results do not significantly change the econometric opex cost function model-average efficiency scores for Endeavour. With these updates Endeavour remains ranked tenth in the long period, although its efficiency score improved from 0.60 to 0.62, while it is ranked ninth out of 13 DNSPs in the short period and its efficiency score improved from 0.63 to 0.66.²³

We also use productivity index number techniques to enable comparisons of productivity levels over time and between businesses. The multilateral total factor productivity (MTFP) index measures the total factor productivity of each business, whereas the opex and capital multilateral partial factor productivity (MPFP) indexes measure the productivity of opex or capital inputs respectively. Our opex MPFP efficiency results are also not adjusted for material OEFs. Our *2022 Annual Benchmarking Report* results show Endeavour was:

- sixth in 2021 in terms of MTFP, which is a relative improvement from eighth in 2016
- fourth in terms of opex MPFP, which is a significant relative improvement from tenth position in 2016.²⁴

Unlike the econometric opex cost function modelling, at this stage we have not updated the MTFP / MPFP modelling from the *2022 Annual Benchmarking Report* for our preferred approach to addressing capitalisation issues. We are considering implementation issues which need to be worked through to determine if and how this can be undertaken. The absence of updating to the MTFP / MPFP modelling somewhat moderates direct comparability to the econometric results.

6.4.1.2.3 Benchmarking the efficiency of Endeavour's estimated base year opex

Given the evidence outlined above about the relative inefficiency of Endeavour's opex over time, but noting the recent improvements, we have undertaken additional analysis. Following past decisions, this involves application of our economic benchmarking roll-forward-model, which includes adjusting for OEFs, to more directly test the efficiency of Endeavour's estimated opex in the base year. We use the results from our econometric opex cost function benchmarking and our benchmarking roll-forward model to derive an estimate of efficient

²² AER, *How the AER will assess the impact of capitalisation differences on our benchmarking – Draft guidance note*, May 2023. Note that we have also updated the ratcheted maximum demand estimates for Evoenergy as included in its proposal. See AER, *Draft Decision Evoenergy Regulatory Proposal 2024 to 2029 Attachment 6 Operating Expenditure*, September 2023 for more details.

²³ These updated results are discussed and presented in more detail in AER, *Draft Decision Evoenergy Regulatory Proposal 2024 to 2029 Attachment 6 Operating Expenditure*, September 2023.

²⁴ Quantonomics, *Benchmarking results for the AER*, November 2022, pp. 26-30.

base year opex, and compare this to Endeavour’s estimated base year opex, to determine whether there is an efficiency ‘gap’ and if so, what size this gap is. Where modelled efficient rolled-forward base year opex is above estimated opex in the base year, we infer there is no efficiency ‘gap’ and estimated opex is not materially inefficient. We reach this conclusion for Endeavour’s estimated opex in the base year.

The results of using our benchmarking roll-forward model to derive estimated efficient base year opex and comparing it to estimated base year opex for Endeavour are set out in Figure 6.4 for the long benchmarking period and in Figure 6.5 for the short period.²⁵ These use the econometric opex cost function results from the *2022 Annual Benchmarking Report* updated as outlined above, including to take into account the AER’s approach to addressing capitalisation differences in benchmarking. Further detail about how we derive estimated efficient base year opex can be found in our draft decision for Evoenergy as well as in recent decisions.²⁶

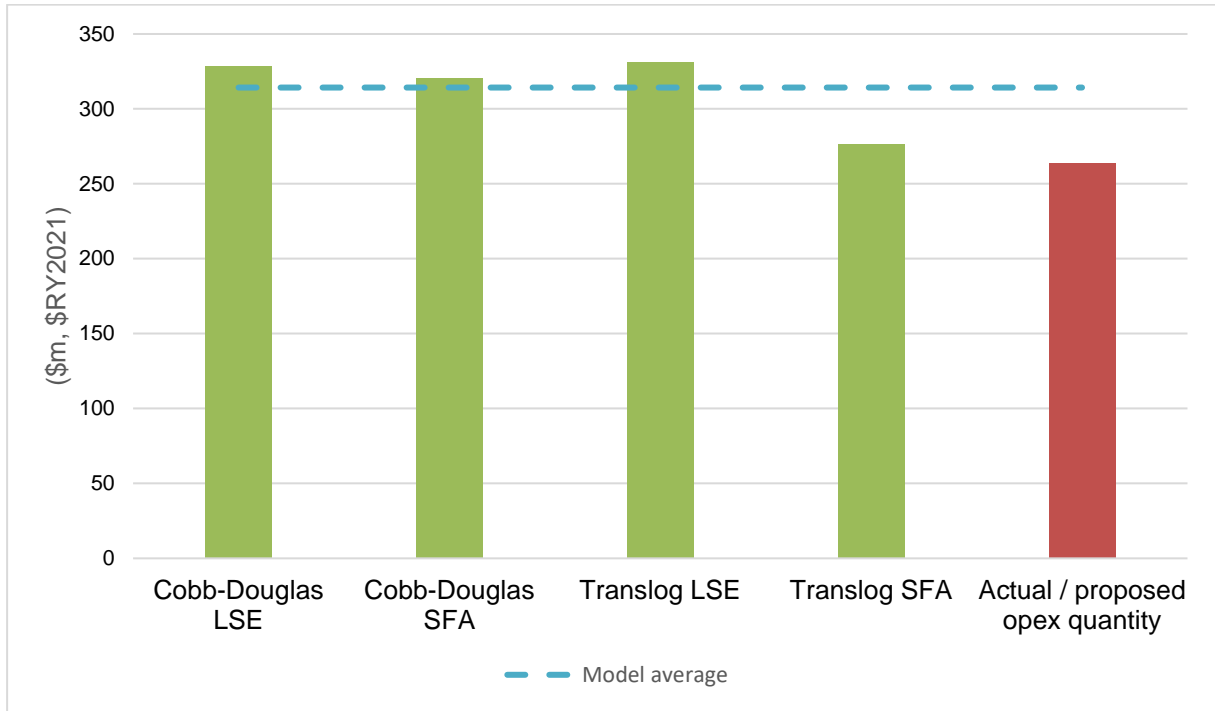
In Figure 6.4, our estimates of efficient network services opex plus capitalised corporate overheads (over the long period including adjustments for OEFs) in the base year are shown in green, with an average of \$314.2 million (\$RY 2021)²⁷ as shown by the blue dashed line. Endeavour’s estimated network services opex plus capitalised corporate overheads in the base year of 2022–23 is shown in red (\$263.8 million (\$RY 2021)). As can be seen, our estimated efficient base year opex plus capitalised corporate overheads (the blue dashed line) is above Endeavour’s estimated network services opex plus capitalised corporate overheads, indicating that opex in the base year is not materially inefficient. Similarly, in Figure 6.5 our estimates of efficient network services opex plus capitalised corporate overheads in the base year over the short period (shown in green, with an average of \$299.9 million (\$RY 2021) as per the blue dashed line), are above Endeavour’s estimated network services opex plus capitalised corporate overheads in the base year of 2022–23. Again, this further indicates that Endeavour’s estimated opex in the base year is not materially inefficient.

²⁵ We benchmark distribution businesses on the basis of the network services component of standard control services opex, which comprises the majority of standard control services opex. Network services opex excludes opex categories that are part of standard control services opex, such as opex for metering, customer connections, street lighting, ancillary services and solar feed-in tariff payments.

²⁶ AER, *Draft Decision Evoenergy Regulatory Proposal 2024 to 2029 Attachment 6 Operating Expenditure*, September 2023; AER, *Final Decision, Jemena determination 2021–26, Attachment 6 – Operating Expenditure*, April 2021, p. 25.

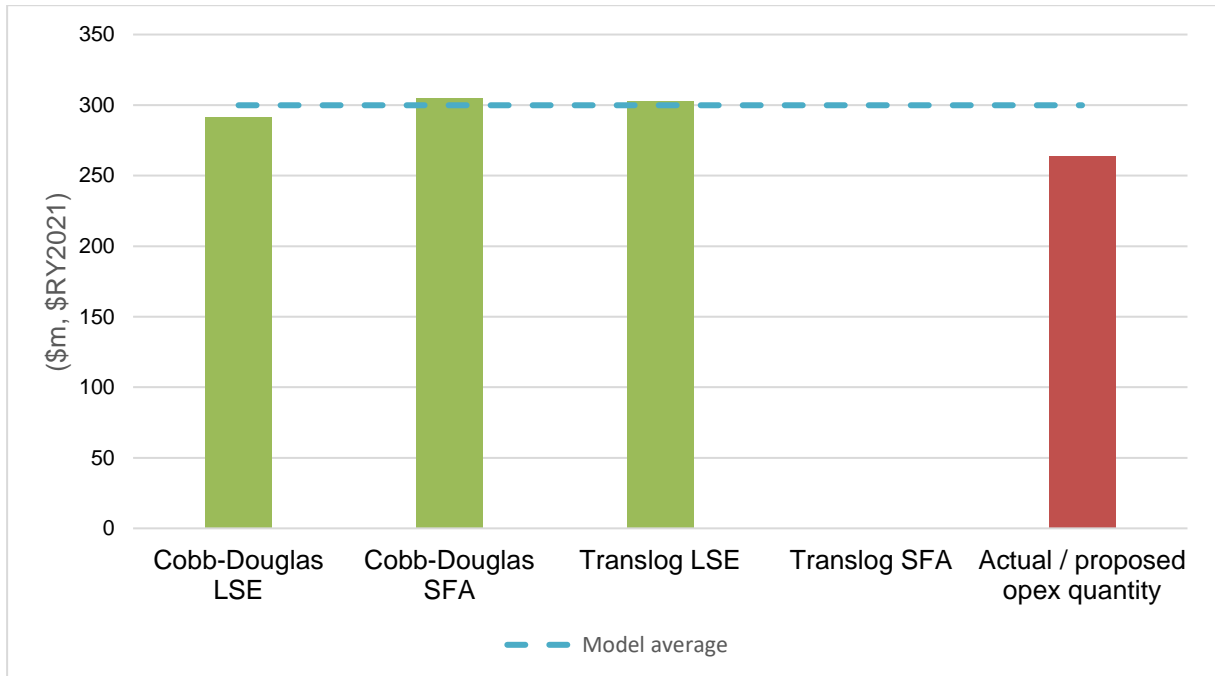
²⁷ Consistent with our benchmarking, the figures in our benchmarking roll-forward model are expressed in constant-price or ‘opex quantity’ terms, whereby the nominal (mid-year) opex series is deflated into constant-price dollars of the last year of the dataset used in the benchmarking for the most recent Annual Benchmarking Report. The benchmarking roll-forward model used in this decision draws on the results of our *2022 Annual Benchmarking Report*, which incorporates data up to regulatory year 2021, which in the case of the NSW/ACT DNSPs is Financial Year 2021. This means the opex figures are in constant-price \$December 2021 dollars. They are therefore not comparable to figures expressed in \$2023–24 terms. However, the purpose and output of the roll-forward model analysis is the efficiency gap, expressed in percentage terms.

Figure 6.4 Estimates of efficient network services opex using data over the 2006–21 period (\$ million, RY21)



Source: Quantonomics, *Benchmarking results for the AER – Distribution*, November 2022; AER analysis.

Figure 6.5 Estimates of efficient network services opex using data over the 2012–21 period (\$ million, RY 2021)



Source: Quantonomics, *Benchmarking results for the AER – Distribution*, November 2022; AER analysis.

Note: We exclude the efficiency score for the Translog SFA model for Endeavour as it does not satisfy the monotonicity requirement. Monotonicity is a key economic property required for these econometric opex cost function models, which is that an increase in output can only be achieved with an increase in inputs (opex), holding other things constant.

We consider this analysis shows that Endeavour’s lower opex, and improved productivity performance, in recent years has translated into opex in the base year of 2022–23 which is not materially inefficient. As a result, for this draft decision we have used Endeavour’s estimate of base year opex in our alternative estimate. We will update this analysis in our final decision when we will have audited actual opex data for 2022–23 to confirm this result.

6.4.1.3 Adjustments to base year opex

Endeavour proposed a total adjustment to its base opex of \$2.2 million (\$2023–24) or \$10.8 million (\$2023–24) over the regulatory control period. These adjustments were made to ensure opex in the base year reflected the best estimate of opex in 2023–24 year and into the 2024–29 regulatory period. We have accepted Endeavour’s proposed adjustments and have included these adjustments in our alternative estimate. This adjusted our alternative estimate of opex in the base year of \$266.1 million by \$2.1 million (\$2023–24) or \$10.7 million (\$2023–24) over the regulatory control period to:

- remove \$5.9 million (\$2023–24) for the reclassification of lease costs as capex in the 2024–29 regulatory period. This decreases our alternative estimate of total opex by \$29.3 million (\$2023–24) over the 2024–29 regulatory period. We explain this adjustment in section 6.4.1.3.1;
- add \$0.9 million (\$2023–24) for the reclassification of software-as-a-service (SaaS) costs as opex in the 2024–29 regulatory period. This increases our alternative estimate of total opex by \$4.6 million (\$2023–24) over the 2024–29 regulatory period. We explain this adjustment in section 6.4.1.3.1;
- remove \$0.0 million (\$2023–24)²⁸ for the estimated final year opex for categories forecast specifically. This decreases our alternative estimate by \$0.2 million (\$2023–24) over the 2024–29 regulatory period. We explain this adjustment in section 6.4.1.3.2;
- add \$7.1 million (\$2023–24) for the increase in opex between base year 2022–23 and 2023–24 (final year increment). This increases our alternative estimate by \$35.6 million (\$2023–24) over the 2024–29 regulatory period. We explain this adjustment in 6.4.1.3.3.

6.4.1.3.1 Leases and SaaS accounting treatment changes

Endeavour proposed adjustments to base opex of –\$5.9 million (\$2023–24) for lease costs and \$0.9 million (\$2023–24) for SaaS expenses (–\$24.7 million in aggregate, over the 2024–29 regulatory period). These adjustments to base year opex were proposed to ensure opex in the base year reflected the best estimate of opex in the 2024–29 regulatory period, given the latest accounting standards guidance. We agree with Endeavour’s proposed adjustments and in our alternative estimate we have included adjustments to base year opex of –\$5.9 million (\$2023–24) for lease costs and \$0.9 million (\$2023–24) for SaaS expenses (–\$24.7 million in aggregate, over the 2024–29 regulatory period).

Endeavour’s proposal referenced two accounting changes implemented by the Australian Accounting Standards Board (AASB) and the International Financial Reporting

²⁸ This equates to \$0.04 million (\$2023-24) when rounded to two decimal places.

Interpretations Committee (IFRIC) that affect its expenditure reporting in the 2019–24 regulatory period.²⁹ These were:

- leases were included in forecast opex for the 2019–24 period. Under AASB 16, which came into effect 1 July 2019, leases are now treated as capex.³⁰
- SaaS was treated as capex at the time of our determination for Endeavour’s 2019–24 period. Depending on its nature, it is now considered as opex under new International Financial Reporting Standards (IFRS) guidance published in April 2021.³¹

In its proposal, Endeavour considered a base year adjustment to be the most appropriate approach to account for the impact of AASB 16 on opex, as lease costs are now considered non-recurrent due to the change in accounting standards. This base adjustment approach removes leases costs from Endeavour’s revealed base year opex, so that it becomes suitable as a foundation to establish its opex requirements for 2024–29. Endeavour stated that adopting AASB 16 should have a neutral impact on customers as it would only recover the present value of opex lease payments via the capex forecast.³²

Endeavour also proposed to adjust its revealed base year opex to capture SaaS costs within its opex for the 2024–29 regulatory period. This proposed treatment followed the same in-principle approach as lease costs but resulted in an opposing impact on opex, as leases were removed from base year opex while SaaS was added to base year opex. This approach is also consistent with our recent decision on TransGrid’s 2023–28 revenue proposal.³³ Endeavour provided a breakdown of its ICT capex and In-house software capex cost categories over the previous, current and forecast regulatory periods to show that its ICT capex would decrease by a greater amount than the associated increase in opex.³⁴

We consider that Endeavour has adopted our standard approach to the treatment of SaaS and lease costs given the timing and impact of the latest accounting standards guidance. We have confirmed that there was no double counting of costs already covered in other aspects of Endeavour’s proposal, and we agree with Endeavour’s proposed calculation of the appropriate base adjustment amounts for both SaaS and lease base adjustments. Additionally, we note that each of these base adjustments results in either a net neutral or net reduction in associated costs over the 2024–29 regulatory period compared to the current period. It is our standard approach to provide for step changes and base adjustments that represent prudent and efficient capex/opex trade-offs as this results in lower total costs incurred by servicer providers.³⁵ As such, we have included base adjustments of –\$5.9 million (\$2023–24) for lease costs and \$0.9 million (\$2023–24) for SaaS expenses in our alternative estimate to reflect the impact on opex caused by the adoption of the latest accounting standards guidance.

²⁹ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, p. 233.

³⁰ Endeavour Energy, *8.01 Lease Capitalisation*, January 2023, p. 2.

³¹ Endeavour Energy, *0.01 Regulatory Proposal*, January 2023, p. 130.

³² Endeavour Energy, *8.01 Lease Capitalisation*, January 2023, p. 4.

³³ AER, *Draft decision - Transgrid determination 2023-2028*, September 2022, p. 12.

³⁴ Endeavour Energy, *10.11 Capex for previous, current and forecast period*, January 2023.

³⁵ AER, *Explanatory statement – Expenditure forecast assessment guideline*, November 2013, p. 58.

6.4.1.3.2 Removal of category specific forecasts

In some circumstances, particularly where a category of opex is not being forecast on a revealed cost basis, it may be removed from the base year expenditure. We refer to these as 'category specific forecasts' (see section 6.4.4). We have removed debt raising costs from base opex, to be forecast separately, which removed \$0.2 million (\$2023–24) from base opex over the 2024–29 period. This is consistent with our standard approach and Endeavour's proposal.³⁶

6.4.1.3.3 Final year increment

Our standard practice to calculate final year opex is to add the estimated change in opex between the base year (2022–23) and the final year (2023–24) of the current (2019–24) period to the base year opex amount.³⁷

We have included \$35.6 million (\$2023–24) for the final year increment in our alternative estimate, which is \$0.1 million (\$2023–24) lower than Endeavour's proposed amount of \$35.7 million (\$2023–24).³⁸ This variance is due to our use of the latest inflation figures when we escalated base year opex into \$2023–24.

Stakeholder submissions

In terms of stakeholder submissions, Origin Energy was concerned with the opex underspend achieved by Endeavour in the 2019–24 regulatory period and whether this underspend reflected sustainable efficiency improvements.³⁹ Origin noted that base adjustments and step changes effectively reset baseline opex and act to negate past savings, and thus future consumer benefits, while the NSP is rewarded through the EBSS for the reduction in its base opex during the period. Origin was particularly concerned with adjustments relating to changed accounting practices, service reclassification or capitalisation policies as it believed changes of this type make it difficult to assess the true efficiency of the base year and impact the comparability of opex over regulatory periods.

We recognise that Endeavour has achieved opex efficiency gains in the 2019–24 regulatory control period, and it is therefore important that these efficiencies are shared with consumers through lower forecast opex in the 2024–29 regulatory control period. This is consistent with the operation of the incentive framework. Where there are changes over time in accounting practices, service classifications and capitalisation policies across NSPs that affect opex, we account for these through adjustments in our annual benchmarking assessments, which we then use to determine the efficiency of base year opex. We also assess any proposed base opex adjustments and step changes in opex costs, and make adjustments where necessary, to ensure only prudent and efficient costs are reflected in total forecast opex. We will continue to regularly examine the effectiveness and appropriateness of our opex forecast assessment process and efficiency incentives, and implement changes where needed.

³⁶ Endeavour Energy, *11.01 Opex Model*, January 2023.

³⁷ AER, *Expenditure forecast assessment guideline for electricity distribution*, August 2022, pp. 24-25.

³⁸ Endeavour Energy, *11.01 Opex Model*, January 2023

³⁹ Origin Energy, Submission - 2024-29 Electricity Determination - NSW and ACT, May 2023, pp. 3–5.

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.⁴⁰

Endeavour applied our standard approach to forecasting the rate of change. It proposed:

- **Price growth:** to adopt a weighted average of forecast labour price growth (59.2%) and non-labour price growth (40.8%), and to forecast labour price growth using an average of BIS Oxford Economics' wage price index (WPI) growth forecasts and a placeholder for an AER WPI forecast. It also added the legislated superannuation guarantee increases to its labour price growth forecasts.
- **Output growth:** to apply the output weights from all four econometric models determined in our most recent annual benchmarking report.
- **Productivity growth:** to use our 0.5% per year productivity growth forecast.

The rate of change proposed by Endeavour contributed \$74.2 million (\$2023–24), or 5.0%, to Endeavour's total opex forecast of \$1,497.6 million (\$2023–24). This equates to opex increasing by 1.7% each year. We have included a rate of change that increases opex by 2.4% each year in our alternative estimate.

We compare both forecasts in Table 6.5, and reasons for the differences are set out below.

Table 6.5 Forecast annual rate of change in opex, %

	2024–25	2025–26	2026–27	2027–28	2028–29
Endeavour's proposal					
Price growth	1.0	0.9	0.4	0.3	0.4
Output growth	1.9	1.3	1.5	1.6	1.6
Productivity growth	0.5	0.5	0.5	0.5	0.5
Rate of change	2.4	1.6	1.4	1.4	1.5
AER alternative estimate					
Price growth	0.7	0.8	0.5	0.4	0.6
Output growth	3.3	1.6	2.2	2.1	2.1
Productivity growth	0.5	0.5	0.5	0.5	0.5
Rate of change	3.6	1.9	2.2	2.0	2.2
Difference	1.2	0.3	0.8	0.6	0.7

Source: Endeavour, *11.01 Opex Model*, January 2023; AER analysis.

Note: The rate of change = $(1 + \text{price growth}) \times (1 + \text{output growth}) \times (1 - \text{productivity growth}) - 1$.
 Numbers may not add up to totals due to rounding. Amounts of '0.0' and '-0.0' represent small non-zero values and '-' represents zero.

⁴⁰ AER, *Expenditure forecast assessment guideline for electricity distribution*, August 2022, pp. 25–26.

6.4.2.1 Forecast price growth

Endeavour proposed average annual price growth of 0.6%, which increased its total opex forecast by \$28.8 million (\$2023–24). We have used a real average annual price growth forecast of 0.6% over the 2024–29 regulatory control period in our alternative estimate of total opex. This increases our total opex alternative estimate by \$26.9 million (\$2023–24).⁴¹

Both we and Endeavour forecast price growth as a weighted average of forecast labour price growth and non-labour price growth:

- both we and Endeavour used an average of two WPI growth forecasts for the electricity, gas, water and waste services (utilities) industry in New South Wales to forecast labour price growth, consistent with our standard approach. Endeavour used forecasts from its consultant, BIS Oxford Economics, and a placeholder for our WPI forecast. It sourced the placeholder WPI forecast from our consultant's (KPMG's) September 2022 WPI forecast report commissioned for our draft decision on AusNet Services (gas distribution) 2023–28 access arrangement.⁴² In our alternative estimate, we have replaced the placeholder WPI forecasts with the more recent forecasts from our consultant KPMG.⁴³
- both we and Endeavour applied a forecast non-labour price growth equal to CPI growth (i.e., real price growth rate of zero).⁴⁴
- both we and Endeavour have applied the same weights to account for the proportions of opex that is labour and non-labour, 59.2% and 40.8%, respectively.⁴⁵

Consequently, the key difference between our real price growth forecasts and Endeavour's proposal is that we have updated our labour price growth forecast to include the more recent forecasts from KPMG, instead of the older placeholder WPI forecasts from September 2022.

Table 6.6 compares our forecast labour price growth with Endeavour's proposal.

⁴¹ Our average increase is greater than Endeavour's increase, but the total impact is less. This is due to the profile of the growth rates proposed by us and Endeavour.

⁴² KPMG, *WPI forecast report*, September 2022, p. 40.

⁴³ KPMG, *WPI forecast report*, August 2023, p. 38.

⁴⁴ Endeavour Energy, *11.01 Opex Model*, January 2023.

⁴⁵ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 243.

Table 6.6 Forecast labour price growth, %

	2024–25	2025–26	2026–27	2027–28	2028–29
Endeavour’s proposal					
AER consultant	1.1	0.9	0.5	0.5	0.5
BIS Oxford Economics	1.2	1.1	0.9	0.5	0.9
Superannuation guarantee increases	0.5	0.5	0.0	0.0	0.0
Average, including superannuation guarantee increases	1.7	1.5	0.7	0.5	0.7
AER’s alternative estimate					
KPMG	0.3	0.7	0.8	0.9	0.9
BIS Oxford Economics	1.2	1.1	0.9	0.5	0.9
Superannuation guarantee increases	0.5	0.5	0.0	0.0	0.0
Average, including superannuation guarantee increases	1.2	1.4	0.9	0.7	0.9
Overall difference	-0.4	-0.1	0.2	0.2	0.2

Source: Endeavour Energy, *BIS - 0.10 Real Cost Escalation Forecast*, November 2022, p. 4; KPMG, *WPI forecast report*, July 2023, p. 38; AER analysis.

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.

We will receive updated labour price growth forecasts for the purpose of our final decision and will update our price growth forecasts in the final decision to reflect this update.

6.4.2.2 Forecast output growth

Endeavour proposed average annual output growth of 1.6%, which increased its proposed opex forecast by \$65.7 million (\$2023–24). We have forecast average annual output growth of 2.3%. This increases our alternative estimate of total opex by \$99.0 million (\$2023–24).

We and Endeavour have forecast output growth by:

- Calculating the growth rates for three outputs (customer numbers, circuit line length, and ratcheted maximum demand).
- Calculating four weighted average overall output growth rates using the output weights from the four econometric opex cost function benchmarking models in our *2022 Annual Benchmarking Report*.
- Averaging the four-model specific weighted overall output growth rates.

We discuss these below.

6.4.2.2.1 Forecast growth of the individual output measures

We are satisfied that Endeavour's forecast of the growth in customer numbers, circuit length and ratcheted maximum demand reflect a realistic expectation and are largely consistent

with forecast trends from external sources that have been previously tested and validated or historical growth rates. Specifically:

- **Customer numbers:** Endeavour proposed short term customer number forecasts based on historical trends, and long-term forecasts based on the growth rate projections of the National Institute of Economic and Industry Research (NIEIR), both of which we have reviewed and validated.⁴⁶
- **Circuit length:** Endeavour forecast growth in its circuit length consistent with its historical growth rate.
- **Ratcheted maximum demand:** Endeavour forecast ratcheted maximum demand based on NIEIR demand forecasts of peak demand at the transmission connection point. NIEIR is forecasting demand to surpass its historic peaks in 2017, indicating growth in ratcheted maximum demand over the 2024–29. We discuss ratcheted maximum demand forecasts further in below, and maximum demand forecasts in Attachment 5 of this draft decision.

Adjustment to forecast ratcheted maximum demand

While we are satisfied with Endeavour's forecast ratcheted maximum demand growth, we note that Endeavour's forecast ratcheted maximum demand growth in its opex model is not consistent with its Reset RIN forecast.

In its proposal, Endeavour noted that for ratcheted maximum demand it adopted a lower forecast for opex forecasting purposes by excluding demand growth from data centres and spot loads.⁴⁷ In response to our request for further information, Endeavour said that using its Reset RIN forecast in the opex model would materially increase its forecast opex by over \$33.3 million (\$2023–24), beyond a level that was supported by the Retailer Reference Group and customers (the latter on account of their affordability concerns).⁴⁸ It said that, in this instance, departing from the typical approach in order to reduce forecast opex growth is prudent in the current cost-of-living crisis and reflects its commitment to efficiency beyond the baseline 0.5% productivity factor contained in the opex model.

We acknowledge that Endeavour has reduced its opex demand forecast to constrain costs with customers in mind, and we applaud Endeavour for responding to concerns raised by its customers. Endeavour's lower opex model maximum demand forecast contributed to our draft decision to accept its proposal at the total opex level. However, for the purposes of using the best available forecast of opex, we have relied upon Endeavour's Reset RIN maximum demand forecast in our alternative estimate. This is consistent with our standard approach.

Table 6.7 compares our forecast output measure growth rates with Endeavour's proposal.

⁴⁶ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 114–115.

⁴⁷ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 245.

⁴⁸ Endeavour Energy, *Response to IR#029 – Opex and EBSS model inputs*, 9 June 2023.

Table 6.7 Forecast growth in individual output measures, %

	2024–25	2025–26	2026–27	2027–28	2028–29
Endeavour’s proposal					
Customer numbers	2.2	2.0	2.0	2.0	2.0
Circuit length	1.4	1.4	1.4	1.4	1.4
Ratcheted maximum demand	1.8	0.2	1.0	1.2	1.0
AER alternative estimate					
Customer numbers	2.2	2.0	2.0	2.0	2.0
Circuit length	1.4	1.4	1.4	1.4	1.4
Ratcheted maximum demand	5.5	1.1	2.7	2.4	2.5
Difference					
Customer numbers	-0.0	-	0.0	-0.0	-
Circuit length	-	-	-	-	-
Ratcheted maximum demand	3.8	0.9	1.7	1.2	1.5

Source: Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 245; AER analysis.

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.

6.4.2.2.2 Output weights

The output weights that both we and Endeavour have used in our alternative estimate are set out in Table 6.8.

Table 6.8 Output weights, %

	Cobb-Douglas SFA	Cobb Douglas LSE	Translog LSE	Translog SFA	AER Alternative Estimate Average	Endeavour Proposal Average
Customer numbers	43.1	60.9	45.1	47.6	49.2	49.2
Circuit length	10.8	15.7	17.2	8.4	13.0	13.0
Ratcheted maximum demand	46.1	23.4	37.6	43.9	37.8	37.8

Source: Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 244–245; Quantonomics, *Annual benchmarking reports 2022, Benchmarking results for the AER - Distribution*, November 2022, pp. 137-139; AER, *Draft decision - Endeavour Energy - Determination 2024–29 - Opex model*, September 2023; AER analysis.

We will publish our *2023 Annual benchmarking report* in late November 2023. In our final decision, we will update our output growth rate forecasts to reflect the output weights in the *2023 Annual benchmarking report*. Full details of our approach to forecasting output growth are set out in our opex model, which is available on our website.

6.4.2.3 Forecast productivity growth

Endeavour proposed average productivity growth of 0.5% per year. We have forecast the same average productivity growth of 0.5% per year, which reflects our standard approach. This decreases our alternative opex estimate by \$20.3 million (\$2023–24) over the regulatory control period which is the same as the decrease proposed by the Endeavour of \$20.3 million.

6.4.3 Step changes

In developing our alternative estimate for the draft decision, we include prudent and efficient step changes for cost drivers such as new regulatory obligations or efficient capex / opex trade-offs. As we explain in the *Expenditure forecast assessment guideline* for electricity, we will generally include a step change if the efficient base opex and the rate of change in opex of an efficient service provider does not already include the proposed cost for such items and they are required to meet the opex criteria.⁴⁹

Endeavour’s proposal included four step changes totalling \$60.0 million (\$2023–24) or 4.0% of its proposed total opex forecast. These are shown in Table 6.9, along with our alternative estimate for the draft decision, which is to include step changes totalling \$58.0 million (\$2023–24), being \$2.0 million (\$2023–24) lower than Endeavour’s proposal. We discuss the reasons for our decision below.

Table 6.9 Endeavour’s proposed step changes and the AER’s draft decision (million, \$2023–24)

Step change	Evoenergy’s proposal	AER’s alternative estimate	Difference
Solar Soak / Off-Peak Conversion	5.8	5.8	–
Network visibility	14.2	12.2	–2.0
Insurance premium	36.6	36.6	–0.0
Demand management	3.4	3.4	–
Total step changes	60.0	58.0	–2.0

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

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.

⁴⁹ AER, *Expenditure forecast assessment guideline for electricity distribution*, August 2022, p. 26.

6.4.3.1 Solar soak / off-peak conversion

Endeavour proposed a \$5.8 million (\$2023–24) 'Solar Soak / Off-Peak Conversion' step change over the 2024–29 period.⁵⁰ Our draft decision is to include a placeholder forecast of \$5.8 million for this step change in our alternative estimate of total forecast opex for the draft decision. This reflects that we consider a solar soak step change likely to be prudent, but that we consider Endeavour's revised proposal on this step change should provide additional supporting information to address issues identified in its approach to cost-benefit analysis for its DER program.

Table 6.10: Endeavour's Solar Soak / Off-Peak Conversion step change (\$million, 2023–24)

Step change	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Endeavour's proposal	2.9	2.9	–	–	–	5.8
AER draft decision	2.9	2.9	–	–	–	5.8
Difference	–	–	–	–	–	–

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

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.

Endeavour proposed the 'Solar Soak / Off-Peak Conversion' step change as a capex/opex trade-off, stating it will improve network management, avoid \$12 million of network investment and improve network hosting capacity.⁵¹ Endeavour submitted that these costs are intended to provide incentives for retailers and customers to upgrade to smart meters. These smart meters will enable specific loads, such as hot water systems, to transition from the ripple control systems to a more flexible smart meter control.

The submission from the CCP26 supported our targeted review of the Solar soak / off-peak conversion step change and submitted that the review is in line with engagement expectations from the CCP26's observations.⁵² Red and Lumo Energy also recommended the AER complete a forensic examination of the consumer energy resource integration expenditure to ensure the claimed benefits are proportionate to the proposed costs.⁵³

We have assessed the information provided in Endeavour's proposal, including information provided in information requests. We have also considered advice received from our consultants, Energy Market Consulting associates (EMCa), which assisted in the assessment of this step change. In terms of efficiency, our assessment showed that the proposed costs are consistent with the prevailing market rates. In terms of prudence, we have also considered the application and effect on network operation (e.g. network tariffs, and corresponding export and demand) of solar soaking more widely, including through other

⁵⁰ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 240.

⁵¹ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 240.

⁵² Consumer Challenge Panel 26, *Advice to the AER 2024-29 Electricity Determination - Endeavour*, May 2023, pp. 12–13.

⁵³ Red and Lumo Energy, *Submission - 2024-29 Electricity Determination - NSW*, May 2023, p. 2.

proposals we have recently assessed.⁵⁴ Overall, we consider this step change is likely to reflect a prudent capex / opex tradeoff and investment. However, as described below, we consider that Endeavour will need to improve its overall cost-benefit analysis for future processes, including its benefits quantification approach, to better account for the inherent benefits from investments such as the solar soak step change.

We note that EMCa's assessment of Endeavour's proposal found that although this investment is likely to realise avoided costs, the identified benefits for this investment are not robust enough to confirm that they likely lead to a net benefit.⁵⁵ This is consistent with EMCa's overall conclusion that the basis of Endeavour's assessment of some benefits is unclear or unsupported by evidence, and that its cost-benefit analysis model is flawed. EMCa concluded that the cost-benefit model Endeavour provided does not contain valid representations of benefits, nor the NPV of the proposed CER program.⁵⁶

However, we note that solar soak applications (e.g. proposed network tariffs) have also been considered by other recent network proposals.⁵⁷ Given the findings on Endeavour's overall benefit quantification approach, and the demonstrated positive impact of solar soaking from other similar solar soaking applications we have reviewed in recent determinations (e.g. avoided network investment and improved network optimisation during peak export periods), we consider that the solar soak step change is likely to reasonably reflect prudent and efficient costs in the 2024–29 regulatory control period.

For our alternative estimate, we have included \$5.8 million for the 'Solar Soak / Off-Peak Conversion' step change. This is consistent with the amount proposed by Endeavour. Including or excluding this amount does not affect our conclusion that our alternative estimate of total forecast opex is not materially different to Endeavour's estimate.

We also note the AEMC's final report for its review of the regulatory framework for metering services was published shortly before we published our draft decision.⁵⁸ Endeavour should have regard to this report in preparing its revised proposal, and we will consider any relevant outcomes of this review in making our final decision on this step change.

6.4.3.2 Network visibility

Endeavour proposed a \$14.2 million (\$2023–24) 'Network visibility' step change over the 2024–29 period.⁵⁹ We have included a forecast of \$12.2 million for network visibility in our alternative estimate of total forecast opex. This reflects that we are not satisfied Endeavour has adequately justified that the higher bound of the network visibility target is required.

⁵⁴ Ausgrid, *Att. 5.7 - CER integration program, Appendix A: CER integration program brief*, January 2023, p. 12; Evoenergy, *Regulatory proposal*, January 2023, p. 75.

⁵⁵ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, p. 34.

⁵⁶ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, p. 29-31.

⁵⁷ Ausgrid, *Att. 5.7 - CER integration program, Appendix A: CER integration program brief*, January 2023, p. 12; Evoenergy, *Regulatory proposal*, January 2023, p. 75.

⁵⁸ AEMC, [Review of the regulatory framework for metering services, Final report](#), August 2023.

⁵⁹ Endeavour Energy, *11.01 Opex Model*, January 2023

Table 6.11: Endeavour's network visibility step change (\$million, 2023–24)

Step change	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Endeavour's proposal	2.1	2.5	2.8	3.2	3.5	14.2
AER draft decision	1.9	2.1	2.4	2.7	3.0	12.2
Difference	-0.3	-0.3	-0.4	-0.5	-0.5	-2.0

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

Note: Numbers may not add due to rounding.

Endeavour proposed a 'Network visibility' step change to increase its low voltage network visibility to within a target visibility band of 20–25%.⁶⁰ It proposed to increase voltage network visibility by uplifting associated analytical capabilities, and by acquiring smart meter and distribution transformer monitor data.⁶¹ Specifically, Endeavour noted that it plans to acquire smart meter power quality data from 298,750 smart meters by 2028–29, or a projected 25% network visibility.⁶² Endeavour further noted that it plans a targeted distribution monitoring program for distribution transformers that exceed a modelled 50% reverse power flow penetration, or greater than 80% utilisation (forward loading), or combination thereof.⁶³

Overall, Endeavour submitted that network visibility is foundational to enable its CER strategy, including underpinning all the intervention strategies in its proposed CER integration strategy plan.⁶⁴ It further submitted that the increased visibility contributed to a reduction of \$33 million for its augmentation proposal, and will enable higher hosting capacity and increased customer safety, reliability and overall operational efficiency.⁶⁵

We consider it prudent for Endeavour to increase its network visibility, including to improve its network management. Particularly, this includes efficiencies gained in its voltage and non-compliance management in an expanding CER network. This is also supported by advice from our technical consultant EMCa, which assisted in the assessment of this step change.⁶⁶

However, we are not satisfied that Endeavour appropriately justified selecting a network visibility level at the top of the target range. EMCa also submitted that Endeavour's data requirement may be overstated, and noted that although the target band of 20–25% is reasonable, this level is only required for feeders with voltage or CER related issues.⁶⁷ EMCa considered that less data than proposed may be needed, particularly in the early years of the

⁶⁰ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 239.

⁶¹ Endeavour Energy, *Response to information request IR#023 - Network visibility step change*, 19 May 2023.

⁶² Endeavour Energy, *Response to information request IR#023 - Network visibility step change*, 19 May 2023.

⁶³ Endeavour Energy, *10.40 DER Integration Strategy*, December 2022, p. 56.

⁶⁴ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 238–239.

⁶⁵ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 238–239.

⁶⁶ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, pp. 29-30.

⁶⁷ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, p. 22.

2024–29 period, and that 25% coverage is not required by the end the period.⁶⁸ EMCa instead recommended a targeted approach to identify the areas of highest value, and thus maximise the associated cost-benefit of this intervention.⁶⁹

The submission from the CCP26 supported our targeted review of the Network visibility step change, and submitted that the review is in line with engagement expectations from the CCP26's observations.⁷⁰ Red and Lumo Energy also noted that the amounts for this step change appeared excessive for acquiring smart meter data, and that more information is requested to explain how this data will improve CER visibility and hosting capacity.⁷¹ Red and Lumo Energy also recommended the AER complete a forensic examination of the consumer energy resource integration expenditure to ensure the claimed benefits are proportionate to the proposed costs.⁷²

For our alternative estimate, we have included \$12.2 million for the 'Network visibility' step change, or a reduction of \$2.0 million compared to Endeavour's proposal. We have constrained Endeavour's acquisition of power quality data from smart meters to be consistent with the lower bound of the coverage level. However, we have maintained the costs associated with analytics and the distribution transformer monitoring portion of the proposed step change. This is also consistent with the decisions for the other network businesses that proposed similar network visibility costs (e.g. Ausgrid's 2024–29 determination smart meter step change).⁷³

We note the AEMC's final report for its review of the regulatory framework for metering services was published shortly before we published our draft decision.⁷⁴ We will consider any relevant outcomes of this review in making our final decision for Endeavour's Network visibility step change.

6.4.3.3 Insurance premium step change

Endeavour proposed a step change of \$36.6 million (\$2023–24) for an increase in insurance premiums over the 2024–29 regulatory period.⁷⁵ We have included the proposed amount (adjusted for the latest inflation data) in our alternative estimate, as we consider it would result in forecast expenditure that is likely to be prudent and efficient.

⁶⁸ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, pp. 22, 34.

⁶⁹ EMCa, *Endeavour Energy 2024 to 2029 Regulatory Proposal - Review of proposed expenditure on DER and Non-recurrent ICT*, August 2023, p. 34.

⁷⁰ Consumer Challenge Panel 26, *Advice to the AER 2024-29 Electricity Determination - Endeavour*, May 2023, pp. 12–13.

⁷¹ Red and Lumo Energy, *Submission - 2024-29 Electricity Determination - NSW*, May 2023, p. 7.

⁷² Red and Lumo Energy, *Submission - 2024-29 Electricity Determination - NSW*, May 2023, p. 2.

⁷³ AER, *Draft decision - Ausgrid 2024-29 revenue determination, Attachment 6 - Operating expenditure*, September 2023, pp. 30-31.

⁷⁴ AEMC, [Review of the regulatory framework for metering services. Final report](#), August 2023.

⁷⁵ Endeavour Energy, *11.01 Opex Model*, January 2023.

Table 6.12 Endeavour’s insurance premium step change (\$million, 2023–24)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Endeavour’s proposal	3.6	5.2	7.1	9.2	11.6	36.6
AER’s draft decision	3.6	5.3	7.1	9.2	11.4	36.6
Difference	0.0	0.1	0.1	0.0	-0.2	-0.0

Source: Endeavour, *11.01 Opex Model*, January 2023; AER analysis.

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.

Endeavour calculated the proposed step change amount as the difference in the insurance premium payable each year against the base level of insurance premium costs included in the operating expenditure base year (2022–23).⁷⁶ Endeavour’s forecast of insurance premiums over 2024–29 was prepared by its consultant, BMS, who provided forecasts over a range (e.g., low, medium, and high).⁷⁷ The information provided suggests Endeavour has taken a robust approach in attempting to limit these costs, including by constraining proposed costs materially below the range advised by its market expert.⁷⁸

We recently engaged Taylor Fry to assess the prudence and efficiency of forecast insurance premiums for our 2023–28 ElectraNet and Transgrid revenue proposal determinations. We consider Endeavour’s constrained forecast insurance premiums are largely consistent with Taylor Fry’s expectation of future premiums, given prevailing market conditions.

Our assessment considers the rate of change forecast, which includes an amount for non-labour price growth of CPI. This covers potential increases in existing costs like insurance. We expect some non-labour components in opex will increase by more than CPI and some less than CPI. Where insurance premiums rise by more than CPI, we expect this will to an extent be offset by other non-labour costs rising by less than CPI. However, there may be specific circumstances where it is appropriate to consider increasing costs of individual cost categories, particularly where they represent a material proportion of total opex.

In this case, we are satisfied the proposed step change likely reflects a reasonable expectation of cost inputs, and is not likely to be captured in base opex or the rate of change. We consider the proposed costs represent a material proportion of total forecast opex and are materially above the non-labour price growth (CPI) included in the rate of change, and therefore less likely to be offset by lower growth in other non-labour costs. We have included this step change in our alternative estimate of total forecast opex.

6.4.3.4 Demand management

Endeavour proposed a \$3.4 million (\$2023–24) 'Demand management' step change over the 2024–29 period.⁷⁹ We have included the proposed amount (adjusted for the latest inflation

⁷⁶ Endeavour Energy, *11.03 Insurance Premium Opex Step Change*, December 2022, p. 15.

⁷⁷ Endeavour Energy, *BMS - 11.04 Insurance Premium Estimates FY23-29 (Appendix)*, December 2022.

⁷⁸ Endeavour Energy, *11.03 Insurance Premium Opex Step Change*, December 2022, p. 15.

⁷⁹ Endeavour Energy, *11.01 Opex Model*, January 2023.

data) in our alternative estimate, as we consider that the proposed step change results in forecast expenditure that is likely to be prudent and efficient.

Table 6.13: Endeavour's demand management step change (\$million, 2023–24)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Endeavour's proposal	–	0.5	0.8	1.1	1.1	3.4
AER's draft decision	–	0.5	0.8	1.1	1.1	3.4
Difference	–	–	–	–	–	–

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

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

Endeavour submitted that its proposed Demand management step change relates to a non-network solution it identified in its augmentation capex (Augex) planning process.⁸⁰

Endeavour stated it identified five projects that allowed it to revise its Augex forecast from over \$550 million to \$413 million.⁸¹ Endeavour clarified that the final costs of these projects are dependent on market outcomes, but it anticipates the deferral value per project to be between \$8.1–11.5 million, allowing it to exclude \$65.5 million from its capex proposal.⁸²

We have reviewed the information provided by Endeavour, including the modelling of the combined capex and opex solution. We are satisfied that this step change represents a prudent and efficient capex / opex trade off, and have included a forecast of \$3.4 million in our alternative estimate for total forecast opex for the draft decision.

6.4.4 Category specific forecast

Endeavour's proposal included only one category specific forecast, debt raising costs, which was not forecast using the base-step-trend approach. We have also included a category specific forecast for debt raising costs in our alternative estimate of total opex.

6.4.4.1 Debt raising costs

We have included debt raising costs of \$20.2 million (\$2023–24) in our alternative estimate. This amount is \$0.2 million (\$2023–24) higher than the \$20.0 million (\$2023–24) proposed by Endeavour.

⁸⁰ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 240.

⁸¹ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, p. 241

⁸² Endeavour Energy, *Response to information request IR#20 - Demand management step change*, 11 May 2023, p. 2.

Table 6.14 Debt raising costs (\$million, 2023–24)

	2024–25	2025–26	2026–27	2027–28	2028–29	Total
Endeavour’s proposal	4.1	4.0	4.0	4.0	4.0	20.0
AER alternative estimate	4.1	4.1	4.0	4.0	4.0	20.2
Difference	0.0	0.0	0.0	0.0	0.0	0.2

Source: Endeavour Energy, *11.01 Opex Model*, January 2023; AER analysis.

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.

Debt raising costs are transaction costs incurred each time a business raises or refinances debt. Our preferred 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 have used our standard approach to forecast debt raising costs, which is discussed further in Attachment 3 to this draft decision.

6.4.5 Other matters - Innovation Fund

Endeavour proposed an Innovation Fund of \$25 million (\$20 million of capex, \$5 million of opex) to trial and invest in innovative solutions and technologies to support the energy transition and community resilience.⁸³ Endeavour submitted this would involve collaborating on local emergency management plans, reviewing communication protocols and resources, developing education programs and developing local resilience hubs.⁸⁴

Rather than adding the proposed \$5 million to its total forecast opex, Endeavour included this expenditure forecast as a line item in its proposed post tax revenue model (PTRM).⁸⁵ This treatment means these costs are not included in the forecast total opex discussed in this attachment, and would not be included in future base opex, or subject to the ex-ante incentive regime.

We have not included the proposed Innovation Fund expenditure in this draft decision. Our reasons are discussed in the capital expenditure attachment of this draft decision (see Attachment 5).

⁸³ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 78, 225; Endeavour Energy, *0.04 Post-Tax Revenue Model*, January 2023.

⁸⁴ Endeavour Energy, *0_01 Regulatory Proposal*, January 2023, pp. 78.

⁸⁵ Endeavour Energy, *0.04 Post-Tax Revenue Model*, January 2023.

Shortened forms

Term	Definition
AASB	Australian Accounting Standards Board
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulatory
capex	capital expenditure
CCP26	Consumer Challenge Panel, sub-panel 26
CER	Consumer Energy Resources
DNSP or distributor	Distribution Network Service Provider
EBSS	efficiency benefit sharing scheme
EMCa	Energy Market Consulting associates
Endeavour	Endeavour Energy
ICT	information and communication technologies
IFRIC	International Financial Reporting Interpretations Committee
IFRS	International Financial Reporting Standards
NEL	National Electricity Laws
NEM	National Electricity Market
NEO	National Electricity Objectives
NER	National Electricity Rules
NIEIR	National Institute of Economic and Industry Research
opex	operating expenditure
PIAC	Public Interest Advocacy Centre
PTRM	Post-Tax Revenue Model
WPI	Wage Price Index
WSROC	Western Sydney Regional Organisation of Councils