FINAL DECISION

SA Power Networks Distribution Determination 2020 to 2025

Attachment 6 Operating expenditure

June 2020

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on the distribution determination that will apply to SA Power Networks for the 2020–25 regulatory control period. It should be read with all other parts of the final decision.

The final decision includes the following attachments:

Overview

Attachment 1 – Annual revenue requirement

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

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Contents

6 Operating expenditure

Operating expenditure (opex) is the forecast of operating, maintenance and other non-capital costs incurred in the provision of standard control services. Forecast opex is one of the building blocks we use to determine SA Power Networks' total regulated revenue requirement.

This attachment outlines our assessment of SA Power Networks' revised opex proposal for the 2020–25 regulatory control period.

6.1 Final decision

We accept SA Power Networks' total opex forecast of $1469.5 million ($2019–20), including debt raising costs, for the 2020–25 regulatory control period. Our alternative estimate of $1443.2 million is $26.3 million ($2019–20)[1] (or 1.8 per cent) higher from SA Power Networks' proposal which is not materially different.

AER's alternative opex estimate compared to SA Power Networks' revised proposal ($ million, 2019–20)Table 6.1 sets out SA Power Networks' revised proposal, our alternative estimate for the final decision and the differences between them.

Table 6.1 AER's alternative opex estimate compared to SA Power Networks' revised proposal ($ million, 2019–20)

	SA Power Networks Revised Proposal	AER alternative estimate Final Decision	Difference
Based on reported opex in 2018-19	1324.2	1321.1	–3.2
Efficiency adjustment	0.0	0.0	0.0
Base year adjustments	0.0	0.0	0.0
2018-19 to 2019-20 increment	16.6	16.5	0.0
Output growth	24.9	25.4	0.5
Price growth	20.1	20.4	0.2
Productivity growth	–20.0	–19.9	0.0
Step changes	92.5	69.3	–23.2
Debt raising costs	11.2	10.5	–0.7
Total opex	1469.5	1443.2	–26.3

Source: SA Power Networks, *2020–2025 Revised regulatory proposal – 6.6 – Opex model 2020–25 RCP*, December 2019; SA Power Networks, *2020–2025 Revised regulatory proposal – Attachment 6 – Operating*

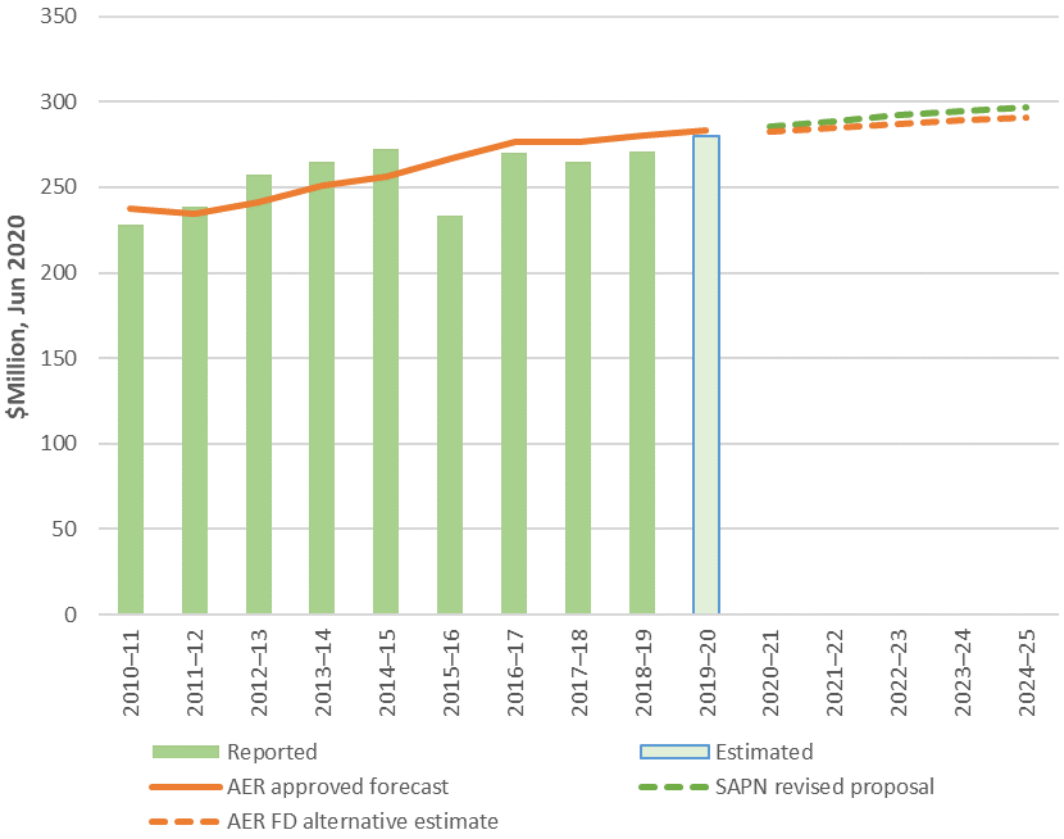
[1] We use the Reserve Bank of Australia's May 2020 *Statement on monetary policy* trimmed mean inflation forecasts for the year ending June 2020. See section 6.4.1 for further details.

expenditure, 10 December 2019; SA Power Networks, *2020–2025 Revised regulatory proposal – Addendum to Attachment 6*, February 2020; AER analysis.

Note: Includes debt raising costs. Numbers may not add up to total due to rounding.

Figure 6.1 shows our alternative estimate of opex compared to SA Power Network's revised proposal, its past allowance and past actual expenditure.

Figure 6.1 Historical and forecast opex ($ million, 2019–20)



Source: SA Power Networks, *Regulatory Accounts 2010–11 to 2018–19*; SA Power Networks, *2020–2025 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019; SA Power Networks, *2020–2025 Revised regulatory proposal – Addendum to Attachment 6*, February 2020; AER analysis.

Note: Includes debt raising costs. Numbers may not add up to total due to rounding

While we accept SA Power Networks' revised proposal for total opex, the following sets out how we have calculated our alternative estimate and the key differences that result in our lower forecast:

- Similar to SA Power Networks, we start with the 2018–19 base year opex of $264.2 million ($2019–20). From our assessment of revealed cost data and a range of benchmarking techniques we consider that SA Power Networks has been relatively efficient over time. Given this, we have used the actuals provided by SA Power Networks for 2018–19 as the base opex in developing our alternative estimate.

- Our forecast rate of change by which we trend opex forward over the next five years (for output, price and productivity growth) is largely the same as what SA Power Networks included in its revised proposal.
    - We used our standard approach (using output weights from all of our benchmarking models) to forecast expected increases in the costs of operating a larger network (output growth) as did SA Power Networks.
    - We forecast labour price growth using our standard approach of averaging the forecasts from Deloitte Access Economics (Deloitte), prepared for the AER, and from BIS Oxford Economics, prepared for SA Power Networks. This is a change in the approach adopted in our draft decision of using Deloitte's forecasts only and it reflects the approach SA Power Networks used in its revised proposal.
    - We applied our 0.5 per cent per year productivity growth forecast from our opex productivity growth review final decision[2] as did SA Power Networks.
- We have examined the 10 step changes SA Power Networks included in its revised proposal and its submission to the revised proposal. In our alternative estimate we have:
    - Included five step changes as proposed. These were for critical infrastructure compliance, transitioning to cloud services for hosting and work scheduling, low voltage (LV) management of future networks and LV transformer monitoring. Other than LV transformer monitoring, which is a negative step change reflecting efficiency gains from related capital expenditure (capex), these were all included in our draft decision with the same or higher costs.
    - Included three step changes but with different amounts to those proposed by SA Power Networks. These are for the reclassification of cable and conductor minor repairs from replacement expenditure to opex, changes to the Guaranteed Service Level reliability payments obligations and revised distribution licence fees.
    - Not included a step change proposed to meet expected cyber security obligations as these obligations are not yet in place and the proposed opex is not material. We have also not included a step change proposed for higher bushfire insurance costs as we are not persuaded SA Power Networks has demonstrated that non-labour price growth, including for insurance costs, does not adequately compensate the forecast increases.

6.2 SA Power Networks' revised proposal

In its revised proposal, SA Power Networks forecast opex of $1458.3 million ($2019–20) excluding debt raising costs[3], which is 10.6 per cent higher than SA Power

[2] AER, *Final decision paper, Forecasting productivity growth for electricity distributors*, March 2019.

Networks' actual opex for the 2015–20 regulatory control period. SA Power Networks' revised opex proposal is 5.3 per cent lower than its initial regulatory proposal and 0.2 per cent lower than our alternative estimate in the draft decision.[4] These forecasts include SA Power Networks submission on 10 February 2020 to include an additional insurance premium step change of $16.3 million ($2019–20).[5]

Table 6.2 sets out SA Power Networks revised opex proposal for the 2020–25 regulatory control period.

Table 6.2 SA Power Networks' revised proposal opex ($ million, 2019–20)

	2020–21	2021–22	2022–23	2023–24	2024–25	Total
Opex	285.7	288.8	292.1	294.7	297.1	1458.3
Debt raising costs	2.2	2.2	2.2	2.3	2.3	11.2
Total opex	287.9	291.0	294.3	297.0	299.4	1469.5

Source: SA Power Networks, *2020–2025 Revised regulatory proposal – 6.6 – Opex model 2020–25 RCP*, December 2019; SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019; SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020; AER analysis.
Note: Includes debt raising costs. Numbers may not add up to total due to rounding.

SA Power Networks stated that it adopted our base–step–trend approach to forecast opex for the 2020–25 regulatory control period and that its revised proposal includes base year opex reflecting actuals rather than estimates.[6] The key elements of SA Power Networks' revised proposal resulting in forecast total opex of $1469.5 ($2019–20) million are[7]:

- SA Power Networks used its actual opex in 2018–19 to derive a base opex of $264.9 million ($2019–20). This is 4.1 per cent lower than base opex in the initial regulatory proposal
- SA Power Networks applied the final year formula in our expenditure forecast assessment guideline to derive a final year increment of $16.6 million ($2019–20)
- SA Power Networks then trended forward its base opex to account for:

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3 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 6; SA Power Networks, *Letter to AER - SA Power Networks 2020–25 Distribution Determination - Bushfire Liability Insurance Premiums Step Change Submission*, 10 February 2020; SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020. $1,442.0 million (revised proposal) plus $16.3 million (bushfire insurance premium submission to revised proposal) = $1458.3 million.

4 Comparisons are inclusive of debt raising costs.

5 SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020, p. 6.

6 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 January 2019, p. 12-13.

7 SA Power Networks, *2020–2025 Revised regulatory proposal – 6.6 – Opex model 2020–25 RCP*; SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020, p. 6; AER analysis.

- forecast output growth of $24.9 million ($2019–20)
- forecast growth in real input prices, including forecast increases in labour costs and an increase in line with consumer price index (CPI) for non-labour costs, of $20.1 million ($2019–20)
- a productivity growth adjustment of $20.0 million ($2019–20).

- SA Power Networks included ten step changes in its revised proposal, of which six were consistent with its initial proposal, totalling $92.5 million ($2019–20).[8]
- SA Power Networks forecast $11.2 million ($2019–20) of debt raising costs.[9] Debt raising costs are transaction costs incurred each time debt is raised or refinanced.

6.2.1 Stakeholder views

Several submissions responding to SA Power Networks' revised proposal raised opex issues.

In general, the submissions which addressed SA Power Networks' revised opex proposal were supportive, but noted that operating costs will continue to increase in real terms each year over the 2020–25 regulatory control period.

Business SA, Energy Consumers Australia and the Consumer Challenge Panel (CCP14) supported our decision to use Deloitte's forecast of real labour costs, noting that the forecasts relied on by SA Power Networks have turned out be materially above the actual outcomes which transpired in South Australia during the current (2015–20) regulatory control period.[10]

Several submissions were supportive of SA Power Networks adopting our productivity adjustment of 0.5 per cent per year in its revised forecast.[11]

We also received four submissions in relation to SA Power Networks' submission to its revised proposal proposing a step change for higher bushfire insurance premium costs. CCP14 considered the need for the step change is clear and SA Financial Counsellors Association, Uniting communities and The Energy Project were satisfied that the approach taken by SA Power Networks is diligent, thorough and reasonable.[12]

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8 SA Power Networks, *2020–2025 Revised regulatory proposal – 6.6 – Opex model 2020–25 RCP*, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020, p. 6.

9 SA Power Networks, *2020–2025 Revised regulatory proposal – 6.6 – Opex model 2020–25 RCP.*

10 Business SA Chamber of Commerce and Industry South Australia, *Business SA submission to AER on SA Power Networks 2020–25 regulatory proposal*, 15 January 2020, p. 1, 7.; Energy Consumers Australia, *SA Power Networks revised proposal 2020–25*, 22 January 2020, pp. 1– 2; CCP14, *Advice to the AER on the SA Power Networks' 2020–25 revised proposal*, February 2020, pp. 17–18.

11 AGL Energy Limited, *SA Power Networks – determination 2020–25, p.2;* The Project Partners*:* Uniting Communities, South Australian Financial Counsellors Association and The Energy Project – *Our submission to SA Power Networks 2020–25 revenue determination – revised proposal, 20 January 2020, p. 22.*

12 CCP14, *Advice to the AER on the SA Power Networks' 2020–25 revised proposal - Additional submission contingent project and opex step change*, February 2020, pp. 6–7; The Project Partners: Uniting Communities,

However, some submissions expressed caution that this should not lead to overcharging of energy consumers and that the quantum should be examined carefully to ensure it reflects the current market and good industry practice.[13]

6.3 Assessment approach

Our role is to form a view about whether to accept a business's forecast of total opex. Specifically, we must form a view about whether a business's forecast of total opex 'reasonably reflects the opex criteria'.[14] In doing so, we must have regard to each of the opex factors specified in the National Electricity Rules (NER).

If we are satisfied the business's forecast reasonably reflects the opex criteria, we must accept the forecast.[15] If we are not satisfied, we must substitute an alternative estimate that we are satisfied reasonably reflects the opex criteria for the business's forecast.[16] 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 are required to consider interrelationships with the other building block components of our decision.[17]

As set out in our draft decision in detail, we generally assess a business's forecast total opex using a 'base-step-trend' approach, as summarised in Figure 6.2.[18]

South Australian Financial Counsellors Association and The Energy, *A submission on SA Power Networks proposed additional bushfire expenditure in the 2020–25 revenue determination*, 6 March 2020, p. 7, 8.

13 John Herbst, *private submission*, 24 February 2020, p.1; The Project Partners: Uniting Communities, South Australian Financial Counsellors Association and The Energy Project, *A submission on SA Power Networks proposed additional bushfire expenditure in the 2020–25 revenue determination*, 6 March 2020, p. 8

14 NER, cl. 6.5.6(c).

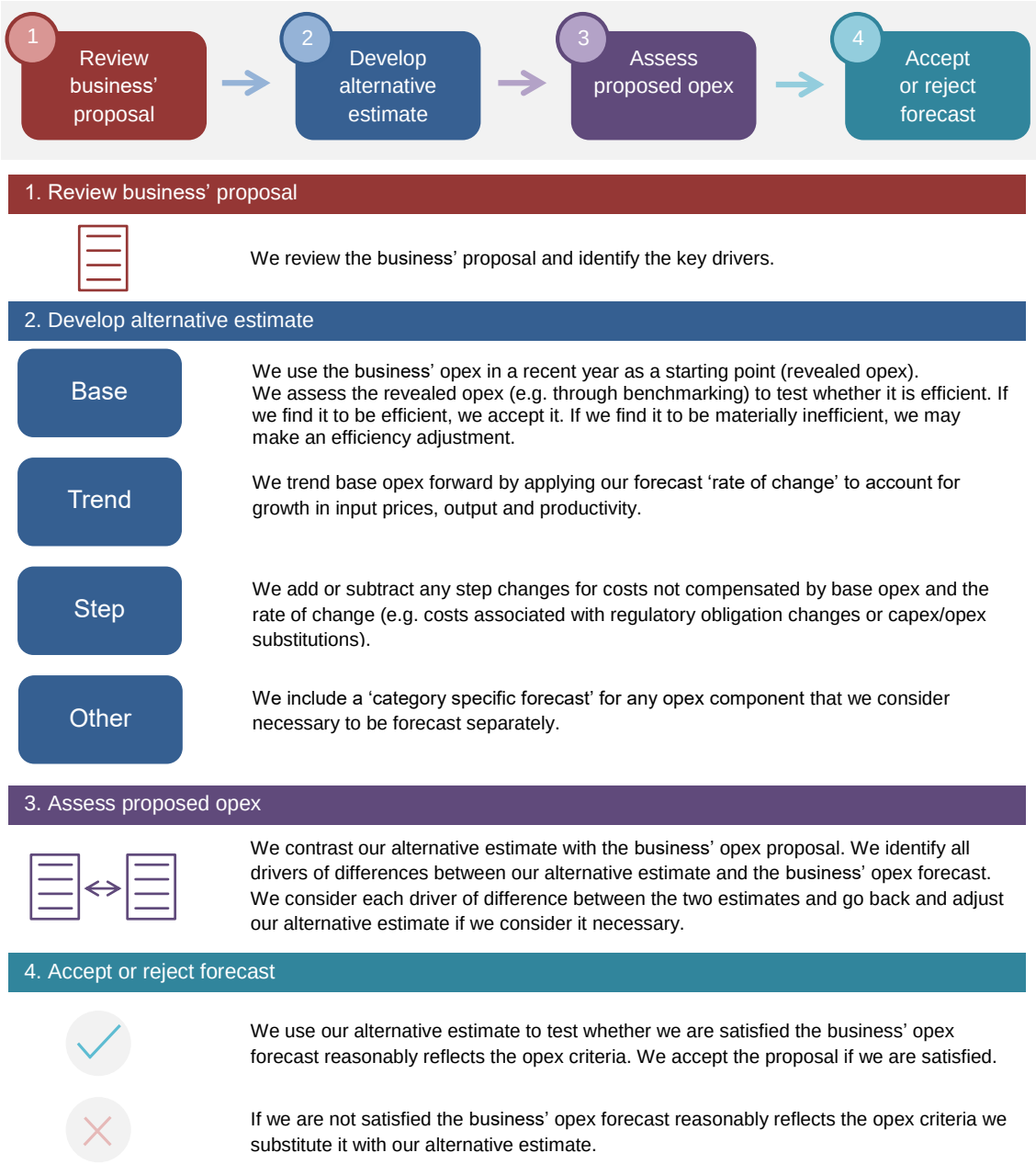
15 NER, cl. 6.5.6(c).

16 NER, cll. 6.5.6(d) and 6.12.1(4)(ii).

17 NEL, s. 16(1)(c).

18 Our base-step-trend approach is also set out in our expenditure guideline. See AER, *Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013, pp. 22–24.

Figure 6.2 Our opex assessment approach



6.3.1 Interrelationships

In assessing SA Power Networks' 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 (2015–20)) 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 2015-20 regulatory control period, which provided SA Power Networks an incentive to reduce opex in the base year
- the impact of cost drivers that affect both forecast opex and forecast 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 SA Power Networks' engagement with consumers.

6.4 Reasons for final decision

Our final decision is to accept SA Power Networks' total forecast opex of $1469.5 million ($2019–20), including debt raising costs, in SA Power Networks' revenue for the 2020–25 regulatory control period. We have tested SA Networks' revised proposal by comparing it to our alternative estimate of the total opex forecast of $1443.2 million ($2019–20)[19], which is not materially different from (1.8 per cent lower than) SA Power Networks' revised proposal. Therefore, we are satisfied that SA Power Networks' proposed forecast reasonably reflects the opex criteria. On this basis we accept SA Power Networks' revised total opex proposal.

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

Consistent with its initial proposal, and our draft decision, SA Power Networks' revised proposal used 2018–19 as the base year for opex.[20] SA Power Networks updated base opex for the actuals in 2018–19 of $264.9 million ($2019–20). This resulted in a decrease to forecast opex of around $56.7 million ($2019–20) over the 2020–25 regulatory control period compared to the forecast included in the initial proposal. From our review of actual opex in 2018-19 compared to the forecast, this was largely driven by lower Guaranteed Service Levels (GSL) reliability payments and vegetation management costs that were influenced by external factors such as weather events.

As set out in more detail in our draft decision, in considering base opex, our preferred approach is to benchmark a business's efficiency on the basis of its average efficiency over time (using a period-average efficiency score from our econometric and opex multilateral partial factor productivity (MPFP) models). We consider that this is a better approach than looking at the efficiency of a single year (such as the base year) as this

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19 Including debt raising costs.

20 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 7.

recognises that opex is generally recurrent, but with some degree of year-to-year volatility.[21]

We consider that over time, SA Power Networks has been one of the most productive and efficient distributors in the National Electricity Market. Our 2019 Annual Benchmarking report showed SA Power Networks ranked[22]:

- Third amongst all regulated distribution service providers in terms of multilateral total factor productivity (MTFP). The MTFP measures the relationship between total output and total input and allows for total productivity levels as well as growth rates to be compared between businesses.
- Fourth amongst all regulated distribution service providers in terms of the opex MPFP. The MPFP measures the relationship between total output and one input (opex) and allows total productivity levels as well as growth rates to be compared between businesses.
- Third in terms of efficiency amongst all regulated distribution service providers when using our four econometric models and opex MPFP over the periods 2006–18 and 2012–18.

While SA Power Networks' benchmarking ranking dropped slightly from its previous year's results, we consider that this does not warrant not using its revealed costs in 2018–19 as its base, as it still provides an efficient base from which to form the 2020–25 regulatory control period opex allowance.

The base year opex we use in our alternative estimate is $264.2 million ($2019–20) which reflects updated inflation using the trimmed mean inflation forecast in the Reserve Bank of Australia's May 2020 *Statement on monetary policy*[23] compared to SA Power Networks' revised proposal. Our usual implementation is to use the (headline) CPI forecast for the year ending June 2020. In the current COVID circumstances, we consider that the trimmed mean forecast better reflects core expectations of inflation as set out in the RBA's *Statement on monetary policy*. Further, the trimmed mean smooths the transient volatility in the CPI forecasts in the May *Statement on monetary policy*.

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.[24]

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21 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure*, October 2019, pp. 22–27.

22 AER, *Annual Benchmarking Report for electricity distribution network service providers*, November 2019.

23 Reserve Bank of Australia, *Statement on monetary policy*, May 2020.

24 AER, *Expenditure forecast assessment guideline for electricity distribution*, November 2013, pp. 22–24.

In its revised proposal SA Power Networks applied our standard approach to forecasting the rate of change. Specifically it:

- **Output growth:** adopted the output weights from all four of our economic benchmarking models, consistent with our draft decision.[25]
- **Price growth:** adopted our input price weightings of 59.7 per cent labour and 40.3 per cent non-labour and an average of Wage Price Index (WPI) price growth forecasts from Deloitte and BIS Oxford Economics for labour price growth.[26]
- **Productivity growth:** adopted our productivity growth forecast of 0.5 per cent per year.[27]

The rate of change proposed by SA Power Networks contributes $25.0 million ($2019–20), or 1.8 per cent, to SA Power Networks' revised proposal total opex forecast of $1453.3 million ($2019–20).[28] This equates to opex increasing by around 0.6 per cent each year.

We have also included a rate of change that increases opex by 0.6 per cent each year in our alternative estimate. We have set out the reasons for our forecast below.

6.4.2.1 Forecast price growth

We have included an average annual real price growth forecast of 0.5 per cent in our alternative opex forecast. This increases our alternative estimate of total opex by $20.4 million ($2019–20) over the 2020–25 regulatory control period. SA Power Networks also proposed average annual real price growth of 0.5 per cent.[29]

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

- To forecast labour real price growth we have used an average of the forecasts of growth in the utilities WPI for South Australia as forecast by Deloitte and BIS Oxford Economics.[30] SA Power Networks also used an average of utilities WPI growth forecasts for South Australia from BIS Oxford Economics and Deloitte.[31] This is a change from the approach we used for our draft decision, for which we

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25 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, pp. 20–22.

26 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, pp. 22–30.

27 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 30.

28 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 31.

29 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 22.

30 Deloitte Access Economics, *Labour price growth forecasts*, 20 March 2020; BIS Oxford Economics, Utilities construction wage forecasts to 2024–25, 10 December 2019.

31 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 24.

only used the forecasts from Deloitte.[32] We discuss our reasons for this change below.

- We have applied a forecast non-labour real price growth rate of zero. This is consistent with our draft decision and SA Power Networks' initial and revised proposals.[33]
- We applied benchmark input price weights of 59.7 per cent and 40.3 per cent for labour and non-labour, respectively. These are the weights we use for our econometric modelling in our annual benchmarking report.[34] This is consistent with our draft decision and SA Power Networks' initial and revised proposals.[35]

Consequently, we and SA Power Networks have applied the same approach to forecast price growth. The only difference between our real price growth forecasts and SA Power Networks' is that we have used more recent forecasts from Deloitte.

An average of Deloitte's and BIS Oxford Economics forecasts reflect the best estimate of labour real price growth

In a change since the draft decision, we now consider the average of the state level utility industry forecasts from Deloitte and BIS Oxford Economics reflect the best forecast of labour real price growth. In reaching this conclusion we have considered SA Power Networks' revised proposal, the report from BIS Oxford Economics submitted by SA Power Networks, advice from Deloitte, the views of other stakeholders and further analysis of our own. We have taken into account that:

- Deloitte's national utility WPI forecasts have been more accurate than BIS Oxford Economics over the period 2007–2018, however
- forecasts made prior to 2014 appear to have not anticipated the wage growth slowdown that started around that time, impacting the results of our analysis
- similar analysis for Victoria, for which we have utilities WPI data, found that Deloitte had under forecast utilities WPI growth, BIS Oxford Economics had over forecast and that an average of the two had been most accurate
- the economic literature generally supports using an average of the available forecasts.

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32 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 2025 – Attachment 6 Operating expenditure*, October 2019, pp. 28–32.

33 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 –- Attachment 6 Operating expenditure*, October 2019, p. 28; SA Power Networks, *2020–2025 Regulatory proposal – Attachment 6 – Operating expenditure*, 31 January 2019, p. 32; SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 30.

34 Economic Insight, *Economic Benchmarking Results for the Australian Energy Regulator's 2017 DNSP Benchmarking Report*, 31 October 2017, p. 2.

35 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure*, October 2019, p. 29; SA Power Networks, *2020–2025 Regulatory proposal – Attachment 6 – Operating expenditure*, 31 January 2019, p. 31; SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 22.

We discuss these considerations in greater detail below.

We have also taken into account further analysis we have done since our draft decision. This analysis is outlined in appendix A.

As noted above, SA Power Networks submitted a report from BIS Oxford Economics with its revised proposal that reviewed our assessment of the past forecasting accuracy of BIS Oxford Economics and Deloitte.[36] Our consideration of the issues raised by BIS Oxford Economics in that report is summarised in appendix B.

Deloitte's national utility WPI growth forecasts have been more accurate than BIS Oxford Economics over the period 2007–2018

In our draft decision we considered how accurate both Deloitte and BIS Oxford Economics had been at forecasting growth in the WPI for the Australian utilities industry. We found that, on average, both had over forecast WPI growth but that the forecasts from Deloitte were more accurate than the forecasts from BIS Oxford Economics.[37]

Our latest analysis (in appendix A, Table 6.8 and Table 6.9) reaches the same conclusion, as did the analysis conducted by BIS Oxford Economics for SA Power Networks.[38] However, we have given further consideration to whether these results reflect unique circumstances that prevailed during the sample period, and whether these results are reflective of what we should expect going forward.

Over forecasting of national utility WPI growth appears to have been mostly driven by lower than expected all-industries WPI growth

BIS Oxford Economics suggested that a significant reason why both it and Deloitte had over forecast WPI growth for the Australian utilities industry was because all-industries WPI growth had been lower than expected.[39] As seen in Figure 6.3, Australian all industries WPI growth slowed significantly from around 2014. Utilities industry WPI growth slowed from around the same time.

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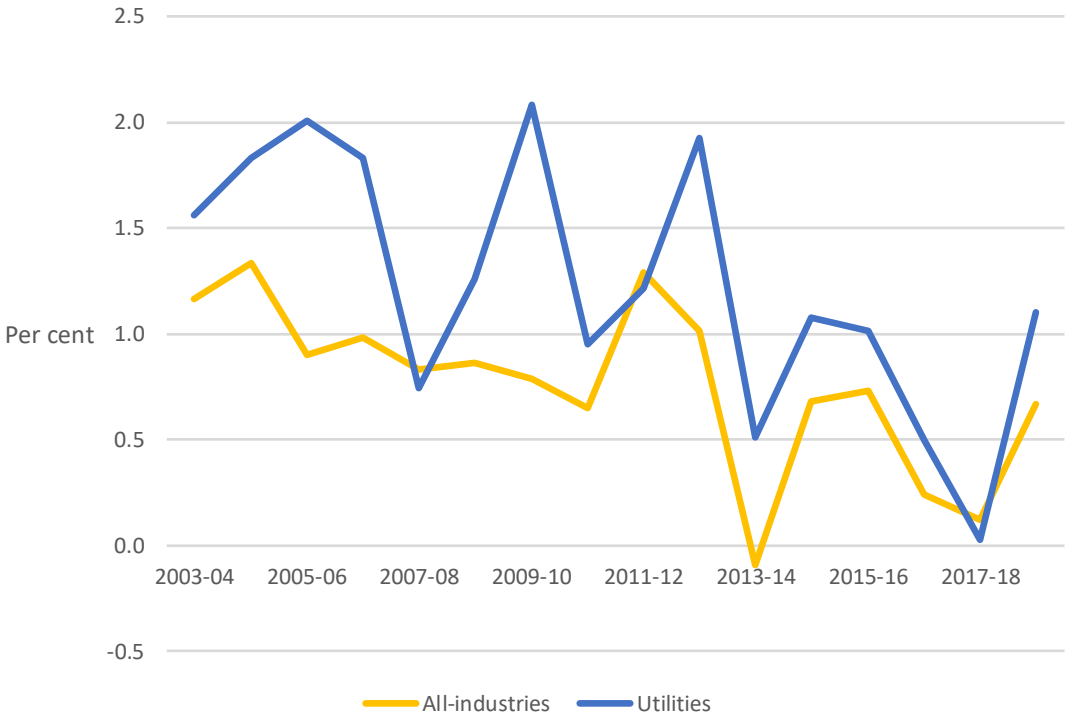
36 BIS Oxford Economics, *Review of AER forecast comparison*, November 2019.

37 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure* October 2019, pp. 30–32.

38 BIS Oxford Economics, *Review of AER forecast comparison*, November 2019, p. 14.

39 BIS Oxford Economics, *Review of AER forecast comparison*, November 2019, p. 4.

Figure 6.3 Real WPI growth, Australia, per cent



Source: ABS; AER analysis.

When we look at the all-industries forecasts made prior to 2013–14, this slowdown in wage growth was not expected by either Deloitte or BIS Oxford Economics.

Like BIS Oxford Economics, we also examined the gap between the national all industries WPI growth and the utilities industry WPI growth (see appendix A, Table 6.10 and Table 6.11). The average of the Deloitte and BIS Oxford Economics forecasts has been the most accurate approach for forecasting this gap. BIS Oxford Economics argued that its performance at forecasting utilities industry growth was distorted by lower than expected all industries WPI growth. (It similarly argues that Deloitte's apparently superior forecasting performance was due to this unexpectedly low all-industries WPI growth.)

We consider there is some merit in considering the 'gap' as it can help to identify drivers of the results we are seeing. Considering the gap does seem to support the claim that the significant drop in all-industries WPI growth from around 2013–14 contributed to forecasting errors for the utilities industry. However, we agree with Deloitte's view that, ultimately, the most appropriate assessment of the accuracy of past forecasts should focus on WPI growth in the utilities industry.[40] The utilities industry forecast could be disaggregated in a multitude of ways, including with

[40] Deloitte, *Response to BIS Oxford Economics report: Review of AER forecast comparison report*, 31 January 2020, p. 3.

reference to the all-industries forecast, to identify the impact of various different drivers. BIS Oxford Economics did not consider the impact of any other drivers.

To see if this unexpected downturn in all-industries WPI growth impacted the results of our analysis, we repeated the analysis using only the forecasts made after 2014. We found that an average of the forecasts from Deloitte and BIS Oxford Economics was more accurate than either individual forecaster. This suggests that the results of our analysis over the full period from 2006–07 to 2017–18 was impacted by the unexpected downturn in wages from 2014. In turn, this suggests that those results may not be reflective of what we should expect going forward. We will continue to monitor and review this when we assess labour price growth forecasts.

An average of Deloitte's Victorian utility WPI growth forecasts and BIS Oxford Economics' has been more accurate over the period 2007–2018

We note that, unlike for South Australia, we have actual WPI growth figures for the utilities industry in Victoria. The Australian Bureau of Statistics does not publish these figures but they do provide them on request. When we looked at the forecasts for the Victorian utilities industry we found that an average of both the Deloitte and BIS Oxford Economics forecasts over the 2006–07 to 2017–18 period was more accurate than either individual forecast. This finding is consistent with the findings of Frontier Economics, in a report it prepared for the Victorian distributors.[41]

The economic literature generally supports using an average of the available forecasts

As noted by SA Power Networks, and by us previously, the economic literature generally supports using an average of the available forecasts. We continue to support this as a general principle. However, we have been cautious to not include forecasts from a forecaster whose forecasts are always too high (or always too low), as this will not improve the accuracy of an average forecast. Particularly when the other available forecast has been found to be high also, but by less. This was broadly the situation we found in our draft decision. BIS Oxford Economics had almost always over-forecast, whereas Deloitte's forecasts had also been high on average, but by less.[42] However, we are now satisfied that these results were likely influenced by the unexpected slowdown in wage growth from 2013–14. Given it is uncertain whether past forecasting accuracy will reasonably reflect future forecasting accuracy, we no longer consider we should exclude BIS Oxford Economics' forecasts on the basis of their past accuracy. However, we will continue to examine this closely.

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41 Frontier Economics, *Assessment of the AER's approach to forecasting labour escalation rates*, 19 December 2019, pp. 14–19.

42 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure*, October 2019, p. 32.

Views raised by other stakeholders

A number of stakeholders supported our draft decision to use only the forecast from Deloitte to forecast labour price growth:

- CCP14 stated that using Deloitte alone better reflects the actual growth that has been observed and the advice received from stakeholder groups regarding expected growth.[43]
- Business SA reiterated its position that the labour price growth forecasts prepared by BIS Shrapnel for SA Power Networks for its last regulatory determination turned out be materially above the actual outcomes. Consequently, Business SA supported adopting the more conservative Deloitte forecasts.[44]
- The SA Financial Counsellors Association, Uniting Communities and The Energy Project stated that energy businesses in general need to be cognisant of the wage and cost realities of their customers. Consequently, and recognising the current global economic circumstances, they considered a lower labour price growth rate reasonable.[45]
- Energy Consumers Australia recognised that forecasting is a complex activity. It considered the choice of which forecasts to use must be informed by evidence. It considered our analysis from our draft decision indicates that Deloitte has provided more accurate forecasts than BIS Oxford Economics in the past. It considered past accuracy a sensible metric when assessing the credibility of forecasts and consequently supported our position in our draft decision.[46]
- The South Australian Council of Social Services agreed with SA Power Networks that 'forecasting is a "complex art" that is inherently fraught and subjective'. It agreed in principle that best practice would require us to use a broad range of modelling and benchmarking to determine the best estimate of labour price growth. However, in circumstances where it appears BIS Oxford Economics' forecast is unreasonably high, it recommends a third consultant be engaged to provide an additional forecast, with an average of the three forecasts applied. If we did not consider that alternative approach appropriate, it considered solely applying the Deloitte forecast as the best estimate available.[47]

These stakeholders generally supported the view that we should rely solely on the forecasts from Deloitte on the basis that they had been more accurate than the forecasts from BIS Oxford Economics in the past. As we have discussed above, we maintain the view that Deloitte's forecast have been more accurate in the past. However, having conducted further analysis, we now consider these results likely

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43 CCP14, *Submission*, 27 February, p. 18.

44 Business SA, *Submission*, 15 January, 2020, p. 7.

45 SA Financial Counsellors Association, Uniting Communities and The Energy Project, *Submission*, 20 January 2020, p. 21.

46 Energy Consumers Australia, *Submission*, 22 January 2020, pp. 1–2.

47 South Australian Council of Social Services, *Submission*, 16 January, pp 41–45.

reflect unique circumstances that prevailed during the sample period. Given this, there is significant uncertainty around whether past forecasting accuracy will reasonably reflect future forecasting accuracy, based on the currently available information. Consequently, we are no longer satisfied that these results will necessarily reflect what we should expect going forward.

6.4.2.2 Forecast output growth

We have forecast average annual output growth of 0.6 per cent in developing our alternative opex forecast. This increases our alternative estimate of total opex by $25.4 million ($2019–20).

SA Power Networks' also included an average annual output growth forecast of 0.6 per cent in its revised proposal.[48] This reflects a change from the approach it adopted to forecast output growth in its initial proposal.

In its initial proposal, SA Power Networks proposed that we forecast output growth using only the output weights from the results of our two Cobb Douglas econometric models.[49] In our draft decision we outlined reasons why we considered all four of our economic benchmarking models should be used.[50] SA Power Networks adopted the approach we used in our draft decision in its revised proposal.

In our draft decision we stated that we would update our output weights to reflect the results from all four of our economic benchmarking models in the *2019 Annual Benchmarking Report,* which we published in late November 2019.[51] We have used the updated weights to forecast our alternative estimate of forecast opex for this final decision. We note that this includes adding the weights from a fifth benchmarking model, being the stochastic frontier analysis translog model. The stochastic frontier analysis translog model previously did not perform well in regards to monotonicity for the longer time period (2006–17). With the data updates and revisions for the *2019 Annual benchmarking report*, the model now performs relatively well and was included in the results.[52]

The difference between SA Power Networks' output growth forecast and ours because of this update is immaterial.

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48 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 22.

49 SA Power Networks, *2020–25 Regulatory proposal – Attachment 6 – operating expenditure*, 31 January 2019, pp. 29–31.

50 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure*, October 2019, pp. 33–36.

51 AER, *Draft Decision - SA Power Networks Distribution Determination 2020 to 2025 - Attachment 6 Operating expenditure*, October 2019, p. 35.

52 AER, *Annual benchmarking report, Electricity distribution network service providers*, November 2019, p. 29; Economic Insights, *Economic benchmarking results for the Australian Energy Regulator's 2019 DNSP annual benchmarking report*, 16 October 2019, p. 20.

6.4.2.3 Productivity growth

Consistent with our draft decision, we have used the 0.5 per cent per year productivity growth forecast from our opex productivity growth review final decision in our alternative estimate.[53] This reduces our alternative estimate of total opex by $19.9 million ($2019–20).

SA Power Networks also adopted a productivity growth forecast of 0.5 per cent per year in its revised proposal.[54] This is a change from its initial proposal, in which it did not forecast any productivity growth.

6.4.3 Step changes

In its revised proposal, SA Power Networks included:

- the same six step changes as in its initial proposal (some with minor reductions); and
- four new step changes.[55]

Table 6.3 summarises the step changes SA Power Networks included in its initial and revised proposals, our draft decision and our alternative estimate for the purpose of the final decision. In its revised proposal, SA Power Networks' step changes total $92.6 million ($2019–20), which is 23.1 per cent higher than its initial proposal, and includes the bushfire insurance premium step change of $16.3 million ($2019–20) proposed in a submission to its revised proposal.

We have included $69.3 million ($2019–20) for eight step changes in our alternative estimate for the final decision. We have examined each step change on its own merit and whether the proposal meets the intent of what step changes should reflect as set out in the Expenditure Forecast Assessment Guideline[56]. Noting that step changes should not double count cost increases compensated through the rate of change, we have included step changes in our alternative estimate for:

- critical infrastructure compliance with new obligations
- GSL reliability payments reflecting new obligations
- cloud hosting and cloud work scheduling where there is an efficient capex / opex substitution
- reclassification of expenditure from capex to opex

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53 AER, *Final decision paper, Forecasting productivity growth for electricity distributors*, March 2019.

54 SA Power Networks, *2020–25 Revised Regulatory proposal – Attachment 6 – operating expenditure*, 10 December 2019, p. 30.

55 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 14; SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020.

56 AER, *Expenditure forecast assessment guideline for electricity distribution*, November 2013, p. 24.

- low voltage management of future networks where we do not consider it is clear that our output growth forecast will allow adequate opex
- distribution licence fee changes and
- low voltage metering monitoring efficiency improvements.

However, we have not included a step change for cyber security as we are not satisfied there are, or will be, new obligations over the next regulatory control period. We have also not included a step change for increases in bushfire insurance premiums as we do not consider it is clear that non-labour price growth, including for insurance costs, does not adequately compensate the forecast increases.

Table 6.3 SA Power Networks step change proposals and our alternative estimate ($million, 2019–20)

Step change	SA Power Networks Initial proposal	AER draft decision	SA Power Networks Revised proposal	AER alternative estimate for Final Decision	Difference between SA Power Networks' Revised Proposal and AER alternative estimate for Final Decision
Cable and conductor minor repair	68.2	49.7	49.7	56.3	6.7
Critical infrastructure compliance	12.1	12.1	10.1	10.1	0.0
Cloud transition - cloud hosting	7.2	7.2	7.2	7.2	0.0
Cloud transition - cloud work scheduling	3.8	3.8	3.7	3.7	0.0
Low voltage management future networks	3.8	3.8	3.7	3.7	0.0
GSL reliability payments	-19.9	-23.0	-1.7	-12.8	-11.0
Distribution licence fee	na	na	3.2	2.4	-0.8
Utilities cyber maturity uplift	na	na	1.7	-	-1.7
Low voltage transformer monitoring	na	na	-1.3	-1.3	0.0
Bushfire insurance premium	na	na	16.3	-	-16.3
Total step changes	75.2	53.6	92.6	69.3	-23.1

Source: SA Power Networks, *2020–2025 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019; SA Power Networks, *2020–2025 Revised regulatory proposal – Addendum to Attachment 6*, February 2020; AER analysis.
Note: Numbers may not add up to total due to rounding.

The following sections sets out the reasons for our alternative estimate of each step change.

Cable and conductor minor repair

Consistent with our draft decision[57], we have included this step change to reclassify a portion of cable and conductor minor repairs from capex to opex in our alternative estimate. In our draft decision we were satisfied that the reclassification was appropriate, reflecting advice from our consultant.[58]

In its revised proposal, SA Power Networks accepted our draft decision step change of $49.7 million ($2019–20).[59]

For this final decision, we have included an alternative estimate of $56.4 million ($2019–20) for this step change. Using the same methodology as in the draft decision, we have updated our assessment. Due to the updated capex in 2018–19 and the updated ratio between capex and opex, our estimate of this step change has increased by $6.7 million ($2019–20) compared to SA Power Networks' revised proposal.

Critical infrastructure compliance

Consistent with our draft decision[60], we have included a step change to address compliance issues related to new critical infrastructure system and data control obligations in our alternative estimate. We are satisfied that this step change is required to meet the new obligations that SA Power Networks faces and that the expenditure is efficient.

SA Power Networks included a lower estimate for this step change in its revised proposal of $10.1 million ($2019–20).[61] This reflects that it was updated to include the results of a finalised competitive tender process compared to the forecast included in the initial proposal. We have examined the updated cost information and consider it reasonable to include this amount in our alternative estimate.

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57 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 37–41.

58 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to25 – Attachment 6 Operating Expenditure*, October 2019, p. 40.

59 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 15.

60 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 41–43.

61 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, pp. 15–16.

Cloud transition - cloud hosting

Consistent with our draft decision[62], we have included a step change reflecting SA Power Networks move towards cloud infrastructure (with associated capex projects) in our alternative estimate. There has been no change in the costs of this step change since our draft decision and we have included $7.2 million ($2019–20) in our alternative estimate as it reflects an efficient capex / opex trade-off.

Cloud transition - work scheduling

Consistent with our draft decision[63], we have included a step change reflecting SA Power Networks' move to a cloud based work scheduling system in our alternative estimate. There was a small reduction of $0.1 million ($2019–20) in the costs of this step change[64] since our draft decision and we have included $3.7 million ($2019–20) in our alternative estimate as it reflects an efficient capex / opex trade-off.

LV Management Future Networks

Consistent with our draft decision, we have included in our alternative estimate a step change for LV Management Future Networks.[65] This step change (with associated capex projects) was proposed to support the development of new operational systems and business processes to actively manage the integration of rooftop solar, battery storage and virtual power plants into the distribution network. There was a small reduction of $0.1 million ($2019–20) in the costs of this step change since our draft decision[66] and we have included $3.7 million ($2019–20) in our alternative estimate.

As set out in our draft decision, we would normally not provide a step change in opex to operate and maintain a new asset. The standard approach of allowing opex increases in line with the output growth forecast would normally compensate a prudent operator for operating and maintaining a network not faced with an unusual operating environment. However, with distributed energy resource management, SA Power Networks appears to be facing significant demands to manage its network and address its customers' needs, including potential voltage non-compliance issues. We accepted this step change because there is a likelihood that the output growth forecast may not fully compensate for the higher opex to address distributed energy resource management.

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62 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 43–45.

63 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 46–48.

64 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 14.

65 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25, – Attachment 6 Operating Expenditure*, October 2019, pp. 48–50.

66 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 14.

GSL reliability payments

Consistent with our draft decision[67], we have included this step change in our alternative estimate because we are satisfied there will be a change in GSL obligations. We have included a step change of -$12.7 million ($2019–20) for this step change in our alternative estimate. This is different to the step change of -$1.8 million ($2019–20) that SA Power Networks included in its revised proposal.[68] The reasons for our alternative estimate are explained below.

As set out in our draft decision, GSL reliability payments are payments SA Power Networks is required to pay to customers that experience reliability issues.[69] The driver for this step change is that the Essential Services Commission of South Australia will relax the GSL standards from 1 July 2020. This will result in lower future GSL payments in the 2020–25 regulatory control period. In the draft decision we included this step change as there are new regulatory obligations in place, but we included a lower amount than SA Power Networks proposed, reflecting our modelling of the likely payments under the new standards.

In its revised proposal, SA Power Networks updated its estimate of the likely payments under the new standards and included a further year of actual GSL payment data (for 2018-19) in its analysis. This resulted in a proposed negative step change amount of -$1.8 million ($2019–20).

We assessed that the proposed negative step change of -$1.8 million ($2019–20) was based on the difference between the GSL payments in the base year and forecast GSL payments over the 2020–25 regulatory control period. However, we consider a more appropriate calculation should be based on the difference between the historical five year average of GSL payments (as opposed to just the base year considering the lumpy nature of the cost) and forecast GSL payments over the 2020–25 regulatory control period.

SA Power Networks agreed to use the historical five year average, but chose to apply a non-recurrent efficiency adjustment to base opex of -$2.2 million ($2019–20) which it said was to account for the lower than average GSL payments in the base year.[70] The overall impact of this proposal on the total opex allowance equates to -$12.7 million ($2019–20) over the next regulatory control period. While this estimate is the same as our alternative estimate, we do not agree with SA Power Networks' approach as the use of non-recurrent efficiency adjustments should only occur in circumstances where total opex in the base year is abnormally high or low (which was not the case in 2018–

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67 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 51–-56.

68 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 16-17.

69 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 52–54.

70 SA Power Networks, *Information response #089B*, 13 February 2020.

19). Therefore, our alternative estimate includes a negative step change value of $12.7 million ($2019–20) with no adjustment to the base year.

Distribution licence fee

SA Power Networks included a new $3.2 million ($2019–20) step change in its revised proposal to reflect higher distribution licence fees to be paid in the 2020–25 regulatory control period.[71] On balance, we have accepted this step change but adjusted it to $2.4 million ($2019–20) to take into account real dollar calculations.

The Minister for Energy and Mining advised that SA Power Networks' distribution licence fee will increase in nominal terms from $2.3 million to $2.9 million per annum over 2020–25.[72] As this was not included in SA Power Network's initial proposal and a step change was not sought until late in the draft decision process, it was not considered in the draft decision.[73]

We would normally not include this step change in our alternative estimate on grounds that such variances would be captured by price growth and it is relatively immaterial. However, we accepted a negative step change related to lower licence fees in the prior determination.[74] On this occasion we have decided to place greater weight on consistency with this past decision despite its relatively immaterial amount. We consider this as a one-off decision.

Utilities cyber maturity uplift

SA Power Networks included a new $1.7 million ($2019–20) step change in its revised proposal.[75] This is to implement new processes it considers it will need to comply with expected cyber security obligations to be initiated by the Australian Energy Market Operator (AEMO).

We have not included this step change in our alternative estimate as we do not consider that it meets the test for a step change. In particular, it is not a regulatory obligation that is in effect, and it is uncertain when the obligation will come into effect. Further, it is not material.

While we understand that consideration and work in relation to these new obligations and supporting legislation is at a progressed state, it still awaits decisions to be made on exact implementation timings by the Council of Australian Governments Energy

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71 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 18.

72 Government of South Australia, *Submission to the Australia Energy Regulator on the SA Power Networks' regulatory proposal 2020–25*, p. 4.

73 AER, *Draft Decision – SA Power Networks Distribution Determination 2020 to 25 – Attachment 6 Operating Expenditure*, October 2019, pp. 55–56.

74 AER, *Final Decision – SA Power Networks Determination 2015-16 to 2019–20 - Attachment 7 - Operating Expenditure*, October 2015, p. 23.

75 SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 18-19.

Council. We consulted with the Chief Security Officer at AEMO and confirmed there are plans that draft legislation will to be finalised this year with final legislation expected to be tabled in 2021. Enforcement will follow after approximately two years.

We note that the corresponding capex component of this initiative is accepted. See attachment 5 for the related capex assessment.[76] While we accept the initiative to allow the cyber security preparatory work to go ahead, we expect SA Power Networks to manage the opex component (being relatively small) within their total opex allowance.

Low voltage transformer monitoring

SA Power Networks included a new negative $1.3 million ($2019–20) step change in its revised proposal.[77] This relates to a roll-out of permanent LV transformer monitors across its metropolitan area to implement a new LV load forecasting methodology. We have included this negative step change in our alternative estimate as we are accepting the related capex component of this initiative in our final decision (see attachment 5)[78] and because it reflects an efficiency gain from that capex spend.

Bushfire insurance premium

SA Power Networks, in a submission provided after its revised proposal, proposed a new $16.3 million ($2019–20) step change for rising bushfire insurance premiums.[79] We have not included this step change for bushfire insurance premium in our alternative estimate for the reasons explained below.

Table 6.4 Bushfire insurance step change ($million, 2019–20)

	2020–21	2021–22	2022–23	2023–24	2024–25	Total
SA Power Networks' proposal	2.1	3.0	3.6	3.8	3.8	16.3
AER final decision	0.0	0.0	0.0	0.0	0.0	0.0
Difference	-2.1	-3.0	-3.6	-3.8	-3.8	-16.3

Based on its insurance broker's report[80], SA Power Networks considered there would be a material and sustained increase in its bushfire liability insurance premiums over

[76] AER, *SA Power Networks Distribution Determination 2020–25 – Attachment 5 – Capital expenditure,* April 2020, p.40.

[77] SA Power Networks, *2020–25 Revised regulatory proposal – Attachment 6 – Operating expenditure*, 10 December 2019, p. 19.

[78] AER, *SA Power Networks Distribution Determination 2020–25 – Attachment 5 – Capital expenditure,* April 2020, pp.41–42.

[79] SA Power Networks, *Letter to AER - SA Power Networks 2020–25 Distribution Determination - Bushfire Liability Insurance Premiums Step Change Submission*, 10 February 2020; SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020.

[80] The Marsh report has been provided as a confidential appendix in SA Power Networks' Addendum, see SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020, p. 3.

the 2020–25 regulatory control period. The main reasons it included in support of this step change were[81]:

- Higher costs are necessary to maintain adequate and appropriate bushfire liability insurance.
- Such costs are beyond SA Power Networks' control and are not reflected in the base or captured through price growth.
- Such costs are prudent and efficient and SA Power Networks is entitled to recover these costs.

We have assessed the insurance premium step change and are not satisfied that it is a step change in SA Power Networks' efficient opex costs, or that the increasing costs are not captured through price growth.

The proposed insurance premium increases are not related to a new regulatory obligation or a capex / opex substitution, the most common circumstances for which we consider allowing a step change. We also do not consider that the circumstances that SA Power Networks faces in the insurance liability market for one of its cost inputs is sufficiently exceptional that it would materially change its total opex over time beyond what is captured through our price growth forecast.

Our incentive-based framework allows for efficient costs to be factored into base opex. Insurance costs are already part of the SA Power Networks' base opex. In addition, the trend growth provides an allowance to take into account forecast growth in input prices (labour and non-labour), output and productivity. Even if there are some short term higher increases in insurance cost, there are built-in mechanisms in the framework that assist the network provider to address fluctuations across different components of its opex:

- our trend forecast includes an allowance for non-labour price growth and this covers any potential increases in costs like insurance premiums. We are not persuaded that SA Power Networks has demonstrated that non-labour price growth of CPI, including for insurance costs, does not adequately compensate the forecast increases.
- we expect some non-labour components in opex will increase by more than CPI and some less than CPI. To the extent that higher 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.
- CPI includes household insurance premiums which cover bushfires. While there are differences between household and utility insurance premium increases, there are similar drivers impacting both and their future growth.

[81] SA Power Networks, *Addendum to Attachment 6 of the Revised Proposal*, 10 February 2020, pp. 3-6.

Related to this issue, we are also concerned that a business only has incentives to propose a step change, or category specific forecast, for those components of opex it expects will increase. It does not have incentives to identify step changes for components of opex it expects will decrease. These asymmetric incentives potentially introduce an upward bias into the total opex forecast proposed by businesses. Therefore, our assessment approach should be to forecast total opex and not individual components of opex, consistent with our task under the National Electricity Rules.[82]

In summary, we approve total opex rather than individual cost categories in an incentive-based regulatory regime. Once approved, SA Power Networks has the flexibility to vary its spend on individual cost categories as it sees fit and to make savings under the incentives provided in the regime. It follows that network providers should in general refrain from proposing step changes, or category specific forecasts, where the regime has already built in an allowance through the forecast rate of change and these items are not material, given the expectation that network providers manage the 'overs and unders' within the total allowance approved by the regulator.

We note, however, that 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 opex. This was the case in our draft decision for Directlink where we forecast insurance costs as a category specific forecast allowing for higher insurance premiums.[83] In that case Directlink's insurance costs were on average 12 per cent of its total opex forecast (whilst SA Power Networks insurance cost step change represents around 1.0 per cent of total opex). We also noted that the scope of Directlink's operational activities and discretionary expenditure is much more limited as an interconnector. It has very few cost categories and its opex is minor compared to other network service providers. We would expect less variance across Directlink's cost categories to offset expenditure increases or decreases.

In addition to examining whether the higher bushfire insurance premiums are captured by price growth, we also examined the magnitude of the increase proposed by SA Power Networks. We engaged expert consultants to assist us with this assessment.[84] They broadly agreed with the views of SA Power Networks' brokers about the future trends in insurance premium increases over the next five years.[85]

In arriving at our decision, we considered and took into account stakeholders comments outlined in section 6.2.1. While some stakeholders considered the need for

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82 AEMC, *National Electricity Rules – Version 137 – Chapter 6.5.6*, 2 April 2020, pp. 768– 770.

83 AER, *Draft decision - Directlink Transmission Determination 2020–25, Overview, October 2019*. AER, *Draft Decision – SA Power Networks Distribution Determination 2020–25 – Attachment 6 – Operating Expenditure*, October 2019, pp. 55–56.

84 Taylor Fry and AON, *Australian Energy Regulator – SAPN bushfire liability insurance – public summary,* 5 April 2020.

85 Both our experts, Taylor Fry and AON, and SA Power Networks' consultants, Marsh, noted the high uncertainty of the forecasts beyond 2020–21.

the step change is clear, and SA Power Network's approach was reasonable, we were also encouraged to ensure it does not lead to overcharging and examine the quantum. We believe that our decision not to include the insurance step change in our alternative estimate takes into account and addresses the issues raised in the submissions.

6.4.4 Category specific forecasts

Debt raising costs

We have included debt raising cost of $10.5 million ($2019–20) in our alternative opex forecast.

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 for consistency with the forecast of the cost of debt in the rate of return building block. We discuss this in Attachment 3 to the final decision.

6.4.5 Assessment of opex under the NER

In deciding whether or not we are satisfied the service provider's forecast reasonably reflects the 'opex criteria' under the NER, we must have regard to the 'opex factors'.[86]

We attach different weight to different factors when making our decision to best achieve the NEO. This approach has been summarised by the Australian Energy Market Commission as follows:[87]

> As mandatory considerations, the AER has an obligation to take the capex and opex factors into account, but this does not mean that every factor will be relevant to every aspect of every regulatory determination the AER makes. The AER may decide that certain factors are not relevant in certain cases once it has considered them.

Table 6.5 summarises how we have taken the opex factors into account in making our draft decision.

Table 6.5 Our consideration of the opex factors

Opex factor	Consideration
The most recent annual benchmarking report that has been published under rule 6.27 and the benchmark opex that would be incurred by an efficient distribution network service provider over the relevant regulatory control period.	There are two elements to this factor. First, we must have regard to our most recent annual benchmarking report. Second, we must have regard to the benchmark opex that would be incurred by an efficient service provider over the period. The annual benchmarking report is intended to provide an annual snapshot of the relative efficiency of each service provider.

[86] NER, cl. 6.5.6(e).

[87] AEMC, *National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, Final Rule Determination*, 29 November 2012, p. 115.

Opex factor	Consideration
	The second element, that is, the benchmark opex 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. We have estimated an alternative opex estimate and have compared it with SA Power Network' proposal over the relevant regulatory control period. In doing this we relied on the information set out in our most recent benchmarking report.
The actual and expected opex of the Distribution Network Service Provider during any proceeding regulatory control periods.	To assess SA Power Networks' opex forecast and develop our alternative estimate, we have used SA Power Networks' actual opex in 2018–19 as the starting point. We have examined SA Power Networks' historical actual opex and compared it with that of other distribution network services providers.
The extent to which the opex forecast includes expenditure to address the concerns of electricity consumers as identified by the Distribution Network Service Provider in the course of its engagement with electricity consumers.	This factor directs us to have regard to the concerns of consumers, as revealed to us in their engagement with the service provider. Additionally, this factor requires us to have regard to the extent to which service providers have engaged with consumers in preparing their proposals, such that they are aware of, communicate and factor in the needs of consumers. Based on the information provided by SA Power Networks in its proposal and CCP14's advice, we consider SA Power Networks consulted with consumers in developing its proposal. As identified in this attachment, SA Power Networks has taken into account some, but not all, of this feedback in its proposal. We have examined the issues raised by consumers in developing our alternative estimate of opex.
The relative prices of capital and operating inputs	We have adopted price growth forecasts that account for the relative prices of opex and capex inputs. We generally consider capex/opex trade-offs in considering proposed step changes. One reason we will include a step change in our alternative opex forecast is if the service provider proposes a capex/opex trade-off. We consider the relative expense of capex and opex solutions in considering such a trade-off. SA Power Networks proposed two step change as capex/opex trade-offs that we have assessed.
The substitution possibilities between operating and capital expenditure.	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 relied on several metrics when assessing efficiency to ensure we appropriately capture capex and opex substitutability. In developing our benchmarking models we have had regard to the relationship between capital, opex and outputs.
Whether the opex forecast is consistent with any incentive scheme or schemes that apply to the Distribution Network Service Provider under clauses 6.5.8 or 6.6.2 to 6.6.4.	The incentive scheme that applied to SA Power Networks opex in the 2015–20 regulatory control period, the EBSS, was intended to work in conjunction with a revealed cost forecasting approach. We have applied our approved base opex consistently in implementing the EBSS and forecasting SA Power Networks' opex for the 2020–25 regulatory control period.
The extent the opex forecast is referable to arrangements with a person other than the Distribution Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms.	Our assessment techniques generally assess the efficiency of a network service provider's opex and/or capital expenditure at a total level. Provided that we do not find any material inefficiency in a network service provider's total opex in the nominated base year (which we use for our alternative estimate), we generally do not scrutinise a network service provider's related party transactions that may or may not be efficient and prudent.

Opex factor	Consideration
	Given that we are satisfied that SA Power Networks' base year opex is efficient, we have not examined any of its related party arrangements.
Whether the opex forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6.6A.1(b).	This factor is generally only relevant in the context of assessing proposed step changes (which may be explicit projects or programs). SA Power Networks did not propose any opex changes that would be more appropriately included as a contingent project. We have not identified any opex project in the forecast period that should more appropriately be included as a contingent project.
The extent the Distribution Network Service Provider has considered, and made provision for, efficient and prudent non-network alternatives.	SA Power Networks stated it accepts the AER's framework and approach position to the demand management incentive scheme and demand management innovation allowance.[88]
Any relevant final project assessment report (as defined in clause 5.10.2) published under clause 5.17.4(o), (p) or (s)	In having regard to this factor, we must identify any regulatory investment test (RIT-D) submitted by the business and ensure the conclusions of the relevant RIT-D are appropriately addressed in the total forecast opex. SA Power Networks did not submit any RIT-D project for its distribution network.
Any other factor the AER considers relevant and which the AER has notified the Distribution Network Service Provider in writing, prior to the submission of its revised proposal under clause 6.10.3, is an operating expenditure factor.	We did not identify and notify SA Power Networks of any other opex factor.

Source: AER analysis.

[88] SA Power Networks, *2020–25 Regulatory proposal – Attachment 11 – Demand management incentives and allowances*, 31 January 2019, pp. 4, 6.

A Further analysis on the accuracy of past labour price growth forecasts

SA Power Networks, Ergon Energy and Energex all submitted reports in their revised proposals from BIS Oxford Economics that critiqued our draft decision analysis and conclusions. We have considered each of the issues raised by BIS Oxford Economics and updated our analysis accordingly.

Similar to our own analysis, BIS Oxford Economics tested the accuracy of past WPI growth forecasts from Deloitte and BIS Oxford Economics by looking at the mean errors and the mean absolute errors. It made three key changes to the analysis we had undertaken for the draft decision to address perceived concerns:

1. It removed some forecasts and added others to balance the panel. This ensured that there was an equal number of forecasts from Deloitte and BIS Oxford Economics and that those forecasts were prepared around the same time.

2. It considered forecasting accuracy at different time horizons. That is, it considered how accurate the forecasters were at forecasting one year ahead, two years ahead etc. of the year in which the forecasts were made.

3. In addition to considering the accuracy of the all-industries and utilities WPI growth forecasts, it also considered the forecast performance of the gap between the all-industries and the utilities sector.

We have taken the analysis done by BIS Oxford Economics in response to our draft decision and made one further refinement. Specifically, we looked at the accuracy of the cumulative forecasts to account for the time horizon. BIS Oxford Economics argued that less weight should be given to the near term forecasts because forecast accuracy decreases over time. We disagree. We consider more weight should be given to the near term forecasts because they have a greater impact on forecast opex due to the cumulative impact of the forecasts. The year one forecast, for example will impact forecast opex for all five years of a regulatory control period, but the year five forecast will only impact forecast opex for the last year. To account for this we tested the forecast accuracy of the cumulative forecasts, in addition to the year on year forecasts. (So, for example, if forecast growth was one per cent per year the cumulative growth rates would be one per cent in year one, two per cent in year two, etc.)

We have presented the results of this analysis below.

Table 6.6 Accuracy of year-on-rear all-industries WPI growth forecasts, 2006–07 to 2017–18

	Mean error			Mean absolute error		
	BISOE	Deloitte	Average	BISOE	Deloitte	Average
Average	0.6	0.7	0.7	0.7	0.9	0.8
Current year	0.0	–0.1	–0.1	0.2	0.3	0.2
One year ahead	0.2	0.1	0.2	0.6	0.6	0.6
Two years ahead	0.5	0.6	0.6	0.7	0.8	0.8
Three years ahead	0.8	1.0	0.9	0.9	1.0	1.0
Four years ahead	0.7	1.0	0.9	0.7	1.0	0.9
Five years ahead	0.5	0.9	0.7	0.5	0.9	0.7

Table 6.7 Accuracy of cumulative all-industries WPI growth forecasts, 2006–07 to 2017–18

	Mean cumulative error			Mean absolute cumulative error		
	BISOE	Deloitte	Average	BISOE	Deloitte	Average
Average	1.3	2.1	1.8	1.6	2.3	2.0
One year ahead	0.2	0.1	0.2	0.6	0.6	0.6
Two year ahead	0.7	0.7	0.8	1.1	1.1	1.2
Three year ahead	1.4	1.7	1.7	1.8	1.9	1.9
Four year ahead	2.2	3.5	2.9	2.2	3.5	2.9
Five year ahead	2.1	4.5	3.4	2.1	4.5	3.4

Table 6.8 Accuracy of year-on-rear utilities WPI growth forecasts, 2006–07 to 2017–18

	Mean error			Mean absolute error		
	BISOE	Deloitte	Average	BISOE	Deloitte	Average
Average	0.9	0.3	0.6	0.9	0.6	0.7
Current year	0.2	–0.2	0.0	0.4	0.3	0.2
One year ahead	0.6	0.0	0.3	0.7	0.8	0.7
Two year ahead	0.8	0.2	0.5	0.9	0.6	0.5
Three year ahead	0.9	0.2	0.6	1.0	0.7	0.9

			Mean error			Mean absolute error
Four year ahead	1.1	0.4	0.7	1.1	0.5	0.7
Five year ahead	1.0	0.5	0.7	1.0	0.6	0.7

Table 6.9 Accuracy of cumulative utilities WPI growth forecasts, 2006–07 to 2017–18

		Mean cumulative error			Mean absolute cumulative error	
	BISOE	**Deloitte**	**Average**	**BISOE**	**Deloitte**	**Average**
Average	2.3	0.9	1.6	2.3	1.6	1.8
One year ahead	0.6	0.0	0.3	0.7	0.8	0.7
Two year ahead	1.3	0.2	0.7	1.3	1.3	1.0
Three year ahead	2.2	0.6	1.4	2.2	1.4	1.6
Four year ahead	3.5	1.5	2.5	3.5	2.1	2.5
Five year ahead	3.9	2.0	3.0	3.9	2.4	3.0

Table 6.10 Accuracy of year-on-rear all-industries–utilities WPI growth forecasts gap, 2006–07 to 2017–18

			Mean error			Mean absolute error
	BISOE	**Deloitte**	**Average**	**BISOE**	**Deloitte**	**Average**
Average	0.3	–0.4	–0.1	0.4	0.5	0.3
Current year	0.2	0.0	0.1	0.3	0.3	0.3
One year ahead	0.4	–0.1	0.1	0.4	0.4	0.4
Two year ahead	0.3	–0.4	0.0	0.3	0.5	0.3
Three year ahead	0.1	–0.7	–0.3	0.3	0.7	0.4
Four year ahead	0.4	–0.6	–0.1	0.4	0.6	0.2
Five year ahead	0.5	–0.4	0.0	0.5	0.4	0.1

Table 6.11 Accuracy of cumulative all-industries–utilities WPI growth forecasts gap, 2006–07 to 2017–18

	Mean cumulative error			Mean absolute cumulative error		
	BISOE	Deloitte	Average	BISOE	Deloitte	Average
Average	1.0	–1.2	–0.1	1.0	1.3	0.4
One year ahead	0.4	–0.1	0.1	0.4	0.4	0.4
Two year ahead	0.6	–0.5	0.1	0.7	0.8	0.6
Three year ahead	0.8	–1.1	–0.2	0.8	1.1	0.5
Four year ahead	1.3	–1.9	–0.3	1.3	1.9	0.4
Five year ahead	1.8	–2.3	–0.3	1.8	2.3	0.4

B Consideration of issues raised by BIS Oxford Economics

Issue	AER view
Forecast horizon: 'The accuracy of any forecast decreases over the forecast horizon.' Consequently '...the near-term performance of both companies should carry less weight'.	BIS Oxford Economics appear to be arguing that less weight should be given to the near-term forecast because they tend to be more accurate, because they tend to be easier to forecast. We agree that there is greater uncertainty the further ahead you are trying to forecast. However, we do not consider this an appropriate reason to apply less weight to the near-term forecasts. Instead we think weights should be based on the revenue impact of forecasting errors. Consequently we think more weight should be applied to near-term forecasts because the revenue impact of forecast error increases over time due to the cumulative impact of the forecast growth rates. To account for this we have replicated BIS Oxford Economics' analysis with the cumulative growth rates (see appendix A).
Asymmetric dataset: 'The dataset used by the AER is asymmetric. In some cases, forecasts from the same firm are drawn from consecutive months (and we would expect these forecasts to be very similar given the timing), which will result in these particular forecasts effectively having a higher-than-average weight in the calculations of forecast performance. The overweighting of these forecasts (and implied underweighting of others) could result in biased results.' To address this, BIS Oxford Economics cleaned 'the data set to remove duplicate forecasts and rebalance the panel over time have not changed the general result'.	We consider that, generally, a balanced panel is preferable. However, it is not transparent how BIS Oxford Economics selected the forecasts it chose to include in its dataset. We note that, while BIS Oxford Economics stated that this 'could result in biased results' it did not attempt to measure the impact, or even the direction, of this potential bias. We note that the process of choosing which forecasts to include or exclude could also introduce bias. That said, we have used BIS Oxford Economics' dataset for our latest analysis, which includes 10 sets of reports from each forecaster (in the draft report we used 18 Deloitte and 16 BIS Oxford Economics reports). We found that the choice of dataset did not significantly change the results.
The analysis should be disaggregated: BIS Oxford Economics contend that 'DAE and BIS Oxford Economics begin their projections with forecasts for the all-industries WPI. They then consider the differential (gap) between the all-industries and utilities sector. It is important to therefore consider the forecast performance with respect to the all-industries WPI and then the gap between the all-industries and the utilities sector to garner accurate results.'	We consider there is some value in analysing the forecast margin between the all industries and utilities WPI growth rates. Doing so, could provide insight into the reasons for any forecast error. However, we agree with Deloitte's view that, ultimately, 'final forecasts are the most appropriate series for assessing forecast accuracy, rather than the components that make up a forecast'.[89] We also agree with Deloitte's view that 'any assessment that analyses the building blocks of a forecast is essentially open-ended. For example, using the approach proposed by BIS Oxford Economics, the analysis of WPI forecast accuracy could conceivably be

[89] Deloitte Access Economics, *Response to BIS Oxford Economics report: Review of AER Forecast Comparison Report*, 31 January 2020, p. 3.

Issue	AER view
	split into analysis of any other contributing factors to the WPI measure.'[90]
All-industries performance: BIS Oxford Economics 'conclude that BIS Oxford Economics' forecast performance is moderately better when the forecast horizon is taken into account.'	We agree that at the all industries level, BIS Oxford Economics' WPI growth forecasts appear to perform slightly better when we use BIS Oxford Economics dataset. However, we do not use all industries WPI growth forecasts, but rather utilities WPI growth forecasts, noting that this is one input to the utilities WPI growth forecasts.
All Industries-utilities gap performance: BIS Oxford Economics note that 'the BIS Oxford Economics forecasts exhibit some upward bias in the forecasted all-industries-utilities gap, particularly in the long run (years four and five). In contrast, the DAE forecasts exhibit downward bias.' It concludes that 'BIS Oxford Economics has outperformed DAE, particularly over the medium and long-term forecast horizon.' Further 'The average forecast performance is materially better than either firm individually'.	We agree that BIS Oxford Economics tended to over forecast the forecasted all-industries-utilities gap, while Deloitte tended to under forecast the gap. We found, other than direction, the magnitude of the forecasting error of the two was very similar (see appendix A, Table 6.10 and Table 6.11). We also agree that the performance of an average of the two sets of forecasts of the gap performed materially better than either firm individually.
Deloitte's sectoral wage model is mis-specified: BIS Oxford Economics' 'analysis of DAE utilities forecasts reveals that DAE usually has utilities WPI growth outpacing all-industries WPI in the first 1–2 years, then it subsequently falls below the all-industries WPI growth. They have done this in virtually every year they have provided reports to the AER—despite the long trend of utilities outpacing all industries WPI. This suggests a serious mis-specification in their sectoral wage model.' Related to this, BIS stated that its 'approach to modelling the gap takes account of structural features within the utilities sector, in particular the relatively high level of unionisation in the sector. Unlike Deloitte, we assume that the impact of unionisation, which manifests itself in the EBAs that are reached between unions and the utilities companies, persists over the full forecast horizon.	We note that BIS Oxford Economics' claim that Deloitte's model is mis-specified is based on a comparison of its utilities industry growth forecasts to its all-industries forecasts. We note that BIS Oxford Economics' forecast accuracy for the gap between all-industries and the utilities industry was similar to Deloitte but in the opposite direction. If Deloitte's model is mis-specified then BIS Oxford Economics' model is arguably equally mis-specified. BIS Oxford Economics continues to forecast utilities WPI growth that outstrips all-industries WPI growth. And while all-industries WPI growth has only been greater than utilities WPI growth in 2 of the 13 years we have considered, BIS Oxford Economics has repeatedly over forecast the margin between the two. We agree with Deloitte's view that 'above-average WPI growth for a given industry can be sustained for a number of years but not in the very long term. However, it is unlikely that higher levels of unionisation have led to consistently higher growth in WPI in the utilities industry.'[91] Deloitte has noted that 'the utilities industry is far less unionised than in the past, and while there are certain examples of union bargaining power driving EBA and WPI increases, the strength of the link generally is not particularly strong.' Supporting this, it notes the significant decline in union membership in the utilities industry would argue against the impact of unionisation

[90] Deloitte Access Economics, *Response to BIS Oxford Economics report: Review of AER Forecast Comparison Report*, 31 January 2020, p. 3.

[91] Deloitte Access Economics, *Response to BIS Oxford Economics report: Review of AER Forecast Comparison Report*, 31 January 2020, p. 4.

Issue	AER view
	being a large driver of upward pressure in industry wages.[92]
Future forecasting performance: BIS Oxford Economics contend that 'it should not be assumed that the biases seen historically will remain the same over the forecast horizon.'	We agree that care should be taken in inferring future forecasting accuracy based on past performance. The past is not always a good predictor of the future. However, there is value in considering past performance. For example, it can help identify deficiencies in a particular forecasting approach.
Statistical likeliness: BIS Oxford Economics state that 'the AER's current approach of averaging the projections from DAE and BIS Oxford Economics is statistically likely to produce the most accurate projections for wage increases over the forward-looking horizon.'	We note that BIS Oxford Economics have not supported this claim with any statistics. This statement appears to be based on the literature than find an average of different forecasting approaches tends to be more accurate than an individual forecasting approach.
Impact of NSW: BIS Oxford Economics contend that a key reason why national utilities WPI growth has been abnormally low has been the very low outcomes in NSW in 2016–18. Over these 3 years, the average wage rises in the NSW utilities sector were well below the national average. It argued this appeared 'to be a 'one-off' aberration, and may have been related to downward pressure on wages from the NSW state government (particularly wage increases in the areas outside collective agreements) before, during and immediately following the privatisation of the NSW electricity businesses.'	We consider that actual WPI growth in a given year reflects the cumulative impact of a multitude of 'one-off aberrations'. BIS Oxford Economics has identified one such 'aberration' that negatively impacted the accuracy of its forecasts. BIS Oxford Economics stated that abnormally low wage growth in the NSW utilities sector pushed down the national utilities outcome by between 0.2 to 0.5 per cent over the three years from 2016 to 2018. Deloitte confirmed that this is a reasonable estimate of the impact.[93] We note, however, that over the same period BIS Oxford Economics, on average, over forecast national utilities WPI growth by 0.9 per cent. This suggests that the wage growth outcomes in the NSW utilities sector doesn't fully explain BIS Oxford Economics' over forecasting of national utilities WPI growth in those years.

92 Deloitte Access Economics, *Response to BIS Oxford Economics report: Review of AER Forecast Comparison Report*, 31 January 2020, p. 4.

93 Deloitte Access Economics, *Response to BIS Oxford Economics report: Review of AER Forecast Comparison Report*, 31 January 2020, p. 4.

Shortened forms

Shortened form	Extended form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
capex	capital expenditure
CCP14	Consumer Challenge Panel, sub-panel 14
CPI	consumer price index
distributor	distribution network service provider
EBSS	efficiency benefit sharing scheme
ECA	Energy Consumers Australia
NEL	National Electricity Law
NER	National Electricity Rules
opex	operating expenditure