Ausgrid

Revised Proposal Attachment 6.01 Ausgrid's Proposed Operating Expenditure

January 2019

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1 Introduction

The purpose of this document is to provide additional detail to support our revised operating expenditure (opex) forecast for the 2019-24 regulatory period. It supports our Revised Proposal to the Australian Energy Regulator (AER) and references other supporting documentation which provide supplementary information for our opex forecast.

This document should be read in conjunction with Chapter 6 (Operating Expenditure) of our Revised Proposal.

This document provides context in terms of our alignment with the requirements of the National Electricity Rules (NER) and the AER's requirements with respect to opex forecasts, methodology and assumptions, as set out in:

- NER chapter 6 (6.5.6 and 6.12.1(4)) and schedule 6 (S6.1.2 and S6.1.3)
- The AER's Expenditure Forecast Assessment Guideline, and
- Our licence obligations.

We are confident our approach to opex is prudent and efficient, complies with the NER and is capable of acceptance by the AER in its Final Decision. In particular, we note:

- Our proposed base year benchmarks well against our peers and the AER's alternate estimate of our base year, reflecting our achievement of substantial savings over the 2014-19 regulatory period, and additional productivity savings we are proposing,
- We have transformed our business to a more efficient cost base and to embed a culture of efficiency, including active consideration of opex-capex trade-offs, and
- We have taken account of our customers' concerns regarding affordability and have set ourselves a challenging productivity target by embedding efficiencies in our forecasts and including a 1.0% pa productivity factor from 2020/21.

Over the current regulatory period, we have reduced our underlying operating cost base by more than $100 million[1] without compromising safety, reliability or customer outcomes. Benchmarking shows that we have made significant improvements over a range of measures, bringing our performance in line with our peers. Accordingly, the AER and our customers can have confidence that our transformation program has achieved levels of opex that are consistent with good practice in our industry.

Our Revised Proposal recognises our customers' concerns regarding affordability and we have embedded further productivity improvements in our forecast opex for the 2019-24 regulatory period as set out below:

- We set our base year opex according to the 2017/18 opex allowance previously set by the AER (of $426.4 million, $ nominal), which is lower than our actual opex of $434.0 million ($ nominal) in 2017/18
- We face additional cost increases of $223.0 million over the 2019-24 regulatory period due to changes in uncontrollable costs, capex-opex trade-offs and regulatory changes, which we are proposing to absorb
- We are setting ourselves an additional productivity challenge, which requires us to achieve a further productivity improvement of 1.0% pa from 2020/21.

Overall, the productivity challenge we are committing to results in a $269.8 million or 10.6% reduction in our total opex forecast for the 2019-24 regulatory period. We are confident that the proposed opex reflects the efficient and prudent costs of achieving the opex objectives and provides safe and reliable distribution services to our customers, in accordance with the requirements of the NER.

[1] Note, all numbers are presented in this attachment are in $ real FY19, unless otherwise stated.

2 Getting to our revised opex forecasts

Our revised opex forecast totals $2.3 billion (real, FY19) for 2019-24, as shown in Table 1. In preparing our Revised Proposal, we revisited our opex forecasts to respond to the AER's Draft Decision and the feedback we received from our customers. Where it is possible to accept the AER's Draft Decision, without compromising safety and reliability, we have done so. In relation to aspects we have not accepted, we have provided further detailed information and analysis to explain and justify the proposed expenditure.

In our Initial Proposal, we proposed an opex forecast of $2.4 billion, including debt raising costs. Our Revised Proposal opex is $2.3 billion, which is $20.3 million (or 0.9%) lower than the AER's Draft Decision and $118.7 million (or 4.9%) lower than our Initial Proposal and reflects a concerted effort to address affordability concerns of our customers.

The purpose of this attachment is to demonstrate significant improvements achieved over the current regulatory period, and how we have addressed the AER's Draft Decision and customer concerns with our Initial Proposal.

2.1 Revised opex proposal

We have revisited each of the components of our opex forecasting approach in developing our response to the AER's Draft Decision. We have also addressed feedback from customers. Our revised forecasts also reflect the most recent information, including 2017/18 actual costs for Emergency Recoverable Works and revised CPI forecasts. The main differences between our revised opex forecast and our Initial Proposal are:

- The approach to rolling forward the base year from 2017/18 to 2018/19—we have adopted the AER's Draft Decision approach for rolling forward the base year
- Trend escalation—we have updated our labour price escalation forecasts, using the AER's standard approach, as outlined in the Draft Decision, and incorporating the most recent information on labour price forecasts. We have also adopted the AER's revised approach for estimating the output growth escalation factors
- Productivity factor—we have revised our approach to forecasting productivity in light of the AER's Draft Decision. We have adopted the AER's Productivity Draft Decision forecast of productivity growth of 1.0% pa to apply from 2020/21 as a placeholder in our Revised Proposal. We intend to update this with the AER's Productivity Final Decision estimate during consultation with the AER following the release of the Productivity Final Decision in March/April 2019. This approach sets us a challenging productivity target, and we intend to achieve this as a result of the efficiency initiatives included in our Revised Proposal
- Step changes—we have accepted the AER's Draft Decision for the price reform research step change and removed the proposed expenditure from our forecasts. We are still committed to undertaking price reform research but will do so without seeking additional funding through our total opex allowance. We have also revised our demand management projects in response to the AER's observations in its Draft Decision, and in light of new information to ensure that they are efficient and meet the needs of our customers.

As part of our Revised Proposal, we have included additional information to support our proposed base year adjustment and demand management projects, as sought by the AER in its Draft Decision. We believe these amounts meet the opex criteria and we hope meet our customer expectations. Therefore, we believe these amounts should now be accepted.

Table 1

Comparison of our Initial Proposal, AER Draft Decision and Revised Proposal ($ million, real FY19)

OPEX COMPONENT	INITIAL PROPOSAL	AER DRAFT DECISION	REVISED PROPOSAL
Base opex	2201.0	2197.1	2194.9
Base opex adjustment: Emergency Recoverable Works	26.8	0.0	31.4
Trend: Rolling forward the base year (2017/18 to 2018/19 increment)	33.3	18.4	20.1
Trend: Price growth	56.0	32.4	29.8
Trend: Output growth	56.1	49.1	44.7
Trend: Productivity growth	0.0	0.0	-46.5
Step changes	29.1	8.5	10.2
Other costs: Debt raising costs	40.2	38.7	39.2
Total opex	**2442.5**	**2344.1**	**2323.8**

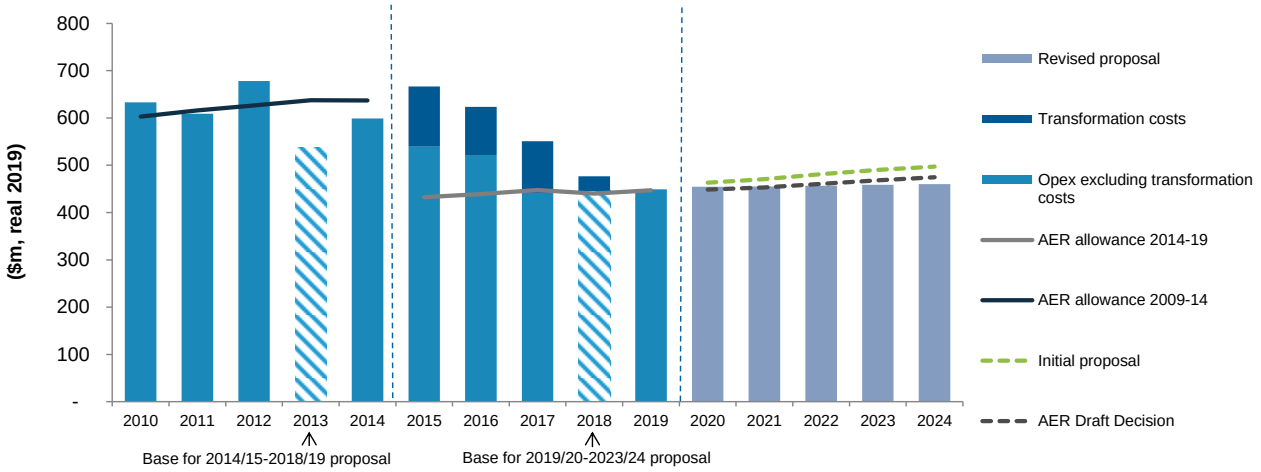
Note: Totals may not add due to rounding

2.2 Opex over time

As noted in our Initial Proposal, we have changed our business practices during the 2014-19 regulatory period to deliver on-going opex reductions to our operating cost base, making significant progress in moving to an efficient level of opex. We have embedded these significant cost decreases in our base year opex. Our forecast also includes a productivity challenge, which requires us to achieve a further productivity improvement of 1.0% pa from 2020/21. The figure below shows our forecast opex alongside our actual opex for the current and previous regulatory periods.

Figure 1

Actual and forecast opex for 2009/10 to 2023/24 ($m, real FY19)



Note: opex excluding debt raising costs

The NER require an explanation of any significant variations in forecast opex from historical opex (S6.1.2(8)). We operated with a higher cost base in the past. This was due to mandated licence conditions, which increased reliability standards, and rising peak demand led to a rapid increase in capex from 2007 to 2012. Our operating cost base also had to increase to support this higher level of activity.

As outlined in our Initial Proposal, the AER's determination for 2014-19 set a significantly lower level of opex than we had proposed, which was reflected in a 14% average fall in prices in 2015/16. Since then, we have moved as quickly as possible to close the gap between our actual expenditure and our allowance, through an ambitious transformation program (summarised below) designed to improve our efficiency.

Our Transformation Program

In 2012, the NSW Government began putting downward pressure on our electricity prices, which marked the start of our journey to transform our cost base.

Following the outcomes of the AER's determination for 2014-19, which set a significantly lower level of opex than what we had proposed, combined with our customer focus on affordability, transforming our cost base by significantly reducing our underlying opex become our top priority.

Since 2015, we have accelerated our transition to an efficient level of opex through an ambitious program of transformation. Our program of transformation involves two phases:

- Phase 1 of the transformation program was launched in 2015 and focussed on laying the foundations for our future success. This was achieved through a series of initiates to 'right size' our workforce and increase efficiencies and productivity in the field, in order to deliver a significant reduction in our cost base without compromising safety or reliability.
- Phase 2 of our transformation program was introduced in 2017 to drive further efficiency and operational effectiveness and to help us meet the AER's opex allowance and provide a stable and sound cost base for the future. We implemented additional transformation initiatives to further reduce the size of our workforce, improve the efficiency of our capital investments, improve labour productivity, increase blended delivery, drive efficient network support costs, and streamline back-office operations. We also negotiated a new competitive enterprise agreement, implemented a new management structure and invested in our key capabilities to embed the significant cost reductions we have achieved are within our cost base moving forward.

2.3 Factors considered in forming our opex forecasts

To ensure our revised opex forecast reflects our expected operating expenditure requirement over the 2019-24 regulatory period, we considered a number of factors that could impact this. As outlined in our Initial Proposal, some of the factors that will influence the level of opex required in the next regulatory period are:

- Regulatory obligations and changes to these obligations or the introduction of new obligations,
- The relationship between forecast capex and opex, and
- Forecast changes in the cost of inputs (i.e. labour, materials etc.) and the growth of outputs.

We have considered the impact of these factors on our opex needs for the next regulatory period in responding to the AER's Draft Decision.

We have used the AER's allowance for 2017/18 as the efficient starting base. To this base year opex we have incorporated the impact of the following factors to ensure that our forecast opex reflects our future needs, which represent the reasons for changes between historical opex and forecast opex:

- The change in service classification of Emergency Recoverable Works (ERW) as a regulated distribution service. These costs are not currently recovered or reported through standard control services opex
- Demand management (DM) initiatives, which will provide positive outcomes for customers through efficient deferral of capex
- Forecast changes in the prices of inputs. We anticipate that the rate of increase in labour costs for the next regulatory period will be above expected inflation
- Forecast growth in outputs. As we provide more output – for example by adding customers to our network or operating and maintaining more lines – our opex increases
- Forecast changes in productivity. We have revised our approach to forecasting productivity in light of the AER's Draft Decision. We have adopted the AER's Productivity Draft Decision forecast of productivity growth of 1.0% pa to apply from 2020/21 as a placeholder in our Revised Proposal. We intend to update this with the AER's Productivity Final Decision estimate during consultation with the AER following the release of the Productivity Final Decision in

March/April 2019. This approach sets us a challenging productivity target, and we intend to achieve additional productivity as a result of the efficiency initiatives included in our Revised Proposal.

Our performance in the current regulatory period and the circumstances we are expecting to face in the next regulatory period are critical factors we must take into account in developing our revised opex forecast for the 2019-24 regulatory period. As outlined in our Initial Proposal, the NER also requires the AER, in making its decision on whether to accept the proposed forecast opex, to have regard to the extent to which the opex forecast includes expenditure to address the concerns of electricity consumers as identified by Ausgrid in the course of its engagement with customers.

Customers have told us that affordability was their number one concern. We have addressed this in our forecasts by:

- Adopting the AER's allowance for 2017/18 (as outlined in the 2015 Determination) instead of our actual opex in 2017/18,
- Absorbing operational costs that we expect to be higher during the 2019-24 regulatory period than in the base year due to regulatory changes, capex-opex trade-offs and uncontrollable costs by working hard to achieve efficiencies to offset these elsewhere, and
- Proposing a placeholder productivity target for Ausgrid of 1.0% p.a. from 2020/21, which sets ourselves a productivity challenge, which we intend to achieve as a result of the efficiency initiatives included in our Revised Proposal.

As outlined in our Initial Proposal, we identified a number of cost categories where we expect costs in the 2019-24 regulatory period to be higher than included in our base year. These additional costs can only be met if we make productivity gains in the 2019-24 regulatory period. These embedded productivity improvements amount to $223.3 million, or 8.9% over the 2019-24 regulatory period. These are in addition to the $8.4 million efficiency improvements we are embedding in our base year opex by adopting the AER's allowance for 2017/18 instead of our actual opex in 2017/18.

In response to our Initial Proposal, customers noted that offsetting step changes are just as important as claimed step changes – ultimately, if accepted these changes have to be funded by customers whether they are separate explicit step changes or reasons for not including a productivity adjustment. In response, we have provided additional information to explain the drivers of these increased operational costs. The opex cost pressures are largely due to changes in uncontrollable costs, capex-opex trade-offs and regulatory changes:

- Regulatory changes:
  - Increased cyber security software and support costs, and physical security costs as a result of new regulatory obligations contained in our Distributor Licence Conditions and *the Security of Critical Infrastructure Act 2018*, which came into effect in July 2018, and required Ausgrid to improve security controls to manage risks to national security.
- Capex-opex trade-offs:
  - Increased ICT opex relating to subscription and licencing for cloud-based solutions as part of our prudent migration away from capital intensive 'on-premises' data centres. This results in a capex reduction of approximately $20 million over the 2019-24 regulatory period. (see Chapter 5 of our Revised Proposal for details on our shift to cloud-based solutions), and
  - Transformation costs associated with achieving a lower capex program – the reduction in our capex program from our initial proposal requires us to undertake further transformation to effect this reduced program.
- Changes in uncontrollable costs:
  - Emergency management and nature-induced maintenance costs are well below historical average costs[2], reflecting the absence of any major storm events during the base year. We consider this to be an abnormally low cost level compared to the historical average, and predicted increase of major weather events in the future;[3] and
  - Land tax – our Initial Proposal identified land tax as an area of costs which were growing at a rate materially above the trend component of our forecasts due to the significant growth in land value from prior years and the tax based on an average of the land value over three years. We have revised our forecast growth of land tax to take into account the most recent forecasts for land prices.[4] Our revised forecast estimates $14.6 million additional opex over the 2019-24 regulatory period above the amount forecast through the base-step-trend approach.

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[2] Our base year is $8 million, (or 32%) lower than the average of these costs over the 2014-19 regulatory period, excluding costs associated with the 2015 storm pass through event.

[3] Extreme weather events across Australia are projected to worsen as the climate warms further, including harsher fire weather and the intensity of extreme rainfall events projected to increase across most of Australia. (see Climate Council, *Cranking Up The Intensity: Climate Change and Extreme Weather Events*, available at: https://www.climatecouncil.org.au/resources/cranking-intensity-report/)

[4] We engaged BIS Oxford Economics to provide land price forecasts for the 2019-24 regulatory period.

As outlined in our ICT capex proposal (see Chapter 5 of our Revised Proposal), a number of our ICT capex programs are aimed at delivering capabilities (e.g. automation of manual processes) to help us achieve the productivity savings we are challenging ourselves to achieve and offset ICT opex increases that are expected to be incurred over the 2019-24 regulatory period. In addition to the costs associated with cyber security and cloud-based solutions noted above, these cost increases include:

- Increased licence costs for supplementary data and analytics tools to ensure we can benefit from the capabilities of our foundational investments in Big Data made within the current regulatory period, and
- Increased SAP maintenance costs as a result of running SAP S/4HANA in parallel to SAP to unlock benefits from 2024, as outlined in our ICT capex proposal.

These costs have not been included in our opex proposal, as we expect the anticipated productivity benefits that will be delivered by the various streams of the Adapt program will offset these cost increases (see Chapter 5 of our Revised Proposal).

Our focus on continually improving our cost efficiency is driving us to make further operational changes in the 2019-24 regulatory period, which will incur implementation and transition costs, but are expected to deliver efficiencies in future regulatory periods. These include:

- Additional opex associated with replacement and refurbishment of properties—our capex proposal includes the refurbishment and replacement of a number of properties. For those properties that are being replaced/refurbished in the same location, there is additional opex associated with rent for temporary accommodation during the construction period as well as relocation costs. We expect opex savings identified in the property business cases to commence from 2023/24 as the first property replacements and refurbishments are completed.[5]
- Implementation of ADMS—the implementation of the ADMS has associated opex to cover training and transition costs during the roll-out. These are one-off costs incurred across the 2019-24 regulatory period. The implementation of ADMS is expected to drive significant operating efficiencies, with benefits expected to be realised from 2020/21.[6]

We are not seeking to pass these costs through to customers. Rather, productivity improvements will offset these costs.

[5] See Chapter 5 of our Revised Proposal for details about our property capex proposal.

[6] See Chapter 5 of our Revised Proposal for details about the costs and benefits of the ADMS.

Table 2

Efficiencies embedded in our opex proposal ($m, real FY19)

OPEX	2019/20	2020/21	2021/22	2022/23	2023/24	TOTAL
Regulatory changes						
Cyber security	$4.16	$4.16	$4.16	$4.16	$4.16	$20.78
Physical security	$0.80	$0.80	$0.80	$0.80	$0.80	$4.00
Capex-opex trade offs						
Shift to cloud IT storage	$3.97	$6.84	$7.61	$5.93	$5.93	$30.27
Transformation costs associated with lower capex program	$47.82	$13.21	$0.00	$0.00	$0.00	$61.03
Uncontrollable costs						
Emergency response opex	$8.28	$8.35	$8.52	$8.72	$8.96	$42.83
Land Tax	$4.09	$4.07	$3.23	$2.15	$1.06	$14.60
ICT opex increases						
Implementation and transition to SAP upgrade	$4.45	$4.12	$3.01	$3.01	-$1.83	$12.76
Data analytics	$2.36	$2.53	$2.73	$2.93	$3.13	$13.67
Efficiency improving initiatives						
Additional opex associated with property replacement/ refurbishment program	$0.00	$0.00	$1.47	$3.50	$0.89	$5.86
Implementation of ADMS	$2.60	$4.00	$9.40	$0.70	$0.80	$17.50
Total	$78.53	$48.08	$40.92	$31.89	$23.88	$223.31

Note: the negative number for Implementation and transition to SAP upgrade in 2023/24 represents a net saving (or reduction) in IT opex in that year as a result of the transitional period to SAP S/4HANA ending.

2.4 Addressing AER and customer concerns

The key differences between our Initial Proposal and the AER's alternate forecast were due to the following components:

- Base year – The AER's alternate estimate excluded our proposed adjustment to the base year for the reclassification of ERW,
- Trend – The AER's alternate estimate adopted a revised approach to forecasting output growth, whereas we had applied the AER's previous approach. The AER's labour price growth estimate was also lower than our Initial Proposal estimate, and
- Step change – The AER's alternate estimate included a lower amount than we had proposed for demand management and did not include our proposed step change for research into, and engagement on, network price reform.

We have revised each of the components of our opex forecast in response to the AER's Draft Decision. In developing our Revised Proposal, we have also taken into consideration the feedback we received from customers. A summary of the AER's Draft Decision on key aspects of our opex proposal, as well as what we've heard from customers and how we've responded, is shown in Table 3 below.

Table 3

Preparing our revised opex proposal

	AER DRAFT DECISION	WHAT WE HEARD FROM CUSTOMERS	HOW WE'VE RESPONDED
Base opex	The AER accepted our base year opex as reasonably reflecting an efficient and sustainable level of opex consistent with the opex criteria.	The Consumer Challenge Panel (CCP10) noted that the current base year is 'soft' (high) to the point of being inefficient.	In response to customer feedback, our Revised Proposal adopts the AER's opex allowance for 2017/18 (as outlined in the AER's 2015 Determination) as our base year. We consider this is representative of our efficient recurrent opex requirements for 2019-24. This differs to our Initial Proposal view, which anticipated adopting actual underlying opex (excluding non-recurrent costs) for 2017/18, consistent with the AER's standard methodology. Section 4 discusses this in further detail.
Base opex adjustment for Emergency Recoverable Works	The AER's alternate estimate of opex in the Draft Decision did not include our proposed adjustment to the base year. The AER concluded that it would require further information before accepting our proposal.	Customers did not comment on our proposed base year adjustment.	We have provided the additional information sought by the AER to support our Revised Proposal. Section 5 discusses this in further detail.
Rolling forward the base year (2017/18 to 2018/19 increment)	The AER substituted our assumption of the allowed opex in 2018/19 under the previous determination with a simple rate of change from the 2017/18 base year, as no Efficiency Benefit Sharing Scheme (EBSS) applied during the current regulatory period.	Customers did not comment on how we escalated our base year to estimate 2018/19 opex.	We have adopted the AER's revised approach to roll-forward the base year to estimate 2018/19 opex. Section 6.2.1 discusses this in further detail.
Price growth	The AER calculated an alternate estimate of labour price growth as the average of Ausgrid's (BIS Oxford) and the AER's (Deloitte Access Economic) forecasts.	Customers did not comment on the price growth component of our forecast opex.	We have adopted the AER's approach to estimating labour price growth. However, we have incorporated the latest forecasts, resulting in a different forecast to the AER's Draft Decision. Section 6.2.2 discusses this in further detail.

	AER DRAFT DECISION	WHAT WE HEARD FROM CUSTOMERS	HOW WE'VE RESPONDED
Output growth	The AER updated its approach to calculating output growth, adopting the average of the four models in the 2017 Annual Benchmarking Report[7] to calculate the weighting of the output growth factors.	Customers did not comment on the output growth component of our forecast opex.	We have revised our approach to forecasting the output growth adjustments in response to the AER's Draft Decision. Section 6.2.3 discusses this in further detail.
Productivity growth	The AER applied a zero productivity growth forecast in its Draft Decision. However, it is concurrently reviewing the approach to forecasting productivity, the outcomes of which will be taken into consideration in the AER's Final Decision.	Customers disagreed with our decision not to apply a productivity trend over the 2019-24 regulatory period. The CCP10 proposed a minimum productivity adjustment of 1.5 – 2.0% pa. This was based on the results of opex Partial Factor Productivity (PFP) analysis from 2012-16 of the four businesses with the highest opex PFP in the 2013 benchmarking report, and labour productivity forecasts.	We acknowledge and have taken on board the issues raised by customers in relation to our opex efficiency. We have also considered the AER's Draft Decision Paper on forecasting productivity growth for electricity distributors. We have adopted the AER's Productivity Draft Decision forecast of productivity growth of 1.0% pa to apply from 2020/21. We intend to update this with the AER's Productivity Final Decision estimate during consultation with the AER following the release of the Productivity Final Decision in March/April 2019. Section 6.2.4 discusses this in further detail.
Step changes	The AER has included $8.5 million in our base opex for demand management, compared to our estimated $26.1 million. The AER did not consider that four projects were justified and sought more information on those projects. The AER did not include our proposed price reform research step change, as it considered this type of activity to be part of a distributor's standard business activities. The AER considered it should be accommodated within the existing costs and base year opex.	Customers were also not supportive of the proposed price reform research step change, suggesting that this expenditure should be funded out of existing opex. However, customers were supportive, in principle, of our proposed demand management step change.	We have revised our opex proposal in response to the AER's Draft Decision. We have also taken on board the comments from customers on the step changes included in our Initial Proposal. We have reviewed our proposed step changes and excluded the proposed step change for price reform research from our revised opex forecasts. We have revised our demand management projects in light of new information to ensure that they are efficient and meet the needs of our customers. Section 7 discusses this in further detail.

[7] The AER's 2017 Annual Benchmarking Report looks at four different econometric models to compare the relative operating efficiency of service providers in the NEM. These models are: Opex multilateral partial factor productivity (MPFP), Cobb-Douglas stochastic frontier analysis (SFA), Cobb-Douglas least squares econometrics (LSE), and Translog LSE.

	AER DRAFT DECISION	WHAT WE HEARD FROM CUSTOMERS	HOW WE'VE RESPONDED
Total opex	The AER did not accept our total opex forecast. As noted above, the AER's substitute estimate for total opex of $2.3 billion (including debt raising costs) is $98.4 million (or 4.0%) lower than our initial opex forecast. In its Draft Decision, the AER concluded that this substitute estimate met the opex criteria.	Customers acknowledged that we have made significant progress in reducing our underlying opex over the current regulatory period, but considered there was further scope for improvement in our forecasts.	We have revisited our forecasts in response to the AER's Draft Decision. In developing our Revised Proposal, we have also taken into consideration feedback from customers. As noted above, this has resulted in a revised opex forecast of $2.3 billion (including debt raising costs), which is $20.3 million (or 0.9%) lower than the AER's Draft Decision. We believe this reasonably reflects the opex criteria and is in the long-term interests of customers.

2.5 Forecast opex

2.5.1 Total opex forecast

In developing our response to the AER's Draft Decision, we have taken into account our performance in the current regulatory period, the circumstances we are expected to face in the 2019-24 regulatory period, as well as customers' concerns. Our revised opex forecast for the next regulatory period is $2.3 billion (real FY19), as shown in the table below. Our lower opex forecast will deliver a more affordable network service without compromising safety, network security or reliability.

Table 4

Forecast opex 2019/20 to 2023/24 ($m, real FY19)

OPEX	2019/20	2020/21	2021/22	2022/23	2023/23	TOTAL
Initial Proposal opex	463	471	481	490	497	2,402
AER Draft Decision opex	448	453	461	468	475	2,305
Revised Proposal opex	455	455	457	458	460	2,285

Note: opex excluding debt raising costs

This revised opex forecast represents the expenditure we consider reasonably reflects:

1. The efficient costs of achieving the opex objectives listed in clause 6.5.6(a) of the NER,
2. The costs that a prudent operator would require to achieve the opex objectives, and
3. A realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives (together the 'opex criteria' – see Section 8.2).

In addition to this forecast opex, Ausgrid also proposes a forecast debt raising cost of $39.2m (real FY19). This forecast opex is for the provision of standard control services[8] and represents expenditure that has been properly allocated to standard control services in accordance with the policies and principles set out in Ausgrid's Cost Allocation Method (CAM) as approved by the AER on 2 May 2014.[9]

[8] Clause S6.1.2 (1)(iv) requires Ausgrid to identify the categories of distribution services to which the forecast opex relates.

[9] As required by 6.5.6(b) of the NER. See Ausgrid, Cost Allocation Method, November 2013, available at https://www.ausgrid.com.au/-/media/Files/Industry/Regulation/Reports-and-plans/Ausgrid-Cost-Allocation-Method-2013.pdf.

2.5.2 Fixed and variable opex activities

The NER requires us to identify, for each category of expenditure, to what extent that forecast expenditure is on costs that are fixed and to what extent is on costs that are variable.[10] The 2019-24 regulatory period would be considered short run in economics terms. During this period, we will incur both:

- Variable costs, which change as our outputs (customer numbers, circuit length and ratcheted maximum demand) change, and
- Fixed costs, which are incurred regardless of movements in our outputs.

The table below shows those operating activities for which our costs may broadly be considered as either variable or largely fixed. We do not have information to identify fixed and variable costs for each of our opex categories.

Table 5

Fixed and variable operating activities

NATURE OF COSTS	EXAMPLE OF OPEX ACTIVITIES
Fixed	Corporate support functions such as finance, human resources management and regulation. Property ownership.
Variable	Inspection, corrective maintenance and breakdown maintenance. Customer service functions, such as those provided through the customer contact centre.

Note: Classification of 'fixed costs' does not mean that these costs will not experience cost escalation over a given period. For example, a fixed activity may involve a number of staff. While the staff count may be fixed regardless of output growth, we would reasonably expect to incur cost growth due to wages growth for those staff.

2.5.3 Opex by category

As outlined in our Initial Proposal, our forecast opex can be categorised into network maintenance, network support, property, ICT, corporate support, and other costs. The components of these broad categories of costs are summarised in Table 6.

Table 6

Opex categories

NETWORK CATEGORIES	SUMMARY
Maintenance	Our maintenance opex comprises the following cost categories that reflect the activities undertaken to maintain the electricity network, including: • Inspection – work associated with undertaking planned appraisal and routine preventative maintenance tasks, • Corrective maintenance – all work associated with correcting defects that have not yet resulted in a "breakdown", • Breakdown maintenance – all work associated with equipment that has ceased to perform its intended function (excluding nature induced breakdown), • Nature-induced breakdown maintenance – all work associated with equipment that has ceased to perform its intended function due to factors beyond the equipment's design capability (e.g. causing an equipment malfunction), • Non-direct maintenance – all work associated with the testing of plant, tools and equipment that are used to deliver the different maintenance activities defined above, and • Engineering support – work associated with local project planning, scheduling and coordination of maintenance works.

[10] Clause S6.1.2(iii) requires Ausgrid to identify to what extent the forecast expenditure is on costs that are fixed and to what extent it is on costs that are variable

NETWORK CATEGORIES	SUMMARY
Network support	Costs pertaining to activities undertaken for customer operations, system control and engineering, planning and connection. These include customer operations, contact centre and data operations, system control, engineering, planning and connection.
Property	Costs of various activities inherent in the ownership of properties (land and buildings) including the costs of complying with legal obligations pertaining to this ownership such as land registration, land tax payments and council rates.
Information and communications technology (ICT)	Costs relating to the operation and maintenance of various IT technologies and telecommunication systems required for the effective operation of Ausgrid's infrastructure and day-to-day operations.
Corporate support	This opex group comprises the costs that would typically exist in any business and include costs relating to the finance function, fleet and logistics management, insurance and self-insurance, human resources management, workers compensation, occupational health, wellbeing and safety, regulation, management, including the Board of Directors, Chief Executive Officer and Executive Leadership Team, training and development.
Other costs	These are opex costs relating to DM and the costs associated with step changes.

As required by the NER,[11] we have presented our forecast opex for each year of the next regulatory period identified into well-accepted categories, including an allocation between transmission and distribution standard control services (in Table 7). We also present opex by category for the previous and current regulatory periods in

[11] S6.1.2(1)(i) and S6.1.2(7)

Table 8.

Table 7

Total forecast opex by category ($m, real FY19)

OPEX	2019/20	2020/21	2021/22	2022/23	2023/23	TOTAL
Maintenance	140	140	141	141	142	705
Network support	113	114	115	115	116	572
Property	63	63	63	63	63	315
Information and communications technology (ICT)	51	51	51	52	52	257
Corporate support	87	87	87	88	88	436
Total forecast opex (excl. debt raising costs)	**455**	**455**	**457**	**458**	**460**	**2285**
Distribution	420	420	422	423	425	2110
Transmission	35	35	35	35	35	175
Subtotal	**455**	**455**	**457**	**458**	**460**	**2285**
Debt raising costs	8	8	8	8	8	39
Total forecast opex (incl. debt raising costs)	**462**	**463**	**465**	**466**	**468**	**2324**

Note: Totals may not add due to rounding

Table 8

Total opex by category 2009/10 to 2018/19 ($m)

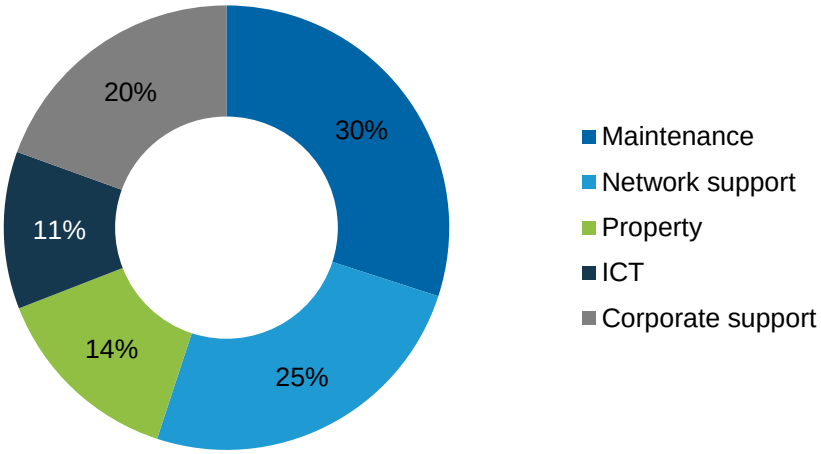
OPEX	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	NOMINAL								REAL FY19	
Maintenance	212	230	242	235	268	282	199	177	132	133
Network support	120	129	147	127	118	98	108	96	110	111
Property	42	45	46	49	48	58	51	49	62	62
ICT	44	46	46	46	45	54	53	52	50	51
Corporate support	120	84	126	46	95	159	180	157	85	86
Total opex	**539**	**535**	**608**	**504**	**574**	**651**	**590**	**531**	**439**	**443**

Note: Totals may not add due to rounding. From 2014/15 some metering activities become Alternative Control Services and the associated costs are no longer reported as part of SCS opex. Actual figures for 2009/10 to 2016/17 are from Economic Benchmarking RINs submitted to the AER and are presented in nominal terms. Figures for 2017/18 and 2018/19 are presented in real FY19 terms. Figures for 2017/18 exclude transformation costs, consistent with our proposed base year opex. We have revised the historical split between categories since the Initial Proposal to be more consistent with how certain costs are categorised across the period.

The figure below summarises our allocation of opex to the above programs in our base year (2017/18).

Figure 2

Forecast base year opex by program (%, 2017/18)



3 Forecast method

As part of our Regulatory Proposal, the NER requires us to include:

- The method used for developing the opex forecast,
- Forecasts of key variables relied upon to derive the opex forecast (and the method used for developing those forecasts), and
- The key assumptions that underlie the opex forecast.[12]

We outline this information in this section. Our revised forecast opex model is also provided at Attachment 6.02.

In our Revised Proposal, we continue to apply the AER's preferred base-step-trend forecasting methodology to develop our opex forecast for most costs.[13]

For the remaining costs (such as debt raising costs and the costs associated with step changes), we have used a specific or bottom up forecasting approach, which better reflects the nature of these costs. This is consistent with the AER's approach to forecasting opex in the Draft Decision.

This section summarises the approach we have used to develop our revised opex forecast for the 2019-24 regulatory period and highlights any changes we have made to our forecasting approach since the Initial Proposal. It then sets out the key variables we have used to derive our revised opex forecast and the key assumptions we have made.

3.1 Forecasting methodology for opex

The figure below summarises how we have applied the base-step-trend methodology in our Revised Proposal. The updated inputs reflect our response to the AER's Draft Decision, customer feedback and the latest available information.

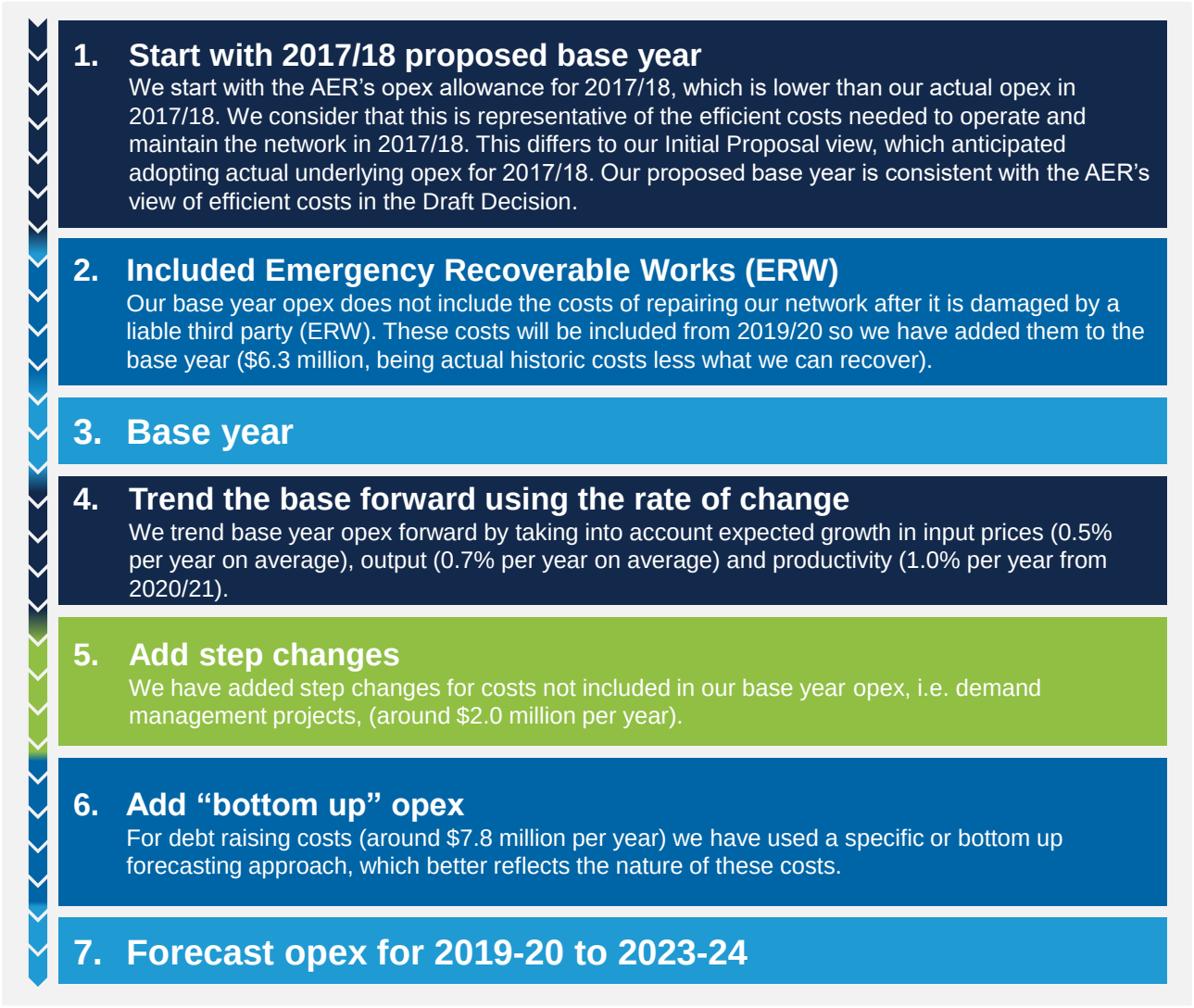
This method ensures that forecast opex reasonably reflects a realistic expectation of the cost inputs and demand forecasts for the next regulatory period.

[12] S6.1.2(2), (3) and (5).

[13] See AER, Expenditure Forecast Assessment Guideline for Electricity Distribution, November 2013, p. 22.

Figure 3

Our application of the AER's base-step-trend forecasting method



3.1.1 Efficient base year

Our Revised Proposal adopts the AER's opex allowance for 2017/18, as outlined in the AER's 2015 Determination. We consider this is representative of our efficient recurrent opex requirements for 2019-24. This differs to our Initial Proposal view, which anticipated adopting actual underlying opex (excluding non-recurrent costs) for 2017/18.

3.1.2 Adjustment to the base year

As we outlined in our Initial Proposal, ERW will become a standard control service from the beginning of the next regulatory period.[14] In previous determinations, the AER has adjusted base year costs to reflect changes in service classification. We have followed the same approach to forecasting the adjustment to our base year as outlined in our Initial Proposal.

Our revised base year adjustment is set out in Section 5.

[14] ERW are defined as emergency works to repair damage following a person's act or omission, for which that person is liable (for example, repairs to a power pole following a motor vehicle accident). The AER proposes to classify ERW as a standard control service (it is currently an unregulated distributed service), so it can be provided by a distributed business without triggering any ring-fencing requirements. We agree with this approach.

3.1.3 Trending the base year

As outlined in our Initial Proposal, we trended the base year forward to account for:

- Real cost escalation – We have applied forecast real cost escalation to labour, which reflects the expected future price of this cost input,
- Output growth – Expected changes in customer numbers, line length and peak demand mean that changes in our activity levels and opex are required, and
- Productivity growth – To reflect expected industry-wide improvements in finding more efficient ways of delivering services.

Our revised trend adjustments are set out in Section 6.[15]

3.1.4 Adding or subtracting step changes

Step changes are factors that trigger a change in costs from the current amount required to provide standard control services. Where a step change is identified, forecast opex is adjusted to account for this change (which could be either positive or negative). In general, step changes are allowed by the AER for changes in costs associated with:

- New (or revised) regulatory obligations, or
- Capex/opex trade-offs (i.e. where an increase in capex leads to a decrease in opex or vice versa).

In our Initial Proposal, we proposed two step changes. One step change was for the efficient costs of a price reform research project and the other step change was for efficient opex/capex trade-offs. We have reviewed our proposed step changes in response to the AER's Draft Decision and have taken on board feedback from customer submissions. The revised step changes are set out in Section 7.

3.1.5 Methods for forecasting other operating costs

While we have used the base-step-trend approach for most opex, there are some exceptions where alternative approaches have been used. We have forecast other opex using alternative methods where appropriate.

Forecast of debt raising costs: Our total forecast opex also includes an amount for debt raising costs. Ausgrid has adopted the method that the AER uses to derive this cost. That is, debt raising costs have been calculated by applying a benchmark debt raising unit rate to the debt portion of our regulated asset base.

"Bottom up" method: The bottom up method essentially derives forecast opex by taking into account all the inputs and factors relevant to the activities being performed (e.g. number of tasks, the cost types required to perform each task, such as labour and materials, and the price of these cost inputs).

The table below summarises our opex categories and identifies which forecasting method we have used for each category.

[15] As part of our Initial Proposal we included incremental opex between the base year and the final year of the current regulatory period in line with the AER's 2015 Determination. This has the effect of applying the trend adjustments in the AER's 2015 Determination and is consistent with the approach taken by the AER previously (e.g. TransGrid Draft Determination for the 2018-23 regulatory period). For our Revised Proposal we are applying the trend from base year as outlined in Section 6.

Table 9

Forecast method by opex category

OPEX CATEGORY		BASE-STEP-TREND	BOTTOM UP OR SPECIFIC FORECAST
Maintenance	Inspection	✓	
	Corrective	✓	
	Breakdown	✓	
	Nature induced breakdown	✓	
	Non-direct maintenance	✓	
	Engineering support	✓	
Network support		✓	
Property		✓	
ICT		✓	
Corporate support		✓	
Other costs	Debt raising costs		✓
	Step changes		✓

3.2 Key variables and assumptions

As outlined in our Initial Proposal, the NER require us to include forecasts of key variables relied upon to derive the opex forecast and the method used for developing those forecasts. The key variables used in the opex forecast relate to our proposed trend adjustments for opex and comprise:

- Real cost escalation,
- Output growth, and
- Productivity growth.

The forecasts of these key variables and the methods for developing them are discussed in Section 6.

The NER also require Ausgrid to provide details of the key assumptions underpinning our forecast opex and a directors' certification as to the reasonableness of those key assumptions. Attachment 5.11 provides details of our key assumptions and the directors' certification. The table below outlines our key assumptions relevant to the opex forecast.

Table 10

Key assumptions

KEY ASSUMPTIONS	DESCRIPTION	APPLICABILITY
Key assumption 1 – Regulatory obligations	Apart from our regulatory obligations in relation to cyber security: • It is assumed that forecast capital and operating expenditure for the 2019-24 regulatory period are based on current legislative and regulatory obligations. • It is also assumed that there are no new substantive regulatory obligations and/or major change in scope of current regulatory obligations (anticipated or taken into account). As noted above, this is with the exception of our regulatory obligations in relation to cyber security, where the forecast capital expenditure for the 2019-24 regulatory period is based on an anticipated change to the regulatory obligations which will increase our required maturity levels.	Capex and Opex
Key assumption 2 – demand and customer connections	Growth forecasts are based on a set of assumptions regarding spatial peak demand and customer connections over the 2019-24 regulatory period.	Capex and Opex
Key assumption 4 – Base year opex	Ausgrid's forecasting approach assumes that the amount of opex required to meet the opex objectives over the 2019-24 regulatory period will broadly reflect current opex requirements, with adjustments to reflect changes in input costs, outputs delivered, productivity and step changes. It is assumed that the AER's opex allowance for 2017/18 (as approved in the AER's original distribution determination for the 2014-19 regulatory period) can be adopted as the base for deriving a forecast of efficient recurrent opex over the 2019-24 regulatory period although actual expenditure for 2017/18 exceeded the forecast.	Opex
Key assumption 5 – Trend adjustments	It is assumed that it is reasonable to escalate allowed opex for 2017/18 to reflect changes in input costs, outputs delivered and productivity over the 2019-24 regulatory period.	Opex
Key assumption 6 – Forecast capex and opex	The reliability and customer outcomes set out in our Regulatory Proposal assume that all components of Ausgrid's 2019-24 Revised Proposal, including the capital and operating expenditure forecasts, will be approved by the AER, and that the approach for setting the regulatory tax allowance and the rate of return will not be materially lower than that documented in Ausgrid's Revised Proposal to enable the necessary funding for the capital program.	Capex and opex

4 Base year efficiency and benchmarking

Our Revised Proposal adopts the AER's opex allowance for 2017/18 (as outlined in the AER's 2015 Determination) as our base year. Our actual underlying opex for 2017/18 is slightly higher, however, recognising customer concerns around affordability, we propose to adopt the AER's opex allowance for 2017/18 as our base year opex.

4.1 Addressing AER and customer concerns

The AER's Draft Decision assessed the efficiency of our proposed base year using multiple techniques and information sources, including our revealed opex over the 2014-19 regulatory period, a review of our expenditure cost categories and recent economic benchmarking analysis. The AER derived a benchmark estimate of our base year opex using the four econometric models from their Annual Benchmarking Reports to produce average efficiency scores for distributors across the 2011-17 period. These efficiency scores were used to estimate the 2017-18 costs of a benchmark service provider operating in Ausgrid's circumstances and compared it to our proposed base year.

The AER's revealed cost and benchmarking analysis indicates that our proposed base year opex of $440.2 million ($2018/19) reasonably reflects an efficient and sustainable level of opex consistent with the opex criteria.[16]

Stakeholders did not universally agree, however, we understand that we need to earn customer trust and so we have revised our approach to selecting the base year, and the productivity trend for our forecasts.

4.2 Our Revised Proposal

Our Revised Proposal adopts the AER's opex allowance for 2017/18 (as outlined in the AER's 2015 Determination) as our base year. We consider this is representative of our efficient recurrent opex requirements for 2019-24. This differs to our Initial Proposal view, which anticipated adopting actual underlying opex (excluding non-recurrent costs) for 2017/18, consistent with the AER's standard methodology.[17]

Our actual underlying opex of $447.3 million in 2017/18 is comparable to the AER's alternate base year estimate in the Draft Decision of $439.4 million. However, despite significant reductions in our costs since 2014, our actual opex in 2017/18 was higher than the AER's allowance for 2017/18. Recognising our customer concerns around affordability, and our focus on efficiency, we propose to adopt the AER's opex allowance for 2017/18 as our base year rather than our actual underlying opex. Our proposed base year is $8.4 million lower than our actual underlying opex in 2017/18, which sets a lower opex allowance for the next regulatory period, which means we will need to deliver further productivity improvements in order to catch-up to the lower base year costs. This translates to $50.5 million over the 2019-24 regulatory period.

As outlined in section 2.2, we have made significant progress in improving our opex performance over the 2014-19 regulatory period. We will continue to work hard over the 2019-24 regulatory period to further improve the efficiency of our costs and pursue the efficiency frontier.

Our revised estimate of our base year opex is consistent with the AER's alternate opex base year estimate in the Draft Decision.

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[16] Ausgrid's proposed $440.2 million ($2018/19) base year opex in our Initial Proposal was derived from a nominal $426.4 million. The AER used a base opex amount of $439.4 million ($2018/19), which reflected the latest inflation information in converting the nominal $426.4 million to $2018/19 terms, hence the slight variation between the two final numbers.

[17] The AER's standard forecasting methodology, as outlined in the Expenditure Forecast Assessment Guideline, and the AER's Draft Decision, adopts the actual operating expenditure as the base year.

Table 11

Base year opex ($m, real FY19)

OPEX	2017/18
Initial Proposal base year	440.2
AER Draft Decision base year	439.4
Revised Proposal base year	439.0

Note: The differences between the Initial Proposal, the AER Draft Decision and the Revised Proposal are due to different inflation information being used to escalate the base year to $ real FY19. The AER adopted more recent inflation information than was available when we submitted our Initial Proposal, and we have updated our forecast for the base year to reflect the most recent inflation forecasts provided by BIS Oxford Economics.

4.3 Our performance under the AER's benchmarking and productivity models

In the AER's 2018 Benchmarking Report, our historical opex compared poorly to other businesses' (see charts below). However, it does not necessarily follow that our revised base year will be found to be inefficient. As noted in our Initial Proposal, a number of factors affect the benchmarking results presented in the report, including that:

- The report uses data up to 2016/17. Our opex was still relatively high then and includes transformation costs, and
- Some techniques used in the report, including the econometric models, estimate an average result over the period 2006-17. It will be some time before our performance improves under these approaches.[18]

Figure 4

AER 2018 Benchmarking Report (extract)

Figure B.7: Opex MPFP indexes by individual DNSP, previous weights, 2006-17 average))

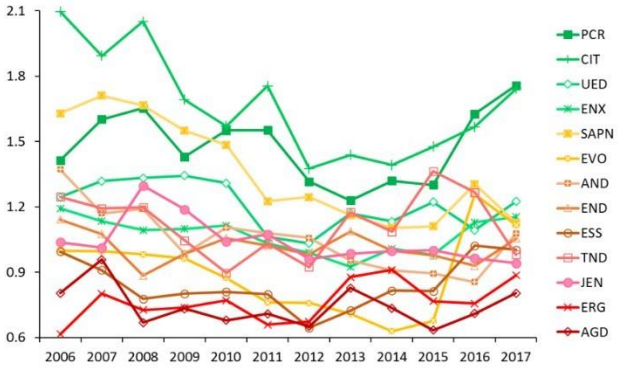
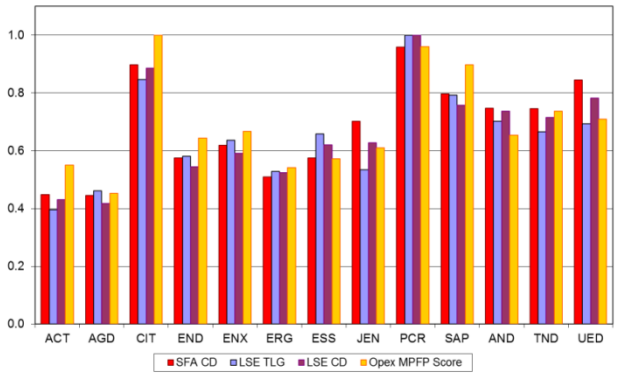


Figure 5.2: Econometric modelling and opex MPFP, (2006-17)



Source: Economics Insights, AER analysis

The AER's 2018 Benchmarking Report also noted that industry reforms are helping less efficient DNSPs catch up. It notes Ausgrid's performance is still inefficient relative to other networks, however recognises that part of this reflects the transformation costs we have incurred over the period 2013-17 to reduce our workforce and become more efficient. The AER expects our forecast opex reductions in 2017/18 and 2018/19 will drive growth in our relative efficiency.[19]

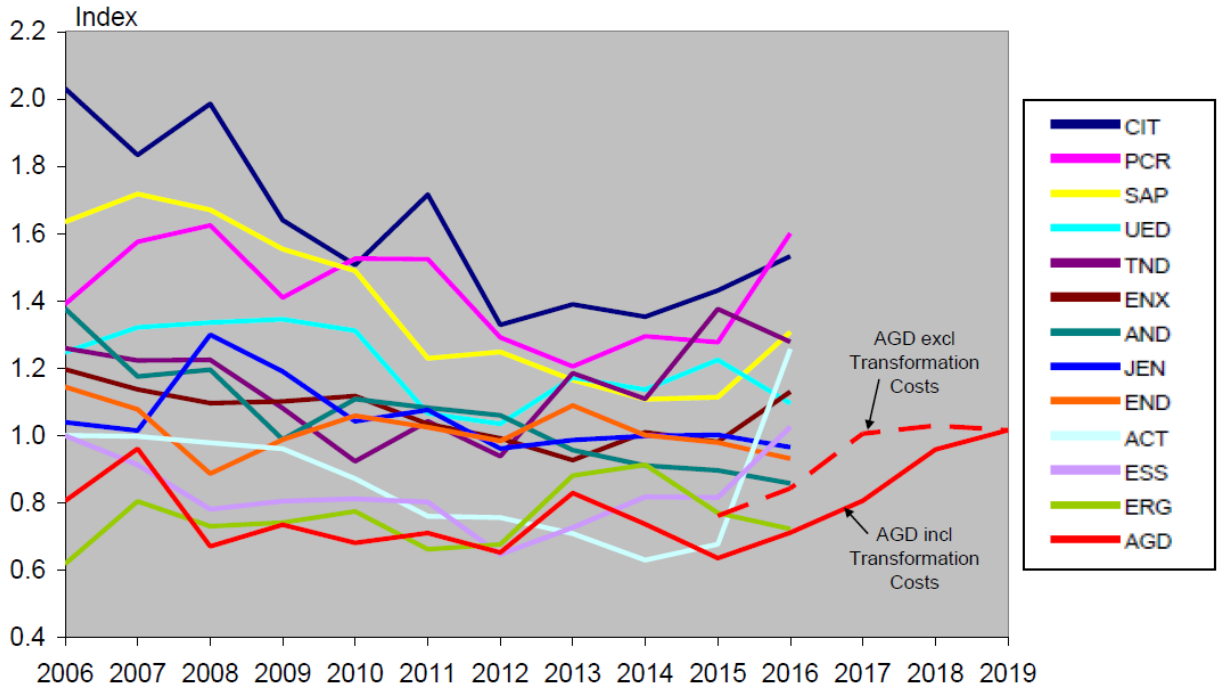
[18] We also note that the models do not include adjustments for Operating Environment Factors (OEFs). OEFs are circumstances or features that may be unique to particular DNSPs which are not captured by the AER's econometric benchmarking models. The AER is currently reviewing its analysis of OEFs in consultation with industry and other interested parties. As noted in our submission to the AER's consultation, the AER's approach to assessing proposed operating expenditure is largely the same as in the 2015 determinations (and is therefore subject to the same limitations). We consider that this supports the position that the AER should continue to provide conservative/greater OEF coverage rather than less. This includes identifying and adjusting for 'immaterial' OEFs as well as material OEFs. OEFs that increase a DNSP's operating expenditure by 0.5% or more, relative to other DNSPs, have previously been considered by the AER to be immaterial. As evidenced by the 2015 determinations, the collective effect of immaterial OEF adjustments in the same direction can quickly become material. In addition, we consider that the inputs used by the AER should be consistent across the full range of economic, benchmarking techniques (i.e. the productivity analysis, econometric models and OEF analysis and adjustments).

[19] AER, 2018 Annual Benchmarking Report, p. 10.

The AER's Draft Decision also included benchmarking analysis for Ausgrid, which indicated that Ausgrid has significantly improved its opex productivity over the 2014-19 regulatory period. In particular, our opex productivity is forecast to increase significantly over the last two years of the current regulatory period – by 19% and 6%, respectively. This also represents an improvement relative to other network businesses as measured in 2015-16. When our transition costs are excluded from the analysis, it shows our proposed base year represents a significant improvement in opex productivity relative to 2012-13, and the productivity of other DNSPs in 2015-16 (see Figure 5).

Figure 5

Opex MPFP indexes, 2006-2016, with Ausgrid forecast to 2019



Source: Economic Insights Memorandum Assessment of Ausgrid's base year opex, 6 August 2018.

4.4 Testing our proposed opex

We have assessed our revised proposed base year using the methodology adopted by the AER in its 2015 determination for setting our efficient opex. We have also estimated our future performance under the productivity measures used by the AER, as set out below.

4.4.1 Testing our proposed base year using the AER's benchmarking approach

As outlined in our Initial Proposal, the AER used econometric benchmarking techniques in its 2015 Determination to conclude that our opex was not at efficient levels. The AER substituted our proposed base year with its own estimate of efficient costs. The AER adopted a similar approach in its Draft Decision to assess whether our proposed opex was prudent and efficient.

We have similarly compared our revised base year opex to the AER's benchmark estimate (as outlined in the Draft Decision), which shows that our proposed base year opex for 2017/18 reasonably reflects an efficient level of opex consistent with the opex criteria.

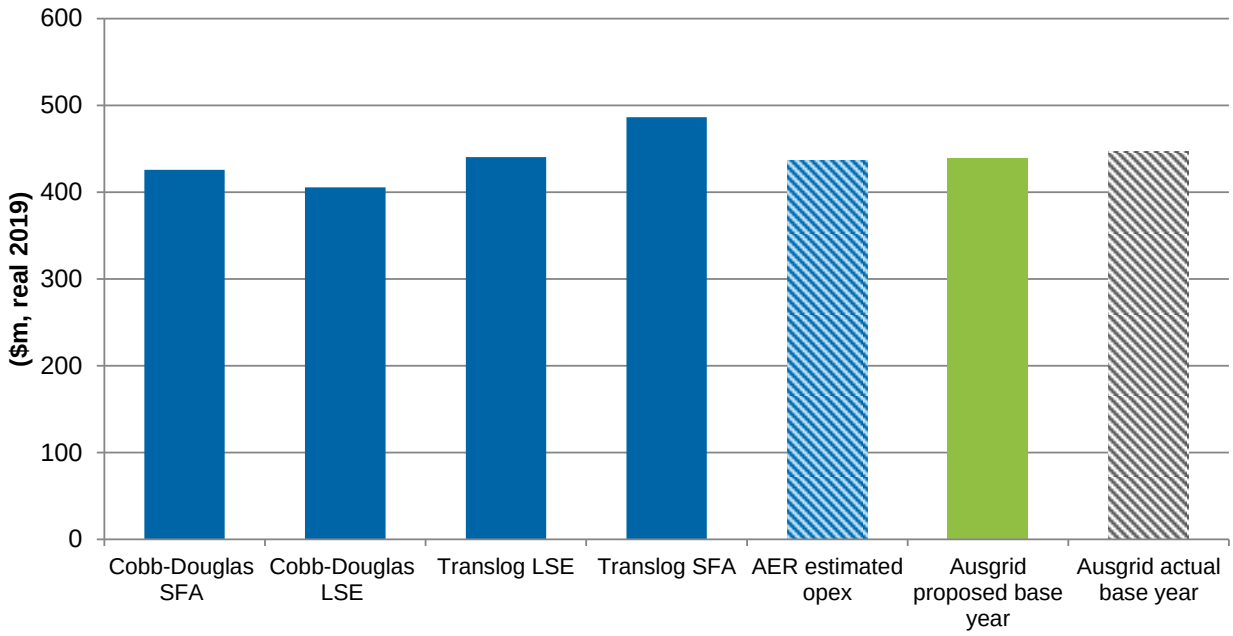
The AER derived their alternative estimate of base opex using the four sets of economic modelling by:[20]

- Averaging Ausgrid's actual opex over the 2011-17 period,
- Comparing our efficiency scores from the four econometric models over 2011-17 against a benchmark comparison score of 0.75, which reflects the upper quartile of possible efficiency scores, consistent with previous AER decisions,
- Adjusting the benchmark comparison point for potential differences in operating environment factors between Ausgrid and the reference firms including material and immaterial factors,
- Adjusting our average level of opex over 2011-17 by the difference between the two efficiency scores where our efficiency score is below the adjusted benchmark comparison score, and
- Rolling forward this period-average opex estimate to a 2017/18 base year using the rate of change

The figure below compares our actual opex in 2017/18 and proposed base year opex against the AER's range of estimated opex from each of the four econometric models for 2017/18. It shows that both our actual and proposed base are comparable to the average opex from the four benchmark estimates. This indicates that our proposed base year reflects a reasonable estimate of the prudent and efficient level of base year opex for the purposes of forecasting opex over the 2019-24 regulatory period.

Figure 6

Proposed base year, actual and estimated benchmark opex in 2017/18 ($m, real FY19)



4.4.2 Forecast opex productivity over the 1924 regulatory period

We have also examined our forecast opex productivity over the 2019-24 regulatory period to other DNSPs, estimating forecast opex productivity based on the AER's methodology.[21] As outlined in our Initial Proposal, the AER's methodology estimates future opex productivity trends by combining the output and input indices (i.e. dividing the output index by the input index) calculated by Economic Insights.

The figure below provides a comparison of the productivity trends of the 13 DNSPs, including forecast productivity for those DNSPs that have provided regulatory proposals to the AER for their next determinations (ActewAGL, Ausgrid, Endeavour, Essential and TasNetworks). The figure shows DNSPs' productivity trends from 2006 onwards.

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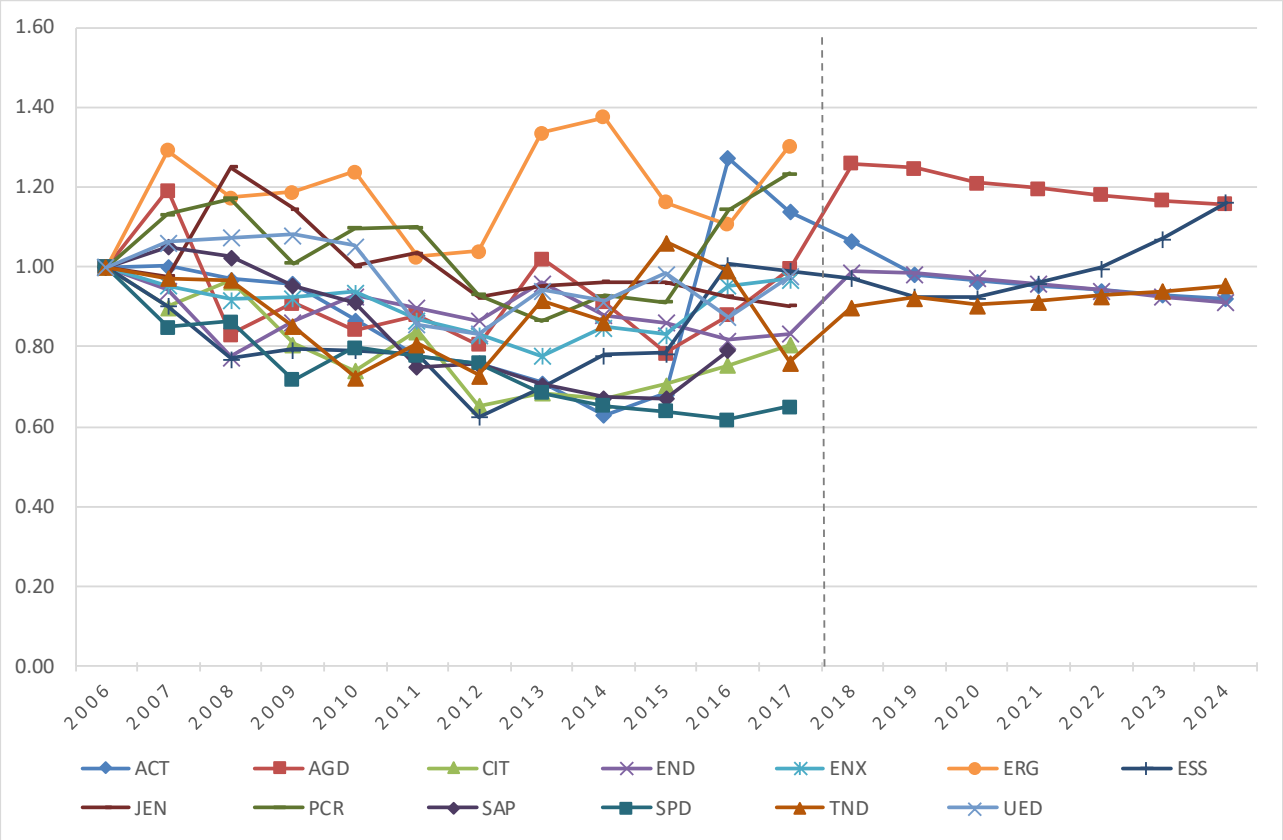
[20] The AER's 2017 Annual Benchmarking Report looks at four different econometric models to compare the relative operating efficiency of service providers in the NEM. These models are: Opex multilateral partial factor productivity, Cobb-Douglas stochastic frontier analysis (SFA), a Cobb-Douglas least squares econometrics (LSE), and Translog LSE.

[21] The analysis is based on information submitted in the Benchmarking RINs, and as part of the regulatory proposals to the AER.

Our productivity trend is still high relative to the other DNSPs. This is due to the significant decrease in opex between 2016 and 2018, driven by our transformation program. The movements in our productivity trend from 2018 are largely driven by increases in opex due to a service classification change, real input price growth and step changes.

Figure 7

DNSPs' opex productivity trends (index, base year 2006)



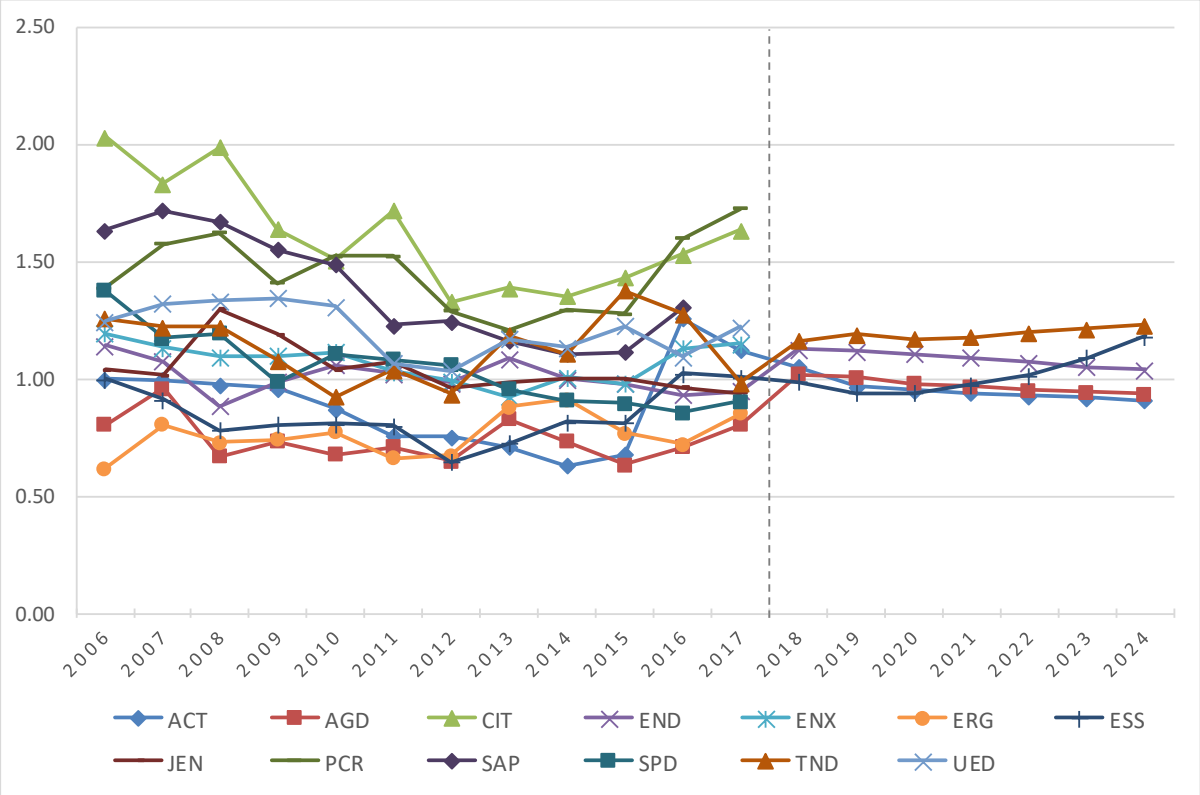
Source: Cambridge Economics Policy Associates Pty Ltd (CEPA), Economic Benchmarking RINs

Note: This is a 'pure' opex PFP measure for each DNSP since 2006 (hence it starts at 1 for all DSNPs) and therefore it does not reflect the relative efficiency of each DNSP.

We have also considered our performance against the other DNSPs using Economic Insights' opex MPFP model, which attempts to account for relative productivity levels across DNSPs (as well as the trends over time). In this case, our relative performance will improve, moving it from the bottom to the middle of the group (shown in the figure below). This is consistent with the results of the AER's benchmarking analysis in the Draft Decision, as outlined in section 4.3.

Figure 8

DNSPs' opex MPFP trends (index, base ActewAGL 2006)



Source: CEPA, Economic Benchmarking RINs

It is important to note that, because the opex MPFP analysis compares relative performance, changes in the other DNSPs' opex productivity will alter our position. This could either improve our relative performance or lead to a deterioration in relative performance. However for us to not show an improvement in relative performance, all other DNSPs would need to have opex productivity growth as strong as ours has been.[22]

4.5 Changes in comparative opex performance

As part of our effort to improve opex performance over the 2019-24 regulatory period, we regularly measure ourselves against our peers – other Australian distribution businesses. As explained in our Initial Proposal, these comparisons show that we have made significant progress over a range of measures, bringing our performance in line with our peers.

Our analysis demonstrates our commitment to our improved performance. We have updated the benchmarking analysis we undertook in the Initial Proposal for the most recent data available from the AER's 2018 Benchmarking Report. Using the RIN data from 2017, we have compared our actual performance in 2016/17 and our proposed base year for 2017/18.

The charts below demonstrate our improved performance. The green bar represents our actual performance in 2016/17, and the grey bar indicates our proposed base year for 2017/18. As can be seen, our proposed base year represents significant improvements in our comparative opex performance across each measure.

[22] We also note that the way Economic Insights has specified the input index in its models means that the productivity measure produced does not include any productivity encapsulated in the CPI.

Figure 9

Opex per customer ($, nominal)

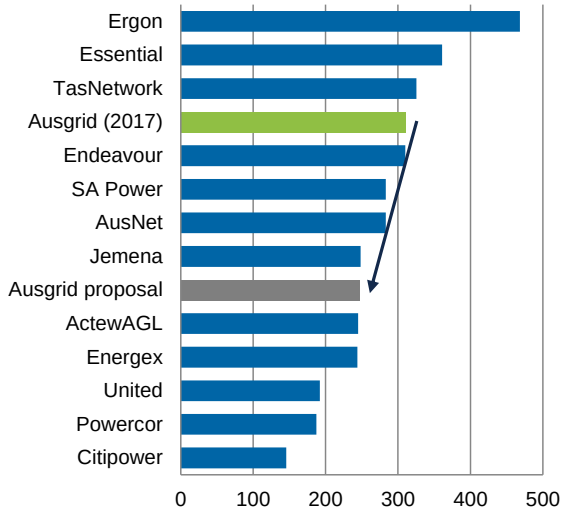


Figure 10

Opex per GWh delivered ($, nominal)

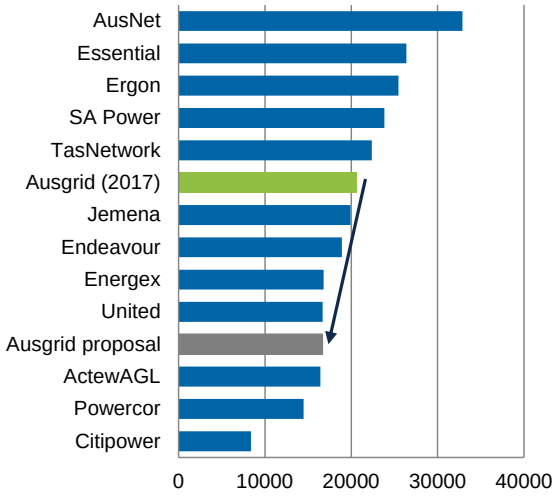


Figure 11

Opex per km of circuit length ($, nominal)

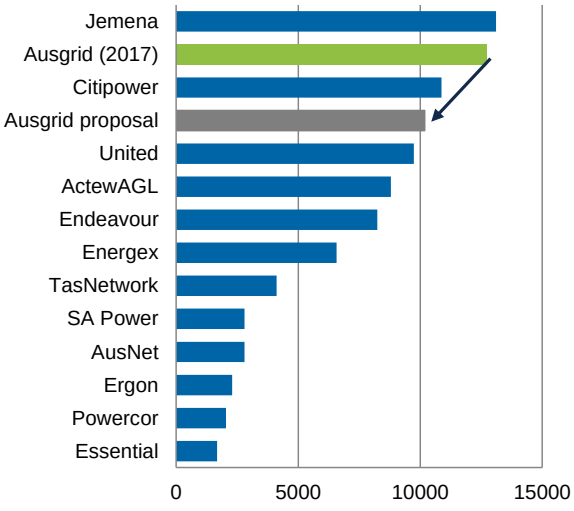
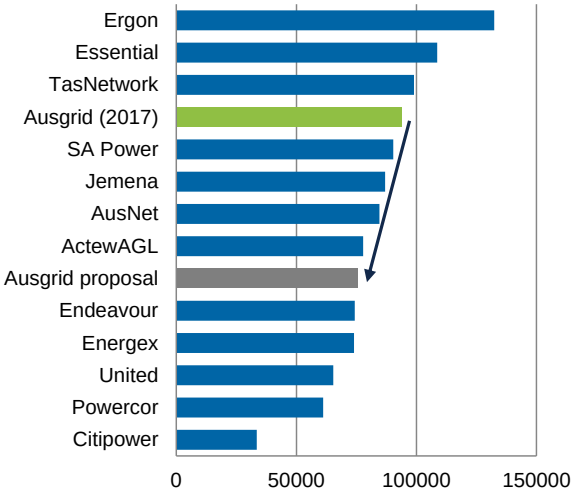


Figure 12

Opex per MVA of maximum demand ($, nominal)



We have also considered how sensitive these results are to potential changes made by other businesses. Our ranking in the simple benchmarks is insensitive to plausible changes in customer numbers and circuit length. However, our ranking does change if all other businesses reduce their opex by 10% - as shown in the charts below.[23]

[23] We also considered opex per maximum demand and opex per GWh. However, changes in demand are too volatile to identify plausible movements.

Figure 13

Sensitivity for opex per customer (10% opex reduction by other DNSPs)

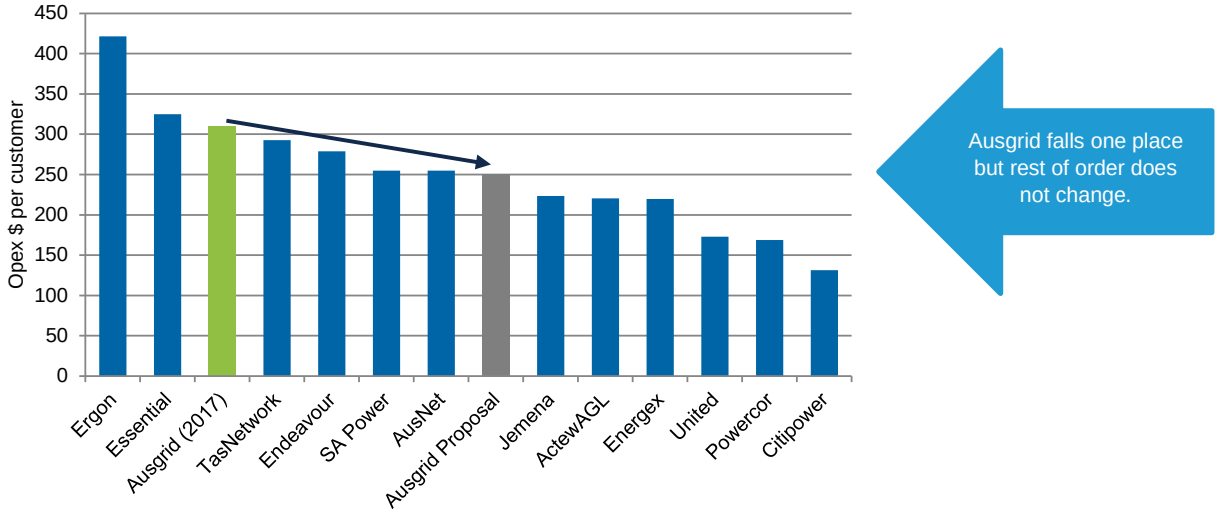
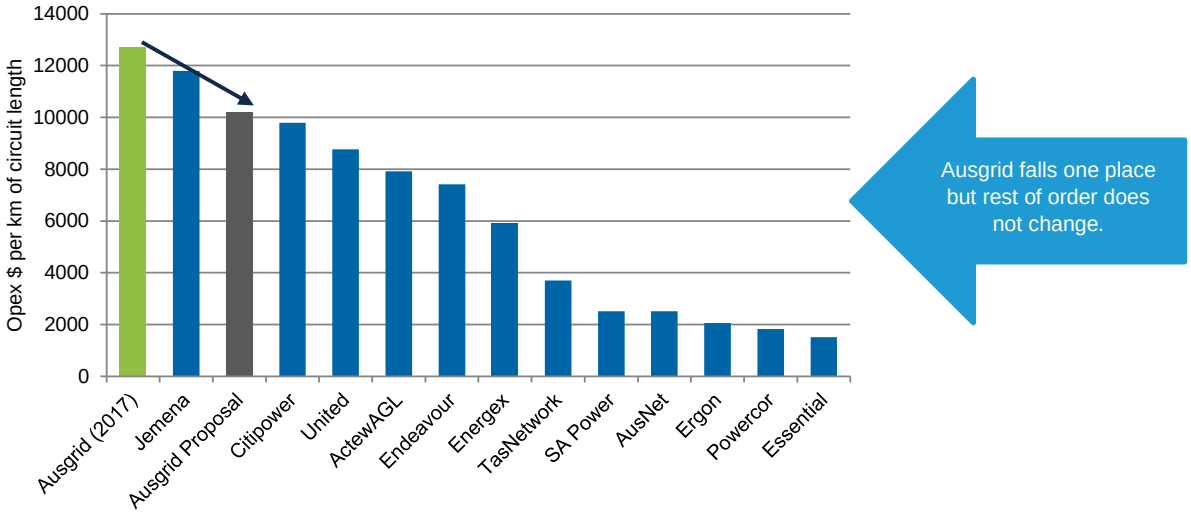


Figure 14

Sensitivity for opex per km of circuit length (10% opex reduction by other DNSPs)



The analysis in this section demonstrates that the AER and our customers can have confidence that our transformation program has achieved levels of opex that are consistent with our peers, promoting our objective of keeping our network bills affordable without compromising network safety or reliability.

5 Base year adjustment for service classification

In line with the AER's Final Framework and Approach, ERW[24] will become a standard control service from the beginning of the next regulatory period.

In previous determinations, cost changes due to service classification changes have been addressed part of the consideration of base opex (i.e. they are treated as an adjustment to the base level of opex). We followed the same approach in developing our revised opex forecast as we adopted in our Initial Proposal.

5.1 Addressing AER and customer concerns

The AER did not accept Ausgrid's proposed base year opex adjustment of $5.4 million per annum ($2018/19) to account for the change to the classification of ERW. In its Draft Decision, the AER concluded that it would require further information before accepting the proposal.

Although the AER proposes classifying ERW as a standard control service, a distributor is still expected to seek recovery of the cost of these emergency repairs from the third party where possible. Our approach of applying an upward adjustment to our base year opex for unrecoverable ERW costs is premised on these costs not having been attributed to standard control opex historically and therefore are not already being reflected in our proposed 2017/18 base opex.

We have provided additional transparency around our historical accounting treatment of ERW in support of our Revised Proposal.

5.2 Our Revised Proposal

The AER's Draft Decision invited us to provide further information to explain how the ERW costs and revenues have been accounted for over the 2014-19 regulatory period to allow consideration of the issue in the Final Decision.

In response, we engaged PwC to verify the historical financial treatment of ERW to help address the AER's request for further information in the Draft Decision. PwC obtained detailed listings of total ERW revenue and expenses from our 2015-18 accounting records to ensure these figures had not previously been reported to the AER as part of our standard control services costs. PwC also selected a sample of 16 ERW items to review and inform a written report setting out the factual findings from their work.

PwC concluded that:

> *Our procedures confirmed that ERW balances, extracted from Ausgrid's audited historical financial information, have been historically categorised as part of the unregulated business and therefore have not been previously reported to the AER in the RIN reporting submissions during the period 2014/15-2017/18, nor duplicated in other classifications (for example Standard Control opex).*

The complete report by PwC is included as Attachment 6.06. This demonstrates that unrecovered ERW costs are not included in our historic standard control opex, and the adjustment to our base opex is required.

Our standard practice for ERW is to seek recovery of the full cost of the emergency repairs from the responsible third party. However, we are not always able to recover these costs, for example:

- We do not have enough details to be able to identify the responsible party. This includes where the damage is as a result of 'hit and run' or theft of assets, where we only have partial details (e.g. vehicle registration but are unable to identify the owner), or police reports cannot identify the responsible party,

[24] The AER's Framework and Approach paper for Ausgrid, Endeavour Energy and Essential Energy for the Regulatory Control Period commencing 1 July 2019 defines Emergency Recoverable Works as the distributor's emergency work to repair damage following a person's act or omission, for which that person is liable (for example, repairs to a power pole following a motor vehicle accident).

- We are unable to confirm the debtors' whereabouts,
- It is uneconomical to pursue legally due to the costs involved,
- Situations of hardship,
- Denial of liability, and
- Partial or negotiated settlements.

As noted above, during the 2014-19 regulatory period, we have accounted for ERW costs as part of our unregulated business. Where we are unable to recover the cost of the emergency repairs from the responsible third party, these costs are recorded in our accounts as a financial loss within the unregulated business. As such, we have no certainty that we can recover the costs of ERW. This uncertainty provides strong incentives to deliver ERW at the lowest possible cost.

As outlined in our Initial Proposal, we estimated the adjustment for ERW as the full cost of repairing the damage (based on 2017/18 actual costs), less the revenue we would expect to recover from third parties found liable for causing damage to our network (based on 2017/18 actual receipts from third parties). We revised our forecast to include actual 2017/18 costs, rather than estimated costs which were higher than we had estimated in the Initial Proposal. Our updated ERW costs and revenues, and revised adjustment to the base year are shown in the tables below.

Table 12

ERW: costs incurred and recovered ($m, real FY19)

OPEX	ACTUAL FY15	ACUTAL FY16	ACTUAL FY17	ACTUAL FY18
Costs	7.14	8.14	8.30	8.07
Recovery	-1.18	-1.57	-1.74	-1.78
Opex net of recovery	**5.96**	**6.57**	**6.56**	**6.29**

Table 13

Base year adjustment ($m, real FY19)

OPEX	2019/20
Initial Proposal base year adjustment for ERW	5.36
AER draft decision adjustment for ERW	0.00
Revised proposal base year adjustment for ERW	6.29

6 Trend adjustments

The next part of our approach to forecasting opex is to 'trend' our base year forward to take account of how opex changes over time. To do this we have considered:

- Real price growth – to reflect movements in prices that are expected to be different to inflation,
- Output growth – to account for changes in how much output we expect to deliver, and
- Productivity growth – to reflect expected industry-wide improvements in finding more efficient ways of delivering services.

This approach is in line with current AER practice. Our Revised Proposal adopts the AER's refined approach to deriving output growth, as outlined in the AER's Draft Decision.

6.1 Addressing AER and customer concerns

6.1.1 AER response to our Initial Proposal

The AER's Draft Decision substitute estimate of our opex included an alternate estimate for the trend adjustments to our opex. The key differences between the AER's Draft Decision and our Initial Proposal were:

- The AER's substitute estimate included a forecast real average annual price growth of 0.6%, based on the average forecast growth in the wage price index (WPI) for the New South Wales utilities industry by their own consultant, Deloitte Access Economics, and Ausgrid's consultant, BIS Oxford Economics, and
- The AER set output weights based on the results of the four benchmarking models presented in the 2017 Annual Benchmarking Report.[25] This was an update to its previous approach, which used the weights from a single econometric model.

6.1.2 Customer response to our Initial Proposal

There were no customer comments on price or output growth. For productivity growth, customers all disagreed with our decision not to apply a productivity trend. The CCP10 proposed a minimum productivity adjustment of 1.5 - 2% pa, based an assessment of opex MPFP over the 2012 to 2016 period for all DNSPs, and what the CCP10 considered to be an 'efficient subset'. This was generally supported by other customers.

Some customers noted that the efficiency gains during the previous period are a step change, and not an indication of future efficiency gains, however noted that our proposal suggested our efficiency journey is over.

6.1.3 Addressing customer and AER concerns

We have adopted the AER's approach to the application of real price growth, and revised approach to output growth in line with the AER's Draft Decision.

We have adopted the AER's Productivity Draft Decision forecast of productivity growth of 1.0% pa to apply from 2020/21 as a placeholder in our Revised Proposal. We intend to update this with the AER's Final Decision estimate during the consultation with the AER following the release of the Productivity Final Decision in March/April 2019. This approach sets us a challenging productivity target, and we intend to achieve this as a result of the efficiency initiatives included in our Revised Proposal.

[25] The AER's 2017 Annual Benchmarking Report looks at four different econometric models to compare the relative operating efficiency of service providers in the NEM. These models are: Opex multilateral partial factor productivity, Cobb-Douglas SFA, a Cobb-Douglas LSE, and Translog LSE.

6.2 Our Revised Proposal

Our revised price and output forecasts, as well as our proposed productivity forecast are shown in the table below.

Table 14

Forecast rate of change (%)

OPEX	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Price	0.19%	0.20%	0.38%	0.63%	0.77%	0.68%
Output	0.71%	0.68%	0.61%	0.63%	0.67%	0.62%
Productivity	0.00%	0.00%	1.00%	1.00%	1.00%	1.00%
Total	**0.90%**	**0.88%**	**-0.02%**	**0.25%**	**0.43%**	**0.29%**

6.2.1 Rolling forward the base year

In our Initial Proposal we included incremental opex between the base year and the final year of the current regulatory period in line with the formula outlined in the AER's Expenditure Forecast Assessment Guideline (Guideline). This had the effect of applying the trend adjustments in the AER's 2015 Determination.

The AER's Draft Decision did not apply the Guideline formula to estimate opex in 2018/19 because no EBSS was applied during the current regulatory period. The AER noted that the Guideline formula is designed to ensure a distributor is rewarded (or penalised) for any efficiency gains (or losses) it makes in the final year, consistent with other years in the regulatory period. However, as we were not subject to the EBSS over the 2014-19 regulatory period, this consistency is not required. Instead, the AER calculated 2018/19 opex by escalating the base year by the rate of change to account for key drivers of opex growth (price, output and productivity growth) between the base year (2017/18) and the final year of the current regulatory period.

We recognise that the AER's approach is simple and transparent and accept the AER's departure from the Expenditure Forecasting Guidelines. We have applied the trend adjustments to roll forward the base year to 2018/19.

6.2.2 Real price growth

Our base year opex reflects the current prices of cost inputs. In our Initial Proposal, we accounted for changes in the price of cost inputs by adjusting our base year to reflect forecast changes in wages. For all other costs we kept it simple and applied the consumer price index.

Our approach to adjusting the base year to reflect forecast changes in wages has applied a forecast of labour price increases which is not productivity adjusted. Rather, labour productivity is accounted for in our opex forecast through the productivity measure which we apply to the base year (see below).

In our Initial Proposal, we explained that we engaged BIS Oxford Economics to forecast future labour costs. To calculate the weighted average price increase, we assumed that 59.7% of our opex is labour related.

The AER's Draft Decision did not accept out Initial Proposal forecasts of labour price growth. Instead, the AER adopted the average forecast growth in the wage price index (WPI) for the New South Wales utilities industries of:

- their own consultant, Deloitte Access Economics, and
- our consultant, BIS Oxford Economics.

The AER applied the same weights as we proposed to account for the proportion of opex that is labour and the proportion that is non-labour.

For our Revised Proposal, we have accepted the AER's approach to using the average of the two forecasts from Deloitte Access Economics and BIS Oxford Economics. We have also applied updated forecasts from BIS Oxford Economics to calculate the average forecast change in real labour as shown in Table 11.

Table 15

Forecast change in real labour costs (%)

LABOUR	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
BIS Oxford Economics labour forecast	0.71%	0.66%	1.22%	1.53%	1.74%	1.44%
Deloitte Access Economics labour forecast	-0.08%	0.00%	0.06%	0.57%	0.83%	0.84%
Average labour forecast	**0.31%**	**0.33%**	**0.64%**	**1.05%**	**1.28%**	**1.14%**

Our Revised Proposal forecasts for the combined effect of the labour cost increases and the assumed CPI increase in the costs of materials are shown in Table 16.

Table 16

Trend: Forecast real price growth (%)

OPEX	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Price	0.19%	0.20%	0.38%	0.63%	0.77%	0.68%

6.2.3 Output growth

As we outlined in our Initial Proposal, as we provide more output – for example by adding customers to our network or operating and maintaining more lines – the costs of operating our network increase. Accordingly, we applied an output growth factor to our forecast opex to reflect how our costs change as we deliver more.

In its Draft Decision, the AER adopted the average of the output growth rates forecast using the specification and weights derived from the results of the four benchmarking models it presented in its 2017 Annual Benchmarking Report. This was an update to its previous approach, which used the weights from a single econometric model. We have adopted the AER's revised approach to forecasting output growth for our Revised Proposal, as outlined in the Draft Decision. We have also used the revised weights, as published in the AER's 2018 Annual Benchmarking Report.

Our revised forecast is calculated using the following steps:

1. We forecast the expected growth in customer numbers, circuit length, energy throughput and ratcheted maximum demand. We have updated our Initial Proposal forecasts, using the same methodology, to reflect the most recent information available.

Table 17

Forecast change in outputs (%)

OUTPUT	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Customer numbers	1.23%	1.05%	0.87%	0.88%	0.94%	0.93%
Circuit length	0.32%	0.42%	0.43%	0.57%	0.58%	0.52%
Ratcheted maximum demand	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Energy throughput	-0.73%	0.86%	1.49%	1.45%	1.65%	0.58%

2. We estimate how much our opex changes for a 1.0% increase in each of these outputs, using the AER's revised approach.

Table 18

Forecast change in opex for a 1% change in output (%)

Output	SFA CD	LSE CD	LSE TLG	MPFP
Customer numbers	70.80%	67.56%	51.48%	31.00%
Circuit length (km)	16.80%	11.81%	13.86%	29.00%
Ratcheted maximum demand (MW)	12.40%	20.63%	34.66%	28.00%
Energy throughput (GWh)	0.00%	0.00%	0.00%	12.00%

3. We then combine these two steps to get our overall output growth forecast.

Table 19

Trend: Forecast output growth (%)

OPEX	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Output change	0.71%	0.68%	0.61%	0.63%	0.67%	0.62%

6.2.4 Productivity

In our Initial Proposal, we adjusted our base year opex for forecast changes in the productivity frontier for the industry over the next regulatory period. Estimating productivity, using the methodology outlined in the AER's Expenditure Forecast Assessment Guideline provides a negative productivity estimate. Applying a negative productivity estimate means increasing opex each year. Rather than increase our opex forecast, we decided to apply no industry productivity trend to our forecast opex.

The AER's Draft Decision also applied zero productivity growth in its alternate opex forecast. However, it noted customer concerns with this approach. The AER subsequently released a Draft Decision paper on forecasting productivity growth (Productivity Draft Decision) in November 2018, and intends to apply the Productivity Final Decision when making its final decision on our regulatory proposal.

We have adopted the AER's Productivity Draft Decision forecast of productivity growth of 1.0% pa to apply from 2020/21, as a place holder, and we intend to achieve additional productivity as a result of the efficiency initiatives included in our Revised Proposal.

AER Productivity Draft Decision

The AER's productivity growth forecast published in the Productivity Draft Decision is intended to capture the productivity improvements an efficient and prudent electricity distributor can make in providing distribution services. It reflects the AER's best estimate of the shift in the productivity frontier. The AER's Productivity Draft Decision considers six options for forecasting opex productivity growth:

1. The status quo (zero productivity growth),
2. Using the productivity growth from the increased proportion of undergrounding as estimated by the AER's electricity distributor econometric studies (0.5% productivity growth),
3. Using the productivity growth from the increased proportion of undergrounding as estimated by the AER's electricity distribution econometric studies, plus the time trend estimated in gas distribution econometric studies (1.0% productivity growth),
4. A holistic approach that draws on all sources of information to forecast productivity growth (1.0% productivity growth),
5. Labour productivity growth forecasts (0.9% productivity growth), and
6. A holistic approach that draws on all sources of information to forecast productivity growth (1.0% productivity growth).

The AER is of the view that each of the available information sources are broadly consistent and when considered together support an opex productivity growth forecast between 0.5% and 1.6%. The AER's Productivity Draft Decision adopts a holistic approach to forecast productivity growth by relying on all information sources that reasonably reflect productivity expectations. On this basis, the AER proposes a productivity growth forecast of 1.0% pa.

Overall, we agree with the AER and customers, that DNSPs should be achieving productivity growth over the medium to long-term. However, we have a number of concerns with the AER's proposed approach to forecasting productivity growth. Our key observations for consideration are:

- The AER proposes using the opex MPFP estimates only for the period 2012-16. The approach of using such a short time period can result in misleading estimates, particularly if the estimate is taken over partial economic cycles. Therefore, this estimate should be viewed with caution.[26] In particular, we note:
  - Average annual productivity estimates are extremely sensitive to the choice of the start- and end-points. The AER's choice of 2012 as the starting point for its MPFP analysis results in the highest possible average annual productivity estimate out to 2016, when compared to other start-points, and
  - The subset of 'not materially inefficient' DNSPs' year-on-year efficiency results selected by the AER to estimate frontier shift do not appear to be solely down to frontier shift. We do not consider an estimate of frontier shift that is based on a subset of DNSPs that include both negative productivity change and productivity changes of 7.7% pa as being plausible indicators of future opex productivity growth.
- The AER relies on ABS productivity data for 2012 to 2017 for its labour productivity analysis, which relates to an incomplete economic cycle. The ABS data should only be considered on the basis of full productivity cycles or a very long time period, to minimise the influence of temporary effects (such as the underutilisation of capacity) that can occur. Further, we do not consider that there is any strong reason why the ABS determined cycles would apply to the AER's analysis, as the AER's choice of outputs and the method used to measure productivity is very different to the ABS' approach.
- The AER's recent econometric models (from November 2018), using only the 2012-17 time period, indicates that DNSPs' opex needed to increase to deliver the outputs used to drive the AER's opex forecasts. Introducing an external productivity challenge, not captured in the econometric models, and therefore not aligned with the outputs used to drive the opex forecasts, increases regulatory risk, and this risk is higher for those DNSPs for which the AER makes a catch-up efficiency adjustment.
- The AER has proposed using undergrounding[27] as an estimate of productivity. However, while undergrounding may lead to lower opex, we do not consider this as opex productivity. Further, using the historical average growth across all DNSPs could set perverse incentives for DNSPs. Instead, if the AER seeks to incorporate undergrounding into its opex forecasts, then the DNSPs' individual undergrounding forecasts could be incorporated into the AER's opex forecasting process using the econometric modelling coefficient.

We engaged Cambridge Economic Policy Associates Pty Ltd (CEPA) to support our submission on the AER's Productivity Draft Decision. CEPA's analysis included consideration of further evidence and alternate approaches to developing productivity estimates. Their analysis considered the following alternative approaches:

- Developing an alternative (unweighted) labour productivity estimate using sectors that are less susceptible to the issues captured in the ABS' utilities sector,
- Estimating labour and intermediate inputs productivity, which provides a better indicator of opex productivity by taking into account labour and non-labour elements of opex, and
- Reviewing regulatory precedent from Australia and internationally.

CEPA's analysis suggests a holistic range across the alternate measures of 0% to 0.7%. The inconsistency between these measures and the econometric modelling output coefficients used to forecast opex means the AER needs to apply caution in selecting from this range. Our submission to the AER's Productivity Draft Decision recommended the AER consider adopting this broader range of alternative approaches to inform their holistic approach to forecast productivity growth.[28]

Revised Proposal Productivity

Our Revised Proposal acknowledges the AER's Productivity Draft Decision. However, as noted above, we have provided a submission suggesting a lower estimate of productivity growth would be more robust. Despite this, we have adopted the AER's Productivity Draft Decision forecast productivity growth of 1.0% pa from 2020/21 as a placeholder in our

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[26] It is standard practice to consider TFP growth over complete economic cycles (OECD, 2003, *Measuring Productivity: Measurement of Aggregate and Industry-Level Productivity Growth*, p. 119). The ABS notes similarly that the effects of temporary influences can be minimised by analysing averages of productivity statistics between growth cycle peaks (ABS website, 5260.0.55.002 – Estimates of Industry Multifactor Productivity, 2016-17). The Australian Energy Market Commission noted in its 2011 review into the use of TFP that at least 8 years of robust and consistent data will be required to establish a TFP growth rate that could be used in a TFP methodology for price and revenue determinations (AEMC, 2011, *Review into the use of total factor productivity for the determination of prices and revenues*, p 23).

[27] Undergrounding refers to the change in the proportion of the distribution that is underground. The AER has suggested that an increase in the proportion of distribution networks that is underground is increasing which has positive opex productivity effects.

[28] See Ausgrid submission, AER Draft Decision Paper, Forecasting productivity growth for electricity distributors, 21 December 2018 for further details.

Revised Proposal. We intend to update this with the AER's Productivity Final Decision estimate during consultation with the AER following the release of the Productivity Final Decision in March/April 2019.

Our revised opex forecast incorporates a number of productivity improvements:

- We set our base year according to the 2017/18 opex allowance previously set by the AER (of $426.4 million, $ nominal), which embeds $8.4 million of productivity savings in our base year (as discussed in section 4);
- We face additional cost increases of $223.3 million due to changes in uncontrollable costs, capex-opex trade-offs and regulatory changes, which we are proposing to absorb. We will also incur costs as we transition to a lower level of capex. This is the equivalent to applying a 8.9% productivity factor to our forecast opex (as discussed in section 2.3); and
- We are proposing a further productivity challenge as part of the trend adjustment to our forecasts, which requires us to achieve a further productivity improvement of 1.0% pa from 2020/21.

Our Revised Proposal includes a number of efficiency initiatives which are aimed at sustaining efficiency savings achieved in the 2014-19 regulatory period, and delivering further efficiency improvements, which will help us to deliver future productivity improvements. These include the Adapt program, our property refresh program and retirement of aged fleet.

The only difference between how we are applying the forecast productivity growth to our forecast opex and the AER's standard approach is that we are applying the forecast productivity growth from 2020/21 to reflect specific issues to our business in achieving these savings in earlier years. This is because:

- As noted above, our forecast opex included embedded efficiencies that we will work hard to achieve;
- We have gone through a significant period of transformation over the 2014-19 regulatory period, which has enabled us to deliver very significant reductions in our opex. However, this has had a profound impact on our organisation, and as such, requires a period of time to bed down the existing transformation before delivering further productivity improvements. These fluctuations in productivity are recognised in administrative science and human resources management literature which identifies a number of short-term challenges arising from reductions in a business' workforce, which have the potential to give rise to a temporary decline or stagnation in productivity;[29] and
- We are required to guarantee employment for a minimum number of employees to 30 June 2020 under the *Energy Networks Assets (Authorised Transactions) Act 2015.*

Our proposed forecast productivity growth component of the trend adjustment is shown in the table below. In our view, this Revised Proposal addresses the productivity issues raised in the AER's Draft Decision and by our customers.

Table 20

Trend: Forecast productivity growth (%)

OPEX	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Productivity	0.00	0.00	1.00%	1.00%	1.00%	1.00%

[29] Mone, M. A., 1994, *Relationships between Self-Concepts, Aspirations, Emotional Responses, and Intent to Leave a Downsizing Organisation*, Human Resource Management; Summer 1994; 33, 2, pp.281-298; Cascio, W. F., 1993, Academy of Management Executive, Vol. 7 No. 1, pp.95-104; and Wagar, T., 1998, *Exploring the consequences of workforce reduction*, Canadian Journal of Administrative Sciences, 15(4), pp.300-309.

7 Step changes

Step changes refer to increases or decreases in our opex associated with meeting new or changed regulatory obligations or opex/capex trade-offs. These factors represent forecast required opex not captured by the base year expenditure or trend escalation, and therefore they are added to the trend-adjusted base year.

Our Initial Proposal included two proposed step changes. One step change was for the efficient costs of a price reform research project to inform and expedite our transition to more cost reflective pricing as required by the AEMC's rule change for Distribution Networking Pricing arrangements. The other step change was for efficient opex/capex trade-offs to procure DM solutions from the market that will postpone the requirement to replace or retire assets.

We reviewed our Initial Proposal in response to the AER's Draft Decision:

- We accept the AER's Draft Decision not to include a step change for the price reform research, and
- We have reviewed our proposed DM programs in line with our revised capex program.

7.1 Addressing AER and customer concerns

The AER's Draft Decision included $8.5 million in its alternative opex forecast for demand management, accepting our Lidcombe, Mascot and St Ives switchgear replacement projects. The AER did not accept the other DM projects, as it did not consider the further four projects were justified. The AER invited further information from Ausgrid on these four demand management proposals for further consideration in the final decision.

The AER's alternate estimate for opex did not include Ausgrid's proposed pricing reform acceptance research project of $3.0 million ($2018/19).

While customers were supportive 'in principle' of the proposed pricing reform project, seeing the value in research and engagement on network tariff reform, they suggested that this expenditure should instead be funded out of existing opex, not through a step change.

We have reviewed our Initial Proposal to address the AER's Draft Decision and customer comments. Our Revised Proposal includes one step change – for our revised DM program.

Table 21

Proposed opex step changes, 2019-24 ($m, real FY19)

OPEX	2019/20	2020/21	2021/22	2022/23	2023/23	TOTAL
Initial Proposal step changes	5.2	5.2	6.5	6.6	5.7	29.1
AER Draft Decision step changes	1.3	0.7	1.9	2.5	2.0	8.5
Revised Proposal step changes	1.3	1.8	2.4	2.2	2.5	10.2

Further details are provided below.

7.2 Our Revised Proposal

7.2.1 Price reform research

In our Initial Proposal, we put forward our intention to launch a comprehensive research program to inform pricing decisions over the 2019-24 regulatory period, and thereafter. The research will seek to understand the attitudes toward energy services pricing amongst customers, community groups, retails and aggregators.

The AER's alternative opex forecast excluded our proposed step increase in opex for research into, and engagement on, network price reform. While both the AER and customers supported further consideration and engagement by Ausgrid on how to best transition to cost reflective pricing, the AER's Draft Decision noted that this type of activity is part of a

distributor's standard business activities and is accommodated within the existing costs and base year opex. Further, the AER does not consider this represents a cost increase associated with a new regulatory obligation.

Whilst we agree with the ACCC recommendation that investment in customer education, engagement and involvement in pricing is a necessary pre-requisite for effective reform, we accept the AER's Draft Decision on the price reform research step change and have not included it in our Revised Proposal. We are still committed to undertaking price reform research, but we will seek to achieve the necessary outcome without such a comprehensive program.

7.2.2 Demand management

As outlined in our Initial Proposal, we plan to partner with customers to better manage demand. Consistent with customer feedback, our opex forecast includes expenditure to further develop our DM capabilities in the face of uncertainty over future technologies and energy demand and consumption patterns.

In our Initial Proposal, we proposed a $26.1 million step change in opex to fund demand management to defer $68.6 million in replacement and augmentation expenditure projects that would otherwise commence in the 2019-24 regulatory period.

The AER's Draft Decision did not accept all of the proposed DM projects. The AER's alternate opex estimate included an opex step change for three replacements projects (Mascot, Lidcombe and St Ives), but rejected an opex change for the remaining three projects and the HV augmentation program.

We have revised our demand management projects in response to the AER's Draft Decision and to take into account new information to ensure that they are efficient and meet the needs of our customers. For the 2019-24 regulatory period, we are proposing a DM program consisting of two significant programs associated with the replacement of aged assets (Mascot and Lidcombe) and a number of smaller projects associated with the local augmentation of the network (HV augmentation program). We have not included the St Ives project in our Revised Proposal, as the updated estimates of the costs and benefits for the project have resulted in a delay in the project need.

As requested by the AER, for the HV augmentation program we have provided an improved cost-benefit assessment to underpin our request for a step change in opex to defer elements of this program of works. The updated cost-benefit assessment shows that demand management opex of $4.1 million offers an efficient capex opex trade-off to defer $17.9 million in capex.

Our Revised Proposal is in line with the AER's Draft Decision. Further detail and an explanation of each DM project is outlined in chapter 5.

The step change is expected to occur in 2019/20 and continue throughout the 2019-24 regulatory period. The driver of the step change is opportunities we have identified for prudent and efficient opex for capex trade-offs over 2019-24. Not undertaking these opex activities would increase Ausgrid's capex requirements. The step change is not recurrent in nature.

The relevant opex category is network overheads (which increases) and the relevant capex categories are replacement and augmentation capital expenditure (which decrease). The estimated effect on these categories of expenditure over each year of the 2019-24 regulatory period and in total is set out in the table below. An explanation of how we have estimated these amounts is outlined in chapter 5 of our Revised Proposal.

Table 22

Forecast DM opex ($m, real FY19)

OPEX	2019/20	2020/21	2021/22	2022/23	2023/24	TOTAL
Lidcombe 11kV switchgear replacement	0.00	0.00	0.52	0.53	0.54	**1.60**
Mascot 11kV switchgear replacement	1.17	1.21	1.22	0.24	0.68	**4.52**
HV augmentation	0.17	0.57	0.62	1.42	1.32	**4.09**
Total	**1.34**	**1.77**	**2.37**	**2.19**	**2.54**	**10.21**

Note: Totals may not sum due to rounding

8 Expenditure objectives, criteria and factors

We have proposed a total forecast opex for the 2019-24 regulatory period that we consider is required in order to achieve each of the opex objectives listed in clause 6.5.6(a) of the NER. The AER is required to make a decision on whether to accept or reject our total forecast opex. The AER must accept the total forecast opex if it is satisfied that the forecast of required opex reasonably reflects each of the opex criteria, having regard to the opex factors. Below we identify how we have met the opex objectives, criteria and factors.

8.1 Achieving the opex objectives

In order to achieve each of the opex objectives, we must have the necessary capabilities, personnel and systems to undertake the necessary activities to achieve these objectives. For example, one of the opex objectives is to maintain the safety of the distribution system through the supply of standard control services. In order to achieve this objective, we must have the capabilities, personnel and systems to undertake maintenance on the electrical network. Consequently, in undertaking these activities and in operating the necessary systems, we must incur maintenance opex.

Our total forecast opex therefore comprises of the costs of undertaking all the related activities and operating the necessary systems to deliver each of the opex objectives. Our revised opex forecast for the 2019-24 regulatory period consists of five major cost categories, which we have grouped into three broad cost groups to illustrate how activities in each cost component contribute to the achievement of the opex expenditure objectives.

Table 22

Description of activities by opex cost groups

OPEX COST GROUP	ACTIVITIES AND RELEVANCE TO OPEX OBJECTIVES
Maintenance opex	Maintenance opex is required to undertake various activities on our electricity network to ensure compliance with regulatory obligations and to maintain system safety, security, reliability and quality of supply. Therefore, these activities and associated costs are critical for achieving all of the opex expenditure objectives.
Operation and support	Operation expenditure covers those costs incurred in undertaking the required activities to directly support the operation of our network. Support expenditure is necessary for the normal operation of Ausgrid as a business and includes management/governance costs, financial/operational/compliance reporting, customer service and human resource management costs. Also included in this group are IT support and property costs. These costs would be found in any typical business. These costs are essential in the effective running and operation of the network and are therefore required to achieve all of the opex expenditure objectives.
Other	This expenditure relates to demand management related activities which are required to manage demand on our network through various non-network alternatives. Expenditure of this nature is primarily aimed at addressing opex expenditure objective 1.

We have prepared our opex forecast in a manner that complies with opex objectives specified in the NER. Specifically, we consider that our forecast meets the opex objectives for the following reasons:

- We have adopted a base step-trend approach to forecasting most opex. We have used the AER's opex allowance for 2017/18 (as outlined in the AER's 2015 Determination) as our base year. We consider this representative of our efficient recurrent opex requirements for 2019-24.
- As demonstrated in the table below, the nature of the activities that we will undertake through our opex program is targeted at achieving the opex expenditure objectives. These activities are based on practices currently applied in the 2017/18 base year, and will only change in the 2019-24 regulatory period to accommodate changes to scope of works from step changes and the trend rate of change.

- We have assessed the sufficiency of our current compliance with safety, regulatory and compliance obligations to identify the need for any corrective action that might amount to a step change to our base year costs. Similarly, we have assessed foreseeable new or changed obligations that will affect the scope of our operating activities to identify the need for any step changes.
- We have robust plans, policies, procedures, governance frameworks, and strategies in place to support the delivery of our opex program, and have the requisite capability to deliver the opex program by acquiring and deploying the necessary labour and materials.

Table 23

Summary of our compliance with the opex objectives

OPEX OBJECTIVES	RULE 6.5.5(A)	ADDRESSED BY
Meet or manage the expected demand for standard control services	(1)	We have trended our proposed base year opex to account for expected changes in output growth drivers such as customer numbers, peak demand, energy throughput and circuit length (see Chapter 6 of our Regulatory Proposal and Section 6 above). Our proposed opex forecast includes expenditure for demand management related activities necessary for managing demand as outlined in Chapter 6 of our Regulatory Proposal and Section 7 above.
Comply with all applicable regulatory obligations or requirements associated with the provision of standard control services	(2)	We have assessed our current compliance obligations (and associated base year costs), as well as identifying additional new obligations that we expected to be in place over 2019-24 regulatory period. See Chapter 6 of our Regulatory Proposal and Section 7 above for our proposed step changes, and Attachment 6.03 (Network maintenance operating plan) in our Initial Proposal for further details on how our proposed opex program allows us to comply with our applicable legislative and regulatory obligations.
Maintain the quality, reliability and security of supply of standard control services	(3)	We have proactively sought to engage with our consumers to understand the level of service they value (see Chapter 2 of our Regulatory Proposal) to assist in the preparation of our opex expenditure program (see Chapter 6 of our Regulatory Proposal and Section 2 above), and have undertaken a deliverability assessment (see Attachment 5.12 (Resourcing and delivery strategy for 2019-24 regulatory period) in our Initial Proposal) to ensure that we are in a position to meet these requirements.
Maintain the safety and security of the distribution system through the supply of standard control services.	(4)	

8.2 Meeting the opex criteria and factors

The AER is required to make a decision on whether to accept or reject our total forecast opex. The AER must accept Ausgrid's forecast or required opex if it is satisfied that the total forecast opex reasonably reflects each of the operating expenditure criteria (opex criteria), being.

1. The efficient costs of achieving the opex objectives
2. The costs that a prudent operator would require to achieve the opex objectives
3. A realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives

In determining whether a forecast meets the opex criteria, the AER must have regard to the operating expenditure factors (opex factors) in clause 6.5.6(e) of the NER. This is because the opex factors are intended to represent factors that should be employed in developing a prudent and efficient expenditure forecast, and provide an indication as to whether the resulting forecast expenditure (from applying a prudent forecasting approach) reasonably reflects efficient costs. Consequently, consideration of the opex factors are intended to give the AER confidence that the proposed opex forecast reasonably reflects the efficient and prudent costs required to achieve the expenditure objectives, based on a realistic expectation of demand forecast and cost of inputs.

We have prepared our opex forecast in manner that is both consistent with, and gives effect to, the opex criteria and factors set out in clauses 6.5.6(c) and 6.5.6(e) of the NER. This is demonstrated through:

- Our adoption of the AER's opex allowance for 2017/18 (as outlined in the AER's 2015 Determination) as our base year in our base-step-trend approach to forecasting opex
- The development of demand forecasts based on good industry practice which have been independently reviewed

- Our consideration of opex/capex substitution possibilities
- Our incorporation of customer and customer expectations to reduce opex whilst maintaining current service standards and continuing to investment in demand management programs
- Our provision of actual and forecast opex during the current and past regulatory periods, and explanation for any variances between our actual performance relative to our allowance
- Our consideration of industry benchmarking

A summary of how our opex forecast meets the expenditure factors is outlined in the table below.

Table 24

Summary of how Ausgrid has met the expenditure factors

OPEX FACTORS	RULE 6.5.6(E)	ADDRESSED BY
[Deleted]	(1) – (3)	Not applicable
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.	(4)	We have carefully reviewed the AER's most recent annual benchmarking report and other relevant measures of benchmark opex that would be incurred by an efficient DNSP. We have addressed our relative performance in the AER's 2018 Annual Benchmarking Report in Section 4 above.
The actual and expected opex of the Distributed Network Service Provider during any preceding regulatory control periods	(5)	Chapter 6 of our Revised Proposal and Section 2 above detail our actual and estimated opex for the 2014-19 regulatory period and explain the key reasons for variances between Ausgrid's actual and estimated expenditure during the current regulatory period from the AER's allowance.
The extent to which the opex forecasts 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.	(5A)	We have proactively engaged with our customers to understand their concerns. Chapter 2 of our Revised Proposal sets out our engagement approach, our key findings from our customer engagement activities and how Ausgrid has embedded customer engagement as part of its business as usual activities. Chapter 6 outlines how we have addressed the feedback we have received from our customers.
The relative prices of operating and capital inputs	(6)	We have sought to assess all feasible options when addressing a need including opex and capex solution. When doing so, we have used best practice methods for deriving the relative cost of opex and capex solutions, and have applied a common method for real cost escalation. We have applied appropriate escalators to the relative prices of inputs in our opex and capex forecasts (see Chapters 5 and 6 of our Revised Proposal, and Section 6 above for further details).
The substitution possibilities between operating and capital expenditure	(7)	We have considered the substitution possibilities between opex and capex in developing our forecast opex. A key step in our capital network investment planning process is to consider a full range of alternative options, including whether there may be an opex solution that is more efficient in addressing the investment need. For example, our planning process explicitly considers the following opex substitutions possibilities: • Growth capex – the primary opex substitution for customer and demand driven capex is demand management. Our processes directly consider whether there is a specific demand management opportunity, or whether historical experience indicates that demand management may prove more cost effective in addressing the issues. Our proposal includes a step change in relation to demand management as result of an identified capex trade-off (see Chapters 5 and 6 of our Revised

		Proposal and Section 7 above). • Replacement capex – the primary opex substitute is network maintenance. Our process for deriving the timing and need for replacement considers whether there is a less costly maintenance option. However, there is also the potential to use demand management as a substitute for replacement capex. Our proposal includes a step change in relation to demand management as result of an identified capex trade-off (see Chapters 5 and 6 of our Revised Proposal and Section 7 above) • Reliability performance capex – a means for improving reliability may be an opex solution such as corrective maintenance. We have considered these alternative options when developing our reliability compliance plan. • Network support – opex substitutions are a key consideration in our process for deriving replacement and non-system capex. In addition, we have considered the consequential impact on forecast opex from the following capex investment interactions: • The impact of capex on maintenance costs – the cost of maintenance is dependent on the number of assets impacted by the forecast replacement and capacity investment programs for the 2019-24 regulatory period. • Information technology investment and consequential opex – our expenditure on information technology systems requires a consequential opex increase to operate and maintain these systems. • Property capital investment and statutory charges – capital investment on property acquisitions has a corresponding impact on the amount of land tax paid, which is an opex expense.
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	(8)	The regulatory framework, coupled with our new commercial focus and commitment to meet evolving customer expectations, provide strong incentives for Ausgrid to act prudently and efficiently when assessing our expenditure needs for the forthcoming regulatory period. The significant incentive schemes that our opex forecast considers include: • EBSS – this scheme will provide us with additional and consistent inventive to continuously reduce our operating costs to deliver lower prices for our customers. • STPIS – this scheme will help us maintain and improve our service performance and ultimately deliver better outcomes for customers • Demand Management Incentive Scheme and Innovation Allowance – together these schemes will provide benefits to our customers by reducing network costs over time and thereby lowering prices in future regulatory periods
The extent the opex forecast is referable to arrangement with a person other than the Distribution Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms.	(9)	There will be some opex attributable to a related party (PlusES Partnership) as they provide certain metering related standard control services to Ausgrid. The commercial terms and prices for these services are considered to be commercial arm's length terms.
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)	(9A)	Our proposed opex does not include an amount relating to a project that should be more appropriately included as a contingent project under clause 6.6A1(b).

The extent the Distribution Network Service Provider has considered, and made provision for, efficient and prudent non-network options.	(10)	We have considered all feasible options to address network needs, and have selected the most efficient option. In doing so, we have considered and made provision for efficient and prudent non-work alternatives (see Chapters 5 and 6 of our Revised Proposal and Section 7 above). Ausgrid has well defined demand management strategies and processes, and a track record of implementing demand management initiatives. We have also proposed that the DMIS and DMIA apply to Ausgrid, and have proposed a step change in relation to demand management projects and programs.
Any relevant final project assessment report (as defined in clause 5.10.2) published under clause 5.17.4(o), (p) or (s).	(11)	Ausgrid has not published any final project assessments under the regulatory investment test for distribution (RIT-D) that are relevant to our proposed opex. Any final project assessment reports published by Ausgrid are available at our website: https://www.ausgrid.com.au/Industry/Regulation/Network-planning/Regulatory-investment-test-projects
Any other factor the AER considers relevant and which the AER has notified the *Distributed Network Service Provider* in writing, prior to the submission of its revised *regulatory proposal* under clause 6.10.3, is an *operating expenditure factor.*	(12)	N/A – The AER has not notified us of any additional operating expenditure factor.