5.11

Key assumptions and director certification of key assumptions

Ausgrid

Content

1 INTRODUCTION

1.1 What is the purpose of this document?

This document sets out the key assumptions that underlie Ausgrid's forecasts of capital and operating expenditure for standard control services, the process that Ausgrid adopted to identify them, and provides the basis for the reasonableness of these assumptions.

This document also provides a director's certification of the reasonableness of the key assumptions. Together, this addresses the information compliance requirements in Schedule 6.1.1 and 6.1.2 of the National Electricity Rules (NER).

1.2 Where does this document fit with other material in our Regulatory Proposal?

This document should be read with Chapters 5 and 6 of our Regulatory Proposal document, and the suite of supporting attachments to our Regulatory Proposal document. In some cases, we have referred to a specific attachment in this document where further information or evidence has been provided.

1.3 Structure and contents

This document:

- Provides background on the Rule requirements, and provides an explanation of how we have interpreted the requirements
- Identifies each key assumption, including how it relates to our forecast expenditure, and the basis on which we have adopted these key assumptions
- Provides a signed directors certification of the key assumptions identified as part of this document.

2 BACKGROUND

The NER requires the AER to make a constituent decision on whether to accept, or reject and substitute the forecast capital expenditure (capex) and forecast operating expenditure (opex) that Ausgrid sets out in its building block proposal for standard control services. To enable the AER to make its constituent decision, Ausgrid's building block proposal must include the total forecast capex and forecast opex for the relevant regulatory period which Ausgrid considers is required in order to achieve the capital and operating expenditure objectives.

Schedule 6.1 of the NER requires a DNSP's building block proposal to contain information and matters relating to capex and opex. The purpose of this document is to meet the requirements of clauses 6.1.1(4) and (5) relating to forecast capex, and clauses 6.1.2 (5) and (6) relating to opex, by identifying the key assumptions that underlie the capex and opex forecasts and providing a basis for the certification of the reasonableness of those key assumptions by the directors of Ausgrid.

2.1 Interpretation of key assumption

The term 'key assumption' is not a defined term in the NER or in the National Electricity Law (NEL). The relevant secondary materials (including determinations published by the AEMC) do not provide any clear guidance on its interpretation. The term also does not have any well-established legal meaning. In light of this, Ausgrid has given the terms their ordinary meanings and interpreted them in their context.

The term 'key assumption' has two components: an assumption that underpins the forecast capex and opex and that assumption must be 'key' to the forecast capex and opex.

According to its ordinary meaning and in the context of forecasting expenditure for the 2019-24 period, an assumption is something accepted to be true for the purposes of forecasting expenditure. An assumption can be a fact or circumstance that forms the basis of the forecast. Our interpretation is that, for an assumption to be a 'key assumption', it must be of 'crucial importance' to the forecasting of expenditure.

Together, Ausgrid has interpreted 'key assumption' to mean an assumed fact or circumstance that is crucial to the forecasting of expenditure requirement for the 2019-24 period. Not all assumptions underpinning the forecast must be outlined for the purposes of Schedule 6.1 of NER; only the 'key' or crucial assumptions; without which the forecast expenditure cannot be made.

The NER also requires the directors to certify the reasonableness of the key assumptions identified. The concept of 'reasonableness' also does not have a definition in the NER or the NEL; though it is well understood as a legal concept, as being supported by logical reasons and/or evidentiary basis.

In accordance with the above interpretation, Ausgrid has undertaken a process where assumptions underpinning forecast opex and capex (or categories of capex) are identified and the criticality of each assumption is assessed so as to ensure only key assumptions are captured. Reasons for each of these key assumption adopted are outlined to demonstrate their reasonableness.

3 KEY ASSUMPTIONS

The table below lists the key assumptions which we consider are of crucial importance to the forecasting of our proposed capex and opex for the 2019-24 regulatory period. These assumptions can be categorised as assumptions that are relevant to both forecast capex and opex and those that are specific to forecast capex or opex estimates.

In section 3, we set out the reasons underlying the assumptions made.

Table 1. Summary of key assumptions

Key assumption	Description	Applicability
Key assumption 1 – Regulatory obligations	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 no new substantive regulatory obligations and/or major change in scope of current regulatory obligations are anticipated or taken into account.	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 period, as set out in Attachment 5.07 of the Regulatory Proposal.	Capex and opex
Key assumption 3 – TransGrid's Powering Sydney's Future Project	It is assumed that TransGrid will proceed with the "Powering Sydney's Future" project as outlined in TransGrid's revised regulatory proposal for 2018-23 submitted on 1 December 2017. Based on this assumption, we have not included $239.8 million ($, real FY19) of capex to replace 132kV cables on our network. This is based on the premise that the scope of TransGrid's proposed project addresses our network requirements, meaning we can retire rather than replace these assets.	Capex
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 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 our estimated underlying opex for 2017/18 can be adopted as the base for deriving a forecast of efficient recurrent opex over the 2019-24 period.	Opex
Key assumption 5 – Trend adjustments	It is assumed that it is reasonable to escalate our estimated underlying opex for 2017/18 to reflect changes in input costs, outputs delivered and productivity over the 2019-24 period. The trend adjustments that have been assumed are set out in a table in section 3.	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 Regulatory Proposal, including the capital and operating expenditure forecasts, will be approved by the AER.	Capex and opex

4 BASIS OF KEY ASSUMPTIONS

In the following sections, we set out the reasons for adopting each of the above key assumptions and why each key assumption is reasonable.

4.1 Key assumption 1 – Regulatory obligations

Ausgrid, as a network service provider in the National Electricity Market, is required to comply with a range of legislative and regulatory obligations. These regulatory obligations are one of the key drivers of Ausgrid's capital and operating expenditure.

The principal regulatory obligations Ausgrid is subject to as a network operator are derived from:

- The Electricity Supply Act 1995 (NSW) and Regulations, in particular the Electricity Supply (Safety and Network Management) Regulation 2014 (Safety and Network Management Regulation. The Electricity Supply Act requires Ausgrid to hold a distributor's licence which in turn imposes a range of conditions on Ausgrid. The Safety and Network Management regulation imposes a key obligation to prepare and operate the network in accordance with a safety management system which meets the requirements of the regulation
- The NEL and NER regulate the way in which Ausgrid operates its network and participates in the National Electricity Market.

The National Energy Retail Law and Rules regulate the provision of customer connection services to retail customers.

Ausgrid's obligations include meeting a range of safety, reliability, security, planning, access and customer service requirements.1 In addition, Ausgrid is subject to the full range of general work health and safety, environmental, property and privacy requirements in operating and maintaining the network.

The forecasts for capital and operating expenditure reflect an assumption that Ausgrid's regulatory obligations will not materially change over the forthcoming regulatory period. Ausgrid is not anticipating any new substantive regulatory obligations and/or major change in scope of current regulatory obligations we are obliged to comply with.

This is a reasonable assumption given that at the time the capital and operating forecasts were prepared we were not anticipating any major government policy decisions that would be expected to affect Ausgrid's operations and investment needs in the 2019-24 regulatory period. In addition there were no major proposed rule changes being considered by the Australian Energy Market Commission that would materially impact on Ausgrid's operations.

4.2 Key assumption 2 - Demand and customer connections

The forecasts of augmentation and connection capex requirements and forecast opex are based on a set of assumptions regarding peak demand and new customer connections over the 2019-2024 period. These assumptions are set out in detail in Attachment 5.07.

This is a key assumption underpinning our augmentation and connection capex and opex. It has also been a key input for deriving the optimal timing for major replacement projects.

Peak demand forecasts set out the expected increase in peak demand on locations of our network, and include the expected impact of new customer connections.

[1] Refer to 2019-24 Reset RIN template 7.3 for a list of obligations, requirements and standards.

In respect of the reasonableness of peak demand forecasts, we note that:

- Ausgrid's method relies on historical peak demand recorded at each of its 220 zone areas, and this provides an indication of trends in demand growth at different points in the network. Importantly, Ausgrid's forecast process is capable of excluding spot loads from trend growth, considering new connections in the short term, and weather correcting
- We have had our forecasting methodology reviewed by an independent demand forecast expert (GHD), which further provides evidence on the reasonableness of our methodology
- In developing our capex forecasts for the 2019-24 period, we have applied our methodology using most recent available historic data.

Further information on our demand forecast methodology (including customer connections) and the load growth by location can be found in Attachment 5.07. The method used to develop those forecasts of load growth is contained in Ausgrid's technical document, "(INV-STD-10022) Planning Standard - Demand Forecast & related documents".

4.3 Key assumption 3 – TransGrid's Powering Sydney's Future Project

As part of joint planning, TransGrid has proposed to undertake the Powering Sydney's Future Project. Our joint probabilistic based cost and benefit analysis provided evidence that the project is the most cost effective option to solve multiple drivers facing Ausgrid and TransGrid.

Importantly, TransGrid's project (if completed as planned) will provide sufficient capacity into Ausgrid's network to enable decommissioning of eight of our 132kV oil filled cables. These cables are approaching the end of their lives, and pose significant reliability and environmental risks due to oil leakages (in particular to Sydney Harbour), obsolete technology and lack of spare parts.

Our assumption is that TransGrid will complete the Powering Sydney's Future project by 2021. This means that Ausgrid has not proposed $239.8 million ($2018/19) of replacement capex in 2019-24 to replace our 132kV cables, which would be required if TransGrid does not proceed with the project.

We consider that it is reasonable to assume that TransGrid will proceed with the Powering Sydney's Future project, as currently planned. This is based on strong customer and stakeholder support for the project and the significant risks associated with not proceeding with the project, which include sustained power outages potentially lasting weeks or even months, environmental damage due to increasing cable leaks, and high costs to customers over the long term.[2]

Ausgrid notes that, in its draft decision on TransGrid's revenue proposal for the 2018-23 period, the AER has not approved capital expenditure associated with the Powering Sydney's Future Project. The AER does not appear to question the need for TransGrid's proposed network upgrade, but has expressed some concerns regarding the timing and scope of the Powering Sydney's Future Project, as set out in TransGrid's original revenue proposal.[3]

TransGrid has recently (in November 2017) published its Project Assessment and Conclusions Report (PACR) for the Powering Sydney's Future Project as part of the RIT-T

[2] TransGrid, Revised regulatory proposal for 2018-19 to 2022-23 period, 1 December 2017, p. 53.
[3] AER, Draft Decision: TransGrid transmission determination 2018 to 2023, Attachment 6 – Capital expenditure, September 2017, p 6-96.

process. The PACR includes a comprehensive review of all options for addressing the identified risk to supply in Sydney going forward, and a detailed response to stakeholder feedback, including the issues raised by the AER in its draft decision on TransGrid's revenue proposal. In response to the concerns raised by the AER regarding the proposed scope and timing of the project, TransGrid has revised its plans for the network expenditure component, with this component now to be staged (i.e. only the first of two cable installations will be commissioned in the 2018-23 period, following a period of demand management).

Ausgrid considers that the PACR reflects a high level of commitment from TransGrid to the Powering Sydney's Future Project, and a high level of customer and stakeholder support. We also note that TransGrid has amended the planned timing and scope of network expenditure in the PACR to address specific concerns raised by the AER.

Securing reliable electricity supply to central Sydney also has strong government backing. In response to TransGrid's revised proposal, the NSW Government made a submission to the AER noting that 'the economic risks of a potential transmission cable failure in central Sydney area are significant'.[4] In its submission, the City of Sydney expresses strong support for the revised Powering Sydney's Future Project, as detailed in the PACR. The City of Sydney notes that TransGrid's revised proposal 'identifies a new and better option for the rollout of Powering Sydney's Future, namely a staged approach involving installation of one feeder now and allowing for its duplication in the future'.[5]

Given the high level of commitment on the part of TransGrid, recent amendments to its expenditure plans to address AER concerns, and with the backing of multiple levels of government, we consider that it is reasonable to assume that the project as outlined in the PACR will proceed.

4.4 Key assumption 4 – 2017/18 underlying opex provides a reasonable baseline for forecasting the efficient costs of achieving the opex objectives

We have used the "base-step-trend" methodology to forecast the majority of our opex requirement over the 2019-24 regulatory period. We consider that this approach (in preference to other methodologies, such as a zero-based or "bottom-up" build of costs) is reasonable because it is:

- The approach preferred by the AER - as stated in its Expenditure Forecast Assessment Guideline, Distribution November 2013 (Assessment Guideline) - in assessing DNSPs' proposed forecast opex. Specifically for Ausgrid's 2019-24 Regulatory Proposal, the AER has stated that it intends to apply this assessment guideline in its review of Ausgrid's proposed expenditure forecast for the 2019-24 period[6]
- Simple and transparent
- Used by other DNSPs to forecast opex.

The "base-step-trend" methodology requires an assumption regarding the "baseline" level of expenditure – that is, the base from which step changes and trend adjustments are to be applied. Under the AER's base-step-trend methodology, the baseline is based on the level of expenditure in a chosen "base year". Inherent in the selection of the base year is an assumption that this provides a reasonable basis for forecasting the efficient costs of achieving the opex objectives over the forthcoming regulatory period.

[4] NSW Government, Submission to the AER on TransGrid's revised proposal, 11 January 2018, p. 2.
[5] City of Sydney, Submission to the AER on TransGrid's revised proposal, 11 January 2018, p. 2.
[6] AER, Final framework and approach for Ausgrid, Endeavour Energy and Essential Energy, July 2017, pp77-78.

The "base year" (or baseline) assumption is a key assumption underlying the forecast using a base-step-trend methodology. Without this assumption the forecast cannot be made.

For the base year we have used our estimated underlying opex for 2017/18 (excluding non-recurrent costs). This is in line with our allowed opex for 2017/18 (as approved in the AER's original distribution determination for the 2014-19 period). We consider this is reasonable as revealed recurrent costs in 2017/18 are representative of efficient ongoing costs for 2019-24, including the maintenance needs implied by our capex forecast. In particular, we note that our proposed base year is:

- Reflective of the latest available information at the time of preparing the forecast, consistent with the AER's expenditure forecast assessment guideline[7]
- Representative of recurrent opex, as we expect actual opex for 2017/18 less non-recurrent costs to be in line with our original opex allowance for 2017/18, despite our higher operating cost base at the start of the 2014-19 regulatory period (see Chapter 6)
- Supported by cost comparisons that show we have made significant progress over a range of measures, and that our performance is now in line with that of our peers (i.e. other DNSPs) (see Chapter 6 and Attachment 6.01)
- Consistent with the costs incurred by a prudent service provider acting efficiently (see Attachment 6.01). In particular, the estimated opex for 2017/18 reflects significant efficient savings achieved over the 2014-19 regulatory period.

4.5 Key assumption 5 – Trend adjustments

The "base-step-trend" methodology requires an assumption regarding the trend adjustments to apply to the "baseline" level of expenditure. Inherent in the selection of the trend adjustments to apply is an assumption that it is reasonable to escalate the "base year" opex to reflect changes in input costs, outputs delivered and productivity over the 2019-24 regulatory period.

This 'trend' assumption is a key assumption underlying the forecast using a base-step-trend methodology. Without this assumption the forecasts cannot be made.

As part of our approach, we have included incremental opex between the base year and the final year of the current regulatory period in line the AER's 2015 Determination to escalate the 2017/18 base year to 2018/19. 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). The forecast trend adjustments are then applied starting from estimated 2018/19 opex.

For the trend adjustments (or escalators) in our forecast opex, we have applied real price growth, output growth and productivity growth to our 2018/19 estimated opex. We consider this is reasonable because:

- There are a number of reasons why efficient opex over the forecast regulatory period may be different from the efficient base year. Firstly, it is reasonable to assume that the cost of inputs for an efficient business to produce the same level of output may change at a rate different to CPI. Consequently it is reasonable to account for real cost changes in inputs and we therefore include real price growth in our trend adjustments. Secondly, changes in demand for our services (or outputs) may require changes to our network. It is reasonable that an efficient business may require more or less inputs, and thus more or less opex, to deliver a changed level output. We therefore include forecast output growth in the trend adjustments. Thirdly, it is reasonable to consider whether industry-

[7] See AER, *Explanatory Statement: Expenditure Forecast Assessment Guideline*, November 2013, p 92.

wide productivity will change over the forecast regulatory period and we therefore include forecast productivity growth in the trend adjustments

- This approach is preferred by the AER - as stated in its Expenditure Forecast Assessment Guideline, Distribution November 2013 (Assessment Guideline) - in assessing DNSPs' proposed forecast opex. Specifically for Ausgrid's 2019-24 Regulatory Proposal, the AER has stated that it intends to apply this assessment guideline in its review of Ausgrid's proposed expenditure forecast for the 2019-24 period[8]
- This approach is simple and transparent, and used by other DNSPs to forecast opex.

Our assumptions as to the growth in these trend factors for the forthcoming regulatory period are set out in the table below.

Table 2. Trend factor growth assumptions

	FY20	FY21	FY22	FY23	FY24
Real price - Labour	0.88%	1.37%	1.74%	1.73%	1.33%
Real price - Materials	-	-	-	-	-
Output - Customer numbers	0.91%	1.05%	1.03%	1.02%	1.01%
Output - Circuit Length	0.42%	0.43%	0.57%	0.58%	0.52%
Output - Ratcheted Maximum Demand	-	-	-	-	0.38%
Productivity	-	-	-	-	-

In applying these trend adjustments, we note that:

- We consider that the forecast of real labour price escalation is reasonable. This forecast has been developed by an external consultant with relevant expertise (see Chapter 6)
- We have applied zero material price escalation (despite evidence of a small future increase) in line with previous regulatory proposals and AER determinations (see Chapter 6). We also consider this to be a reasonable assumption for the forthcoming regulatory period
- We have adopted the AER's labour/non-labour split to ensure consistency with the AER's preferred benchmarking model (which uses this split) and in turn the preferred benchmarking model to forecast output and productivity growth estimates. Our approach of ensuring consistency across all components of the trend adjustment is in line with the AER's methodology for assessing proposed opex (see Chapter 6)
- We have used the AER's preferred benchmarking model to forecast output growth, to ensure consistency across estimating all components of the trend adjustment. Ausgrid's approach to forecasting peak demand and customer connections are Key Assumption 3. For growth in circuit length, it is assumed that future growth in low voltage lines reflects historic growth. Growth in higher voltage lines is estimated on a project-specific basis (see Attachment 6.01)
- We have used the AER's preferred benchmarking model to forecast productivity growth, to ensure consistency across estimating all components of the trend adjustment. This model currently estimates that productivity has declined over the period 2006 to 2016. We have applied zero productivity growth rather than increasing costs through an adjustment for negative productivity growth (see Chapter 6).

[8] AER, Final framework and approach for Ausgrid, Endeavour Energy and Essential Energy, July 2017, pp77-78.

4.6 Key assumption 6 – Forecast capex and opex

In developing the forecast capex and opex, Ausgrid has considered the expenditure objectives in the National Electricity Rules; particularly the objectives of quality, reliability and security of supply (clauses 6.5.6(a) (3) and 6.5.7(a) (c)). We have also considered customers' feedback on the services that they would like us to provide which is affordable, reliable and sustainable network services.

Ausgrid has developed and proposed forecast capex and opex that we consider represents the efficient and prudent costs (hence meeting the affordable objective) whilst ensuring that the level of service and the reliability of our service we provide to customers are not compromised. Our forecast expenditure has therefore assumed the level of reliability and customer services outcomes outlined in our Regulatory Proposal will be delivered.

We have made these assumptions in proposing the forecast expenditure because the level of service (in terms of both reliability and customer service outcomes) is a key underlying driver of expenditure. It is important in forecasting expenditure to understand and specify the level of reliability and service that expenditure will achieve. It is reasonable for us to assume that the proposed forecast capex and opex will maintain the current level of reliability and service whilst also ensuring that these services are affordable, because these levels of reliability and customer service have been informed by customer feedback through our consultation with them.

The achievement of the reliability and customer service outcomes outlined in our Proposal, informed by customers' feedback, consequently relies on the AER's approval of the proposed forecast capex, opex and the other components of our building block proposal including the benchmark efficient return on capital. Any reduction in these proposed expenditure, which we consider to be efficient, prudent and achieves the right balance between reliability and affordability, would likely result in deterioration of reliability and customer services.

5 DIRECTOR'S CERTIFICATION OF KEY ASSUMPTIONS

5.1 Certification under clauses S6.1.1(5) and S6.1.2(6) of the National Electricity Rules

The undersigned Chairman of Ausgrid certifies that:

- In accordance with schedule 6.1.1(5) of the National Electricity Rules, the key assumptions that underlie the capital expenditure forecast as set out in this document are reasonable.
- In accordance with schedule 6.1.1(6) of the National Electricity Rules, the key assumptions that underlie the operating expenditure forecast as set out in this document are reasonable.

Signed in accordance with a resolution of directors.

Chairperson

Dated 26/4/18