



**DRAFT DECISION**  
**Powerlink transmission**  
**determination**  
**2017–18 to 2021–22**

**Attachment 7 – Operating**  
**expenditure**

September 2016

© Commonwealth of Australia 2016

This work is copyright. In addition to any use permitted under the Copyright Act 1968, all material contained within this work is provided under a Creative Commons Attributions 3.0 Australia licence, with the exception of:

- the Commonwealth Coat of Arms
- the ACCC and AER logos
- any illustration, diagram, photograph or graphic over which the Australian Competition and Consumer Commission does not hold copyright, but which may be part of or contained within this publication. The details of the relevant licence conditions are available on the Creative Commons website, as is the full legal code for the CC BY 3.0 AU licence.

Requests and inquiries concerning reproduction and rights should be addressed to the:

Director, Corporate Communications  
Australian Competition and Consumer Commission  
GPO Box 4141, Canberra ACT 2601

or [publishing.unit@acc.gov.au](mailto:publishing.unit@acc.gov.au).

Inquiries about this publication should be addressed to:

Australian Energy Regulator  
GPO Box 520  
Melbourne Vic 3001

Tel: 1300 585 165

Email: [AERInquiry@aer.gov.au](mailto:AERInquiry@aer.gov.au)

## Note

This attachment forms part of the AER's draft decision on Powerlink's transmission determination for 2017–22. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 – Maximum allowed revenue

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Value of imputation credits

Attachment 5 – Regulatory depreciation

Attachment 6 – Capital expenditure

Attachment 7 – Operating expenditure

Attachment 8 – Corporate income tax

Attachment 9 – Efficiency benefit sharing scheme

Attachment 10 – Capital expenditure sharing scheme

Attachment 11 – Service target performance incentive scheme

Attachment 12 – Pricing methodology

Attachment 13 – Pass through events

Attachment 14 – Negotiated services

# Contents

|   |             |
|---|-------------|
| <b>Note</b> .....   | <b>7-2</b>  |
| <b>Shortened forms</b> .....  | <b>7-4</b>  |
| <b>7 Operating expenditure</b> .....  | <b>7-6</b>  |
| <b>7.1 Draft decision</b> .....   | <b>7-6</b>  |
| <b>7.2 Powerlink’s proposal</b> .....   | <b>7-7</b>  |
| 7.2.1 Submissions on Powerlink's proposal.....  | 7-10        |
| <b>7.3 Assessment approach</b> .....  | <b>7-12</b> |
| 7.3.1 The National Electricity Objective, and the opex criteria, objective and factors..... | 7-13        |
| <b>7.4 Reasons for draft decision</b> .....   | <b>7-13</b> |
| 7.4.1 Base opex.....  | 7-14        |
| 7.4.2 Rate of change.....   | 7-16        |
| 7.4.3 Step changes and category specific forecasts.....                                     | 7-20        |
| 7.4.4 Safety and reliability .....  | 7-21        |
| 7.4.5 Interrelationships.....   | 7-22        |
| 7.4.6 Summary of submissions on Powerlink's opex proposal.....                              | 7-22        |
| 7.4.7 Assessment of opex factors under the Rules .....                                      | 7-25        |

## Shortened forms

| Shortened form | Extended form                            |
|----------------|--|
| AARR           | aggregate annual revenue requirement     |
| AEMC           | Australian Energy Market Commission      |
| AEMO           | Australian Energy Market Operator        |
| AER            | Australian Energy Regulator              |
| ASRR           | annual service revenue requirement       |
| augex          | augmentation expenditure                 |
| capex          | capital expenditure                      |
| CCP            | Consumer Challenge Panel                 |
| CESS           | capital expenditure sharing scheme       |
| CPI            | consumer price index                     |
| DMIA           | demand management innovation allowance   |
| DRP            | debt risk premium                        |
| EBSS           | efficiency benefit sharing scheme        |
| ERP            | equity risk premium                      |
| MAR            | maximum allowed revenue                  |
| MRP            | market risk premium                      |
| NEL            | national electricity law                 |
| NEM            | national electricity market              |
| NEO            | national electricity objective           |
| NER            | national electricity rules               |
| NSP            | network service provider                 |
| NTSC           | negotiated transmission service criteria |
| opex           | operating expenditure                    |
| PPI            | partial performance indicators           |
| PTRM           | post-tax revenue model                   |
| RAB            | regulatory asset base                    |
| RBA            | Reserve Bank of Australia                |
| repex          | replacement expenditure                  |
| RFM            | roll forward model                       |
| RIN            | regulatory information notice            |

| Shortened form | Extended form                               |
|----------------|---|
| RPP            | revenue and pricing principles              |
| SLCAPM         | Sharpe-Lintner capital asset pricing model  |
| STPIS          | service target performance incentive scheme |
| TNSP           | transmission network service provider       |
| TUoS           | transmission use of system                  |
| WACC           | weighted average cost of capital            |

## 7 Operating expenditure

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

This attachment outlines our assessment of Powerlink's proposed opex for the 2017–22 regulatory period.

### 7.1 Draft decision

Our draft decision is to accept Powerlink's opex forecast of \$976.7 million (\$2016–17) over the 2017–22 regulatory period. Powerlink's proposal is lower (in real terms) than its annual opex spend in the 2012–17 regulatory period (section 7.2).

We developed an alternative estimate of Powerlink's efficient costs to assess its proposal. We used our standard 'base-step-trend' approach (section 7.3).<sup>1</sup> This is a 'top-down model' that allows us to leave the day-to-day decisions to the business—and is consistent with an economic, incentive-based regulatory framework.

Our benchmarking indicates Powerlink has not been operating as efficiently as other transmission businesses in the National Electricity Market (NEM). Consumer Challenge Panel (CCP) members made a submission stating we should apply benchmarking to determine Powerlink's efficient base year opex.<sup>2</sup> However, our benchmarking of transmission businesses is not sufficiently robust to support an alternative forecast of base opex at this stage of its development. Our benchmarking is limited by the small sample size of transmission businesses in the NEM—among other things.

Powerlink acknowledged it has scope to be more efficient and has included efficiency measures in its proposal that in effect reduce its base opex by 12.2 per cent. Powerlink made an efficiency adjustment to base year opex and includes efficiency gains made in the previous regulatory period. Powerlink stated its opex proposal maintains current levels of reliability while delivering real annual reductions in forecast opex.<sup>3</sup>

We have included Powerlink's efficiency adjustments in our alternative estimate as an efficiency cut to base opex (section 7.4.1).

---

<sup>1</sup> AER, *Better Regulation—Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013.

<sup>2</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 5–6.

<sup>3</sup> Powerlink, *2018-22 Powerlink Queensland revenue proposal*, 29 January 2016, p. 79 (Powerlink, *Revenue proposal*, January 2016).

Our alternative estimate of forecast total opex is \$994.7 million (\$2016–17).<sup>4</sup> This is \$18.0 million (1.8 per cent) higher than Powerlink's proposal.

The key difference between our estimate and Powerlink's forecast is different assumptions about productivity growth over 2017–22 (section 7.4.2). Powerlink forecast higher productivity growth of 1.2 per cent. Our estimate includes productivity growth of 0.2 per cent, which is based on historical industry-wide trends—consistent with our standard approach. Powerlink stated its forecast productivity gains are based on a detailed line-by-line assessment of potential efficiencies across its opex program. We have considered the supporting information Powerlink has put forward and we accept Powerlink's judgement that it will be able to meet its forecast productivity improvements.

## 7.2 Powerlink's proposal

Powerlink proposed total opex of \$959.1 million (\$2016–17) for the 2017–22 regulatory control period (excluding debt raising costs totalling \$17.6 million). Powerlink's proposed total opex forecast is set out in Table 7.1.

**Table 7.1 Powerlink's proposed opex (\$million, 2016–17)**

|   | 2017–18      | 2018–19      | 2019-20      | 2020-21      | 2021-22      | Total        |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| Total opex excluding debt raising costs | 193.3        | 192.5        | 191.6        | 190.9        | 190.8        | 959.1        |
| Debt raising costs                      | 3.6          | 3.6          | 3.5          | 3.5          | 3.4          | 17.6         |
| <b>Total opex</b>                       | <b>196.9</b> | <b>196.0</b> | <b>195.1</b> | <b>194.4</b> | <b>194.3</b> | <b>976.7</b> |

Source: Powerlink, *Revenue proposal*, January 2016, Opex model.

Powerlink forecast cost savings for 2017–22, including efficiency improvements to base year opex and strong productivity growth in its proposal. Powerlink stated it is reforming business processes that are aligned with driving efficiency and cost reduction, and reviewing resource levels to align them with evolving requirements.<sup>5</sup>

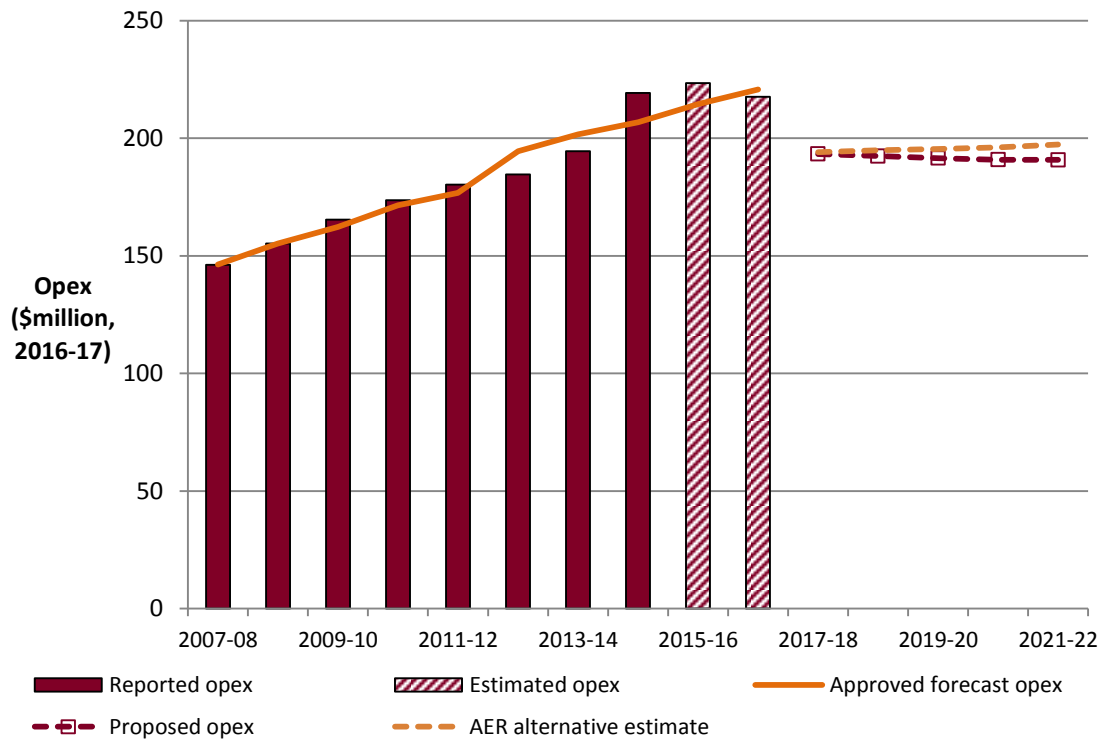
Figure 7.1 shows Powerlink's opex forecast as well as its past actual opex and our previous regulatory decisions.

<sup>4</sup> Including debt raising costs.

<sup>5</sup> Powerlink, *Revenue Proposal*, January 2016, p. 60.



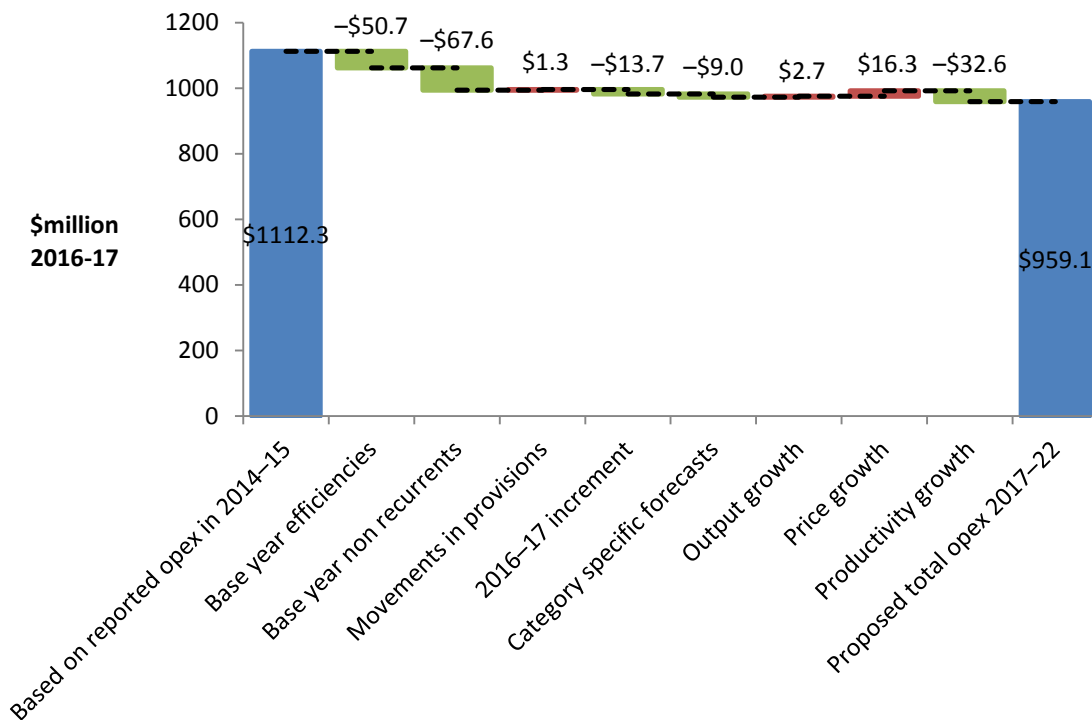
**Figure 7.1 Historical and forecast opex (\$ million, 2016–17)**



Note: Excludes debt raising costs and network support costs.

In Figure 7.2 we separate Powerlink's opex proposal into the different elements that make up its forecast for the 2017–22 regulatory control period.

**Figure 7.2 Powerlink's opex forecast (\$ million, 2016–17)**



Source: AER analysis.

The key elements of Powerlink's proposal are:

- Powerlink used the actual opex it incurred in 2014–15 as the base for forecasting its opex over 2017–22. If no other adjustments were made, this would lead to a base opex of \$1112.3 million (\$2016–17) for 2017–22.
  - Powerlink removed non-recurrent costs from its base opex, comprising G20 preparation works and cancelled projects. This decreased its forecast by \$67.6 million.
  - Powerlink also removed identified work program efficiencies from its base opex. These included vegetation management, refurbishment and workforce efficiency costs (including redundancy). This decreased its forecast by \$50.7 million.
- Powerlink removed cost items comprising network support, self-insurance, insurance premiums and the AEMC levy from its base opex, instead including category specific forecasts for these items outside of the base-step-trend approach. This decreased its forecast by \$9.0 million (\$2016–17).
- To forecast the increase in opex between the base year (2014-15) and commencement of the 2017–22 regulatory control period, Powerlink added the

growth it forecast in prices, output and productivity. This differs from the approach set out in our Expenditure forecast assessment guideline (the Guideline).<sup>6</sup> This decreased its forecast by \$13.7 million (\$2016–17).

- Powerlink did not include any step changes in costs for 2017–22 regulatory control period. Powerlink identifies a range of legislative changes that could impact its costs but considered these can be managed within base year opex.
- Powerlink forecast growth in prices of labour and non-labour inputs. This increased its forecast opex by \$16.3 million (\$2016–17). Specifically, it forecast:
  - labour price growth using its internal enterprise agreement plus an average of the BIS Shrapnel and Deloitte Access Economics forecasts of growth in the wage price index (WPI) for the utilities industry
  - non-labour prices would not grow in real terms, that is, they would grow at the same rate as the CPI.
- Powerlink forecast growth in output using the same approach we use. This increased its forecast opex by \$2.7 million (\$2016–17).
- Powerlink forecast productivity to grow at 1.2 per cent per year. This reduced its opex forecast by \$32.6 million.

### 7.2.1 Submissions on Powerlink's proposal

CCP members Hugh Grant and David Headberry considered there is extensive evidence that Powerlink demonstrates the lowest operational efficiency in the NEM.<sup>7</sup> The CCP members stated that our benchmarking results identify material inefficiencies in Powerlink's historical opex. The CCP members' submission highlighted that Powerlink performs poorly on the following Partial Performance Indicators (PPIs) based on our 2014 electricity transmission benchmarking report: 'Asset cost per total entry/exit point voltage', 'Opex per MVA of downstream transmission capacity' and 'Opex per total entry/exit point voltage'.<sup>8</sup>

The CCP members' submission noted the AER has recently applied benchmarking to determine efficient base year opex for distribution, but not for transmission. The CCP members considered AER concerns about using the transmission benchmarking results deterministically with a small sample size are not justified. The CCP members found other international regulators have used benchmarking results much more deterministically with similar or smaller numbers of benchmark comparisons, although the CCP members' submission did not reference these regulatory decisions. The CCP

---

<sup>6</sup> The estimate of final year opex should be consistent in both our opex forecast and the EBSS in order to share Powerlink's efficiency gains in 2015 with its network users as intended by the EBSS. The approach set out in the Guideline to estimate the final year opex ensures consistency with the EBSS.

<sup>7</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 5–6, 61–74.

<sup>8</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 65.

members considered the AER's concerns about using transmission benchmarking deterministically contradicts the purpose of publishing the benchmarking report.<sup>9</sup>

The CCP members stated there is insufficient integration of expected opex reductions arising from non-network capex projects.<sup>10</sup>

The CCP members considered we should apply a higher productivity growth factor than that proposed by Powerlink (of 1.2 per cent) in line with levels achieved by other capital intensive industry sectors.<sup>11</sup>

The CCP members submitted we need to use labour price forecasts specific to the electricity network sector and that such forecasts will confirm that Powerlink's labour costs should be reducing, rather than increasing.<sup>12</sup>

The CCP members also submitted that a key reason for transmission businesses' poor productivity performance over the past decade is our provision of excessive opex allowances, which in its view has been a strong driver of inefficient labour practices and poor productivity outcomes.<sup>13</sup>

The University of Queensland submitted that Powerlink's proposal for network maintenance, operations, refurbishment and replacement expenditure already incorporate significant efficiency improvement initiatives and that further regulatory cuts may increase long term costs to customers.<sup>14</sup>

Queensland Resources Council highlighted the relatively low reduction in opex compared to capex and allowable revenue, and noted its expectation that we assess claims that this represents an inefficient inflexibility in Powerlink's opex.<sup>15</sup>

Cotton Australia suggested we continue to develop our transmission benchmarking so that it can be applied more deterministically for future regulatory periods. Cotton Australia also suggested we investigate issues of labour costs and the effectiveness of efficiency incentive schemes.<sup>16</sup>

---

<sup>9</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 67–68.

<sup>10</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 60.

<sup>11</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 73.

<sup>12</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 69–70.

<sup>13</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 73.

<sup>14</sup> University of Queensland, *Submission to the Australian Energy Regulator on Powerlink Queensland's Revenue Application from the University of Queensland*, 28 April 2016, p. 8.

<sup>15</sup> Queensland Resources Council, *Submission to the AER on Powerlink's Revenue Determination 2017 to 2022*, 29 April 2016, p. 2.

<sup>16</sup> Cotton Australia, *Letter to AER re. Powerlink Electricity transmission revenue proposal 2017–2022*, 2 May 2016, p. 3.

A summary of stakeholder submissions on Powerlink's opex proposal and our response to the issues raised is presented in section 7.4.6.

### 7.3 Assessment approach

In assessing a business' forecast of total opex, we must form a view about whether the total of the forecast reasonably reflects each of the opex criteria.<sup>17</sup> If we are satisfied it reasonably reflects those criteria we must accept the business' forecast.<sup>18</sup> If we are not satisfied, we substitute the business' forecast with our alternative estimate of the business' opex.<sup>19</sup>

Our view as to whether a network business' proposal is reasonable is not a separate exercise from determining an alternative opex forecast. We assess a business' opex proposal by determining our own opex forecast. We have discretion to determine whether the difference between our forecast opex and the business' proposed opex is such that we should accept the business' opex as reasonable.

We apply the 'base-step-trend' forecasting approach to develop our alternative estimate of efficient costs to compare against the business' proposal. This approach is consistent with an economic, incentive-based regulatory framework. It allows us to leave the minutiae of input and output decision-making to the business. Our role is to allow the business the flexibility to manage its assets and labour as it sees fit to achieve the NEO.

First, we use the business' audited historical costs in a recent year as a starting point for our forecast. We call this 'base opex'. Our benchmarking results provide information about whether the business is operating efficiently. We look for evidence of 'material inefficiencies' in a network business' base opex to determine if we can rely on 'revealed costs', or if an adjustment to base opex is required. Benchmarking a network business against others provides an indication of whether the proposal is reasonable and if not, what a substitute should be.

Second, we trend base opex forward by applying our forecast of the 'rate of change'. This accounts for forecast growth in input prices, output and productivity over the regulatory control period. We make use of expert and independent information sources, such as forecasts of labour price growth.

Third, we add or subtract any components of opex that are not captured in base opex or the rate of change—that is, 'step changes' or, possibly, category specific forecasts. In particular, we consider whether new regulatory obligations have been imposed on a network business and, if so, we assess the prudence and efficiency of the associated forecast cost increases or decreases.

---

<sup>17</sup> The opex criteria are: the efficient costs of achieving the opex objectives; the costs that a prudent operator would require to achieve the opex objectives; a realistic expectation of the demand forecast and cost inputs required to achieve the opex objectives. NER, cl. 6A.6.6(c), 6A.14.1(3). The opex objectives are set out in cl 6A.5.6(a).

<sup>18</sup> NER, cl. 6A.6.6(c), 6A.14.1(3)(i).

<sup>19</sup> NER, cl. 6A.6.6(d), 6A.14.1(3)(ii).

If a business' total opex forecast is materially higher than our estimate, we undertake further investigation and analysis. We identify all differences between our estimate and the business' forecast. Having identified the differences, we assess whether the business' forecasting method, inputs and assumptions are reasonable and assess the business' explanation of how that method results in a prudent and efficient forecast. We may seek further information from the business, or other stakeholders.

If we ultimately find no satisfactory explanation for the difference between our estimate and the business' total opex forecast, we may form the view the business' forecast does not reasonably reflect the opex criteria, and substitute it with our own forecast.

If our alternative estimate demonstrates that the business' total opex forecast reasonably reflects the opex criteria, we will accept the forecast.<sup>20</sup> If so, we are unlikely to undertake a more detailed assessment of the business' proposal.

### **7.3.1 The National Electricity Objective, and the opex criteria, objective and factors**

We must make determinations that will or will be likely to contribute to the achievement of the National Electricity Objective (NEO)—that is, that promote efficient outcomes for the benefit of consumers in the long term.

We must form a view on whether the business' opex proposal reasonably reflects the opex criteria as mentioned above.<sup>21</sup>

The opex criteria direct attention to the opex objectives.<sup>22</sup> The focus of the opex objectives is on the performance outputs of the business, including: meeting demand for distribution services, compliance with regulatory obligations, maintaining the quality, reliability and security of supply of services, and maintaining the reliability, security and safety of the distribution system.

In considering whether the opex forecast reasonably reflects the opex criteria we must have regard to the 'opex factors' specified in the NER.<sup>23</sup> Section 7.4.7 describes the opex factors and how we have had regard to each of these in our draft decision.

## **7.4 Reasons for draft decision**

Our alternative estimate of forecast total opex is \$994.7 million (\$2016–17).<sup>24</sup> This is \$18.0 million (1.8 per cent) higher than Powerlink's proposal.<sup>25</sup>

---

<sup>20</sup> AER, *Expenditure forecast assessment guideline*, November 2013, p. 7. NER, clauses 6A.6.6(c), 6A.6.7 (c).

<sup>21</sup> NER, cl. 6A.6.6 (c).

<sup>22</sup> NER, cl. 6A.6.6 (a).

<sup>23</sup> NER, cl. 6A.6.6 (e).

<sup>24</sup> Including debt raising costs.

<sup>25</sup> Including debt raising costs.

Our draft decision is to accept Powerlink's opex forecast of \$976.7 million (\$2016–17) over the 2017–22 regulatory control period. We are satisfied the opex forecast reasonably reflects the efficient costs that a prudent operator would require to maintain the quality of supply, reliability, security and safety of the network, while complying with all regulatory obligations and given expected demand and cost inputs.

The following sections outline the key inputs and assumptions we made in developing our alternative estimate of efficient costs. We consider that Powerlink's revealed (historic) costs do not reflect efficient levels and that an adjustment to base opex is required (section 7.4.1). The key difference between our estimate and Powerlink's forecast is different assumptions about productivity growth over 2017–22 (section 7.4.2). The opex model we used to calculate our alternative estimate is published on our website.<sup>26</sup>

Table 7.2 presents a summary of the components that make up Powerlink's proposal and our alternative estimate for comparative purposes (excluding debt raising costs).

**Table 7.2 Comparison of Powerlink's opex forecast our alternative estimate by component (\$ million, 2016–17)**

| Component                                     | Powerlink    | Our alternative estimate | Difference  |
|---|--------------|--------------------------|-------------|
| Efficiency adjusted 2016-17 opex <sup>a</sup> | 981.7        | 979.5                    | -2.1        |
| Output growth                                 | 2.7          | 2.9                      | 0.2         |
| Price growth                                  | 16.3         | 15.1                     | -1.2        |
| Productivity growth                           | -32.6        | -5.8                     | 26.8        |
| Category specific forecasts                   | -9.0         | -13.9                    | -5.0        |
| <b>Total opex</b>                             | <b>959.1</b> | <b>977.8</b>             | <b>18.7</b> |

Source: AER analysis.

- (a) Powerlink's proposal and our alternative estimate both exclude debt raising costs.
- (b) Includes reported base year (2014–15) opex, the removal of non-recurrent opex from base year opex, the removal of movements in provisions from base year opex, the forecast increase in opex between 2014–15 and 2016–17 and the forecast efficiency adjustment.

### 7.4.1 Base opex

Powerlink used its 2014–15 opex of \$223.0 million as the base for its opex forecast. It removed non-recurrent expenditure of \$13.5 million (or 6.1 per cent) and further reduced its base opex for its identified 'work program efficiencies' (\$10.1 million or

<sup>26</sup> <https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/powerlink-determination-2017-2022>.

4.5 per cent). These work program efficiencies include vegetation management, refurbishment and workforce efficiency costs (including redundancy).

Our benchmarking results suggest Powerlink has been operating at relatively lower levels of productivity when compared to other transmission businesses in the NEM. Our multilateral total factor productivity (MTFP) and opex multifactor partial productivity (MPP) results rank Powerlink fourth out of five providers.<sup>27</sup> Powerlink's partial performance indicator (PPI) results are mixed. Powerlink rates well in measures such as opex per circuit kilometre, but poorly on measures such as opex per MVA of downstream transmission capacity.

On the one hand, the CCP members' submission stated we should apply benchmarking to determine Powerlink's efficient base year opex. It stated our benchmarking results identify material inefficiencies in Powerlink's historical opex.

On the other hand, Powerlink's consultant, Huegin, stated there is no evidence that Powerlink's historic opex is materially inefficient, and noted its opex is similar to its peers when selected operating environment factors (OEFs) are considered.<sup>28</sup>

Our consultant, Economic Insights, accepted Huegin's view that there is a lack of evidence Powerlink's base opex is materially inefficient. Economic Insights identified the following limitations with the benchmarking evidence, which we accept.<sup>29</sup>

First, we have a small sample size of transmission businesses.<sup>30</sup> This is a problem because benchmarking is data intensive. Our ability to apply a range of benchmarking techniques (using econometric modelling) is limited, which means we cannot adequately cross-check our results. And there are few overseas observations we can draw on to increase our sample size.

Second, we would need to refine our benchmarking 'output measures'. Very few comprehensive 'measurement studies' have been undertaken around the world, unlike for electricity distribution.<sup>31</sup>

Third, the transmission businesses operate under different circumstances. We would need to gain a better understanding of the impact of OEFs, especially those that are not captured in our current model—such as capitalisation differences as identified by Huegin. A business may face relatively higher costs that are beyond its control, which can negatively influence its benchmarking performance. The material OEFs would need to be identified and quantified.<sup>32</sup>

---

<sup>27</sup> Prior to 2014, Powerlink was ranked third in opex MPP for four years (2010–2013).

<sup>28</sup> Powerlink, *2018-22 Powerlink Queensland Revenue Proposal, Appendix 4.01: Huegin—Powerlink Operating Expenditure Benchmarking Review*.

<sup>29</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

<sup>30</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

<sup>31</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

<sup>32</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.



For these reasons, we consider our benchmarking of electricity transmission is not sufficiently robust to support an alternative forecast of base opex at this stage of its development. Nevertheless, we consider our transmission benchmarking results and PPIs raise questions about the efficiency of Powerlink's base opex. Although we cannot measure the distance between Powerlink's productivity performance and the 'efficiency frontier', we can rely on Powerlink's own forecast productivity improvements.

Powerlink acknowledged it has scope to be more efficient and has included opex efficiency measures in its 2017–22 revenue proposal. First, Powerlink reduced its base opex by \$10.1 million for work program efficiencies, as mentioned above. This reduced its opex forecast by 4.6 per cent. Second, Powerlink incorporated an efficiency gain in opex between the base year (2014–15) and the start of the regulatory control period (2017–18).<sup>33</sup> This reduced its opex forecast by a further 7.6 per cent. In total, Powerlink reduces its estimate of opex for 2016–17 by 12.2 per cent. It is also noted that Powerlink proposed to absorb possible step changes, as discussed below, and an EBSS payment of \$9 million (see attachment 9).

These efficiency measures reflect the opex efficiencies Powerlink expected it has or will achieve in 2015–16 and 2016–17, as well as over the 2017–22 regulatory control period. Powerlink submitted it is reforming business processes that are aligned with driving efficiency and cost reduction.<sup>34</sup> Powerlink stated it is implementing a range of initiatives:

- implementation of a new simplified organisational structure
- review and adjustment of resource levels to align them with evolving requirements
- review and implementation of cost effective long term arrangements for maintenance service delivery across Queensland.

We have included Powerlink's efficiency adjustments in our alternative estimate as an efficiency cut to base opex. We have also removed the non-recurrent costs identified by Powerlink.

### 7.4.2 Rate of change

Having determined an efficient starting point, or base opex, we trend it forward to account for the forecast rate of change over the 2017–22 regulatory control period. The forecast rate of change captures the forecast growth in prices, output and productivity.

We have forecast an average annual rate of change of 0.4 per cent. This compares with Powerlink's forecast of –0.4 per cent. The following section describes our calculation of the efficient rate of change.

---

<sup>33</sup> Our Expenditure forecast assessment guideline (p. 23) sets out how we will estimate opex in the final year of the preceding regulatory control period (2016–17 in this case). Estimating 2016–17 this way allows Powerlink to retain efficiency gains made after the base year (2014–15). Powerlink did not adopt this approach to forecasting opex for 2016–17 and in effect assumed it would make efficiency gains in 2015–16 and 2016–17.

<sup>34</sup> Powerlink, *Revenue proposal*, January 2016, p. 60.

## Forecast price growth

We have forecast real average annual price growth of 0.6 per cent in our alternative opex forecast. Powerlink forecast 0.7 per cent. The difference was our respective forecasts of labour price growth.

Price growth is made up of labour price growth and non-labour price growth:

- We have forecast annual labour price growth of 0.9 per cent. We have used forecast growth of the utilities<sup>35</sup> WPI to forecast labour price growth. We used an average of Deloitte Access Economics' (DAE) and the Centre for International Economics' (CIE) utilities WPI growth forecasts. Our approach is consistent with the approach we used in our most recent transmission determination for AusNet Services<sup>36</sup> and uses our most up to date data set. We consider the average of the utilities WPI growth forecasts from DAE and CIE represents a realistic expectation of the cost inputs required to provide network services. We used forecasts for the Australian utilities industry in the absence of Queensland specific forecasts.<sup>37</sup> Powerlink used its internal enterprise agreement (EA)<sup>38</sup> plus forecast growth in the WPI for the utilities industry to forecast annual labour price growth of 0.7 per cent.
- Consistent with our usual approach, we have forecast no real price growth for non-labour prices. Powerlink also forecast no real price growth for non-labour costs.
- We have weighted the forecast price growth to account for the proportion of opex that is labour and the proportion that is non-labour.<sup>39</sup> Our labour and non-labour price weights reflect the benchmark efficient mix of labour services and other costs required to provide transmission services. Powerlink also adopted these benchmark weights in its revenue proposal.

## Forecast output growth

We have forecast average annual output growth of 0.1 per cent in our alternative opex forecast by applying our standard approach.

We assume the opex of an efficient provider would reasonably increase with increases in output. The outputs we have had regard to are: circuit line length, maximum demand, energy throughput and voltage weighted entry and exit points.

---

<sup>35</sup> Electricity, gas, water and waste services.

<sup>36</sup> AER, *Draft decision, AusNet Services transmission determination 2017–18 to 2021–22*, 20 July 2016, p. 7-53; AusNet Services, *Transmission revenue review 2017–22, Appendix 5E: CIE labour price forecasts*, 30 October 2015, p. 3.

<sup>37</sup> Deloitte Access Economics, *Forecast growth in labour costs in Australia, Victoria, South Australia, Northern Territory and the Australian Capital Territory, prepared for the AER*, 5 February 2016.

<sup>38</sup> Powerlink's forecast labour cost escalation for the 2017–22 regulatory period is based on its current Enterprise Agreement until February 2018 and a simple average of BIS Shrapnel's and DAE's WPI forecasts thereafter; Powerlink, *Revenue proposal*, January 2016, p. 80.

<sup>39</sup> We applied Economic Insights' benchmark opex price weightings for labour and non-labour: 62 per cent for labour and 38 per cent for non-labour. For more detail for our approach to forecasting price changes refer to AER, *Draft decision, AusNet Services transmission determination 2017–18 to 2021–22*, 20 July 2016, pp. 7-19, 7-47 to 7-53.

We have weighted the forecast output growth to account for the proportion of opex that is attributable to each of the four measures.<sup>40</sup> We have used the forecast energy delivered, ratcheted maximum demand,<sup>41</sup> entry and exit connections and circuit line length reported by Powerlink.<sup>42</sup> We consider these output measures are reasonable because they assume:

- no new entry and exit points during the 2017–22 regulatory period
- no increase in circuit length during the 2017–22 regulatory period and the forecast is adjusted to reflect planned line decommissioning.<sup>43</sup>

Powerlink also forecast annual output growth of 0.1 per cent because it adopted our approach to forecasting output growth.

### ***Forecast productivity growth***

The key difference between our alternative estimate and Powerlink's forecast is our respective assumptions about productivity growth over 2017–22.

We have forecast annual productivity growth of 0.2 per cent in our alternative estimate. We forecast productivity growth based on our expectations of the productivity an efficient service provider in the transmission industry can achieve. We generally consider past performance to be a good indicator of future performance under a business-as-usual situation.

To reach our best estimate of forecast productivity we have considered the historical growth in industry-wide productivity and whether this reflects a reasonable expectation of the benchmark productivity that can be achieved for the forecast period.

To measure historical growth in productivity, we have used the electricity transmission industry average opex partial productivity growth rate from 2006 to 2015 of 0.2 per cent. We based this figure on analysis undertaken by our consultant, Economic Insights. We consider this reflects a reasonable expectation of the benchmark productivity that can be achieved for the forecast period for the following reasons:

- Economic Insights recommended we apply 0.2 forecast productivity growth for a recent transmission determination.<sup>44</sup>

---

<sup>40</sup> The weightings we applied to each measure of network output are the same as those we used in our benchmarking analysis: energy 21.4 per cent; ratcheted maximum demand 22.1 per cent; voltage weighted entry and exit points 27.8 per cent; and, circuit line length 28.7 per cent. Economic Insights discusses the process for selecting the output specification in its economic benchmarking assessment of opex for the NSW and ACT electricity distributors; Economic Insights, *Economic Benchmarking Assessment of Operating Expenditure for NSW and ACT Electricity DNSPs*, 17 November 2014, pp. 9–10.

<sup>41</sup> Ratcheted maximum demand is the highest value of maximum demand observed up to the year in question. It recognises capacity that has been used to satisfy demand and gives the service provider credit for this capacity in subsequent years, even though annual maximum demand may be lower in subsequent years.

<sup>42</sup> Powerlink, *Reset RIN Regulatory templates consolidated*, 29 January 2016, tables 3.4.1 to 3.4.3.

<sup>43</sup> Powerlink, *Revenue proposal*, January 2016, p. 71.

<sup>44</sup> Economic Insights, *Memorandum: TNSP MTFP Results*, 29 April 2016, p. 5.

- As noted by Economic Insights, opex partial productivity trended up from 2006 to 2013 before falling in 2014 and 2015. There is some evidence that at least part of these recent falls reflect one-off events. We note that Powerlink was a significant contributor to the fall in opex productivity in 2015, with its productivity falling 10 per cent. In its revenue proposal, Powerlink reduced its reported opex in 2015 by 12.6 per cent to allow for non-recurrent factors as part of the process of forming its base year opex to forecast opex.<sup>45</sup>
- Measured productivity for most electricity transmission and gas distribution industries are positive for the 2006–14 period and are forecast to be positive.<sup>46</sup>

In comparison to our forecast of 0.2 per cent, Powerlink proposed productivity growth of 1.2 per cent over the regulatory control period. Powerlink based its forecast on efficiencies it identified it can achieve. Powerlink stated its forecast productivity gains are based on a detailed line-by-line assessment of the potential efficiencies across its opex program.<sup>47</sup>

In response to a subsequent information request, Powerlink identified the following productivity enhancing initiatives:

- field maintenance strategy optimisation—Powerlink identified productivity savings of approximately \$23 million over 2017–22 associated with optimising its field maintenance. This includes:
  - optimising the scope and frequency of climbing inspections and on site sampling of insulators, resulting in more targeted inspections of high risk assets at more standardised unit prices
  - improved land management strategy and implementation practices.<sup>48</sup>
- transmission line maintenance and refurbishment—Powerlink forecast \$19 million of opex savings related to its capex transmission line refit program. Powerlink noted this program would avoid planned condition-based maintenance and refurbishment expenditure (such as structural upgrades, insulator and line hardware replacement).<sup>49</sup>
- increased efficiency of support functions—Powerlink identified \$9 million of productivity enhancing initiatives associated with the restructure and redundancies it made in the current regulatory period. These initiatives reduce overhead costs and involve direct consolidation of support team structures including human resources, stakeholder relations and administration functions.<sup>50</sup>

---

<sup>45</sup> Economic Insights, *Memorandum: TNSP MTFP Results*, 29 April 2016, p. 5.

<sup>46</sup> AER, *2015 Annual benchmarking report (Transmission)*, November 2015, p. 17; AER, *2015 Annual benchmarking report (Distribution)*, November 2015, p. 12.

<sup>47</sup> Powerlink, *Revenue proposal*, January 2016, p. 73.

<sup>48</sup> Powerlink, *Response to AER information request 'Powerlink IR#020'*, 26 August 2016, pp. 2–3.

<sup>49</sup> Powerlink, *Response to AER information request 'Powerlink IR#020'*, 26 August 2016, pp. 3–4.

<sup>50</sup> Powerlink, *Response to AER information request 'Powerlink IR#020'*, 26 August 2016, pp. 4–5.

### 7.4.3 Step changes and category specific forecasts

The next stage of our assessment is to add or subtract any other opex components that would not be captured in base opex or the rate of change, such as step changes and category specific forecasts.

#### ***Step changes***

We have not included any step changes in our alternative opex forecast.

Powerlink did not include any step changes in its proposal. It identified some legislative changes it stated could impact its costs, however, it proposed to manage these costs within forecast total opex.<sup>51</sup>

We are satisfied we do not need to include step changes in our alternative opex forecast.

#### ***Category specific forecasts***

We have included two expenditure items in our opex forecast outside of the base-step-trend approach. These are debt raising costs and network support costs. We have not included a category-specific forecast for self-insurance or the AEMC levy, as proposed by Powerlink.

#### **Debt raising costs**

Debt raising costs are transaction costs incurred each time debt is raised or refinanced. Our standard forecasting approach for these costs sets the forecast equal to the costs incurred by a benchmark firm. Our assessment approach and the reasons for those forecasts are set out in the debt and equity raising costs appendix in the rate of return attachment.

Powerlink forecast debt raising costs using a forecasting approach consistent with ours.<sup>52</sup>

#### **Network support costs**

We have forecast zero network support costs, consistent with Powerlink's proposal.

#### **Insurance and self-insurance**

Powerlink did not include insurance or self-insurance in its base-step-trend forecast of total opex. Rather, it removed those costs from the base year and included a category specific forecast of \$39.7 million (\$2016–17) for insurance and \$7.4 million for self-insurance. Adopting this approach rather than using a base-step-trend approach increased its opex forecast by \$4.2 million over the five year period.

---

<sup>51</sup> Powerlink, *Revenue proposal*, January 2016, p. 74.

<sup>52</sup> Powerlink, *Revenue proposal*, January 2016, p. 104.

Consistent with recent determinations, we have left insurance and self-insurance in Powerlink's reported opex for the base year and applied a base-step-trend approach.

We make our assessment about total forecast opex and not about particular categories or projects in the opex forecast. Expenditure for some categories will be higher relative to the base year while other categories will be lower relative to the base year. We expect these variations to offset each other so that total opex is relatively stable over time.

Using a category specific forecasting method may produce a more accurate forecast of a particular opex category in isolation. However, information asymmetries make it difficult for us to identify all offsetting costs. The network businesses have an incentive to identify cost categories that are forecast to be higher than the base year. Powerlink's proposal to include separate cost categories for insurance and self-insurance potentially creates a bias in the forecast.

We consider our 'top-down model' produces a total opex forecast that meets the requirements of the National electricity rules (NER) and, moreover, is in the long term interests of consumers. It allows us to leave the day-to-day decisions to the businesses and is consistent with an economic, incentive-based regulatory framework.

A more detailed explanation of our forecasting approach and why we do not include a category specific forecast for self-insurance can be found in our recent determination for AusNet Services Distribution.<sup>53</sup>

#### **7.4.4 Safety and reliability**

Under the NER, we must assess the amount of forecast opex that is required to achieve the opex objectives, which include quality, reliability, security and safety considerations. We have considered whether there are safety and reliability risks if Powerlink cannot achieve the proposed opex productivity gains.

We consider that our draft decision to accept Powerlink's proposal appropriately accounts for safety and reliability obligations because:

- Powerlink was able to meet its safety and reliability obligations in the previous regulatory period, including in 2013-14 when Powerlink's opex was at levels similar to what it forecast for the 2017–22 period (see figure 7.1).
- our draft decision sets the revenue Powerlink can recover from consumers, but it does not direct or constrain the quantum or allocation of the business' spending<sup>54</sup>

---

<sup>53</sup> AER, *Final decision, AusNet Services distribution determination 2016 to 2020, Attachment 7 – Operating expenditure*, May 2016, pp. 7-94 to 7-98.

<sup>54</sup> Network businesses have the flexibility (and indeed the responsibility) to reallocate funds and resources during the regulatory period in response to changing circumstances, events and risks. The revenue allowance determined by the AER does not set a business' actual operating budget. The businesses are not constrained to current plans and processes or by the assumptions and forecasts in either their proposals or the determinations we make. This may require a departure from a 'business-as-usual approach'.

- the enforcement of safety regulations is not determined by the quantum of regulatory revenue
- the Service Target Performance Incentive, which applies to Powerlink, balances the business' incentive to reduce expenditure with the need to maintain or improve service quality—it achieves this by providing financial incentives to maintain and improve service performance where customers are willing to pay for these improvements
- Powerlink must comply with jurisdictional reliability and safety standards—it is subject to regulatory obligations as the holder of a Transmission Authority under the Electricity Act 1994 (Qld) and as a registered TNSP in the NEM
- Powerlink stated its compliance with these regulatory obligations and requirements is a key component of its Asset management framework.<sup>55</sup>

If Powerlink cannot achieve the proposed opex productivity gains, it may incur costs above what we consider are efficient levels—as identified by Powerlink itself. We have considered the supporting information Powerlink has put forward and we accept Powerlink's judgement that it will be able to meet its forecast productivity improvements.

#### 7.4.5 Interrelationships

In assessing Powerlink's total forecast opex we took into account other components of its revenue proposal, including:

- the operation of the EBSS in the 2012–17 regulatory control period, which provided Powerlink an incentive to reduce opex in the 2014–15 base year
- the impact of cost drivers that affect both forecast opex and forecast capex—for example, forecast maximum demand affects forecast augmentation capex and forecast output growth used in estimating the rate of change in opex
- the approach to assessing the rate of return, to ensure there is consistency between our determination of debt raising costs and the rate of return building block
- the outcomes of Powerlink's consumer engagement in developing its revenue proposal.

#### 7.4.6 Summary of submissions on Powerlink's opex proposal

Table 7.3 provides a summary of stakeholder submissions on Powerlink's opex proposal and our response.

---

<sup>55</sup> Powerlink, *Revenue proposal*, January 2016, p. 61.



**Table 7.3 Submissions on Powerlink's opex proposal and our response**

| Stakeholder | Issue   | Our response   |
|-------------|---|--|
| CCP members | <p>Base opex is inefficient, therefore, the AER cannot use revealed costs to forecast efficient opex:<sup>56</sup></p> <ul style="list-style-type: none"> <li>Benchmarking reveals Powerlink is inefficient. Partial Performance Indicators (PPIs) identify material inefficiencies.</li> <li>Various studies have demonstrated material inefficiencies in Powerlink's opex.</li> </ul>   | <p>Our benchmarking results indicate Powerlink has not been operating as efficiently as other transmission businesses in the NEM.</p> <p>Powerlink itself acknowledges it has scope to be more efficient and has included a number of efficiency measures in its proposal that essentially reduce its base opex by 14 per cent.<sup>57</sup></p> <p>We have applied an efficiency adjustment to Powerlink's revealed opex of around –12.2 per cent.</p> <p>We note that although PPIs provide some useful information, they do not provide a comprehensive basis for assessing the overall efficiency of a network business' opex spend, as stated in our benchmarking reports. Further, the CCP members' submission is selective in its use of PPIs. It highlights Powerlink performs poorly on the following PPIs based on our 2014 electricity transmission benchmarking report: 'Asset cost per total entry/exit point voltage', 'Opex per MVA of downstream transmission capacity' and 'Opex per total entry/exit point voltage'. However, it fails to acknowledge other PPIs that Powerlink performs well on—namely, 'opex per circuit km' and 'opex per MW of maximum demand'. The PPI 'Asset cost per total entry/exit point voltage' does not include opex.<sup>58</sup> Finally, it is unclear why the CCP members' submission does not rely on the 2015 electricity transmission benchmarking report.</p> |
| CCP members | <p>The AER should apply benchmarking to determine efficient base opex:<sup>59</sup></p> <ul style="list-style-type: none"> <li>The AER has not justified its reasons for not applying benchmarking to the determination of efficient base year opex costs for the transmission networks.</li> <li>The AER has comprehensive opex benchmarking information.</li> <li>The AER should examine past benchmarking studies undertaken by the transmission businesses and</li> </ul> | <p>Our economic benchmarking of electricity transmission is not sufficiently robust to support an alternative forecast of base opex at this stage of its development, as discussed in section 7.4.1.</p> <p>That said, we do not accept Powerlink's historical ('revealed') costs and have incorporated an efficiency adjustment to base opex of 12.2 per cent.</p> <p>We do not see the benefit of examining previous Australian benchmarking studies that rely on outdated and possibly less robust information. The benefit of examining international studies cited by the CCP members' submission is also unclear. For example, the International Transmission Operations and Maintenance Study (ITOMS) focuses on PPIs and does not assess overall opex efficiency.</p>  |

<sup>56</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 65.

<sup>57</sup> The efficiency measures include: removal of non-recurrent opex from the base year, a one-off efficiency cut to the base year, productivity growth of 1.2 per cent, absorbing potential costs incurred due to increased regulatory obligations and foregone EBSS carryover reward. The latter is discussed in Attachment 9.

<sup>58</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

<sup>59</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 67–68.



| Stakeholder | Issue  | Our response   |
|-------------|--|--|
|             | internationally.   |  |
| CCP members | <p>The AER should make an ex post adjustment to Powerlink's opex base to account for 'extremely expensive' international benchmarking studies that Powerlink relied on in previous revenue proposals.<sup>60</sup></p> <ul style="list-style-type: none"> <li>Although Powerlink provides evidence now to suggest we cannot rely on benchmarking, in previous regulatory periods Powerlink has claimed its benchmarking studies demonstrated the business is operating efficiently.</li> <li>This apparent contradiction implies Powerlink's previous benchmarking studies constitute 'wasteful expenditure'.</li> </ul> | Under the NER, regulated energy network businesses are generally subject to an ex ante determination of revenues.  |
| CCP members | Given the contraction in the electricity network sector, labour prices should be falling rather than increasing. Current labour costs are excessive. <sup>61</sup>   | We have used the labour price forecasts provided by expert consultants, Deloitte Access Economics, one of Australia's most recognised economics advisory practices. Deloitte's labour price forecasts are based on its view of general macroeconomics trends for the utilities industry and the overall Australian economy. <sup>62</sup>  |
| CCP members | Powerlink's proposed productivity growth of 1.2 per cent is not high enough compared to levels being achieved by other capital intensive industries. <sup>63</sup>   | <p>Because some capital intensive industries have achieved good productivity growth does not necessarily mean that similar productivity growth can be achieved by the transmission businesses. In particular, declining throughput and peak demand levels in recent years limit the extent of relative productivity growth likely to be achievable in transmission networks. Consequently, output growth contributes less to growth in productivity measures than will be the case for industries subject to ongoing growth in demand for their outputs. That is, productivity growth in the transmission sector is unlikely to match that of industries with continually growing outputs because of the different demand conditions transmission currently faces.<sup>64</sup></p> <p>Powerlink's proposed productivity growth is higher than the industry average opex productivity growth rates of 0.9 per cent and 0.2 per cent used in the recent TransGrid and</p> |

<sup>60</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 73.

<sup>61</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, pp. 69-70.

<sup>62</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

<sup>63</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 73.

<sup>64</sup> Economic Insights, *Review of submissions on Powerlink's base year opex*, 14 July 2016.

| Stakeholder                  | Issue   | Our response   |
|------------------------------|---|--|
|                              |   | AusNet determinations.   |
| CCP members                  | The AER should include opex savings made as a result of large capex programs over previous periods. <sup>65</sup>   | We have included an efficiency adjustment to Powerlink's revealed costs. This adjustment reflects a range of efficiency gains, including savings driven by previous capex projects.  |
| University of Queensland     | Further regulatory cuts to Powerlink's proposed opex may increase long term costs to customers. <sup>66</sup>   | Powerlink's historical performance has been reliable. It is subject to a suite of incentives, such as the Service target performance incentive scheme (STPIS), <sup>67</sup> to ensure it maintains a reliable network. It is also obliged to comply with stringent legislation regarding safety.<br><br>As part of our benchmark assessment, we examine safety and reliability metrics for all service providers. The metrics demonstrate that the comparator providers have managed to safely and reliably meet the requirements to provide standard control services in the relevant period. We consider that the benchmark opex amounts will not undercompensate for safety and reliability. |
| Queensland Resources Council | The low reduction in opex compared to capex and allowable revenue may represent an inefficient inflexibility in Powerlink's opex. <sup>68</sup>   | Benchmarking indicates Powerlink has not been performing as efficiently as other transmission businesses in the NEM. Powerlink also acknowledges that it can be more efficient. It has proposed a material efficiency adjustment to its own opex forecast and strong productivity growth.  |
| Cotton Australia             | We should implement a benchmarking approach transmission networks for the next regulatory period, and investigate issues of labour costs and the effectiveness of efficiency incentive schemes. <sup>69</sup> | We agree with Cotton Australia regarding the value of benchmarking as an assessment tool. However, further work needs to be done to advance our understanding of how we specify outputs for transmission networks and how we account for the different environmental factors each transmission network service provider operates under, as discussed in section 7.4.1 above.   |

## 7.4.7 Assessment of opex factors under the Rules

In deciding whether or not we are satisfied a service provider's forecast reasonably reflects the 'opex criteria' under the NER, we have regard to the 'opex factors'.<sup>70</sup>

We attach different weight to different factors when making our decision to best achieve the NEO. This approach has been summarised by the AEMC as follows:<sup>71</sup>

<sup>65</sup> CCP (Hugh Grant and David Headberry), *Submission to the AER, Powerlink Queensland 2018–22 revenue proposal*, 20 June 2016, p. 60.

<sup>66</sup> University of Queensland, *Submission to the Australian Energy Regulator on Powerlink Queensland's Revenue Application from the University of Queensland*, 28 April 2016, p. 8.

<sup>67</sup> AER, *Service target performance incentive scheme for TNSPs, version 5*, 17 September 2015.

<sup>68</sup> Queensland Resources Council, *Submission to the AER on Powerlink's Revenue Determination 2017 to 2022*, 29 April 2016, p. 2.

<sup>69</sup> Cotton Australia, *Letter to AER re. Powerlink Electricity transmission revenue proposal 2017–2022*, 2 May 2016, p. 3.

<sup>70</sup> NER, cl. 6A.6.6(e).

<sup>71</sup> AEMC, *Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, 29 November 2012, p. 113.

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

Table 7.4 summarises how we have taken the opex factors into account in making our draft decision.

**Table 7.4 Our consideration of the opex factors**

| Opex factor   | Consideration   |
|---|---|
| <p>The most recent annual benchmarking report that has been published under clause 6A.31 and the benchmark opex that would be incurred by an efficient Transmission Network Service Provider over the relevant regulatory control period.</p> | <p>We have considered the results of our most recent annual distribution benchmarking report in estimating Powerlink's efficient base opex (section 7.4.1). Our benchmarking results suggest Powerlink has been operating at relatively lower levels of productivity when compared to other transmission businesses in the NEM.<sup>72</sup></p> <p>We have used economic benchmarking, opex cost function modelling and expert forecasting information to estimate the benchmark opex that would be incurred by an efficient provider over the forecast period. Based on this, we have formed a view on the efficiency of Powerlink's proposed total forecast opex compared to the benchmark efficient opex that would be incurred over the relevant regulatory control period. We have found Powerlink's forecast opex to be lower than our independent estimate. We have assessed the reasons for this difference to be reasonable.</p>      |
| <p>The actual and expected opex of the Transmission Network Service Provider during any preceding regulatory control periods.</p>   | <p>We have forecast Powerlink's efficient opex over 2017–22 using its actual opex in 2014-15 as the starting point. We have compared several years of Powerlink's actual past opex with that of other service providers to form a view about whether or not its revealed expenditure is sufficiently efficient to rely on it as the basis for forecasting required opex in the forthcoming period.</p> <p>We have taken into account a lower than expected increase in Powerlink's opex in the last year of the preceding regulatory control period (2016-17) than we allowed in our last regulatory decision in forecasting efficient opex over 2017–22.</p>   |
| <p>The extent to which the opex forecast includes expenditure to address the concerns of electricity consumers as identified by the Transmission Network Service Provider in the course of its engagement with electricity consumers.</p>     | <p>We understand the intention of this particular factor is to require us to have regard to the extent to which service providers have engaged with consumers in preparing their revenue proposals, such that they factor in the needs of consumers.<sup>73</sup></p> <p>We consider Powerlink's opex forecast includes expenditure to address concerns of electricity consumers identified by Powerlink in the course of its engagement with electricity consumers. Powerlink stated its forecast productivity gains, which we have accepted, are based on a detailed 'line-by-line' assessment of the potential efficiencies across its opex program (section 7.1, section 7.4.3). This approach it says is consistent with feedback from consumers that Powerlink should undertake a "deep dive" to identify operational efficiencies and reflects the impact of Powerlink's ongoing focus on achieving efficiencies and cost reduction.</p> |
| <p>The relative prices of capital and</p>   | <p>We have had regard to multilateral total factor productivity benchmarking</p>  |

<sup>72</sup> AER, Annual Benchmarking Report, *Electricity transmission network service providers*, November 2015.

<sup>73</sup> AEMC, *Rule Determination*, 29 November 2012, pp. 101, 115.

| Opex factor  | Consideration   |
|--|---|
| operating inputs.  | <p>when deciding whether or not Powerlink's forecast opex reflects the opex criteria - rather than looking at opex productivity in isolation. Our multilateral total factor productivity analysis considers the overall efficiency of networks in the use of both capital and operating inputs.</p> <p>We adopted price escalation factors that account for the relative prices of opex and capex inputs.</p> <p>One reason we will include a step change in our alternative opex forecast is if the service provider proposes a capex/opex trade-off. We consider the relative expense of capex and opex solutions in considering such a trade-off. Powerlink did not propose any step changes.</p> <p>The efficiency incentive schemes that we have applied to Powerlink recognise the substitution possibilities between opex and capex. These schemes set the incentives to reduce opex and capex equal so that there is an incentive to undertake efficient capex/opex trade-offs.</p> <p>In developing our benchmarking models, we have had regard to the relationship between capital, opex and outputs. We have used our benchmarking to assess whether Powerlink's base opex is efficient (section 7.4.1).<sup>74</sup></p> <p>We also had regard to multilateral total factor productivity benchmarking when deciding whether or not Powerlink's forecast opex reflects the opex criteria - rather than looking at opex productivity benchmarking results in isolation. Our multilateral total factor productivity analysis considers the overall efficiency of networks in the use of both capital and operating inputs. We have considered how different capitalisation policies of the service providers may affect opex performance under benchmarking.<sup>75</sup></p> <p>As noted above, we consider substitution possibilities between opex and capex in considering step changes proposed as opex/capex trade-offs. Powerlink did not propose any step changes as capex/opex trade-offs.</p> |
| The substitution possibilities between operating and capital expenditure.  | <p>The incentive scheme that we applied to Powerlink's opex in the 2012–17 regulatory control period, the EBSS, is intended to work in conjunction with our revealed cost forecasting approach.</p> <p>We have applied our estimate of base opex consistently in applying the EBSS and forecasting Powerlink's opex for the 2017–22 regulatory control period.</p> <p>We removed Powerlink's non-recurrent costs from its opex forecast and made a corresponding adjustment to Powerlink's EBSS carryover amount. Attachment 9 of this draft decision explains this issue in more detail.</p>   |
| Whether the opex forecast is consistent with any incentive scheme or schemes that apply to the Transmission Network Service Provider under clauses 6A.6.5, 6A.7.4 or 6A.7.5.                     | <p>We have assessed Powerlink's total opex efficiency in deciding whether or not to accept Powerlink's opex forecast. Given this, we are not necessarily concerned whether arrangements between Powerlink and another person do or do not reflect arm's length terms. A service provider which uses related party providers can be efficient or it can be inefficient. Likewise, for a service provider who does not use related party providers. If a service provider is inefficient, we adjust their total forecast opex</p>   |
| The extent the opex forecast is referable to arrangements with a person other than the Transmission Network Service Provider that, in the opinion of the AER, do not reflect arm's length terms. |   |

<sup>74</sup> AER, Annual Benchmarking Report, *Electricity transmission network service providers*, November 2015.

<sup>75</sup> AER, Annual Benchmarking Report, *Electricity transmission network service providers*, November 2015.

| Opex factor   | Consideration  |
|---|--|
|   | <p>proposal, regardless of their arrangements with related providers.</p> <p>Powerlink did however confirm that no part of Powerlink's forecast opex is referable to related parties.<sup>76</sup></p>                         |
| <p>Whether the opex forecast includes an amount relating to a project that should more appropriately be included as a contingent project under clause 6A.8.1(b).</p>  | <p>This factor is only relevant in the context of assessing proposed step changes (which may be explicit projects or programs). Powerlink did not propose any opex step changes.</p>   |
| <p>The most recent NTNDP and any submissions made by AEMO, in accordance with the Rules, on the forecast of the Transmission Network Service Provider's required opex.</p>  | <p>We have considered AEMO's most recent NTNDP<sup>77</sup> and do not consider Powerlink's forecast opex to be inconsistent with this. AEMO did not make any submissions to the AER on Powerlink's forecast opex.</p>         |
| <p>The extent to which the Transmission Network Service Provider has considered and made provision for efficient and prudent non-network alternatives.</p>  | <p>Powerlink has proposed no expenditure for non-network alternatives for the 2017–22 regulatory period.</p>   |
| <p>Any relevant project assessment conclusions report required under 5.16.4.</p>  | <p>In having regard to this factor, we identify any RIT-T project submitted by the business and ensure the conclusions are appropriately addressed in the total forecast opex. Powerlink did not submit any RIT-T project.</p> |
| <p>Any other factor the AER considers relevant and which the AER has notified the Transmission Network Service Provider in writing, prior to the submission of its revised Revenue Proposal under clause 6A.12.3, is an operating expenditure factor.</p> | <p>We did not identify and notify Powerlink of any other opex factor.</p>  |

Source: AER analysis.

<sup>76</sup> Powerlink, *2018-22 Powerlink Queensland Revenue Proposal, Appendix 5.01—Powerlink Queensland Operating and Capital Expenditure Criteria and Factors*.

<sup>77</sup> AEMO, *National Transmission Network Development Plan for the national electricity market*, November 2015.