



**FINAL DECISION**  
**Directlink transmission**  
**determination**  
**2015–16 to 2019–20**

**Attachment 6 – Capital**  
**expenditure**

April 2015

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## Note

This attachment forms part of the AER's final decision on Directlink's revenue proposal 2015–20. It should be read with other parts of the final decision.

The final 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 and negotiated services

Attachment 13 – pass through events

# Contents

<b>Note</b> .....	<b>6-2</b>
<b>Contents</b> .....	<b>6-3</b>
<b>Shortened forms</b> .....	<b>6-4</b>
<b>6 Capital expenditure</b> .....	<b>6-6</b>
<b>6.1 Final decision</b> .....	<b>6-6</b>
<b>6.2 Directlink’s revised proposal</b> .....	<b>6-7</b>
<b>6.3 AER’s assessment approach</b> .....	<b>6-9</b>
6.3.1 The Expenditure Forecast Assessment Guideline .....	6-11
6.3.2 Building an alternative estimate of total forecast capex .....	6-11
6.3.3 Comparing the service provider's proposal with our estimate ....	6-13
6.3.4 Interrelationships.....	6-14
<b>6.4 Reasons for final decision</b> .....	<b>6-14</b>
6.4.1 Assessment of revised proposed capital expenditure .....	6-15
6.4.2 Real price escalators.....	6-19
6.4.3 Consideration of the capex factors .....	6-19
6.4.4 Conclusion .....	6-21

## 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
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

Shortened form	Extended form
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
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

## 6 Capital expenditure

The National Electricity Rules (NER) require Directlink to include a forecast of total capital expenditure (capex) in its revenue proposal for the 2015–20 regulatory control period.<sup>1</sup> The return on and of capex are components of the building block revenue requirement.<sup>2</sup>

We generally categorise capex as either network or non-network capex. Network capex includes:

- growth driven capex, including for augmentation and new connections
- non-load driven capex, including replacement and refurbishment capex.

Non-network capex covers expenditure in areas other than the network and includes business information technology (IT) and buildings/facilities.

This attachment sets out our final decision on Directlink's revised proposal on total forecast capex.

### 6.1 Final decision

Our final decision is to not accept Directlink's proposed total forecast capex of \$37.06 million (\$ real 2014-15) for the 2015-20 regulatory control period because we are not satisfied that it reasonably reflects the capex criteria. Our estimate of the total forecast capex that reasonably reflects the capex criteria is \$26.86 million, a reduction of 27.5 per cent. Table 6-1 outlines our draft decision.

**Table 6-1 AER final decision on Directlink's total capex (\$ million 2014 -15)**

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Directlink's revised proposal	10.14	3.71	3.55	4.33	15.33	37.06
AER final decision	7.0	1.6	1.9	2.7	13.7	26.86
Difference (\$million)	3.18	2.11	1.65	1.63	1.63	10.20
Difference (per cent)	30.1	56.9	46.5	37.6	10.6	27.52

Source: Directlink, Revised revenue proposal; Directlink responses to AER Information Requests; AER analysis.

Note: Numbers may not add to total due to rounding.

<sup>1</sup> NER, cl. 6A.6.7(a).

<sup>2</sup> NER, cl. 6A.5.4(a).

Our testing of Directlink's revised proposal used techniques tailored to its circumstances and the nature of the expenditure, and taking into account the best available evidence. The outcomes of our assessment revealed that inclusion of some of Directlink's proposed projects, or sets of projects, in its total forecast capex was consistent with the NER requirements in that the forecast expenditure associated with these projects reasonably reflected the costs that a prudent and efficient service provider—with a realistic expectation of demand and cost inputs—would require to achieve the capex objectives. We found that this was not so for other aspects of Directlink's proposal. A key difference is that our substitute estimate does not include Directlink's proposed forecast expenditure for its capex cable replacement program of \$8.37 million (\$2014-15). This expenditure is instead considered as part of our opex assessment.

Our final decision concerns Directlink's total forecast capex. We are not approving an amount of forecast expenditure for particular projects. Our assessment of the expenditure associated with particular projects is a means by which to test Directlink's overall proposed forecast capex. However, we do use our findings on the proposed expenditure for different projects in order to arrive at a substitute estimate for total capex because as a total, this amount has been tested against the NER requirements. This estimate represents what we are satisfied is total forecast capex that as a whole reasonably reflects all aspects of the capex criteria.

## 6.2 Directlink's revised proposal

Directlink's revised proposed forecast capex of \$37.06 million (\$ real 2014-15) for the 2015-20 regulatory control period is \$1.87 million (\$ real 2014-15), or 5.3 per cent, higher than the forecast capex in its initial proposal.<sup>3</sup> It is \$21.7 million, or 141 per cent, higher than the actual/estimated capex over the previous 10 year 2005-15 regulatory control period.<sup>4</sup>

Directlink identified three broad categories in which its revised proposal addressed the AER's draft decision on Directlink's forecast capital expenditure:<sup>5</sup>

- projects subject to cost confirmation (fire suppression system, phase reactor cooling revisions (Gotland solution) and zero sequence phase reactor repairs)
- projects subject to scope confirmation (cable replacement program, cable joint sourcing program and roof repair program), and
- routine capex that did not warrant specific business cases (“Other” projects)

Details of these projects are described in Table 6-2 below.

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<sup>3</sup> Directlink, *Revenue proposal*, p. 55.

<sup>4</sup> Directlink, *Revenue proposal, Regulatory Information Notice, 2.2 Capex*.

<sup>5</sup> Directlink, *Revenue proposal*, p. 55.



**Table 6-2 Directlink's revised proposed capex projects**

Details		Directlink proposed capex for the 2015-20 regulatory period (\$ million real 2014-15)
<i>Projects subject to cost confirmation</i>		
Fire suppression system	Directlink's May 2014 revenue proposal estimate was based on indicative estimates which have been revised based on a tender process subsequently undertaken by Directlink. Directlink also decided to advance the timing of the project to commence in 2015. <sup>6</sup>	\$5.496
Phase reactor cooling revisions (Gotland solution)	At the time of lodging its revenue proposal in May 2014, Directlink was still negotiating the final costs of the project. These negotiations have been completed and the cost has been appropriated between the pilot, which has been included in historical capex, and the rollout which is scheduled to occur in 2016. <sup>7</sup>	\$2.822
Zero sequence reactor repair	<p>Directlink submitted that it is prudent and efficient to source the spare reactor from the original manufacturer because:</p> <p style="padding-left: 40px;">Directlink's experience with the reconstruction of the Mullumbimby converter station indicates that there are significant risks associated with sourcing key components from manufacturers other than the original equipment manufacturer, and</p> <p style="padding-left: 40px;">as the unit may remain in storage for a significant period of time before it is deployed, it is critical to ensure that the manufacturer remains in business and available to address any concerns. Directlink consider that it is not prudent to rely on an aftermarket supplier whose availability may be in question in years to come.</p> <p>Directlink also considers that the draft decision did not provide any reference information to allow Directlink to test the reasonableness of the AER's assessed costs of the reactor.<sup>8</sup></p>	\$1.498
<i>Projects subject to scope confirmation</i>		
Cable replacement program	Directlink submitted that its cable replacement program is designed to undertake targeted replacements of cable in known trouble spots, in addition to the longer cable lengths replaced in response to faults under the current trial program. As the program continues, Directlink expect it will see a lower proportion of reactive cable replacements and a higher proportion of proactive cable replacements. The total capital expenditure cost of the (reactive and proactive) cable replacement program is the sum of the cost of the cable, the cable joints, and the costs of planning	\$8.370

<sup>6</sup> Directlink, *Revised revenue proposal*, pp. 16-17.

<sup>7</sup> Directlink, *Revised revenue proposal*, p. 17.

<sup>8</sup> Directlink, *Revised revenue proposal*, pp. 17-18.

	Details	Directlink proposed capex for the 2015-20 regulatory period (\$ million real 2014-15)
	and coordinating the program, as well as installing the replacement cable. <sup>9</sup>	
Converter station roof restoration program	Directlink accepted the draft decisions conclusion that the restoration work could be completed as a single project rather than an annual roof repair program as originally proposed. Directlink provided two quotes for repairs to the roofing of the converter stations. <sup>10</sup>	\$0.287
Other projects	Directlink provided details of its routine "Stay in Business" capex projects that do not warrant individual discussion or business cases. <sup>11</sup>	\$1.577

Source: Directlink Revised revenue proposal.

### 6.3 AER's assessment approach

This section outlines our approach to capex assessments. It sets out the relevant legislative and rule requirements, outlines our assessment techniques, and explains how we build an alternative estimate of total forecast capex against which we compare that proposed by the service provider.

We will accept Directlink's proposed total forecast capex if we are satisfied that it reasonably reflects the capex criteria.<sup>12</sup> If we are not satisfied, we replace it with our estimate of a total forecast capex that we are satisfied reasonably reflects the capex criteria.<sup>13</sup> The capex criteria are:

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

The Australian Energy Market Commission (AEMC) noted that '[t]hese criteria broadly reflect the NEO [National Electricity Objective]'.<sup>14</sup> The capex objectives referred to in the capex criteria, are to:<sup>15</sup>

<sup>9</sup> Directlink, *Revised revenue proposal*, pp. 18-26.

<sup>10</sup> Directlink, *Revised revenue proposal*, pp. 26-27.

<sup>11</sup> Directlink, *Revised revenue proposal*, pp. 27-28.

<sup>12</sup> NER, cl. 6A.6.7(c).

<sup>13</sup> NER, cll. 6A.6.7(d) and 6A.14.1(2)(ii).

<sup>14</sup> AEMC Final Rule Determination: National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, 29 November 2012, p. 113 (AEMC Economic Regulation Final Rule Determination).

<sup>15</sup> NER, cl. 6A.6.7(a).

1. meet or manage the expected demand for prescribed transmission services over the period
2. comply with all regulatory obligations or requirements associated with the provision of prescribed transmission services
3. to the extent that there are no such obligations or requirements, maintain service quality, reliability and security of supply of prescribed transmission services and maintain the reliability and security of the transmission system
4. maintain the safety of the transmission system through the supply of prescribed transmission services.

Importantly, our assessment is about the total forecast capex and not about particular categories or projects in the capex forecast. The AEMC has expressed our role in these terms:<sup>16</sup>

It should be noted here that what the AER approves in this context is expenditure allowances, not projects.

In deciding whether we are satisfied if Directlink's proposed total forecast capex reasonably reflects the capex criteria, we have regard to the capex factors.

The capex factors are:<sup>17</sup>

1. the AER's most recent annual benchmarking report and benchmarking capex that would be incurred by an efficient TNSP over the relevant regulatory control period
2. the actual and expected capex of the TNSP during the preceding regulatory control periods
3. the extent to which the capex forecast includes expenditure to address the concerns of electricity consumers as identified by the TNSP in the course of its engagement with electricity consumers
4. the relative prices of operating and capital inputs
5. the substitution possibilities between operating and capital expenditure
6. whether the capex forecast is consistent with any incentive scheme or schemes that apply to the TNSP
7. the extent to which the capex forecast is referable to arrangements with a person other than the TNSP that, in the opinion of the AER, do not reflect arm's length terms
8. whether the capex forecast includes an amount relating to a project that should more appropriately be included as a contingent project

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<sup>16</sup> AEMC Economic Regulation Final Rule Determination, p. vii.

<sup>17</sup> NER, cl. 6A.6.7(e).

9. the most recent National Transmission Network Development Plan (NTNDP) and any submissions made by AEMO on the forecast of the TNSP's required capex
10. the extent to which the TNSP has considered, and made provision for, efficient and prudent non-network alternatives.
11. any relevant project assessment conclusions report under clause 5.6.6 of the NER.

In addition, the AER may notify the TNSP in writing, prior to the submission of its revised revenue proposal, of any other factor it considers relevant.<sup>18</sup> We have not had regard to any additional factors in this final decision for Directlink.

In taking these factors into account, the AEMC has noted that:<sup>19</sup>

...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.

For transparency and ease of reference, we have included a summary of how we have had regard to each of the capex factors in our assessment at the end of this attachment.

More broadly, we also note that in exercising our discretion, we take into account the revenue and pricing principles which are set out in the National Electricity Law.<sup>20</sup>

### **6.3.1 The Expenditure Forecast Assessment Guideline**

Under the NER, we must make and publish an Expenditure Forecast Assessment Guideline for Electricity Transmission (Guideline). We released the Guideline in November 2013. The Guideline sets out the AER's proposed general approach to assessing capex (and opex) forecasts. The rule changes also require us to set out our approach to assessing capex in the relevant framework and approach paper. For Directlink, our framework and approach paper (published in January 2014) stated that we would apply the Guideline, including the assessment techniques outlined in it. We may depart from our Guideline approach and if we do so, need to explain why. In this determination we have not departed from the approach set out in our Guideline. However, we have not assessed Directlink's capex by specific reference to capex drivers, and have used a more limited number of techniques than we would typically use. Our reasons for our approach are set out below.

### **6.3.2 Building an alternative estimate of total forecast capex**

Our starting point is the service provider's proposal.<sup>21</sup> We then considered the service provider's performance in the previous regulatory control period to inform our

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<sup>18</sup> NER, cl. 6A.6.7(e)(14).

<sup>19</sup> AEMC Economic Regulation Final Rule Determination, p. 115.

<sup>20</sup> NEL, ss. 7A and 16(2).

alternative estimate. We also reviewed the proposed forecast methodology and the service provider's reliance on key assumptions that underlie its forecast.

We then applied our specific assessment techniques, outlined below, to develop and estimate and assess the economic justifications that the service provider put forward. The specific techniques that we have used in this draft decision include:

- trend analysis—forecasting future expenditure based on historical information,
- review of asset management practices and a technical review of each of the capex projects.

As explained in our draft decision, we did not place much reliance on Directlink's past performance. For Directlink, we have relied primarily on our technical review of its proposed projects and programs. This is because for Directlink, we consider that this is the most robust technique given the nature and small scale of its operations, and its previous regulatory allowance.<sup>22</sup>

Importantly, our review of the expenditure for particular projects and programs proposed by Directlink is not conducted for the purpose of determining at a detailed level what projects or programs of work Directlink should or should not undertake. As the AEMC notes, we do not approve projects. Directlink will have to prioritise its capex program given the prevailing circumstances at the time (such as demand and economic conditions that impact during the regulatory control period). Most likely, some projects or programs of work that were not anticipated will be required. Equally likely, some of the projects or programs of work that it has proposed for the regulatory control period will not be required. We consider that, acting prudently and efficiently, the service provider will consider the changing environment throughout the regulatory control period and make sound decisions taking into account their individual circumstances and in order to address any unanticipated issues.

We also need to take into account the various interrelationships between the total forecast capex and other components of a service provider's transmission determination. We identify these interrelationships in sections 6.3.4 and 6.4.3 below.

Underlying our approach are two general assumptions:

- Capex criteria relating to a prudent operator and efficient costs are complementary, such that prudent and efficient expenditure reflects the lowest long-term or sustainable cost to consumers for the most appropriate investment or activity required to achieve the expenditure objectives.<sup>23</sup>

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<sup>21</sup> AER Expenditure Forecast Electricity Transmission Guideline, p. 9; see also AEMC Economic Regulation Final Rule Determination, pp. 111 and 112.

<sup>22</sup> AER Expenditure Forecast Electricity Transmission Guideline, p.15

<sup>23</sup> AER Expenditure Forecast Electricity Transmission Guideline, pp. 8-9.

- Past expenditure was sufficient for Directlink to manage and operate its network in that previous period, in a manner that achieved the capex objectives.<sup>24</sup> Though for Directlink we have taken into account where relevant the operating risks arising from the impact of the Mullumbimby converter station fire in August 2012.

After applying the above approach, we arrive at our estimate of the total capex forecast.

### 6.3.3 Comparing the service provider's proposal with our estimate

Having established our estimate of the total forecast capex, we can test the service provider's proposed total forecast capex. This includes comparing our alternative estimate of forecast total capex with the service provider's forecast total. The service provider's forecast methodology and its key assumptions may explain any differences between our alternative estimate and its proposal.

As the AEMC foreshadowed, we may need to exercise our judgement in determining whether any 'margin of difference' is reasonable:<sup>25</sup>

The AER could be expected to approach the assessment of a NSP's expenditure (capex or opex) forecast by determining its own forecast of expenditure based on the material before it. Presumably this will never match exactly the amount proposed by the NSP. However there will be a certain margin of difference between the AER's forecast and that of the NSP within which the AER could say that the NSP's forecast is reasonable. What the margin is in a particular case, and therefore what the AER will accept as reasonable, is a matter for the AER exercising its regulatory judgment.

Our provision of a total capex allowance does not constrain a service provider's actual spending – either as a cap or as a requirement that the allowance be spent on specific projects or activities. It is conceivable that a service provider might wish to expend particular capital expenditure differently or in excess of the total capex forecast set out in our this decision. Our decision does not constrain it from doing so.

The regulatory framework has a number of mechanisms to deal with unanticipated expenditure needs. Importantly, where an unexpected event or events lead to an overspend of the approved capex forecast, a service provider does not bear the full cost, but rather bears 30 per cent of this cost, if the expenditure is found to be prudent and efficient. Further, for significant unexpected capex, the pass-through provisions provide a means during the regulatory control period for a service provider to pass on such expenses to customers where appropriate.

This does not mean that we have set our alternative estimate below the level where Directlink has a reasonable chance to recover its efficient costs. Rather, we note that

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<sup>24</sup> AER Expenditure Forecast Electricity Transmission Guideline, p. 9.

<sup>25</sup> AEMC Economic Regulation Final Rule Determination, p. 112.

the regulatory framework allows for Directlink to respond to any unanticipated issues that arise during the regulatory control period that were not proposed as part of this determination. In this way, Directlink has significant flexibility to allow it to meet its obligations. Conversely, if we overestimate the amount of capex required, the stronger incentives put in place by the AEMC in 2012 should lead to a business spending only what is efficient, with the benefits of the underspend being shared between businesses and customers.

### 6.3.4 Interrelationships

Directlink's revised revenue proposal included an amount of \$8.37 million (\$2014-15) for its proposed cable replacement program.<sup>26</sup> We have classified the proposed cable repair program as operating expenditure as Directlink has not identified any future economic benefits associated with the cable replacement program. This is consistent with industry practice, where repairs are classified as operating expenditure.<sup>27</sup> Consequently, Directlink's proposed cable replacement program expenditure is discussed under the opex attachment of this final decision (Attachment 7).

Directlink's network service is subject to a Service Target Performance Incentive Scheme (STPIS). On the basis of significantly increased capex and anticipated increased reliability as a consequence of the impact of the Mullumbimby converter station fire, Directlink's STPIS performance targets will require recalibration.<sup>28</sup> The anticipated improvement in reliability has resulted in stricter performance targets. Details of the recalibrated STPIS targets are discussed in Attachment 11 of this decision.

## 6.4 Reasons for final decision

We are not satisfied that Directlink's revised total forecast capex reasonably reflects the capex criteria. We compared Directlink's proposed total capex forecast to our alternative capex forecast constructed using certain techniques as outlined above. For the reasons set out below, we consider that our substitute estimate reasonably reflects the capex criteria.

The key areas of difference between our alternative estimate of total capex and Directlink's proposed forecast total capex are that the AER's alternative estimate reflects:

1. the transfer of Directlink's proposed capex cable replacement program of \$8.37 million (\$2014-15) for review as operating expenditure

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<sup>26</sup> Directlink, *Revised revenue proposal*, pp. 18-26.

<sup>27</sup> The Australian Accounting Standard for Property, Plant and Equipment (AASB 116) requires that the cost of an item of property, plant and equipment is recognised as an asset if, and only if, it is probably that future economic benefits associated with the item will flow to the entity.

<sup>28</sup> NER, cl. 6A.6.7(8).

2. a reduction of \$1.25 million (\$2014-15) to Directlink's proposed fire suppression system on the basis of adjustments to proposed contingencies, project management and supervision costs and labour hour estimates
3. a reduction of \$0.40 million (\$2014-15) to Directlink's proposed phase reactor cooling system upgrade on the basis of adjustments to proposed contingencies, labour hour estimates, design outsourcing costs and adjustments for economies of scale in sundry materials costs, and
4. a reduction of \$0.18 million (\$2014-15) to Directlink's proposed converter station roof repair based on a lower suitable quote for the proposed work.

We have accepted all other capex proposed by Directlink for the following projects:

- industrial computers control system upgrade
- zero sequence reactor repair
- Bungalora safety hand rails
- IGBTs sourcing program
- optic fibre cables and connectors
- cooling tower sound enclosure remediation
- security fence upgrade
- building safety upgrade
- converter buildings ventilation sound dampers corrosion repair, and
- other stay in business capex.

Our reasons for finding that this expenditure reasonably reflects the capex criteria are set out in our draft decision.<sup>29</sup>

### 6.4.1 Assessment of revised proposed capital expenditure

Based on our review of Directlink's asset management practices and a technical review of each of the capex projects proposed by Directlink in its revised revenue proposal, we consider that total forecast capex of \$26.86 million (\$2014-2015) for Directlink in the 2015-20 regulatory control period reasonably reflects the capex criteria. This is a reduction of \$10.2 million, or 28 per cent, from Directlink's revised capex forecast of \$37.06 million. Our approved total capex forecast is \$1.23 million (\$2014-15). This is 4.8 per cent more than our draft decision, and \$8.33 million (\$2014-15), or 24 per cent, less than Directlink's initial proposal. Total forecast capex of \$26.86 million provides Directlink with a reasonable opportunity to recover at least the efficient costs it incurs in providing direct control network services.<sup>30</sup> Our alternative estimate of

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<sup>29</sup> AER, *Draft decision - Directlink transmission determination 2015-16 to 2019-20, Attachment 6: Capital expenditure*, November 2014, pp. 6-20 to 6-21

<sup>30</sup> NEL, s. 7A(2).



the total forecast capex required reflects the following adjustments to Directlink's revised proposed capex:

## Cable replacement program

We have transferred Directlink's proposed capex cable replacement program of \$8.37 million (\$2014-15) for review as operating expenditure. We are classifying the proposed cable repair program as opex as Directlink has not identified any future economic benefits associated with the cable replacement program. This is consistent with industry practice, where repairs are classified as opex.

## Fire suppression system

We have made a reduction of \$1.25 million (\$2014-15) to Directlink's proposed fire suppression system capex of \$5.496 million (\$2014-15) on the basis of adjustments to proposed contingencies, project management and supervision costs, and labour hour estimates.

Directlink has applied an unspecified contingency of 15 per cent to the fire suppression systems overall, including to a number of fixed and controllable costs such as Asset Fire and Security Cost, legal fees and PSC consultancy contract costs.<sup>31</sup> Directlink stated that contingencies are included to ".....accommodate unknowns in the construction process, particularly in brownfield sites such as this."<sup>32</sup> Directlink also stated that the contingency amount is not intended to apply to a particular event and has only been included in larger projects.<sup>33</sup> However, in our view, unspecified contingencies included in project cost estimates to accommodate cost variances of the type proposed by Directlink, when added together in a total portfolio of projects, will overestimate the actual cost variance at the portfolio level as some projects will have cost overruns while others will have cost underruns. As a result, we consider that project contingencies for general cost overruns would not reasonably reflect the efficient costs of a prudent service provider. We have therefore not included Directlink's proposed contingency in our cost estimate for this project.

Directlink has proposed project management and supervision costs representing about 30 per cent of the projects total installation costs.<sup>34</sup> We reviewed the proposed project management and supervision costs for this project and consider that, notwithstanding the complex nature of this project on a brownfield site, it would not reasonably reflect efficient costs if project management and supervision costs exceeded around 15 per cent of the project cost. We consider typical ranges for these costs should be between about 7 to 18 per cent.<sup>35</sup> We consider that while project management and supervision costs on large projects tend to be nearer the lower end of this range, small to medium

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<sup>31</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

<sup>32</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 20 February 2015.

<sup>33</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 20 February 2015.

<sup>34</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

<sup>35</sup> See for example, *Rawlinsons Australian Construction Handbook 2011*, Edition 29 2011, p. 827.

sized projects, particularly where they are complex, tend towards the higher end of this range. We consider that it is more likely that a reasonable estimate of the project management and supervision costs should be 15 per cent of the total installation cost for the fire suppression systems project.

We also noted what we consider to be an error in the labour hour assumptions for the Operations Representative. We consider that an assumption of a 70 hour week for this classification of worker to be excessive and have reduced the labour hour estimates for the Operations Representative to 38 hours as used elsewhere in the labour hour estimates for this project.

## **Phase reactor cooling system upgrade ("Gotland solution")**

We have made a reduction of \$0.40 million (\$2014-15) to Directlink's proposed phase reactor cooling system upgrade on the basis of adjustments to proposed contingencies, labour hour estimates, design outsourcing costs and adjustments for economies of scale in sundry materials costs.

Directlink has applied a 15 per cent unspecified contingency to this project.<sup>36</sup> For the same reasons provided above in respect of the fire suppression systems project, we have not included Directlink's proposed contingency in our efficient cost estimate for the phase reactor cooling system upgrade.

Similar to the proposed fire suppression system project, we noted what we consider to be an error in the labour hour assumptions for the Operations Representative. We consider that an assumption of a 70 hour week for this classification of worker to be excessive and have reduced the labour hour estimates for the Operations Representative to 38 hours as used elsewhere in the labour hour estimates for this project.

Directlink has included in its estimate for the project an amount for the role of 'owner's engineer' (described as 'Design Outsourcing PSC Advice' and 'Design Outsourcing').<sup>37</sup> The role of an owners engineer is to act on behalf of a business in respect to functions that the business lacks sufficient expertise. In this instance we expect that the owners engineer acting on behalf of Directlink would be engaged in reviewing the technical design of the project as well as ensuring that the delivery of the project conforms to its design. In this instance, we consider that the scope of the work for this project covers a range of activities that should not be duplicated as the design and implementation of the revised reactor cooling system is essentially identical for Directlink's interconnector converter stations. We therefore consider that this work does not need to be repeated for each converter station otherwise it will be in excess of the efficient costs that a prudent service provider would require to achieve the capex objectives.

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<sup>36</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

<sup>37</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

We have also made adjustments to some material cost estimates to reflect the economies of scale in the provision of these materials. Cost estimates included in the quotes for the converter stations are scaled in the Bungalora Systems 2 and 3 and Mulumbimby Systems 2 and 3 estimate. In particular, we note that 'customers and delivery' and 'sundry materials' costs are scaled by a factor of four in this estimate.<sup>38</sup> We are of the view that it is not likely that delivery of material from the suppliers' facilities in Europe would be undertaken as five separate shipments and that there is likely to be some economies of scale in the sundry materials costs. We have similar views on the 'travel and accommodation costs' included in this project's estimate.

## Converter station roof repair

We have made a reduction of \$0.183 million (\$2014-15) to Directlink's proposed converter station roof repair on the basis of a lower suitable quote for the proposed work.

In its revised proposal Directlink provided two quotes for repairs to the roofing of its converter stations in support of its proposed expenditure.<sup>39</sup> Directlink's preferred quote proposes to replace the roof sheeting as well as several options that provide only unit rates represented as prices per square meter. We are of the view that a prudent service provider would not choose to replace the roof sheeting as it is not required to address the relatively limited extent of the corrosion to small areas around the fixings. Directlink's preferred quote also provided an option to patch the roof with fibreglass. However, we consider that a prudent service provider would not patch sheet metal roofing in this manner as it typically has limited success and a short life expectancy. This seems to be reflected in the quote that notes that this repair is only guaranteed for 12 months. With regards to site access costs related to Directlink's imposed site working conditions (e.g. safety requirements, access conditions, etc.), we note that these costs are not specifically included in this quotation and we therefore consider it is likely that they are excluded. Consequently, additional costs for site access are likely to be required. Overall, we consider that this quote does not provide evidence of efficient costs.

The second quote Directlink received for the proposed roof repairs was based on patching with colourbond sheeting adhered to the existing roofing material with a weatherproof adhesive sealant. In our view, we consider that a prudent service provider would consider this type of repair is common practice and see no reason why this proposal would be technically unacceptable. It is also a lower cost than Directlink's preferred tenderer. We do not consider Directlink's response that the appearance of the contractor and the uncertainty as to whether the quote would cover Directlink's imposed site working conditions are sufficient reasons to reject the lower quote. We consider that Directlink's preferred quote for the work is also unlikely to have covered the costs of site working conditions. On the basis that the lower quote adequately

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<sup>38</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

<sup>39</sup> AER Directlink *Capex R2 information request - revised proposal capex*, 13 February 2015.

addresses the roof condition problems (i.e. it is a technically sound solution) and both contractors would have similar site access costs we consider that Directlink’s cost estimate for the proposed roof repair is not the most efficient cost and that the alternative lower quote should be used as the basis of the efficient cost estimate. Our alternative estimate includes other cost components for mobilisation, demobilisation, etc., as well as APA’s margin.

### 6.4.2 Real price escalators

As we discussed in our draft decision, Directlink did not propose labour and materials escalators in its initial proposal.<sup>40</sup> Instead, Directlink advised that it would accept our decision on these matters.

In its revised proposal, Directlink did not provide any comments on real materials or labour cost escalation and again did not propose or apply real labour cost escalation to its proposed capex.<sup>41</sup>

In this final decision, we consider that real materials cost escalation should not be applied in determining a service provider’s required capital expenditure.

In our draft decision we stated that we expected Directlink to provide further information in its revised proposal to allow an adjustment to total forecast capex to be made for expected real labour cost escalation.<sup>42</sup> In this final decision, we have not made such an adjustment. This is consistent with our review of Directlink’s opex where Directlink accepted our draft decision to forecast Directlink’s annual change in opex by applying forecast CPI to account for changes to efficient opex for each year of the regulatory control period.<sup>43</sup> That is, we applied zero real material and labour escalation.

### 6.4.3 Consideration of the capex factors

In deciding whether or not we are satisfied Directlink’s forecast reasonably reflects the capex criteria, we have had regard to the following capex factors when applying our assessment techniques to the total proposed capex forecast. Table 6-3 summarises how we have taken into account the capex factors.

**Table 6-3 AER consideration of the capex factors**

Capex factor	AER consideration
The actual and expected capex of Directlink during any preceding regulatory control periods	We have had regard to Directlink’s actual and expected capex during the 2006–2015 regulatory control period in assessing its proposed total forecast capex and in determining our substitute

<sup>40</sup> AER, *Directlink Draft decision, Attachment 6: Capital expenditure*, November 2014, p. 6-21.

<sup>41</sup> Directlink, *Revenue proposal, May 2014: Attachment 5.4 PSC, Phacelift update to bottom up cost study*, January 2015, p. 2.

<sup>42</sup> AER, *Directlink Draft decision, Attachment 6: Capital expenditure*, November 2014, p. 6-21.

<sup>43</sup> AER, *Draft decision, Directlink transmission determination 2015-16 to 2019-20, Attachment 7: Operating expenditure*, November 2014, p.34.

Capex factor	AER consideration
	estimate for the 2015–2020 regulatory control period. We consider that much of Directlink's proposed capex program reflects the stochastic nature of its capex requirements rather than that of a mature "steady state" system with recurrent capital expenditure programs. We also consider that Directlink is facing a number of "end-of-life" projects which have been included in its historical capex. <sup>44</sup>
The most recent annual benchmarking report and benchmarking capex that would be incurred by an efficient TNSP over the relevant regulatory control period	We consider there is limited benefit in reviewing Directlink's capex performance with other NSPs or on a trend basis over the previous period, as there are no equivalent electricity network assets to provide meaningful comparisons given the nature and small scale of Directlink's operations and due to the minimal capital expenditure incurred by Directlink for the 2006-15 regulatory control period. <sup>45</sup>
The extent to which the capex forecast includes expenditure to address concerns of electricity consumers as identified by Directlink in the course of its engagement with electricity consumers	We have had regard to the extent to which Directlink's proposed total forecast capex includes expenditure to address consumer concerns that have been identified by Directlink. On the information available to us, Directlink has not identified any expenditure to address concerns by consumers.
The relative prices of operating and capital inputs	Directlink did not propose material real cost escalators. We consider that real material cost escalation should not be applied in determining Directlink's required capital expenditure.
The substitution possibilities between operating and capital expenditure	We have had regard to the substitution possibilities between opex and capex. We have considered whether there are more efficient and prudent trade-offs in investing more or less in capital in place of ongoing operations. We consider that Directlink's operating risk will decline to its pre-Mullumbimby converter station fire levels based on the increased allowances for capex (and opex) and as such, should be reflected in Directlink's insurance premiums. This is explained in the Attachment 7 (Opex).
Whether the capex forecast is consistent with any incentive scheme or schemes that apply to Directlink.	We have had regard to whether Directlink's proposed total forecast capex is consistent with the STPIS. See our discussion about the interrelationships between Directlink's total forecast capex, including the impact of its proposed cable replacement program, and the application of the STPIS above and in Attachment 11.
The extent to which the capex forecast is referable to arrangements with a person other than the TNSP that do not reflect arm's length terms	We have had regard to whether any part of Directlink's proposed total forecast capex or our substitute estimate is referable to arrangements with a person other than Directlink that do not reflect arm's length terms. We did not identify any parts of Directlink's proposed total forecast capex or our substitute estimate that is referable in this way.
Whether the capex forecast includes an amount relating to a project that should more appropriately be included as a contingent project	We have had regard to whether any amount of Directlink's proposed total forecast capex or our substitute estimate relates to a project that should more appropriately be included as a contingent project. We did not identify any such amounts.
The extent to which Directlink has considered and	We have had regard to the extent to which Directlink made

<sup>44</sup> AER, *Directlink Draft decision, Attachment 6: Capital expenditure*, November 2014, pp. 6-15-16.

<sup>45</sup> AER, *Directlink Draft decision, Attachment 6: Capital expenditure*, November 2014, pp. 6-15-16.

Capex factor	AER consideration
made provision for efficient and prudent non-network alternatives	provision for efficient and prudent non-network alternatives as part of our assessment of the capex associated with the non-network capex driver.
Any relevant final project assessment report (as defined in clause 5.10.2 of the NER) published under clause 5.17.4(o), (p) or (s)	There are no final project assessment reports relevant to Directlink for us to have regard to.
Any other factor the AER considers relevant and which the AER has notified Directlink in writing, prior to the submission of its revised regulatory proposal under is a capex factor	We did not identify any other capex factor that we consider relevant.

## 6.4.4 Conclusion

For the above reasons, we do not accept the total forecast capex of \$37.06 million that Directlink proposed in its revised revenue proposal for the 2015–20 regulatory control period. This is because we are not satisfied that a total forecast capex of \$37.06 million reasonably reflects the capex criteria. In reaching this conclusion, we have taken into account the revenue and pricing principles and had regard to the capex factors.<sup>46</sup>

Our alternative estimate of Directlink's required capex reflects the transfer of Directlink's proposed cable replacement program to operating expenditure and a reduction to a number of proposed projects to reflect more the efficient costs of a prudent service provider.

Our substitute estimate of the total forecast capex that Directlink requires over the 2015–20 regulatory control period is based on our alternative estimate. We are satisfied that this amount of \$26.86 million (\$2014-15) reasonably reflects the capex criteria. This should provide Directlink with a reasonable opportunity to recover at least its efficient costs. Table 6-4 shows the adjustments we have made to Directlink's proposed capex.

**Table 6-4 Final decision: capex adjustment (\$m real, 2014-15)**

Project	Directlink proposed capex	AER adjustment	Final decision
Cooling system upgrade ("Gotland solution")	2.82	0.40	2.42
Fire suppression system	5.50	1.25	4.25
Zero sequence reactor repair	1.50	-	1.50
Converter station roof repair	0.29	0.18	0.10
Industrial computer control	13.07	-	13.07

<sup>46</sup> NEL, s. 7A.

Project	Directlink proposed capex	AER adjustment	Final decision
system upgrade			
Safety hand rails - Bungalora	0.02	-	0.02
Sourcing program - IGBTs	1.95	-	1.95
Optic fibre cables and connectors	0.80	-	0.80
Cooling tower sound enclosure remediation	0.51	-	0.51
Security fence upgrade	0.40	-	0.40
Building safety upgrade	0.20	-	0.20
Converter buildings ventilation sound dampers corrosion repair	0.06	-	0.06
Other stay in business capex	1.58	-	1.58
Cable replacement program	8.37	8.37	-
<b>TOTAL</b>	<b>37.06</b>	<b>10.20</b>	<b>26.86</b>

Source: Directlink, Revised revenue proposal; Directlink responses to AER Information Requests; AER analysis.

Note: Numbers may not add to total due to rounding.