Draft Powerlink framework and approach

Preliminary positions

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AUSTRALIAN ENERGY REGULATOR

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Amendment Record

Version	Date	Pages
1.0	23 January 2015	28

Contents

Shortened forms

Shortened Form	Extended Form
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CESS	capital expenditure sharing scheme
capex	capital expenditure
current regulatory control period	1 July to 2012 to 30 June 2017
EBSS	efficiency benefit sharing scheme
F&A	Framework and approach
MAR	maximum allowable revenue
MIC	market impact component
NCC	network capability component
NECF	National Energy Customer Framework
NEM	National Electricity Market
NER or the rules	National Electricity Rules
NCIPAP	network capability incentive parameter action plan
opex	operating expenditure
RAB	regulatory asset base
next regulatory control period	1 July 2017 to 30 June 2022
TNSP	transmission network service provider

About the framework and approach paper

The Australian Energy Regulator (AER) is the economic regulator for transmission and distribution services in Australia's national electricity market (NEM). We are an independent statutory authority, funded by the Australian Government. Our powers and functions are set out in the National Electricity Law (NEL) and National Electricity Rules (the rules or NER).

The framework and approach (F&A) paper is the first step in a process to determine efficient prices for electricity transmission services. The F&A determines the broad nature of any regulatory arrangements that will apply in this process. It also facilitates early public consultation and assists network service providers to prepare revenue proposals.

Powerlink is a licensed, regulated operator of the monopoly high voltage electricity transmission network in Queensland. The network comprises the poles, wires and transformers used for transporting high voltage electricity from remote generators to population centres. Powerlink designs, constructs, operates and maintains the transmission network for Queensland electricity consumers. The current five year Queensland transmission regulatory control period concludes on 30 June 2017.

On 29 November 2013, the Australian Energy Market Commission (AEMC) published changes to the rules governing network regulation. The new rules require us to set out our approach to network regulation under the new framework in a series of guidelines. We commenced the Better Regulation program on 18 December 2012 to consult on our approach and published our final guidelines in November and December 2013. We will apply these guidelines in the upcoming revenue determination process.

Powerlink wrote to the AER on 31 October 2014 to ask the AER to establish an initial F&A for the transmission business. The rules require us to publish an F&A paper for Powerlink Services by 31 July 2015. In their letter Powerlink raise an issue with their intended approach to forecasting expenditure being based on a 'Top down' approach. We respond to this issue in attachment 4.

As required under the rules, this F&A paper sets out our proposed approach for the next regulatory control period on the application of the following:

- service target performance incentive scheme
- operating expenditure efficiency benefit sharing scheme
- capital expenditure sharing scheme
- expenditure forecast assessment guidelines, and
- whether depreciation will be based on forecast or actual capital expenditure in updating the regulatory asset base.

Following release of the final F&A paper, Powerlink Services will submit its revenue proposal by 31 January 2016, as set out below. Table 1 summarises the transmission determination process as it relates to Powerlink.

Table 1 Powerlink transmission determination process

Step	Date
AER to publish F&A paper for Powerlink	31 July 2015
Powerlink to submit revenue proposal to AER	31 January 2016
AER to publish issues paper	March 2016 *
AER to hold public forum on issues paper	April 2016 *
Submissions on revenue proposal close	May 2016 *
AER to publish draft transmission determination	30 September 2016 **
AER to hold public forum on draft transmission determination	October 2016 *
Powerlink to submit revised revenue proposal to AER	December 2016
Submissions on revised revenue proposal and draft determination close	January 2017
AER to publish transmission determination for next regulatory control period	30 April 2017

Source: NER, chapter 6A, Part E

Notes:

* The dates provided for submissions and the public forum is based on the AER receiving compliant proposals. These dates may alter if the AER receives non-compliant proposals.

** The NER does not provide specific timeframes in relation to publishing draft decisions. Accordingly, this date is indicative only.

Part A: Overview

This F&A covers how we propose to apply a range of incentive schemes and other guidelines to Powerlink, as well as our approach to calculating depreciation.[1] The positions we set out in this F&A paper in relation to the regulatory control period are not binding on the AER or Powerlink.[2] This means it is open to the AER to change its position on matters set out in this F&A for the regulatory control period where there is reason to change, for example, because of changed circumstances.

Incentive schemes encourage TNSPs to manage their businesses in a safe, reliable manner that benefits the long term interests of consumers. The schemes also provide TNSPs with incentives to spend efficiently and to meet or exceed service quality/reliability targets. In some instances, TNSPs may incur a financial penalty if they fail to meet set targets. The overall objectives of the schemes are to:

- encourage appropriate levels of service quality
- maintain network reliability as appropriate
- incentivise TNSPs to spend efficiently on capital expenditure (capex) and operating expenditure (opex)
- share efficiency gains and losses between TNSPs and consumers
- incentivise TNSPs to consider economically efficient alternatives to augmenting their networks.

We summarise the specific schemes below and provide an overview of our expenditure forecast assessment guideline and approach to calculating depreciation. We have based our preliminary positions on a five year regulatory control period. Please note that should we determine a longer regulatory control period is to apply we may need to adjust the operation of the schemes described herein to apply to the longer regulatory control period.

Service target performance incentive scheme

Our national service target performance incentive scheme (STPIS) provides a financial incentive to TNSPs to maintain and improve service performance. The STPIS aims to safeguard service quality for customers that may otherwise be affected as TNSPs seek out cost efficiencies.

For the next regulatory control period we propose to apply version 4.1 of the STPIS. Note that the AER will review the transmission STPIS in 2015. If the AER further revises version 4.1 of the STPIS before the commencement of the next regulatory control period, subject to the submissions received in consultation, we intend to apply that revision to Powerlink.

1 NER, S6A.10.1A

2 NER, clause 6A.10.1A(f).

Efficiency benefit sharing scheme

The operating expenditure efficiency benefit sharing scheme (EBSS) aims to provide a continuous incentive for TNSPs to pursue efficiency improvements in opex, and provide for a fair sharing of these between TNSPs and network users. Consumers benefit from improved efficiencies through lower regulated prices in the future.

As part of our Better Regulation program we consulted on and published version 2 of the EBSS. We propose to apply this new EBSS to Powerlink.

Capital expenditure sharing scheme

The capital expenditure sharing scheme (CESS) provides financial rewards for TNSPs whose capex becomes more efficient and financial penalties for those that become less efficient. Consumers benefit from improved efficiency through lower regulated prices in the future.

As part of our Better Regulation program we consulted on and published version 1 of the capital expenditure incentive guideline for electricity network service providers (capex incentive guideline) which sets out the CESS. We propose to apply the CESS to Powerlink in the next regulatory period. This guideline also outlines our approach to ex post reviews of any over-spends in the next regulatory period. Under amendments to the NER in 2012, Powerlink will be subject to these ex post prudency reviews for any expenditure over-spends in their next period. The assessment will be undertaken as part of the AER's revenue determination process for the subsequent period.

Expenditure forecast assessment guidelines

As part of our Better Regulation program we consulted on and published our expenditure forecast assessment guideline for electricity transmission (expenditure assessment guideline). The expenditure assessment guideline is based on a nationally consistent reporting framework allowing us to compare the relative efficiencies of TNSPs and decide on efficient expenditure allowances. Our proposed approach is to apply the expenditure assessment guideline, including the information requirements to the TNSPs in the next regulatory control period. However, Powerlink proposed a different approach. We discuss this further in attachment 4.

The guideline outlines a suite of assessment/analytical tools and techniques to assist our review of Powerlink's revenue proposal. We intend to apply the assessment techniques set out in the guideline relating to TNSPs.

Depreciation

As part of the roll forward methodology, when a TNSPs regulatory asset base (RAB) is updated from forecast capex to actual capex at the end of a regulatory period, it is also adjusted for depreciation. The depreciation we use to roll forward the RAB can be based on either actual capex incurred during the regulatory control period, or the capex allowance forecast at the start of the regulatory control period. The choice of depreciation approach is one part of the overall capex incentive framework. The incentive based regulatory framework provides benefits to consumers from improved efficiencies through lower regulated prices.

We propose to use forecast depreciation to establish the RAB at the commencement of the 2022–27 regulatory control period for Powerlink.

Small-scale incentive scheme

The rules provide that we may develop small-scale incentive schemes.[3] At this stage, we have not developed any such schemes to encourage more efficient investment or operation of networks, as may be envisaged under this provision of the NER. For this reason, we do not propose to apply a small-scale incentive scheme to Powerlink in the next regulatory control period.

We note, however, changes to the STPIS (since version 4) introduce new incentives for TNSPs to improve the capability of existing assets to provide greater value to generators and consumers and avoid the need for asset augmentation.

3 NER, clause 6A.7.5.

Part B: Attachments

1 STPIS

This attachment sets out our proposed approach and reasons on how we intend to apply the STPIS to Powerlink in the next regulatory control period.

The AER creates, administers and maintains the STPIS in accordance with the requirements of the National Electricity Rules (NER). The purpose of the STPIS is to provide incentives to TNSPs to provide greater transmission network reliability when network users place greatest value on reliability, and improve and maintain the reliability of the elements of the transmission network most important to determining spot prices.[4] The STPIS can result in a maximum revenue increment or decrement of up to five per cent of the TNSP's MAR in a regulatory year.[5]

The STPIS works as part of the building block determination.[6] As part of the revenue determination, we make a decision on the application of the STPIS to a TNSP for the regulatory control period and the values associated with the applicable STPIS parameters.[7] In each regulatory year the TNSP's MAR is adjusted based on its performance against the STPIS parameters in the previous calendar year.

The STPIS is part of incentive based regulation we use across all energy networks we regulate. The CESS and EBSS provide incentives to incur efficient capex and opex. The incentives provided by the CESS and EBSS for cost efficiencies are balanced with the incentive to improve service standards provided by the STPIS.

The STPIS must:

- provide incentives for each TNSP to:[8]
    - provide greater reliability of the transmission system that is owned, controlled or operated by it at all times when transmission network users place greatest value on the reliability of the transmission system
    - improve and maintain the reliability of those elements of the transmission system that are most important to determining spot prices
- result in a potential adjustment to the revenue TNSP may earn, from the provision of prescribed transmission services, in each regulatory year in respect of which the STPIS applies
- ensure that the maximum revenue increment or decrement as a result of the operation of the STPIS will fall within a range that is between 1 per cent and 5 per cent of the MAR for the relevant regulatory year
- take into account the regulatory obligations or requirements with which TNSPs must comply

4 NER, clause 6A.7.4(b)(1).
5 NER, clause 6A.7.4(b)(3).
6 NER, clause 6A.5.4(a)(5) and (b)(5).
7 NER, clause 6A.4.2(5); 6A.14.1(1)(iii).
8 NER clause 6A.7.4(b).

- take into account any other incentives provided for in the rules that TNSPs have to minimise capital or operating expenditure; and
- take into account the age and ratings of the assets comprising the relevant transmission system.

Version 3 of the STPIS currently applies to Powerlink. The AER published version 4 of the STPIS on 20 December 2012, after the commencement of Powerlink's current regulatory control period. Version 4 introduced the network capability component of the scheme and refined a number of the existing parameters of the scheme. In developing version 4 of the STPIS we had regard to the requirements of the rules, as set out in our final decision on the STPIS, also published in December 2012.[9]

Under an incentive based regulation framework, TNSPs have an incentive to reduce costs. Cost reductions are beneficial to TNSP's and customers where service performance in maintained or improved. However, cost efficiencies achieved at the expense of service performance standards are not desirable. Version 4 of the STPIS seeks to ensure that increased financial efficiency does not result in deterioration of service performance for customers.

An update to the STPIS, version 4.1, was published in September 2014. Compared to version 4, the further changes made to the scheme in version 4.1 apply only to Directlink.

1.1 Proposed approach

We propose to apply version 4.1 of the STPIS to Powerlink in the next regulatory control period. For Powerlink, adopting version 4.1 of the STPIS will introduce the application of the network capability component of the scheme for the first time.

Please note that the following discussion is based on the application of version 4.1 of the STPIS. As noted in the Overview, a review of the STPIS is planned for 2015. If the AER revises the STPIS following that review, we intend to apply that revision to Powerlink.

In summary:

- For the next regulatory control period we will apply the STPIS as follows.
    - The parameters for each service component for Powerlink and the maximum revenue increment or decrement that Powerlink can receive for a given level of performance will be those prescribed in the latest version of the scheme. The applicable parameter values will be set out in Powerlink' transmission determination.
    - The MIC annual performance target will be the rolling average of performance history over the three previous calendar years. Actual performance will be measured as a rolling average of the most recent two years of actual performance.[10]

9 AER, *Final decision, TNSP service target performance incentive scheme, version 4, 19 December 2012*.

10 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 4.2(d) and Appendix F.

- The maximum allowed revenue that Powerlink can earn in each regulatory year will be adjusted according to its performance against the values included in its transmission determination, as assessed by us in accordance with the scheme.

1.2 Reasons for proposed approach

In general we consider the amendments to the STPIS as incorporated in version 4.1 improve the scheme's incentives for TNSPs to:

- provide greater reliability of the transmission system that is owned, controlled or operated by it at all times when network users place greatest value on the reliability of the transmission system; and
- improve and maintain the reliability of those elements of the transmission system that are most important to determining spot prices.

For these reasons, we consider that version 4.1 of the STPIS should apply to Powerlink in the next regulatory period. This will benefit both transmission network users and consumers of electricity, in line with the NEO.

1.2.1 Reasons for applying the STPIS in the next period

In this section we discuss each component of version 4.1 of the STPIS, and how each component will apply to Powerlink in the next regulatory control period.

Service component

The service component of the STPIS incentivises TNSPs to maintain and improve network availability and reliability by measuring performance against certain parameters. Under this component of the scheme, a TNSP can receive a revenue increment or decrement of up to one per cent of its MAR for the regulatory year.

A TNSP receives a financial incentive (reward) in proportion to the extent its annual performance exceeds its performance target (calculated as the s-factor). If the TNSP fails to meet its performance target, it incurs a financial penalty in proportion to the extent its annual performance does not meet the performance target.

Version 4 of the STPIS amended the service component parameters to focus more on unplanned outages, including a new parameter focusing on proper operation of equipment. Performance against these parameters can be used as a lead indicator of a deterioration of network reliability.[11]

The scheme contains definitions for each parameter. The definitions specify the applicable sub-parameters, unit of measure, source of performance data, the formula for measuring performance, definitions of relevant terms, inclusions (which specify particular equipment or events which are to be measured) and exclusions.

11 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, p. 13.

For the next regulatory control period we will assess whether Powerlink' proposed performance targets, caps, collars and weightings comply with the version 4.1 STPIS requirements for:[12]

- average circuit outage rate, with six sub-parameters:
    - line outage – fault
    - transformer outage – fault
    - reactive plant – fault
    - line outage – forced outage
    - transformer outage – forced outage
    - reactive plant – forced outage
- loss of supply event frequency, with two loss of supply event sub-parameters:
    - frequency of events when loss of supply exceeds 0.1 system minutes
    - frequency of events when loss of supply exceeds 0.75 system minutes
- average outage duration
- proper operation of equipment, with three sub-parameters:
    - failure of protection system
    - material failure of supervisory control and data acquisition (SCADA) system
    - incorrect operational isolation of primary or secondary equipment.

We must accept Powerlink' proposed parameter values if they comply with the requirements of the STPIS.[13] We may reject them if they are inconsistent with the objectives of the STPIS.[14]

Market impact component

The market impact component (MIC) provides financial rewards to TNSPs for improvements in their performance measured against a performance target. A TNSP may earn an additional revenue increment of up to 2 per cent of its MAR. Unlike the service and network capability components, the market impact component has no financial penalty.

The MIC provides an incentive to TNSPs to minimise the impact of transmission outages that can affect the NEM spot price. It measures performance against the market impact parameter, which is number of dispatch intervals where an outage on the TNSP's network results in a network outage constraint with a marginal value greater than $10/MWh.[15]

12 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 3.1.
13 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 3.2(a).
14 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 3.2(m).
15 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, appendix C

In version 4 of the STPIS, we made significant amendments to the way the performance target and actual performance were determined. In version 4, the annual performance target is the rolling average of performance history over the three previous calendar years. Thus, unlike the MIC of version 2, the annual performance target is not fixed at the time of the revenue determination but is adjusted each year based on the most recent three years of performance. Actual performance is measured annually and is the rolling average of performance of the two most recent calendar years. This continues to apply in version 4.1.

A rolling target and actual performance measure provides a tighter incentive to ensure outages on prescribed assets have limited impact on wholesale spot market outcomes. Further, a rolling target ensures the target is relevant to the TNSP's current maintenance and construction activities and limits the incentive for TNSPs to engage in strategic behaviour to influence the outcomes of the scheme.

Similarly, in version 4.1, exclusion clause 3 strengthens the incentive for TNSPs to influence the timing of third party planned outages to reduce the likelihood of wholesale market impacts.[16] Exclusion clause 3 allows TNSP's to exclude the impact of outages from the market impact parameter if they are caused by a third party system. Third party outages are outages taken or caused by third party owners of non-prescribed assets that are connected to a TNSP's prescribed network. In version 4.1, planned outages caused by a third party are no longer excluded.

Non-prescribed assets owned by a third party connected to a TNSP's prescribed network are usually governed by connection agreements between the parties. When undertaking maintenance of their non-prescribed asset, third parties frequently request connected prescribed assets are taken out of service. We consider that, where third parties request a TNSP to take a planned outage of its prescribed asset associated with the party's non-prescribed asset, the TNSP has significant influence over the timing of that outage. Accordingly, the MIC operates to ensure these outages occur during periods when there is less likely to be a market impact.

Network capability component

The network capability component (NCC) was introduced in version 4 of the STPIS. This continues to apply in version 4.1. It promotes the NEO by incentivising TNSPs to identify and implement low cost incremental changes to their networks that deliver substantial benefits to consumers. It does this by requiring TNSPs to reveal their existing network capability and identify low cost projects that will:

- improve network capability when most valued by customers or
- improve wholesale market outcomes at least cost.

We recognise TNSPs are best placed to identify limitations in their networks and to implement low cost solutions to ameliorate those limitations. Prior to the introduction of the NCC, TNSPs were not incentivised to engage in this type of behaviour.

16 AER. *Draft decision – early application of version 4 of the STPIS*, *August 2013*, p.22-23.

Improved wholesale market outcomes should ultimately be passed onto consumers through reduced wholesale energy costs. The NCC also promotes reliability, safety and security priorities in the NEO by incentivising increases in the capability of existing assets in the network when most needed while maintaining adequate levels of reliability.[17]

As part of its revenue proposal, Powerlink must submit a network capability incentive parameter action plan (NCIPAP).[18] The NCIPAP must identify the key network capability limitations on each transmission circuit or load injection point on the TNSPs network.[19] It must also include a ranked list of priority projects proposed by Powerlink to improve the network capability for some of the circuits or injection points.[20] These priority projects must be shown to result in material benefits for customers or on wholesale market outcomes. Powerlink must consult AEMO in developing the NCIPAP. The total annual average expenditure of the proposed priority projects may not exceed 1 per cent of the average MAR proposed by the TNSP in its revenue proposal.

We must approve a priority project if it is consistent with the NCC requirements of the STPIS.[21] Once we have approved a priority project, we may only amend the priority project improvement targets proposed by Powerlink in limited circumstances.[22]

In each annual STPIS compliance review, Powerlink is required to report on the steps it has taken towards reaching the priority project improvement target against each project in the NCIPAP approved by us for each year or part year of the regulatory control period. Under the NCC, Powerlink receives a financial payment equal to 1.5 per cent of its MAR as follows:

- for each regulatory year, except the final year in the next regulatory control period, Powerlink will receive an incentive payment equal to 1.5 per cent of its MAR.
- for the final year, Powerlink will receive an incentive payment of 1.5 per cent of its MAR but only if it achieves its priority project improvement target for each priority project.

In the final year, we will assess whether Powerlink has achieved each priority project target for each priority project. If it has not then we may reduce the incentive payment in the final year. We can reduce the final payment to – 2 per cent of MAR if Powerlink does not achieve any of its priority project improvement targets.[23]

17 NER, clause 6A.7.4.

18 AER, *Final – Service Target Performance Incentive Scheme, September 2014,* clauses 5.2(b).

19 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clauses 5.2(b)(1).

20 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clauses 5.2(b)(2).

21 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 5.2(k).

22 We amend the priority project improvement targets proposed by Powerlink only if either Powerlink agrees to the amendment or AEMO considers the amendment will result in a material benefit and can be achieved by Powerlink in the subsequent regulatory control period.

23 AER, *Final – Service Target Performance Incentive Scheme, September 2014*, clause 5.2(k)

2 Efficiency benefit sharing scheme

This attachment sets out our proposed approach and reasons on how we intend to apply the EBSS to Powerlink in the next regulatory control period.

The efficiency benefit sharing scheme (EBSS) aims to provide a continuous incentive for TNSPs to pursue efficiency improvements in opex, and provide for a fair sharing of these between TNSPs and network users. Consumers benefit from improved efficiencies through lower regulated prices in the future.

2.1 Proposed approach

We propose to apply the new EBSS in the 2017–22 regulatory control period.

The EBSS must provide for a fair sharing between TNSPs and network users of opex efficiency gains and efficiency losses.[24] We must also have regard to the following factors in developing and implementing the EBSS:[25]

- the need to ensure that benefits to electricity consumers likely to result from the scheme are sufficient to warrant any reward or penalty under the scheme
- the need to provide service providers with a continuous incentive to reduce opex
- the desirability of both rewarding service providers for efficiency gains and penalising service providers for efficiency losses
- any incentives that service providers may have to capitalise expenditure
- the possible effects of the scheme on incentives for the implementation of non-network alternatives.

2.2 Reasons for proposed approach

The current EBSS applies to Powerlink in the current regulatory control period.[26] As part of our Better Regulation program we consulted on and published the new EBSS, taking into account the requirements of the rules.

The new EBSS retains the same form as the current EBSS, and merges the distribution and transmission schemes. Changes in the new EBSS relate to the criteria for adjustments and exclusions under the scheme.[27] We may also exclude categories of opex not forecast using a single year revealed cost approach from the scheme on an ex post basis if doing so better achieves the requirements of the rules. We also amended the scheme to provide flexibility to account for any adjustments made to base year opex to remove the impacts of one-off factors. The new EBSS also clarifies how we will determine

24 NER, clause 6A.6.5(a).

25 NER, clause 6A.6.5(b).

26 AER, *Electricity transmission network service providers, efficiency benefit sharing scheme, September 2007*.

27 We will no longer allow for specific exclusions such as uncontrollable opex or for changes in opex due to unexpected increases or decreases in network growth.

the carryover period. These revisions affect how we will calculate carryover amounts for future regulatory control periods.[28]

In this attachment we set out why we propose to apply the new EBSS to the next period.

2.2.1 Reasons for applying the EBSS in the next period

We propose to apply the new EBSS to the next period. In developing the new EBSS we had regard to the requirements under the rules, as set out in the scheme and accompanying explanatory statement.[29] This reasoning extends to the factors we must have regard to in implementing the scheme.

The EBSS must provide for a fair sharing of efficiency gains and losses.[30] Under the scheme, TNSPs and consumers receive a benefit where a TNSP reduces its costs during a regulatory control period and both bear some of any increase in costs.

Under the EBSS, positive and negative carryovers reward and penalise TNSPs for efficiency gains and losses respectively.[31] The EBSS provides a continuous incentive for TNSPs to achieve opex efficiencies throughout the next period. This is because the TNSP receives carryover payments so it retains any efficiency gains or losses it makes within the regulatory period for the length of the carryover period. This is regardless of the year in which it makes the gain or loss.[32]

This continuous incentive to improve efficiency encourages efficient and timely opex throughout the regulatory control period, and reduces the incentive for a TNSP to inflate opex in the expected base year. This provides an incentive for TNSPs to reveal their efficient opex which, in turn, allows us to better determine efficient opex forecasts for future regulatory control periods.

The EBSS also leads to a fair sharing of efficiency gains and losses between TNSPs and consumers. For instance the combined effect of our forecasting approach and the EBSS is that opex efficiency gains or losses are shared approximately 30:70 between TNSPs and consumers. This means for a one dollar efficiency saving in opex the TNSP keeps 30 cents of the benefit while consumers keep 70 cents of the benefit.

Example 2.1 shows how the EBSS operates. It illustrates how the benefits of a permanent efficiency improvement are shared approximately 30:70 between a network service provider and consumers.

In implementing the EBSS we must also have regard to any incentives TNSPs may have to capitalise expenditure.[33] Where opex incentives are balanced with capex incentives, a TNSP does not have an incentive to favour opex over capex, or vice-versa. The CESS is

28 AER, *Efficiency benefit sharing scheme, 29 November 2013.*

29 AER, *Efficiency benefit sharing scheme, 29 November 2013*. AER, *Explanatory statement, Efficiency benefit sharing scheme for electricity network service providers, 29 November 2013*.

30 NER, clause 6A.6.5(a).

31 NER, clauses 6A.6.5(b) and 6A.6.5(a).

32 NER, clause 6A.6.5(b)(1).

33 NER, clause 6A.6.5(b)(3).

a symmetric capex scheme with a 30 per cent incentive power. This is consistent with the incentive power for opex when we use an unadjusted base year approach in combination with an EBSS. During the next period when the CESS and EBSS are applied, incentives will be relatively balanced, and TNSPs should not have an incentive to favour opex over capex or vice versa. The CESS is discussed further in attachment 3.

We must also consider the possible effects of implementing the EBSS on incentives for non-network alternatives:[34]

Expenditure on non-network alternatives generally takes the form of opex rather than capex. Successful non-network alternatives should result in the TNSP spending less on capex than it otherwise would have.

It is proposed both the CESS and EBSS will apply in the next regulatory control period. As a result a TNSP has an incentive to implement a non-network alternative if the increase in opex is less than the corresponding decrease in capex. In this way, the TNSP will receive a net reward for implementing the non-network alternative.[35] This is because the rewards and penalties under the EBSS and CESS are balanced and symmetric. In the past where the EBSS operated without a CESS, we excluded expenditure on non-network alternatives when calculating rewards and penalties under the scheme. This was because TNSPs may otherwise receive a penalty for increasing opex without a corresponding reward for decreasing capex.[36]

34 NER, clause 6A.6.5(b)(4).

35 When the TNSP spends more on opex it receives a 30 per cent penalty under the EBSS. However, when there is a corresponding decrease in capex the TNSP receives a 30 per cent reward under the CESS. So where the decrease in capex is larger than the increase in opex the TNSP receives a larger reward than penalty, a net reward.

36 Without a CESS the reward for capex declines over the regulatory period. If an increase in opex corresponded with a decrease in capex, the off-setting benefit of the decrease in capex depends on the year in which it occurs.

Example 2.1 How the EBSS operates

Assume that in the first regulatory period, a network service provider's forecast opex is $100 million per annum (p.a.).

Assume that during this period the service provider delivers opex equal to the forecast for the first three years. Then, in the fourth year of the regulatory period, the service provider implements a more efficient business practice for maintaining its assets. As a result, the service provider will be able to deliver opex at $95 million p.a. for the foreseeable future.

This efficiency improvement affects regulated revenues in two ways:

1. Through forecast opex. If we use the penultimate year of the regulatory period to forecast opex in the second regulatory period, the new forecast will be $95 million p.a. If the efficiency improvement is permanent, all else being equal, forecast opex will also be expected to be $95 million p.a. in future regulatory periods.
2. Through EBSS carryover amounts. The service provider receives additional carryover amounts so that it receives exactly six years of benefits from an efficiency improvement. Because the service provider has made an efficiency improvement of $5 million p.a. in Year 4, to ensure it receives exactly six years of benefits, it will receive annual EBSS carryover amounts of $5 million in the first four years (Years 6 to 9) of the second regulatory period.

As a result of these effects, the service provider will benefit from the efficiency improvement in Years 4 to 9. This is because the annual amount the service provider receives through the forecast opex and EBSS building blocks ($100 million) is more than what it pays for opex ($95 million) in each of these years.

Consumers benefit from Year 10 onwards after the EBSS carryover period has expired. This is because what consumers pay through the forecast opex and EBSS building blocks ($95 million) is lower from Year 10 onwards.

Table 2 provides a more detailed illustration of how the benefits are shared between service providers and consumers over time.

(Example 2.1continued)

Table 2 Example of how the EBSS operates

	Reg. period 1					Reg. period 2					Future
Year	1	2	3	4	5	6	7	8	9	10	
Forecast (Ft)	100	100	100	100	100	95	95	95	95	95	95 p.a.
Actual (At)	100	100	100	95	95	95	95	95	95	95	95 p.a.
Underspend (Ft – At = Ut)	0	0	0	5	5	0	0	0	0	0	0 p.a.
Incremental efficiency gain (It = Ut – Ut–1)	0	0	0	5	0	0*	0	0	0	0	0 p.a.
Carryover (I1)		0	0	0	0	0					
Carryover (I2)			0	0	0	0	0				
Carryover (I3)				0	0	0	0	0			
Carryover (I4)					5	5	5	5	5		
Carryover (I5)						0	0	0	0	0	
Carryover amount (Ct)						5	5	5	5	0	0 p.a.
Benefits to NSP (Ft – At +Ct)	0	0	0	5	5	5	5	5	5	0	0 p.a.
Benefits to consumers (F1 – (Ft +Ct))	0	0	0	0	0	0	0	0	0	5	5 p.a.
Discounted benefits to NSP**	0	0	0	5	4.7	4.5	4.2	4.0	3.7	0	0
Discounted benefits to consumers**	0	0	0	0	0	0	0	0	0	3.5	58.8***

Notes:

* At the time of forecasting opex for the second regulatory period we don't know actual opex for year 5. Consequently this is not reflected in forecast opex for the second period. That means an underspend in year 6 will reflect any efficiency gains made in both year 5 and year 6. To ensure the carryover rewards for year 6 only reflect incremental efficiency gains for that year we subtract the incremental efficiency gain in year 5 from the total underspend. In the example above, I6 = U6 – (U5 – U4).

** Assumes a real discount rate of 6 per cent.

*** As a result of the efficiency improvement, forecast opex is $5 million p.a. lower in nominal terms. The estimate of $58.7m is the net present value of $5 million p.a. delivered to consumers annually from year 11 onwards.

Table 3 sums the discounted benefits to NSPs and consumers from the bottom two rows of Table 2. As illustrated below, the benefits of the efficiency improvement are shared approximately 30:70 in perpetuity between the service provider and consumers.

Table 3 Sharing of efficiency gains—Year 4 forecasting approach, with EBSS

	NPV of benefits of efficiency improvement[1]	Percentage of total benefits
Benefits to service provider	$26.1 million	30 per cent
Benefits to consumers	$62.3 million	70 per cent
Total	$88.3 million	100 per cent

3 Capital expenditure sharing scheme

This attachment sets out our proposed approach and reasons for how we intend to apply the CESS to Powerlink in the next regulatory control period.

The capital expenditure sharing scheme (CESS) provides financial rewards for TNSPs whose capex becomes more efficient and financial penalties for those that become less efficient. Consumers benefit from improved efficiency through lower regulated prices in the future.

The CESS approximates efficiency gains and efficiency losses by calculating the difference between forecast and actual capex. It shares these gains or losses between TNSPs and network users.

The CESS works as follows:

- We calculate the cumulative underspend or overspend for the current regulatory control period in net present value terms.
- We apply the sharing ratio of 30 per cent to the cumulative underspend or overspend to work out what the TNSP's share of the underspend or overspend should be.
- We calculate the CESS payments taking into account the financing benefit or cost to the TNSP of underspends or overspends.[37] We can also make further adjustments to account for deferral of capex and ex post exclusions of capex from the RAB.
- The CESS payments will be added or subtracted to the TNSP's regulated revenue as a separate building block in the next regulatory control period.

Under the CESS a TNSP retains 30 per cent of an underspend or overspend, while consumers retain 70 per cent of the underspend on overspend. This means that for a one dollar saving in capex the TNSP keeps 30 cents of the benefit while consumers keep 70 cents of the benefit.

Under the CESS an ex post review for any overspends in the next regulatory control period also applies, but this assessment will be undertaken in the subsequent control period. As noted in the introduction, Powerlink has queried whether in the next regulatory control period the AER will undertake an ex post review in relation to the current regulatory control period. Our preliminary view is that as we intend to apply the CESS we should undertake the review as mandated within the Guideline. However, we recognise that in this unique circumstance this review would be confined to a single year. In such circumstances any particular observed outcome may not merit treatment as significant.

37 We calculate benefits as the benefits to the TNSP of not financing the underspend since the amount of the underspend can be put to some other income generating use during the period. Losses are similarly calculated as the financing cost to the TNSP of the overspend.

3.1 Proposed approach

We propose to apply the CESS as set out in our capex incentives guideline to Powerlink in the next regulatory control period.[38]

In deciding whether to apply a CESS to a TNSP in the next regulatory control period, and the nature and details of any CESS we apply to a TNSP, we must:[39]

- make that decision in a manner that contributes to the capex incentive objective[40]
- consider the CESS principles,[41] capex objectives,[42] other incentive schemes, and where relevant the opex objectives, as they apply to the particular TNSP, and the circumstances of the TNSP.

Broadly, the capex incentive objective is to ensure that only capex that meets the capex criteria enters the RAB used to set prices. Therefore, consumers only fund capex that is efficient and prudent.

3.2 Reasons for proposed approach

TNSPs are currently not subject to a CESS. As part of our Better Regulation program we consulted on and published version 1 of the capex incentives guideline which sets out the CESS.[43] The guideline specifies that in most circumstances we will apply a CESS, in conjunction with forecast depreciation to roll-forward the RAB.[44] We also propose to apply forecast depreciation, which is discussed further in attachment 5 below.

In developing the CESS we took into account the capex incentive objective, capex criteria, capex objectives, and the CESS principles. We also developed the CESS to work alongside other incentive schemes that apply to TNSPs, including the EBSS and STPIS.

For capex, the sharing of underspends and overspends happens at the end of each regulatory period when we update a TNSP's RAB to include new capex. If a TNSP spends less than its approved forecast during a period, it will benefit within that period. Consumers benefit at the end of that period when the RAB is updated to include less capex compared to if the TNSP had spent the full amount of the capex forecast. This leads to lower prices in the future.

Without a CESS the incentive for a TNSP to spend less than its forecast capex declines throughout the period.[45] Because of this a TNSP may choose to spend capex earlier, or on

38 AER, *Capital expenditure incentive guideline for electricity network service providers*, pp. 5–9.
39 NER, clause 6A.6.5A.
40 NER, clause 6A.5A(a); the capex criteria are set out in clause 6A.6.7(c)(1)-(3) of the NER.
41 NER, clause 6A.6.5A(c).
42 NER, clause 6A.6.7(a).
43 AER, *Capital expenditure incentive guideline for electricity network service providers*, pp. 5–9.
44 AER, *Capital expenditure incentive guideline for electricity network service providers*, pp. 10–11.
45 As the end of the regulatory period approaches, the time available for the TNSP to retain any savings gets shorter. So the

capex when it may otherwise have spent on opex, or less on capex at the expense of service quality—even if it may not be efficient to do so.

With the CESS a TNSP faces the same reward and penalty in each year of a regulatory control period for capex underspends or overspends. The CESS will provide TNSPs with an ex ante incentive to spend only efficient capex. TNSPs that make efficiency gains will be rewarded through the CESS. Conversely, TNSPs that make efficiency losses will be penalised through the CESS. In this way, TNSPs will be more likely to incur only efficient capex when subject to a CESS, so any capex included in the RAB is more likely to reflect the capex criteria. In particular, if a TNSP is subject to the CESS, its capex is more likely to be efficient and to reflect the costs of a prudent TNSP.

When the CESS, EBSS and STPIS apply to TNSPs the incentives for improvements in opex, capex and service outcomes are more balanced. This encourages businesses to make efficient decisions on when and what type of expenditure to incur, and to efficiently trade off expenditure reductions with service quality and reliability.

earlier a TNSP incurs an underspend in the regulatory period, the greater its reward will be.

4 Expenditure forecast assessment guideline

This attachment sets out our intention to apply our expenditure forecast assessment guideline (guideline)[46] including the information requirements to Powerlink for the 2017–22 regulatory control period. We propose applying the guideline as it sets out our new expenditure assessment approach developed and consulted upon during the Better Regulation program. The guideline outlines for TNSPs and interested stakeholders the types of assessments we will do to determine efficient expenditure allowances, and the information we require from the businesses to do so.

We were required to develop the guideline under the rules.[47] The guideline is based on a nationally consistent reporting framework allowing us to compare the relative efficiencies of TNSPs and decide on efficient expenditure allowances. The rules required Powerlink to advise us by 30 June 2015 of the methodology it proposes to use to prepare forecasts.[48] In the F&A we must set out our proposed approach to application of the guideline.[49] This will provide clarity to Powerlink and assist it with the information it should include in its revenue proposal.

4.1 Powerlink submission

Powerlink wrote to the AER on 31 October 2014. Powerlink states it is investigating the potential to apply a 'Top–Down' approach to capital expenditure forecasting to establish their requirements for the next period. A top–down approach relies on historical information and established trends to forecast future needs. The conventional approach to forecasting capital is to form detailed project plans which are costed and summed to give the total capital requirement. This approach is often called a 'Bottom-up Build'. Powerlink cite as the advantages of the top–down approach that it may greatly reduce the time, resources and costs for Powerlink to produce a regulatory proposal. Similarly, Powerlink also suggest it may offer the same advantage to the AER and stakeholders in assessing their proposal. Powerlink is liaising with the AER on this proposal. We expect this liaison will continue to take place as Powerlink prepares its expenditure forecasting methodology.

4.2 Reasons for proposed approach

The guideline contains a suite of assessment/analytical tools and techniques to assist our review of revenue proposals by network service providers. We intend to apply the assessment techniques set out in the guideline. The techniques include:[50]

- benchmarking (economic techniques and category analysis)
- methodology review

46 We published this guideline on 29 November 2013. It can be located at www.aer.gov.au/node/18864.

47 NER, clauses 6.4.5, 6A.5.6, 11.53.4 and 11.54.4.

48 NER, clauses 6A.10.1B(b)(1) and 11.58.4(n).

49 NER, clause 6A.10.1A(b)(5).

50 AER, *Expenditure assessment guideline for electricity transmission, 29 November 2013*, pp. 12-13.

- governance and policy review
- predictive modelling
- trend analysis
- cost benefit analysis
- detailed project review (including engineering review).

We exercise our judgement in determining the extent to which we use a particular technique in assessing a regulatory proposal. Powerlink has explained to the AER that their intention would be to use a bottom-up build for projects that are known and/or underway in the early years of the next regulatory control period and a top-down approach for projects later in the period, with a proportion of the latter projects also supported by a bottom up build.

Our expenditure forecasting assessment guideline is flexible and recognises that a range of different estimating techniques may be employed to develop an expenditure forecast. For high capital value projects we would generally expect there to be sufficient information available to construct a bottom–up build. We also recognise that greater uncertainty will be associated with project estimates as they arise further in the future. A top–down estimating approach calibrated by reference to a sample of supporting bottom–up builds may offer scope to reduce the cost of preparing a regulatory proposal without sacrificing accuracy.

It is important that the estimating techniques employed give an accurate assessment of the prudent and efficient future capital expenditure required by Powerlink. Our concern is to ensure Powerlink employs forecasting techniques that achieve a balance between cost and accuracy, having regard to the factors advanced by Powerlink and the further factors discussed above. At this early stage it is not possible to determine the extent to which Powerlink might rely on a top–down estimating approach. Therefore, whilst we remain open to further consideration of Powerlink's proposal, we have not adopted it for the purpose of setting out our preliminary position in this F&A. We will continue to discuss the proposal with Powerlink.

> We invite stakeholders to comment on Powerlink's proposal to consider applying a 'Top–Down' costing methodology. Do stakeholders consider that a hybrid of a top–down approach and a bottom up build for the early years and a sample of the projects later in the period as proposed by Powerlink is likely to provide sufficient information to enable an accurate assessment of Powerlink's capital expenditure requirements?

We developed the guideline to apply broadly to all electricity transmission and distribution businesses. However, some customisation of the data requirements contained in the guideline might be required. While we do not anticipate any such requirements at present, any data customisation issues would be addressed through the RIN that we will issue to Powerlink for the next regulatory control period.

5 Depreciation

As part of the roll forward methodology, when the RAB is updated from forecast capex to actual capex at the end of a regulatory control period, it is also adjusted for depreciation. This attachment sets out our proposed approach to calculating depreciation when the RAB is rolled forward to the commencement of the 2022–27 regulatory control period.[51]

The depreciation we use to roll forward the RAB can be based on either:

- Actual capex incurred during the regulatory control period (actual depreciation). We roll forward the RAB based on actual capex less the depreciation on the actual capex incurred by the TNSP; or
- The capex allowance forecast at the start of the regulatory control period (forecast depreciation). We roll forward the RAB based on actual capex less the depreciation on the forecast capex approved for the regulatory control period.

The choice of depreciation approach is one part of the overall capex incentive framework.

Consumers benefit from improved efficiencies through lower regulated prices. Where a CESS is applied, using forecast depreciation provides the incentives for TNSPs to pursue continuous capex efficiencies. Using actual depreciation increases these incentives. There is more information on depreciation as part of the overall capex incentive framework in our capex incentives guideline.[52] In summary:

- If there is a capex overspend, actual depreciation will be higher than forecast depreciation. This means that the RAB will increase by a lesser amount than if forecast depreciation were used. So, the TNSP will earn less revenue into the future (i.e. it will bear more of the cost of the overspend into the future) than if forecast depreciation had been used to roll forward the RAB.
- If there is a capex underspend, actual depreciation will be lower than forecast depreciation. This means that the RAB will increase by a greater amount than if forecast depreciation were used. Hence, the TNSP will earn greater revenue into the future (i.e. it will retain more of the benefit of an underspend into the future) than if forecast depreciation had been used to roll forward the RAB.

The incentive from using actual depreciation to roll forward the RAB also varies with the life of the asset. Using actual depreciation will provide a stronger incentive for shorter lived assets compared to longer lived assets. Forecast depreciation, on the other hand, leads to the same incentive for all assets.

51 NER, clause 6A.10.1A(b)(6).

52 AER, *Capital expenditure incentive guideline for electricity network service providers, 29 November 2013*, pp. 10–11.

5.1 Proposed approach

We propose to use the forecast depreciation approach to establish the RAB at the commencement of the 2022–27 regulatory control period for Powerlink. We consider this approach will provide sufficient incentives for Powerlink to achieve capex efficiency gains over the 2017–22 regulatory control period.

In the F&A paper we must set out our proposed approach as to whether we will use actual or forecast depreciation to establish a TNSP's RAB at the commencement of the following regulatory control period.[53]

We are required to set out in our capex incentives guideline our process for determining which form of depreciation we propose to use in the RAB roll forward process.[54] Our decision on whether to use actual or forecast depreciation must be consistent with the capex incentive objective. We must have regard to:[55]

- any other incentives the service provider has to undertake efficient capex
- substitution possibilities between assets with different lives
- the extent of overspending and inefficient overspending relative to the allowed forecast
- the capex incentive guideline
- the capital expenditure factors.

5.2 Reasons for proposed approach

Consistent with our capex incentives guideline, we propose to use the forecast depreciation approach to establish the RAB at the commencement of the 2022–27 regulatory control period.

We had regard to the relevant factors in the rules in developing the approach to choosing depreciation set out in our capex incentives guideline.[56]

Our approach is to apply forecast depreciation except where:

- there is no CESS in place and therefore the power of the capex incentive may need to be strengthened, or
- a TNSP's past capex performance demonstrates evidence of persistent overspending or inefficiency, thus requiring a higher powered incentive.

In making our decision on whether to use actual depreciation in either of these circumstances we will consider:

- the substitutability between capex and opex and the balance of incentives between these

53 NER, clause S6A.2.2B.
54 NER, clause 6A.5A(b)(3).
55 NER, clause S6A.2.2B.
56 AER, *Capital expenditure incentive guideline for electricity network service providers, 29 November 2013*, pp. 12–13.

- the balance of incentives with service outcomes
- the substitutability of assets of different asset lives.

We have chosen forecast depreciation as our proposed approach because, in combination with the CESS, it will provide a 30 per cent reward for capex underspends and 30 per cent penalty for capex overspends, which is consistent for all asset classes. In developing our capex incentives guideline, we considered this to be a sufficient incentive for a TNSP to achieve efficiency gains over the regulatory control period in most circumstances.

Powerlink is not currently subject to a CESS but we propose to apply the CESS in the next regulatory control period.

For Powerlink, at this stage, we consider the incentive provided by the application of the CESS in combination with the use of forecast depreciation and our other ex post capex measures should be sufficient to achieve the capex incentive objective.[57]

57 Our ex post capex measures are set out in the capex incentives guideline, AER *capex incentives guideline*, pp. 13–19; the guideline also sets out how all our capex incentive measures are consistent with the capex incentive objective, AER *capex incentives guideline, 29 November 2013*, pp. 20–21.

6 Small scale incentive scheme

The rules provide that we may develop small-scale incentive schemes to test innovative approaches to incentives.[58] Small scale incentive schemes are intended to provide for incentives for improved performance not already covered by the existing incentive schemes in the rules and may cover matters not related to expenditure by TNSPs.[59]

We have not yet developed any such schemes. Therefore, in this F&A paper we are not proposing to apply any such schemes to Powerlink in the next regulatory control period.

We note, however, that changes to the STPIS (version 4.1) introduce new incentives for TNSPs to improve the capability of existing assets to provide greater value to generators and consumers and avoid the need for asset augmentation.

58 NER, clause 6A.7.5. AEMC, *Final determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule, November 2012*, p. 13

59 AEMC, *Final determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule, November 2012*, p. 212.