Explanatory Statement

Proposed

Electricity distribution network service providers efficiency benefit sharing scheme

April 2008

AUSTRALIAN ENERGY REGULATOR

Request for submissions

Interested parties are invited to make written submissions to the Australian Energy Regulator (AER) on the issues discussed in this paper by the close of business 14 May 2008. Submissions can be sent electronically to AERInquiry@aer.gov.au.

Alternatively, written submissions can be sent to:

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The AER prefers that all submissions be in an electronic format and publicly available, to facilitate an informed, transparent and robust consultation process. Accordingly, submissions will be treated as public documents and posted on the AER's website, www.aer.gov.au except and unless prior arrangements are made with the AER to treat the submission, or portions of it, as confidential.

Any enquiries about this issues paper, or about lodging submissions, should be directed to the AER's Network Regulation South Branch on (03) 9290 1444 or at the above email address.

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Shortened forms

AER	Australian Energy Regulator
capex	capital expenditure
DNSP	distribution network service provider
EBSS	Efficiency benefit sharing scheme
ENA	Energy Networks Association
ESCOSA	Essential Services Commission of South Australia
MEU	Major Energy Users Inc
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NPV	net present value
opex	operating expenditure
RFM	roll-forward model
WACC	weighted average cost of capital

1 Introduction

The Australian Energy Regulator (AER) is responsible for the economic regulation of electricity distribution network service providers (DNSPs) in the National Electricity Market (NEM), in accordance with the National Electricity Rules (NER).

Under the NER, the AER is required to develop and publish certain models, guidelines and schemes for the regulation of DNSPs. On 30 November 2007, the AER released an issues paper on the following guidelines, schemes and models that are required to be published under Chapter 6 of the NER:

- post-tax revenue model (PTRM)
- roll forward model (RFM)
- cost allocation guidelines
- efficiency benefit sharing scheme (EBSS).

The AER also released a separate issues paper on the development of a service target performance incentive scheme (STPIS). These issues papers formed part of a national consultation process that was separate, but had regard, to consultation specific to transitional guidelines, models and schemes for the 2009 revenue resets for DNSPs in the ACT and NSW. It is noted that the AER has published a separate EBSS that is to apply specifically to the 2009 ACT and NSW determinations for Energy Australia, Integral Energy, Country Energy and Actew/AGL.

The AER received 11 submissions on its issues paper commenting on the EBSS. This explanatory statement sets out the AER's consideration of issues raised in the submissions. The resulting proposed EBSS is included in Appendix E.

2 Rule requirements

The EBSS has been developed by the AER to comply with the relevant requirements prescribed under clause 6.5.8 of the NER:

> **6.5.8 Efficiency benefit sharing scheme**
>
> (a) The AER must, in accordance with the distribution consultation procedures, develop and publish a scheme or schemes (efficiency benefit sharing scheme) that provide for a fair sharing between Distribution Network Service Providers and Distribution Network Users of:
>
> (1) the efficiency gains derived from the operating expenditure of Distribution Network Service Providers for a regulatory control period being less than; and
>
> (2) the efficiency losses derived from the operating expenditure of Distribution Network Service Providers for a regulatory control period being more than,
>
> the forecast operating expenditure accepted or substituted by the AER for that regulatory control period.
>
> (b) An efficiency benefit sharing scheme may (but is not required to) be developed to cover efficiency gains and losses related to capital expenditure or distribution losses.
>
> (c) In developing and implementing an efficiency benefit sharing scheme, the AER must have regard to:
>
> (1) the need to ensure that benefits to consumers likely to result from the scheme are sufficient to warrant any reward or penalty under the scheme for Distribution Network Service Providers; and
>
> (2) the need to provide Distribution Network Service Providers with a continuous incentive, so far as is consistent with economic efficiency, to reduce operating expenditure and, if the scheme extends to capital expenditure, capital expenditure; and
>
> (3) the desirability of both rewarding Distribution Network Service Providers for efficiency gains and penalising Distribution Network Service Providers for efficiency losses; and
>
> (4) any incentives that Distribution Network Service Providers may have to capitalise expenditure; and
>
> (5) the possible effects of the scheme on incentives for the implementation of non-network alternatives.
>
> (d) The AER may, from time to time and in accordance with the distribution consultation procedures, amend or replace an efficiency benefit sharing scheme.

The distribution consultation procedures in Part G of Chapter 6 of the NER require the AER to publish a proposed EBSS, explanatory statement and invitation for submissions. Stakeholders must be allowed at least 30 business days to make submissions to the AER. Within 80 business days of publishing the proposed EBSS the AER must publish its final decision and EBSS.

This explanatory statement and proposed EBSS have been prepared to satisfy the AER's obligations under clause 6.16(b) of the NER.

3 Reasons for the efficiency benefit sharing scheme

It is generally accepted that firms are better placed than a regulator to effectively judge whether a particular project or organisational structure represents efficient production. In the presence of this information asymmetry, it is preferable for the regulator to use a light-handed approach, while providing a system of broad financial incentives to induce the firm to operate efficiently.

The nature of the financial incentives employed by the regulator will influence the actions of the firm. For example, the firm might have incentives to cut or increase its costs, or it could have an incentive to enhance or reduce reliability.

The power of the incentive to achieve a particular objective depends on the sensitivity of the firm's future profit stream to changes in the firm's effort to pursue that objective. The more sensitive the future profit stream, the greater the incentive to pursue that objective.

In the case of incentives to improve efficiency, the most common way to increase the power of the incentive is for the regulator to leave the regulated prices unchanged for a fixed period of time (usually five years). This introduces a lag between the time the firm improves efficiency and the time those new efficiencies are reflected in regulated prices. This increases the sensitivity of the present value of the firm's profit stream to changes in its actual costs.

The AER considers that a regulatory regime that relies on providing efficiency incentives to DNSPs is preferable to an approach which attempts to micro manage their business decisions.

Where the regulator would like a firm to pursue multiple objectives, the power of the incentives to pursue these different objectives should be balanced wherever possible. For example, if the incentive to maintain service standards is weak, introducing high powered expenditure incentives increases the risk that the firm will cut service standards in order to reduce expenditure.

The AER usually considers past expenditure when determining future expenditure allowances. Thus a DNSP, knowing that its current level of expenditure is likely to affect future expenditure allowances, will take this into account when choosing its level of effort to improve efficiency. Specifically, if lower expenditure today leads to lower expenditure allowances tomorrow, the DNSP may be more reluctant to reduce its expenditure today (that is, the power of the incentive will be reduced).

Under the current building block approach, a DNSP that is able to reduce expenditure near the beginning of the regulatory control period is able to retain the benefits of the reduction longer than if it were to reduce expenditure nearer the end of the period. Consequently, the power of the incentive reduces as the period progresses. Furthermore, if forecast expenditure allowances are set with reference to a specific year, the DNSP will no longer have an incentive to reduce expenditure in that year.

The EBSS has been designed to address these issues by providing an incentive for the DNSP to reveal its efficient level of expenditure through the retention of efficiency gains for five years after the year in which the gain is made. It will be used to calculate revenue increments or decrements that provide for a fair sharing of efficiency gains/losses between distribution network users and DNSPs. The revenue increments/decrements are derived from the operating expenditure (opex) of DNSPs being less/more than the forecast opex.

4 Issues raised in submissions and the AER response

4.1 Consistency with EBSS for transmission

In its issues paper released in November 2007, the AER noted the commonality between the requirements of chapter 6 and 6A of the NER regarding the EBSS. Chapters 6 and 6A apply to the regulation of distribution and transmission networks respectively. In this context, the AER indicated a preference to use the opex EBSS it had developed for electricity transmission as a basis for the electricity distribution opex EBSS. Key elements of the proposed opex EBSS included that:

- efficiency gains and losses would be measured on an incremental basis
- efficiency gains and losses would be applied symmetrically, that is, all carry-over amounts, both positive and negative, would be applied
- the scheme focused on costs that are controllable
- forecasts and/or outturn opex would be adjusted, for the purposes of calculating carry-over amounts, for changes in capitalisation policy and changes in demand compared to the forecast
- cost categories proposed by a DNSP, and agreed by the AER, as being uncontrollable would be excluded from the scheme.

4.1.1 Stakeholder comments

A number of stakeholders stated that they considered it appropriate to apply an EBSS to DNSPs similar in structure to that applied to TNSPs. For instance, Ergon Energy stated that it:

> … agrees that it is reasonable to develop an Efficiency Benefits Sharing Scheme (EBSS) for DNSPs that has the same general approach as the EBSS applying to TNSPs…[1]

The MEU stated that it supported the proposed opex EBSS subject to a series of preconditions being met:

> a) The scheme must be symmetrical in that there must be a carryover of losses as well as profits
>
> b) The DNSP must be aware that there will be no suspension of the carryover of losses for any reason
>
> c) There is no cash benefit in loading the fourth year opex in order to get higher opex in the next period, because the opex EBSS would create a zero sum game even if the following period opex was artificially inflated as a result of loading the current fourth year opex.
>
> d) Whilst there may be a small benefit from a cash flow timing by reducing opex in years 1 and 2 of a period, over the whole period this benefit is lost.

[1] Ergon Energy, *Guidelines, Models and Schemes for Electricity Distribution Network Service Providers*, February 2008, p.9.

e) The AER will demonstrate these outcomes of the EBSS model to DNSPs to show there is no benefit from attempting to game the opex EBSS.[2]

Aurora Energy, however, stated that it 'does not believe it is appropriate to apply the same scheme as that utilised in the transmission EBSS'.[3] Aurora stated that distribution required a different approach due to differences between it and transmission:

> The nature of distribution networks is significantly different than that of transmission networks and spending patterns are far less easily predicted. Indeed, the Tasmanian Regulator introduced an opex efficiency scheme as part of his 2003 Determination and subsequently dropped the scheme as part of the current Determination due to the complexities in determining actual efficiency gains or losses.

While most stakeholders supported an approach broadly similar to that applied to transmission, a number of stakeholders raised concerns with aspects of the transmission EBSS, and in particular, the application of negative carry-overs. For instance, CitiPower and Powercor raised three main concerns with the transmission EBSS, stating that:

- it results in the forecast revenues at a level below the estimated costs to a distributor of providing prescribed services;
- it may unduly penalise a distributor for failing to achieve the explicit regulatory efficiency factor; and
- it creates an obstacle to investing in service improvements.[4]

Some stakeholders, such as Country Energy, proposed that negative carry-overs, were they to be applied, should be rolled forward and offset against any efficiencies achieved in the following period.

4.1.2 AER conclusion

The AER recognises the concerns of Aurora Energy, and in particular, the difficulty in readily distinguishing the impacts of endogenous actions from exogenous events. The AER notes that it is required by clause 6.5.8(a) of the NER to apply an EBSS to efficiency gains and losses related to DNSPs' opex. The AER considers that the difficulties in determining actual efficiency gains or losses are inherent to applying an incentive scheme to efficiency gains and would persist regardless of the form of the scheme.

Consequently, the AER considers it appropriate to adopt a 'rule of thumb' in distinguishing efficiency gains. That is, efficiency gains should be measured as the difference between forecast and actual expenditure, subject to adjustments designed to remove the impacts of agreed uncontrollable costs, non-network alternative opex and recognised pass through events, and changes in capitalisation policies, demand growth and regulatory responsibilities.

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2 Major Energy Users Inc., *Comments on the AER Guidelines, models and schemes for electricity distribution network service providers*, January 2008, pp.17–8.

3 Aurora Energy, *Submission to Guidelines, Models and Schemes for Electricity Distribution Network Service Providers Issues Paper*, February 2008, p.5.

4 CitiPower and Powercor, *CitiPower and Powercor submission to Guidelines, Models and Schemes Issues Paper*, February 2008, p.6.

In coming to this conclusion, the AER has been mindful of the decision of the appeal panel that presided over the appeal by AGL against the Office of the Regulator-General (ORG) in relation to the 2001–05 electricity distribution price determination in Victoria. In coming to its decision, the appeal panel stated that:

> The Panel accepts that it was appropriate for the Office to adopt a rule of thumb, to implement the efficiency carry over, given the difficulties in distinguishing between windfall and managerial factors in determining costs, revenue and efficiency. Granted this, the Panel recognised that it is essential that as far as is possible the rule of thumb adopted be an accurate indicator of efficiency.
>
> The Panel notes that the Office measured efficiency by comparing actual total costs (including operating and maintenance costs, and capital costs) as achieved in 1999 with the benchmark forecasts, for the distribution business, for that year. The Panel recognised that this comparison does not make any allowance for changes in the size or scope of the business from those which were assumed in the benchmark forecast….
>
> The Panel decided that the use of a rule of thumb to measure efficiency which did not make allowance for changes in scale and scope of the business constituted an error of fact in a material respect. Accordingly, the Panel decided to set aside the Determination and remit it to the Office for amendment of the Determination to incorporate the effects on costs of the differences between forecast and actual demand in the measure of efficiency carry over.[5]

The AER recognises the Victorian appeal panel's statement that the carry-over mechanism should, as far as possible, reflect efficiency gains and losses by DNSPs. To this end, the AER has proposed that DNSPs be allowed to nominate further cost categories for exclusion. This will allow the cost categories that are clearly uncontrollable to be excluded from the scheme, thus preventing the EBSS from delivering significant windfall gains or losses to DNSPs due to these costs.

Clause 6.5.8(c)(3) of Chapter 6 of the NER requires the AER to have regard to the desirability of both rewarding DNSPs for efficiency gains and penalising them for efficiency losses. The AER has examined in detail the appropriateness of applying negative carry-overs as part of the EBSS. Modelling undertaken of the opex EBSS (see appendix B) highlights that symmetrical application of positive and negative carry-overs is important for the continuity of incentives to improve efficiency, which the AER is required to have regard to (clause 6.5.8(c)(2)).

In the absence of a symmetrical application of both negative and positive carry-over amounts, DNSPs would face significant incentives to shift opex into the fourth year of the period in order to increase forecasts for the following period (see section B.7 of appendix B). Given these considerations the AER considers it desirable to apply negative carry-overs.

By introducing an EBSS, DNSPs will have a greater incentive to improve efficiency (particularly in later years in the regulatory control period). However, the AER recognises the concerns raised by stakeholders that the EBSS may provide

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5 *Statement of reasons for decision by appeal panel under regulation 15 of the Office of Regulator-General (Appeals) Regulations 1996 in relation to the electricity price determination 2001–2005*, p.9.

inappropriate incentives to reduce service standards. To this end, the AER will introduce a Service Target Performance Incentive Scheme (STPIS) designed to balance the incentives to make efficiency gains with the incentives to improve services standards.

Under section 16(2)(a) of the NEL, the AER must take into account the revenue and pricing principles in certain circumstances. One of those principles is that a DNSP should be provided with a reasonable opportunity to recover the efficient costs of complying with its regulatory obligations. The AER notes that any carry-over amounts from one year are combined with others and the net amount is spread over several years in the following regulatory control period. The negative effect of a decrement in one year can be negated by a more efficient performance in later years. Where multiple decrements result in a net negative carry-over amount, operating expenditures are combined with four other building blocks. Thus, the overall revenue permitted may still be commensurate with, and provide a reasonable opportunity for a DNSP to recover, the efficient costs of complying with regulatory obligations.

The AER notes that the revenue principle does not establish a floor under a DNSP's revenue. Rather, it requires that the DNSP be provided a 'reasonable opportunity' to recover the efficient costs of complying with its regulatory obligations. In developing the EBSS the AER has sought to minimise the risk of negative carry-overs resulting from opex variations beyond the control of DNSPs. Consequently, the AER considers that the EBSS and revenue determination process will provide DNSPs with a 'reasonable opportunity' to recover its efficient costs.

The AER has carefully analysed the circumstances under which negative carry-overs could arise (see appendix B). The circumstances where negative carry-overs arise include:

- a one-off decrease in opex
- shifting of opex into year four
- an ongoing increase in opex
- forecasts not reflecting the efficient level of opex.

The AER notes that for a one-off decrease in opex the negative carry-over is less than the underspend during the period, and the DNSP is better off in NPV terms (see section B.3 of appendix B). When opex is shifted into year four the negative carry-overs are balanced by the increase in forecasts for the next period (see section B.7 of appendix B). When a DNSP makes an ongoing increase to opex, the EBSS serves to share this increase between the DNSP and network users. If the opex increase is related to opex that is controllable by the DNSP, the AER considers it appropriate that the DNSP share a proportion of that cost increase. Where forecasts do not reflect the efficient level of opex, it is possible that the DNSP could suffer a windfall gain or loss. For this reason, the AER has sought to minimise the risk of windfall gains and losses by allowing the adjustment of forecasts for scale and scope and the ex post adjustment of forecasts for actual demand growth.

The AER has considered the option of not immediately applying negative carry-overs and, instead, rolling them forward and offsetting them against positive amounts in future periods. Particular consideration has been given to the Victorian experience

where such an approach was adopted. The ESCV found that, when this approach was adopted in the 2001–05 regulatory control period, the profile of some DNSPs' opex appeared 'indicative of within period expenditure deferral'.

The AER considers that offsetting negative carry-overs against future positive carry-over amounts dilutes the incentive to reduce opex. In particular, doing so will not provide DNSPs that have accrued a net negative carry-over amount with a continuous incentive to reduce operating expenditure (as required to be considered by clause 6.5.8(c)(2) of the NER). Furthermore, DNSPs that have accrued a net negative amount would have a stronger incentive to shift costs into the penultimate year in order to increase future period opex forecasts. Consequently, the AER does not consider it appropriate to apply negative carry-overs and offset them against future positive carry-over amounts.

4.2 Inclusion of capex in the EBSS

In the November issues paper, the AER discussed the possibility of developing the EBSS to cover efficiency gains and losses related to capex. The issues paper noted the 'lumpiness' associated with capex which tends to make it difficult to forecast. To the extent that forecasting errors result in windfall gains and losses for DNSPs, the application of an EBSS to capex would magnify the size of these windfall gains or losses. Furthermore, the variance between actual and forecast capex may be significantly larger than that for opex, increasing regulatory uncertainty for DNSPs. The issues paper noted that forecasting capex become progressively more difficult towards the end of each regulatory period.

4.2.1 Stakeholder comments

Views expressed by stakeholders on the application of the EBSS to capex varied greatly. Some stakeholders stated that they consider a capex EBSS as unnecessary. For example, Aurora Energy 'believes that existing incentives in the broader regulatory framework are sufficient in achieving efficient capital expenditure outcomes'.[6] Similarly, Energex 'does not see the rationale to apply an EBSS on capital expenditure'.[7]

Ergon Energy stated that while it:

> .. may at some time (but not now) support an EBSS related to capex, it is difficult to definitely state that it would yield sufficient benefits to customers to warrant its introduction. Ergon Energy is therefore not convinced of any overall benefit of a capex EBSS.[8]

The MEU stated that it:

> …considers that to introduce an incentive scheme for capex at this stage is premature. However, as the MEU supports the principle of providing incentives to achieve the targeted outcome, the MEU is prepared to work with the AER to assist in the development of a capex incentive scheme.[9]

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6 Aurora Energy, op. cit., p.6.
7 Energex, *Energex response to AER issues papers on guidelines, models and schemes*, February 2008, p.28.
8 Ergon Energy, op. cit., p.9.
9 MEU, op. cit., p.20.

Citipower and Power stated that the:

> … businesses support the inclusion of an EBSS for capital expenditure. The inclusion of a capital expenditure EBSS ensures that a distributor receives a constant incentive to reduce or defer capital expenditure through a regulatory period. Without a capital expenditure EBSS the rewards/penalties on capital expenditure diminish through the regulatory period. In fact, under the transmission PTRM there are no rewards/penalties for capital expenditure in the final year of the regulatory period. This is a serious shortcoming of the transmission incentive regime, and should be corrected by the introduction of a capital expenditure EBSS.[10]

ETSA Utilities stated:

> ETSA Utilities considers that a capex EBSS is an essential complement to the opex EBSS, the SI Incentive scheme and the Demand Management initiatives. These matters are inter-related and require a co-ordinated approach to ensure distributors have an incentive to outperform benchmarks for the long-term benefit of customers. It may be possible for the AER to develop arrangements which improve the quality of the incentives. However, the current arrangements applying in South Australia (i.e. including a capex EBSS) are superior to those without such a scheme. A tailored distributor-by-distributor approach could be undertaken by the AER through the Framework and Approach papers.[11]

ESCOSA stated that it:

> …believes that there are strong grounds to apply an EBSS to capex, in order to provide continuous efficiency incentives and to avoid inappropriate capitalisation of opex.
>
> The Commission understands the arguments regarding the difficulties in forecasting capex and the potential windfall gains or losses from such forecasting error. However, uncertainty of future capital projects, whether distribution or transmission projects, can be addressed in other ways that do not mitigate the effectiveness of the efficiency carryover mechanism in providing continuous incentives. For example pass-through or off-ramp arrangements are commonly used by regulators to address future events that are sufficiently uncertain are to warrant any related expenditure being considered at the time of the event rather than at the time of the price review.[12]

ENA stated that:

> It would be inappropriate for a broad AER framework on efficiency mechanisms to unilaterally rule out this option. The choice for distributors to propose such a scheme should take into account the distribution businesses' own assessment of, and willingness to assume, the risk exposures of such a scheme. A capital efficiency scheme could play an important role in certain circumstances in sustaining incentives for non-network solutions to localised constraints.[13]

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10 Citipower and Powercor, op. cit., p.8.

11 ETSA Utilities, *Issues paper—guidelines, models and schemes for electricity distribution network service providers*, February 2008, p.16.

12 ESCOSA, *Regulation of electricity distribution network service providers: Issues papers*, February 2008, p.3.

13 Energy networks association (ENA), *Guidelines, models, schemes and service performance incentives for electricity distributors—Response to AER issues papers*, February 2008, p.4.

4.2.2 AER conclusion

The AER has conducted further analysis of the incentives available to DNSPs to make capex efficiency gains with and without an EBSS (see appendix C). Without an EBSS in place, DNSPs receive a return on unspent forecast capex in each year remaining in the regulatory control period. Consequently, DNSPs will receive a greater return on unspent capex the earlier it is forecast in the period and therefore the incentive to reduce capex diminishes as the regulatory period progresses. If forecast depreciation is used in the RFM, DNSPs retain none of the benefits of any capex efficiency gains made in the final year of the regulatory control period.

With an EBSS applied to capex, DNSPs effectively receive a return on unspent capex for five years regardless of the year in which the efficiency gain was made. For example, in the absence of an EBSS, if a DNSP spent less than the forecast capex in the fourth year of a regulatory control period it would only receive a return on that unspent forecast capex in the final two years of the regulatory control period (as compared to five years were the capex underspend to have occurred in the first year). With a capex EBSS, the DNSP would also receive carry-over payments in the first four years of the following period thus providing the DNSP with the same benefit it would have received if the capex underspend had occurred in any other year of the regulatory control period. Consequently a capex EBSS would provide DNSPs with a constant incentive to improve capex efficiency (see section C.2 of appendix C).

One of the advantages of the opex EBSS is that it provides a readily observable basis by which to set expenditure for the following period. The AER notes, however, that this may not be the case for a capex EBSS due to the 'lumpy' nature of capex and the characteristics of asset replacement cycles.

The AER also considers that the application of an EBSS to capex could magnify any windfall gains and losses resulting from forecasting error. If the AER is to apply an EBSS to capex it would need to consider whether DNSPs are adequately compensated for risk through the weighted average cost of capital (WACC). If it were determined that DNSPs would not be adequately compensated for risk through the WACC, then consideration would be given to the options available to minimise risk, such as the adjustment of forecasts and actuals for the purposes of calculating carry-over amounts, or the use of pass-throughs or off-ramp arrangements. The AER's consideration of whether to include capex in the EBSS is discussed in more detail in the next section.

The AER considers it desirable, all else equal, to provide DNSPs with a constant incentive to make capex efficiency gains. Furthermore, these incentives should be balanced with the incentives applying to opex efficiency, service performance and implementation of non-network alternatives.

In considering the merits of a capex incentive mechanism within the EBSS, however, regard also needs to be given to the operation of a capex EBSS and whether there is a tendency in practice for such a scheme to inefficiently promote the deferral of capex such that end-users would be worse off.

4.3 Incentives to defer capex

In its November 2007 issues paper, the AER noted the outcome of the efficiency carry-over mechanism in place in Victoria during the 2001–05 regulatory period. The ESCV noted significant underspending during 2001–05 followed by an increase in the capex forecast for the 2006–10 period. The ESCV took the view that including capex in an efficiency carry-over mechanism could potentially provide inappropriate incentives to defer capex between periods (that is, rather than achieving genuine efficiencies). The ESCV noted that customers could potentially fund deferrals up to three times:

- through financing the expenditure forecasts
- through financing rewards under the benefit-sharing scheme
- where the same (deferred) capital projects are proposed in the next reset.

Because of these concerns, the ESCV decided not to apply an efficiency carry-over mechanism to capex for the 2006–10 period.

4.3.1 Stakeholder comments

CitiPower and Powercor stated:

> Efficient deferment of capital expenditure is in the long term interest of consumers as it lowers the cost of providing network services. Deferment can only have a negative consequence to consumers if it results in lower levels of network service performance. This concern has been addressed by the AER through the proposed service incentive scheme which ensures that networks have a strong incentive to maintain (and when feasible improve) network service performance.[14]

Ergon Energy stated that:

> Within a portfolio of projects, decisions regarding timing or deferral are necessarily a part of managing capex and opex efficiently. Customer feedback and service standards (including any service target performance incentive scheme) also assist in counterbalancing any incentive that may exist to inappropriately defer capital.[15]

ESCOSA stated that:

> …arguments that a capex EBSS may overcompensate a network business where the business defers capex from one regulatory period to another should be investigated further. The Commission notes that even in the absence of an efficiency carryover mechanism, the CPI–X regulatory regime inherently creates an incentive for a regulated business to defer capital expenditure from one period to the next. Where deferred capex is included in expenditure benchmarks in the following period, it is still possible for the business to retain more than 100% of the benefit of such deferral even without an EBSS. Therefore, removing the EBSS from capex may not necessarily resolve the deferral problem.
>
> The Commission believes that the deferral incentive is more appropriately addressed through the expenditure benchmark setting process rather than through the EBSS. This would ensure that the desirable properties of applying

[14] CitiPower and Powercor, op. cit., p.9.
[15] Ergon Energy, op. cit., p.10.

> an EBSS to capex, including providing for continuous capex incentives throughout the regulatory period and avoiding the creation of an artificial incentive to capitalise as much operating expenditure as possible, could be retained.

The AER has noted ESCOSA's comments and has given further consideration to the incentives to defer capex.

4.3.2 AER conclusion

The AER has conducted further analysis on the incentives to defer capex, both within and between periods, with and without an EBSS (see section C.4 of appendix C).

Incentives to defer capex with a regulatory control period

In the absence of an EBSS, DNSPs retain all of the benefits of deferring capex *within* a regulatory control period. The exact benefit to a DNSP of deferring capex within a regulatory control period will depend on whether actual or forecast depreciation is used in the RFM. With a capex EBSS in place benefits derived from the time value of money from capex deferral *within* a regulatory control period are shared between the DNSP and consumers according to the sharing ratio.

Incentives to defer capex to the following regulatory control period

The incentives to defer capex from one regulatory control period to the next depend on how capex deferrals are treated when determining the capex forecasts for the later regulatory control period. That is, the incentive will depend on whether deferred capex is included in the forecasts for the later regulatory control period.

If deferred capex is included in the forecasts for the next period a DNSP, in the absence of a capex EBSS, retains up to 100 per cent of the time value of money benefits of deferring capex (assuming the cost of the capital project has not changed in real terms after the deferral). As demonstrated in table 1 below, the percentage of benefits retained by the DNSP depends on the year in which the original capex is forecast and the year in the following regulatory control period into which it is deferred.

Table 1: Percentage of time value of money benefits of deferring capex to the following period retained by the DNSP without a capex EBSS

Year in first period of original capex forecast	*Year in following period into which capex deferred*				
	1	*2*	*3*	*4*	*5*
1	100%	86%	75%	68%	62%
2	100%	82%	79%	62%	56%
3	100%	77%	63%	54%	48%
4	100%	69%	53%	44%	37%
5	100%	51%	35%	27%	22%

Note: details on the calculation of these figures, including examples, are contained in appendix C

When a capex EBSS is applied, the benefit of deferring capex to the following regulatory period is much greater and can exceed the total time value of money benefit of deferring capex, as shown in table 2. The benefit also depends on the year in which the original capex is forecast and the year into which it is deferred. Table 2

below shows the percentage of the benefits of deferring capex to the next regulatory period retained by a DNSP, with a capex EBSS in place.

Table 2: Percentage of time value of money benefits of deferring capex to the following period retained by the DNSP with a capex EBSS

Year in first period of original capex forecast	*Year in following period into which capex deferred*				
	1	*2*	*3*	*4*	*5*
1	117%	100%	88%	79%	72%
2	142%	117%	100%	88%	79%
3	184%	142%	117%	100%	88%
4	268%	184%	142%	117%	100%
5	521%	268%	184%	142%	117%

Note: details on the calculation of these figures, including examples, are contained in appendix C

Table 2 demonstrates that when a capex EBSS is in place, and deferred capex is included in capex forecasts in subsequent regulatory control periods, a DNSP can gain substantial benefits from deferring capex into a later period. These benefits are greater than the total time value of money benefit of deferring the capex and consumers would fund these benefits through EBSS carry-over payments. As the ESCV has noted, this means customers could potentially fund the same capex up to three times.

Clause 6.5.8(c)(1) requires the AER, in developing an EBSS, to have regard to the need to ensure that benefits to consumers likely to result from the EBSS are sufficient to warrant any reward or penalty for DNSPs. The AER considers that were an EBSS applied to capex, and deferred capex were allowed to be included in capex forecasts for a subsequent regulatory control period, there would be a significant likelihood that benefits to consumers would not be sufficient (and could in fact be negative) to justify the incentive payments to DNSPs for deferring capex into a later regulatory control period.

Options to address inappropriate incentives to defer provided by a capex EBSS

To address concerns regarding the impact of deferred capex on the operation of a capex EBSS, the AER has considered not allowing deferred capex to be included in subsequent capex forecasts. As demonstrated in section C.4 of appendix C, when deferred capex is not included in forecasts in subsequent regulatory control periods, and an EBSS is applied to capex, DNSPs retain a constant share of the time value of money benefits of capex deferred into a later regulatory control period. However, based on the requirements the AER is required to consider under clause 6.5.7 of the NER when assessing capex forecasts, the AER does not consider that it would be in a position to reject, as a matter of course, deferred capex from capex forecasts for subsequent regulatory control periods. Rather each capex forecast proposal would need to be assessed on its merits and, in particular, against the capex objectives and criteria having regard to the capex factors, which include actual capex during any preceding regulatory control period. In some cases, for example, it may be the case that deferral of capex is efficient. Consequently, the AER considers that it would not be practicable or consistent with the NER to implement the option of automatically rejecting capex deferrals.

In summary, applying an EBSS to capex where deferred capex may be included in capex forecasts for a subsequent regulatory control period would allow DNSPs to generate significant benefits from deferring capex between periods, which may outweigh the benefits of the scheme to consumers.

Other capex incentive considerations

Regarding the issue of balancing the incentives for opex versus capex under an EBSS, as noted in section 4.2 above, there are also other incentives for DNSPs to reduce capex. The AER has noted, in relation to the proposed RFM for DNSPs, that it prefers the use of actual depreciation, as it provides a stronger capex incentive framework. While the use of actual depreciation in the RFM provides a stronger incentive for DNSPs to reduce capex, those incentives are not constant over the regulatory control period. As is the case for forecast depreciation, the use of actual depreciation in the absence of an EBSS results in incentives that diminish as the regulatory control period progresses. However, the AER considers that the use of actual depreciation will provide a better balance between the incentives to reduce capex and opex.

Consequently, the AER has retained actual depreciation as a default method in the proposed RFM. DNSPs will be able to suggest the use of forecast depreciation as it may be required under transitional provisions or otherwise suit the particular characteristics of the business.

4.4 Impact on non-network alternatives

In the November 2007 issues paper, the AER also noted NERA Economic Consulting's (NERA) report to the MCE on the impacts of the NER on incentives for DNSPs to utilise non-network alternatives. As part of the report, NERA discussed the impacts of an EBSS on the incentives to utilise non-network alternatives. NERA noted that an EBSS applied only to opex may influence DNSPs to favour capex over opex. This in turn may impact on the incentives for the efficient valuation and utilisation of non-network alternatives, since these predominantly give rise to operating costs rather than capital costs. Consequently, NERA recommended that the NER allow, but not require, the AER to apply a capital expenditure efficiency incentive mechanism.[16]

4.4.1 Stakeholder comments

Alinta noted that balancing all regulatory incentives against the requirement to take due account of opportunities to utilise non-network alternatives is a complex issue and that it:

> …considers that in view of the paucity of necessary analysis and data, including illustrative modelling under various regulatory scenarios, the AER should defer consideration of capex and other incentives as they may relate to DSR [demand side response] and DG [distributed generation] until a much firmer analytical base has been established and consulted upon, either under a guideline consultation process or a Rule change process, or a combination of both.[17]

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16 NERA Economic Consulting, *Distribution rules review—network incentives for demand side response and distributed generation*, April 2007, p.23.

17 Alinta, *Guidelines, models and schemes for electricity DNSP service target performance incentive scheme for electricity DNSP*, February 2008, p.27.

Energex supported minimising the impact of the EBSS on the incentives to utilise non-network alternatives:

> A DNSP should not be penalised for choosing a demand side response over a supply side response where the former is more efficient and prudent. On this basis an EBSS should exclude operating expenditure in relation to demand side responses.[18]

4.4.2 AER conclusion

As discussed in section 4.3 of this explanatory statement, the AER has proposed to not apply an EBSS to capex because it may give rise to an increase in capex deferrals which may not provide any benefits to end users. In the absence of an EBSS applying to capex, the incentive to improve capex efficiency declines as the regulatory control period progresses. Consequently, where an EBSS is applied to opex, but not capex, the incentive to reduce capex is less than the incentive to reduce opex later in the period. As a result, where the expenditure for non-network alternatives is operational in nature and included in the EBSS, DNSPs may have a greater incentive later in the period to augment networks rather than implement non-network alternatives.

Clause 6.5.8(c)(5) of the NER requires the AER to have regard to the possible effects of the scheme on incentives for the implementation of non-network alternatives. The AER considers that the EBSS should not alter the incentives for DNSPs to undertake non-network alternatives. To minimise the impact of the EBSS on the incentives to implement non-network alternatives, the AER proposes that all non-network alternatives costs should be excluded from the EBSS.

4.5 Treatment of distribution losses

The AER also noted in its November 2007 issues paper that the NER allows the EBSS to cover efficiency gains and losses related to distribution losses. The AER outlined that the subject of distribution losses is a complex one and the first issue that must be addressed is whether or not distribution losses are significantly greater than the efficient level. The AER noted that before deciding if and how to extend the EBSS to distribution losses, the AER would require evidence of the losses currently in the distribution system and the extent to which these losses deviated from the efficient level.

4.5.1 Stakeholder comments

A number of stakeholders stated that they did not believe that evidence existed to demonstrate that the current level of distribution losses is significantly greater than the efficient level of losses. For example, Energex stated that it:

> … encourages the principle of reducing distribution losses but does not consider them to be significantly greater than the economically efficient level. As such ENERGEX does not believe further complications to this scheme or another scheme are warranted but is willing to work with the regulator to find a more appropriate mechanism for ensuring DNSPs are encouraged to reduce distribution loss factors.[19]

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18 Energex, op. cit., p.27..
19 ibid., p.28.

CitiPower and Powercor noted that distribution losses had been considered by the ESCV in the 2006–10 distribution determination and concluded that 'there is no evidence that distribution loss factors are at inappropriate levels.'[20] Furthermore, CitiPower and Powercor stated:

> The businesses agree with the AER that persuasive evidence is required that distribution losses are above efficient levels before moving to create a distribution loss incentive mechanism.[21]

CitiPower and Powercor also noted that:

> … there is no nationally accepted approach to the estimation of distribution loss factors at this time. Further, the introduction of AMI across Victoria will almost certainly require a change to the Essential Service Commission endorsed methodology for calculating distribution losses.[22]

Integral Energy stated that it:

> …agrees with the AER that it would require clear evidence that distribution losses exceeded efficient levels prior to taking regulatory action to optimise them. Further, it is not clear that including those losses in an EBSS would be the most effective approach to optimisation as elements of these losses largely lie beyond the control of DNSPs.[23]

The MEU stated that it:

> … is concerned that introducing an incentive scheme to reduce losses within the distribution network is premature… The MEU supports the principle of incentivizing a loss mitigation program but in the absence of a program that provides for rewards to DNSPs which are clear and unequivocal outcomes of actions by DNSPs, then the MEU does not support the immediate implementation of a losses mitigation incentive program.[24]

4.5.2 AER conclusion

The AER maintains the view that it would require evidence that distribution losses are deviating from efficient levels before considering whether the EBSS should apply to distribution losses. In the absence of such evidence, the AER does not consider it appropriate to apply the EBSS to distribution losses at this time. The AER recognises that the incentives to make efficiency gains related to distribution losses are complex and to include them in the EBSS would be a significant undertaking. The AER may reconsider applying an EBSS to distribution losses having regard to, for instance, distribution loss factor methodologies, and evidence that levels of distribution losses vary significantly from the efficient level.

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20 ESCV, *Electricity Distribution Price Review 2006-10 October 2005 Price Determination as amended in accordance with a decision of the Appeal Panel dated 17 February 2006, Final Decision Volume 1, Statement of Purpose and Reasons*, October 2006, p.120.

21 CitiPower and Powercor, op. cit., p.9.

22 ibid.

23 Integral Energy, *Integral Energy submission to the AER on guidelines, models, schemes and service target performance incentive scheme for electricity distributors*, February 2008, p.10.

24 MEU, op. cit., p.22–3.

4.6 Linkages with information requirements

In the November 2007 issues paper, the AER stated that similar evidence would likely be required from DNSPs as is required from TNSPs under the transmission EBSS.

4.6.1 Stakeholder comments

Some stakeholders raised concerns about the burden of any information requirements necessary for the operation of the EBSS. Energex stated that:

> The AER would need to ensure that the benefits of any additional data or information requirements, above those already required of the DNSP outweigh the additional compliance and administrative costs that the DNSP would incur.[25]

Aurora Energy stated:

> If any scheme is to be introduced it is appropriate that DNSPs provide sufficient information for the working of the scheme.[26]

4.6.2 AER conclusion

As noted previously in this explanatory statement, the AER has recognised that it is difficult to readily separate out the impacts of endogenous actions from exogenous events and thus has decided to adopt a 'rule of thumb' in distinguishing efficiency gains. That is, efficiency gains will be measured as the difference between forecast and actual expenditure. To reduce the risk of windfall gains and losses, the AER will also allow the ex post adjustment of forecasts, and the exclusion from the scheme of cost categories agreed to be uncontrollable.

The AER also recognises that the application of adjustments to the EBSS will place information requirements on DNSPs to provide the information necessary to make these adjustments. The information required of DNSPs in their regulatory proposals will include:

- a description of their capitalisation policy, including any proposed changes to the policy and a calculation of the impact of those policy changes on forecast opex
- the method for accounting for demand growth to be used at the end of the regulatory control period to adjust forecast opex for outturn demand growth
- any proposed cost category exclusions, including disaggregated forecasts for those cost categories, to enable exclusion from the EBSS
- forecast opex for non-network alternatives to enable their exclusion from the EBSS.

[25] Energex, op. cit., p.29.
[26] Aurora Energy, op. cit., p.7.

At the end of the regulatory control period the following information will be required to calculate the carry-over amounts:

- actual opex during the regulatory control period using the same cost categories as used to calculate the forecasts for that period
- a detailed description of any changes made to capitalisation policy during the period and a calculation of the impact of those changes on forecast opex during the period
- actual demand growth during the regulatory control period and adjustments to opex forecasts for the period using the same demand growth method proposed at the beginning of the period
- actual opex for cost categories deemed to be uncontrollable by the AER at the beginning of the period
- allowed increases or decreases in expenditure associated with recognised pass through events
- an explanation for the profile of opex sufficient to demonstrate that opex during the period did not entail any instances of cost shifting.

The AER notes that the adjustments in the EBSS are substantially the same as those undertaken by the ESCV for its efficiency carry-over mechanism, with the addition of the exclusion of cost categories considered to be uncontrollable.

The AER does not consider that the EBSS will add a significant administrative burden beyond what is already required. The main requirement for the operation of the EBSS is the recording and reporting of accurate opex figures during the period. This is a normal regulatory requirement for DNSPs. The AER considers that the only additional provision imposed by the EBSS will be the requirement for DNSPs to propose a method for accounting for demand growth to be used at the end of the regulatory control period (that is, to adjust forecast opex for outturn demand growth).

4.7 Sharing of efficiency gains

The AER did not, in its November 2007 issues paper, discuss the appropriateness of the sharing ratio of the EBSS. The proposed EBSS carries over opex efficiency gains and losses for five years after the year in which the gain or loss is made. Combined with a real discount rate of approximately 6 per cent, this yields a sharing ratio of approximately 30:70. That is, DNSPs retain 30 per cent of the benefits of efficiency gains and consumers the remaining 70 per cent. A longer carry-over period and/or a larger discount rate will deliver a higher proportion of the benefits of efficiency gains to the DNSP.

4.7.1 Stakeholder comments

ETSA Utilities stated:

> The sharing of efficiency gains between customers and distributors needs to consider the relative efficiency of the distributor. More favourable arrangements are warranted for those distributors that are already operating at or near to the efficiency frontier.[27]

CitiPower and Powercor also raised concerns with the sharing of efficiency gains as provided for by the transmission EBSS:

> The businesses believe that EBSS should be constructed to ensure a fair sharing of revealed efficiency gains between the distributor and its customers. As such, the businesses believe a 50:50 benefit sharing ratio should be an objective of the EBSS…
>
> It is also noted that a direct consequence of adopting the transmission EBSS is that as performance of the distributor approaches frontier performance the incentive to pursue further efficiencies diminishes.[28]

CitiPower and Powercor stated that the scope for efficiency gains will diminish as the industry matures. Consequently, the businesses proposed that the AER consider using multipliers to provide DNSPs with a higher proportion of benefits while maintaining a five year carry-over period. According to the businesses, such an approach would ensure that the incentives to pursue efficiency gains remain strong for distributors at or near the efficiency frontier.[29]

The ENA also suggested that a 50:50 sharing ratio may be more appropriate, stating:

> The distribution sector is also concerned that the effective sharing ratio of 30/70 currently in place across jurisdictions and a number of AER/ACCC decisions does not provide the high-powered incentives required to facilitate the next wave of more costly infrastructure and operational investments to secure efficiency gains. ENA considers a reasonable net present value sharing ratio to be 50/50.

4.7.2 AER conclusion

In the absence of an EBSS, DNSPs would retain the benefits of efficiency gains for the remainder of the regulatory control period. For a five-year regulatory control period, DNSPs would retain efficiency gains for between one and six years (assuming fifth year gains are unknown at the time of a regulatory determination). Without an EBSS, therefore, DNSPs retain between 11 per cent and 30 per cent of the benefits of efficiency gains depending on the year in which the gains are made. In contrast, with an EBSS incorporating a five year carry-over period, DNSPs are assured of receiving 30 per cent of the benefits of efficiency gains regardless of the year in which the gains are made (assuming a real discount rate of approximately 6 per cent).

To achieve a 50:50 sharing ratio the carry-over period would need to be extended to ten years (assuming a real discount rate of approximately 6 per cent). Alternatively, multipliers could be used to deliver a 50:50 ratio while maintaining a five year carry-over period.

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27 ETSA Utilities, op. cit., p.18.
28 CitiPower and Powercor, op. cit., p.8.
29 ibid.

The AER considers that the use of multipliers, or a longer carry-over period, in the EBSS would be inappropriate where the EBSS is only applied to opex, as is proposed. With the EBSS not applying to capex, DNSPs retain approximately 35 per cent of capex reductions in the first year of a regulatory period if actual depreciation is used in the RFM (assuming the average life of a new asset is 40 years). This drops to 8 per cent in the final year (again assuming the use of actual depreciation and an average new asset life of 40 years). Consequently, DNSPs would retain significantly more of the benefits of opex efficiency gains as compared to capex efficiency gains if a 50:50 sharing ratio were provided by the opex EBSS. The AER considers the resulting imbalance between the strength of capex and opex incentives to be potentially detrimental to efficiency as it may inappropriately distort the resource allocation decisions of a DNSP.

For this reason, the AER considers that neither multipliers nor a carry-over period longer than the regulatory control period should be used as long the EBSS only applies to opex. Consistent with the EBSS for transmission, the AER will consider extending the carry-over period to equal the regulatory control period where a DNSP has proposed a longer regulatory control period. The AER will reconsider the appropriateness of the carry-over period (and thus the sharing ratio) where it is presented with evidence that a DNSP is approaching the efficiency frontier. It should be noted, however, that establishing a firm's relative efficiency in this way will require the consideration and resolution of a number of both firm-specific and industry wide measurement and data issues.

5 AER preliminary positions

In response to stakeholder comments and in the context of the AER's conclusions listed in previous sections, the AER has decided to publish the proposed EBSS under the consultation procedures at clause 6.16(b)(1).

Appendix A: Submissions received on the EBSS

The following interested parties provided submissions on the AER's issues paper that was released in November 2007:

- ActewAGL
- Alinta
- Aurora Energy
- CitiPower and Powercor
- Energex
- Energy Networks Association
- Ergon Energy
- Essential Services Commission of South Australia
- ETSA Utilities
- Integral Energy
- Major Energy Users Inc.
- United Energy Distribution.

Copies of these submissions are available on the AER's website at www.aer.gov.au.

Appendix B: Opex EBSS modelling

B.1 NPV analysis of the opex EBSS

Appendix B provides NPV analysis of a number of different scenarios and illustrates the incentives provided by the EBSS. It includes analysis of the:

- incentives to make ongoing efficiency gains
- incentives to make one-off efficiency gains
- incentives to bring forward or delay opex
- impact of a declining/rising opex profile
- impact of actual opex exceeding forecast
- incentives to shift costs into the reference year
- setting of forecasts based on average actual costs

The analysis illustrates the nature of the incentives provided by the EBSS. Table B.1 summarises the impact of the EBSS on a DNSP that makes: an ongoing change to opex; a one off change to opex, and; brings forward or delays opex.

Table B.1 Summary of incentives provided by the EBSS

Change	Without an EBSS	With an EBSS
Ongoing change to opex	The DNSP retains the benefit or funds the expense of the change until the next determination when it is 'clawed back'. The incentive decreases as the period progresses as benefits/expenses are not retained for as long.	The DNSP retains the benefit or funds the expense of the change for five years after the change is made. After five years, the change is passed on to consumers, with the change being shared 30:70 between DNSPs and users.
One off change to opex	The DNSP retains the full benefit or funds the full expense. If forecasts are based on a single year, the DNSP benefits from opex increases in that year.	The DNSP has to refund an opex reduction and is reimbursed an opex increase six years after the opex change occurs. Due to the time value of money, this distributes the impact of the change 30:70 between the DNSP and users.
Change in timing of opex	The DNSP retains the full time value of money benefit of opex deferrals and faces the full time value of money cost of bringing opex forward. If forecasts are based on a single year, a DNSP benefits from shifting opex into that year.	The time value of money benefits or costs of the timing change are shared 30:70 between DNSPs and users. The DNSP does not benefit from shifting opex into the year on which forecasts for the next period are based.

B.2 Incentives to make ongoing efficiency gains

Consider a DNSP with annual (real) opex of $100 million. The DNSP operates under constant scale and scope (for example, demand is constant over the period and the DNSP's regulatory responsibilities do not change). The DNSP has the opportunity to make a $10 million ongoing reduction to opex. If that reduction is initiated in the first year of the regulatory control period, the NPV to the DNSP of making the $10 million ongoing reduction will be $52.1 million (assuming a real discount rate of 6%). The majority of this benefit will be derived from opex underspends during the current period. In addition, the DNSP will receive a $10 million carry-over payment in the first year of the next period (see table B.2).

As demonstrated in tables B.2 through B.4, the DNSP will receive the same benefit ($52.1 million in NPV terms) regardless of the year in the regulatory control period in which the ongoing opex reduction begins.[30] However, the benefit derived from carry-over payments increases as the period progresses. This is because the benefit the DNSP receives from opex underspends during the current period decreases as the period progresses. Thus, while the magnitude of carry-over amounts increases as the period progresses, the combined impact of current period underspends, future carry-over payments and future period forecast changes, measured in NPV terms, does not change. Thus, the incentive to make the ongoing reduction to opex is the same in each year of the regulatory control period.

Of note, the total NPV of the ongoing $10 million opex reduction is $177 million (assuming a 6% real discount rate). Thus, the benefit to DNSPs ($52.1 million) represents 30 per cent of the total benefit and the scheme yields a 30:70 sharing ratio between DNSPs and distribution network users, respectively.

Table B.5 demonstrates the impact of an opex increase and highlights the symmetry of the EBSS. As shown, the EBSS serves to carry over opex increases in an identical fashion to opex reductions. Thus, a $10 million ongoing increase in year one, (or any other year) costs a DNSP $52.1 million in NPV terms.

Table B.2: Impact of an ongoing opex reduction initiated in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	90	90	90	90	90
Actual (A)	90	90	90	90	90	90	90	90	90	90
Incremental saving (E)	10	0	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		10	10	10	10	10				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						10	0	0	0	0
Effective target	100	100	100	100	100	100	90	90	90	90
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										52.1

[30] This assumes that the ongoing opex reduction is initiated in the year in which the opportunity is identified. In order to apply this assumption, the discount factor has been equated to 1 in the year in which the opportunity is identified, i.e. the year the opex reduction is initiated.

Table B.3: Impact of an ongoing opex reduction initiated in year 4 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	90	90	90	90	90
Actual (A)	100	100	100	90	90	90	90	90	90	90
Incremental saving (E)	0	0	0	10	0	0	0	0	0	0
Carry-over of gains made in										
1		0	0	0	0	0				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					10	10	10	10	10	
5						0	0	0	0	0
Carry-over amount						10	10	10	10	0
Effective target	100	100	100	100	100	100	100	100	100	90
Discount factor	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70
Net present value										52.1

Table B.4: Impact of an ongoing opex reduction initiated in year 5 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	100	100	100	100
Actual (A)	100	100	100	100	90	90	90	90	90	90
Incremental saving (E)	0	0	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		0	0	0	0	0				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						0	0	0	0	0
Effective target	100	100	100	100	100	100	100	100	100	100
Discount factor	1.26	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75
Net present value										52.1

Table B.5: Impact of an ongoing opex increase initiated in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	110	110	110	110	110
Actual (A)	110	110	110	110	110	110	110	110	110	110
Incremental saving (E)	-10	0	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		-10	-10	-10	-10	-10				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						-10	0	0	0	0
Effective target	100	100	100	100	100	100	110	110	110	110
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										-52.1

B.3 Incentives to make one-off efficiency gains

When considering the incentives for opex reduction delivered by the EBSS, consideration should be given to one-off opex savings in addition to ongoing savings. Consider now a DNSP that has the opportunity to reduce opex by $10 million in the first year of the regulatory control period. Again assuming a real discount rate of 6%, the NPV to the DNSP of making the one-off opex reduction will be $3.0 million (see table B.6). This benefit is comprised of the $10 million underspend in the current period and a negative carry-over of $10 million six years later, worth $7.0 million in NPV terms.[31]

Should the same opportunity arise in any other year of the regulatory control period the NPV of the opex reduction would also be $3.0 million in the year of the opex reduction (see tables B.6 through B.8). This is because a one-off opex reduction has the impact of reducing by the same amount the effective opex forecast (that is, the forecast plus any EBSS carry-over amounts for that year) in the sixth year after the opex reduction. Note the impact of a $10 million opex reduction in year 4 of table B.7. This will result in positive carry-over amounts of $10 million in each of the first four years of the next period. However, it also results in a reduction in forecasts of $10 million in each year of the next period. Subsequently, the NPV of a $10 million one-off opex reduction, and thus the incentive to make any such reduction, is the same as if the reduction occurred in any other year.

The symmetry of the EBSS is demonstrated in table B.9 which shows that a one-off increase in year one has the opposite impact to a one-off decrease.

Table B.6: Impact of a one-off opex reduction in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	100	100	100	100
Actual (A)	90	100	100	100	100	100	100	100	100	100
Incremental saving (E)	10	-10	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		10	10	10	10	10				
2			-10	-10	-10	-10	-10			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						0	-10	0	0	0
Effective target	100	100	100	100	100	100	90	100	100	100
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										3.0

[31] A negative carry-over amount resulting from a one-off opex reduction may appear counter–intuitive, since the EBSS is designed to provide incentives to DNSPs to reduce costs. However, the EBSS is also designed to provide a fair sharing of efficiency gains and losses between DNSPs and distribution network users. In the absence of an EBSS, a one-off opex reduction in year one, if it had no impact on opex forecasts in the next period, would be retained in its entirety by a DNSP and not shared with distribution network users.

Table B.7: Impact of a one-off opex reduction in year 4 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	90	90	90	90	90
Actual (A)	100	100	100	90	100	100	100	100	100	100
Incremental saving (E)	0	0	0	10	0	0	0	0	0	0
Carry-over of gains made in										
1		0	0	0	0	0				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					10	10	10	10	10	
5						0	0	0	0	0
Carry-over amount						10	10	10	10	0
Effective target	100	100	100	100	100	100	100	100	100	90
Discount factor	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70
Net present value										3.0

Table B.8: Impact of a one-off opex reduction in year 5 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Actual (A)	100	100	100	100	90	100	100	100	100	100	100	100	100	100	100
Incremental saving (E)	0	0	0	0	0	-10	0	0	0	0	0	0	0	0	0
Carry-over of gains made in															
1		0	0	0	0	0									0
2			0	0	0	0	0								
3				0	0	0	0	0							
4					0	0	0	0	0						
5						0	0	0	0	0					
6							-10	-10	-10	-10	-10				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						0	0	0	0	0	-10	0	0	0	0
Effective target	100	100	100	100	100	100	100	100	100	100	90	100	100	100	100
Discount factor	1.26	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56
Net present value															3.0

Table B.9: Impact of a one-off opex increase in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	100	100	100	100
Actual (A)	110	100	100	100	100	100	100	100	100	100
Incremental saving (E)	-10	10	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		-10	-10	-10	-10	-10				
2			10	10	10	10	10			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						0	10	0	0	0
Effective target	100	100	100	100	100	100	110	100	100	100
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										-3.0

B.4 Incentives to bring forward or delay opex

It is also worth considering the incentives to bring forward or delay opex. Intuitively, one might think that a DNSP could benefit from bringing costs forward as this will yield incremental cost reductions in the following years and positive carry-over payments. However, this is not the case. While a DNSP can maximise its carry-over payments by bringing forward opex, it will not benefit from doing so. Remember, the opex incentive is derived from a combination of benefits from underspending in the current period, carry-over payments and impacts on future forecast amounts.

The bringing forward of opex is essentially a one-off opex increase in one year followed by a one-off opex decrease, of the same value in real terms, in a later year. As shown above, the benefit (cost) to a DNSP of a one-off opex decrease (increase) is the same in each year of the regulatory control period. Thus, a DNSP will never benefit from bringing opex forward due to the time value of money (assuming the magnitude of the opex remains constant in real terms).

Consequently, a DNSP will always benefit from delaying opex, where this is possible (assuming the delaying of opex imposes no other costs). The EBSS serves to share the time value of money benefits (costs) from delaying (bringing forward) opex between DNSPs and distribution network users. If a DNSP delays any costs, it will receive 30% of the time value of money benefits, assuming a 30:70 sharing ratio (the ratio resulting from a five year carry-over period and a 6% real discount rate).

Since the incentive to delay costs is constant, delaying opex that is forecast for year four will not result in the delayed opex being inappropriately imbedded in opex forecasts for the next period. As demonstrated in table B.10, a DNSP that delays year four opex will have their forecasts reduced by the same amount in each year of the next regulatory control period. However, they will also receive positive carry-over payments that ensure that the time value of money benefits from the delayed opex are shared between the DNSP and distribution network users.

Table B.10: Impact of deferring year 4 opex ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	90	90	90	90	90	100	100	100	100	100
Actual (A)	100	100	100	90	110	100	100	100	100	100	100	100	100	100	100
Incremental saving (E)	0	0	0	10	0	10	0	0	0	0	0	0	0	0	0
Carry-over of gains made in															
1		0	0	0	0	0									
2			0	0	0	0	0								
3				0	0	0	0	0							
4					10	10	10	10	10						
5						0	0	0	0	0					
6							10	10	10	10	10				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						10	10	10	10	0	10	0	0	0	0
Effective target	100	100	100	100	100	100	100	100	100	90	110	100	100	100	100
Discount factor	1.19	1.12	1.06	1.00	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56	0.53
Net present value															0.17

B.5 Impact of a declining/rising opex profile

During consultation, the impact of declining (and rising) opex profiles was raised. Particularly, stakeholders questioned whether a DNSP should benefit (or be penalised) where its total actual opex is as forecast but its opex declines (rises) over the regulatory control period. Consider a DNSP who has forecast opex of $100 million in real terms in each year of the next regulatory control period. It has the opportunity to bring forward some of those costs such that its opex will decline by $10 million each year from $120 million in the first year to $80 million in the fifth year. For the initial period, the present value of the overspends in years one and two is greater than the present value of the underspend in years four and five due to the time value of money. As demonstrated in table B.11, the EBSS operates by setting the opex in the next period in accordance with the year four outturn and there are positive and negative carry-overs from the first period. Under such a scenario, the DNSP is worse of by $1.5 million in NPV terms. The $1.5 million represents 30% of the time value of money costs of bringing opex forward, which are shared between DNSPs and distribution network users according to the sharing ratio (30:70 in this instance).

Table B.11: Impact of bringing opex forward ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	90	90	90	90	90	100	100	100	100	100
Actual (A)	120	110	100	90	80	100	100	100	100	100	100	100	100	100	100
Incremental saving (E)	-20	10	10	10	0	-20	0	0	0	0	0	0	0	0	0
Carry-over of gains made in															
1		-20	-20	-20	-20	-20									
2			10	10	10	10	10								
3				10	10	10	10	10							
4					10	10	10	10	10						
5						0	0	0	0	0					
6							-20	-20	-20	-20	-20				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						10	30	20	10	0	-20	0	0	0	0
Effective target	100	100	100	100	100	100	120	110	100	90	80	100	100	100	100
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56	0.53	0.50	0.47	0.44
Net present value															-1.5

B.6 Impact of actual opex exceeding forecast

During consultation, stakeholders raised concerns regarding the impact of 'incorrect forecasts' on the operation of the EBSS. (In subsequent periods, the EBSS sets the opex forecast on the basis of actual expenses incurred in the fourth year of the previous regulatory control period. As demonstrated later, the scheme removes the incentive to shift costs to year four.) Consider first the case where a DNSP's forecasts are lower than its actual efficient costs by ten million dollars in each year of the period. As demonstrated in table B.12, if there were no ex post adjustments of forecasts, the impact of the incorrect forecast on the DNSP is the same as an ongoing efficiency loss of the same amount initiated in the first year.

Table B.12: Impact of a $10 million under forecast in each year of the first period ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	110	110	110	110	110
Actual (A)	110	110	110	110	110	110	110	110	110	110
Incremental saving (E)	-10	0	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		-10	-10	-10	-10	-10				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						-10	0	0	0	0
Effective target	100	100	100	100	100	100	110	110	110	110
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										-52.1

Thus, the DNSP would be worse off by $52 million in NPV terms due to the incorrect forecasts in this circumstance. Of the $52 million, $44.7 million would be from overspending within the regulatory control period and $7.5 million from negative carry-over amounts. Thus, an EBSS without ex post adjustments of forecasts would magnify the impact on the DNSP of the incorrect forecast by 17 per cent (this value will vary slightly with a different discount rate).

Consider also the case where the forecast growth in opex has been underestimated. Assume, for instance, that efficient opex grows, in real terms, by $2 million a year more than forecast opex due to higher than expected demand growth. As demonstrated in table B.13, such a scenario magnifies the impact of overspends on a DNSP to a greater extent than the previous example.

Table B.13: Impact of forecast opex growth being $2 million per annum less than the efficient amount in each year of the first period ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	112	114	116	118	120	122	124	126	128	130
Actual (A)	102	104	106	108	110	112	114	116	118	120	122	124	126	128	130
Incremental saving (E)	-2	-2	-2	-2	0	2	0	0	0	0	0	0	0	0	0
Carry-over of gains made in															
1		-2	-2	-2	-2	-2									
2			-2	-2	-2	-2	-2								
3				-2	-2	-2	-2	-2							
4					-2	-2	-2	-2	-2						
5						0	0	0	0	0					
6							2	2	2	2	2				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						-8	-6	-4	-2	0	2	0	0	0	0
Effective target	100	100	100	100	100	104	108	112	116	120	124	124	126	128	130
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56	0.53	0.50	0.47	0.44
Discounted net carry-over	0	0	0	0	0	-6.0	-10.2	-12.9	-14.1	-14.1	-13.0	-13.0	-13.0	-13.0	-13.0
Discounted net underspend	-2	-5.8	-11.1	-17.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8
Net present value															-38.8

In the example, forecast opex has been set to $112 million in year six to account for the revealed efficient opex in year four and observed demand growth. That is, when the forecasts are set for the second period, the $108 million in year four is adjusted for demand growth, which increases efficient opex by $2 million each year.

The DNSP described in table B.13 would be worse off by $39 million in NPV terms due to actual demand growth exceeding forecast demand growth in the first period. Of the $39 million, $26 million is from overspending within the regulatory control period and $13 million is from negative carry-over amounts. Thus, we can see that an EBSS without ex post adjustment of forecasts would magnify the impact on the DNSP of the incorrect forecasts by 51 per cent. With ex post adjustment of forecasts, actual demand growth would be adjusted for and there would be no negative carry-overs.

B.7 Incentives to shift costs into the reference year

Consider a DNSP with forecast real annual opex of $100 million and the ability to delay or bring forward opex by up to 12 months. If the DNSP sought to maximise its forecasts in the next regulatory control period it would delay all year three opex until year four and bring all year five opex into year four, as demonstrated in table B.14 below. Such an opex profile would yield forecast opex of $300 million in the next period. However, such an opex profile would also result in a total carry-over amount of negative $1000 million (the summation of the carry-over amount row). The NPV of such an opex profile would be $0.1 million.[32] By comparison, if a DNSP exhibited the same opex profile but there was no EBSS and forecasts were based on year four opex, it would generate benefits of some $668 million in NPV terms by moving years three and five opex into year four (see table B.15).

Table B.14: Impact of shifting opex into the reference year with an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	300	300	300	300	300	100	100	100	100	100
Actual (A)	100	100	0	300	0	100	100	100	100	100	100	100	100	100	100
Incremental saving (E)	0	0	100	-300	0	-100	0	0	0	0	0	0	0	0	0
Carry-over of gains made in															
1		0	0	0	0	0									
2			0	0	0	0	0								
3				100	100	100	100	100							
4					-300	-300	-300	-300	-300						
5						0	0	0	0	0					
6							-100	-100	-100	-100	-100				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						-200	-200	-200	-300	0	-100	0	0	0	0
Effective target	100	100	100	100	100	100	100	100	0	300	0	100	100	100	100
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56	0.53	0.50	0.47	0.44
Net present value															0.1

Table B.15: Impact of shifting opex into the reference year without an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	300	300	300	300	300
Actual (A)	100	100	0	300	0	100	100	100	100	100
Cumulative saving (F – A)	0	0	100	-200	100	200	200	200	200	200
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value										668

[32] It is worth noting that this amount is 30% of the NPV of the same cost profile for a DNSP where there is no EBSS and forecasts are based on efficient costs. As demonstrated in B.3, the time value of money benefits/costs from bringing forward or delaying opex are shared 30:70 between DNSPs and distribution network users (assuming a real discount rate of 6%).

B.8 Setting of forecasts based on average actual costs

Another method for setting forecasts is to base forecast opex on an average of the most recent five years of actual opex. In tables B.16 through B.20 forecasts for the next regulatory control period are based on a weighted average of years zero to four, which are assumed to be the five most recent years of actual opex available at the determination. These tables show that basing forecasts on a weighted average of five years of actual data provides a constant incentive to reduce opex, without an EBSS. Furthermore, comparing tables B.17 to B.21 to tables B.2 to B.5 shows that weighted average forecasts provide the same incentive as the EBSS, that is the NPV of an ongoing opex reduction is the same.

In setting the forecasts for years six to ten, the actual opex for years zero to four have been weighted to account for the time value of money using the following weightings:

$$\text{Forecast opex} = \frac{c_0 A_0 + c_1 A_1 + c_2 A_2 + c_3 A_3 + c_4 A_4}{5}$$

Where:

$$c_n = \frac{5 \times WACC(1 + WACC)^{4-n}}{(1 + WACC)^5 - 1}$$

Table B.16: Impact of an ongoing opex reduction initiated in year 1 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	92.2	92.	92.2	92.2	92.2
Actual (A)	100	90	90	90	90	90	90	90	90	90	90
Cumulative saving (F – A)	0	10	10	10	10	10	2.2	2.2	2.2	2.2	2.2
Discount factor	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value											52.1

Table B.17: Impact of an ongoing opex reduction initiated in year 2 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	94.4	94.4	94.4	94.4	94.4
Actual (A)	100	100	90	90	90	90	90	90	90	90	90
Cumulative saving (F – A)	0	0	10	10	10	10	4.35	4.35	4.35	4.35	4.35
Discount factor	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63
Net present value											52.1

Table B.18: Impact of an ongoing opex reduction initiated in year 3 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	96.3	96.3	96.3	96.3	96.3
Actual (A)	100	100	100	90	90	90	90	90	90	90	90
Cumulative saving (F – A)	0	0	0	10	10	10	6.35	6.35	6.35	6.35	6.35
Discount factor	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67
Net present value											52.1

Table B.19: Impact of an ongoing opex reduction initiated in year 4 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	98.2	98.2	98.2	98.2	98.2
Actual (A)	100	100	100	100	90	90	90	90	90	90	90
Cumulative saving (F – A)	0	0	0	0	10	10	8.23	8.23	8.23	8.23	8.23
Discount factor	1.26	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70
Net present value											52.1

Table B.20: Impact of an ongoing opex reduction initiated in year 5 with weighted average forecasts ($million, year 1 dollars)

Year	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	100	90	90	90	90	90
Actual (A)	90	90	90	90	90	90	90	90	90	90	90
Cumulative saving (F – A)	10	10	10	10	10	10	0	0	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56
Net present value											52.1

Similarly tables B.21 through B.22 show that in using weighted average forecasts, the incentives to make one-off opex reductions are equal in each year of the regulatory control period. Like ongoing opex reductions, the NPV of a one-off opex reduction is the same when forecasts are based on a weighted average of actual opex as using an EBSS with forecasts based on year four actual opex (see tables B.6 through B.8).

Table B.21: Impact of a one-off opex reduction in year 1 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	97.9	97.9	97.9	97.9	97.9
Actual (A)	100	90	100	100	100	100	100	100	100	100	100
Cumulative saving (F – A)	0	10	0	0	0	0	-2.1	-2.1	-2.1	-2.1	-2.1
Discount factor	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
Net present value											3.0

Table B.22: Impact of a one-off opex reduction in year 2 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	98.0	98.0	98.0	98.0	98.0
Actual (A)	100	100	90	100	100	100	100	100	100	100	100
Cumulative saving (F – A)	0	0	10	0	0	0	-2.0	-2.0	-2.0	-2.0	-2.0
Discount factor	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63
Net present value											3.0

Table B.23: Impact of a one-off opex reduction in year 3 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	98.1	98.1	98.1	98.1	98.1
Actual (A)	100	100	100	90	100	100	100	100	100	100	100
Cumulative saving (F – A)	0	0	0	10	0	0	-1.9	-1.9	-1.9	-1.9	-1.9
Discount factor	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67
Net present value											3.0

Table B.24: Impact of a one-off opex reduction in year 4 with weighted average forecasts ($million, year 1 dollars)

Year	*0*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100	100	98.2	98.2	98.2	98.2	98.2
Actual (A)	100	100	100	100	90	100	100	100	100	100	100
Cumulative saving (F – A)	0	0	0	0	10	0	-1.8	-1.8	-1.8	-1.8	-1.8
Discount factor	1.26	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70
Net present value											3.0

Table B.25: Impact of a one-off opex reduction in year 5 with weighted average forecasts ($million, year 1 dollars)

Year	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	100	100	100	100	100	100	98.2	98.2	98.2	98.2	98.2
Actual (A)	90	100	100	100	100	100	100	100	100	100	100
Cumulative saving (F – A)	10	0	0	0	0	0	-2.2	-2.2	-2.2	-2.2	-2.2
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59	0.56
Net present value											3.0

Appendix C: Capex EBSS modelling

C.1 NPV analysis of the capex EBSS

Appendix C provides NPV analysis of a number of different scenarios and illustrates the incentives provided by a capex EBSS. It includes analysis of the incentives to make one-off efficiency gains and the incentives to delay capex.

The analysis illustrates the nature of the incentives provided by a capex EBSS. Table C.1 summarises the impact of a capex EBSS on a DNSP that reduces or delays capex.

Table C.1 Summary of incentives provided by a capex EBSS

Change	Without an EBSS	With an EBSS
Reduction in capex	The DNSP receives a return on the unspent (overspent) forecast capex in each year remaining in the regulatory control period.	The DNSP receives a return on the unspent (overspent) forecast capex for five years after the year in which actual capex varied from forecast capex. Due to the time value of money this distributes the impact of the change 30:70 between the DNSP and users.
Change in timing of capex within a regulatory control period	The DNSP retains the full time value of money benefit of capex deferrals and faces the full time value of money cost of bringing capex forward.	The time value of money benefits or costs of the timing change are shared 30:70 between DNSPs and users.
Deferral of capex to a later regulatory control period	The DNSP retains as much as all of the time value of money benefits of the deferral. The proportion of benefits retained by the DNSP decreases the longer the capex is deferred.	The time value of money benefits of the deferral are shared 30:70 between DNSPs and users.

C.2 Incentives to make capex efficiency gains

Consider a DNSP that has the opportunity to reduce capex by $10 million for a given capital project in the first year of the regulatory control period. Assuming a real discount rate of 6%, the NPV of making the capex reduction will be $3.13 million to the DNSP (see table C.2). In the current period, the DNSP receives the benefit of not having to fund the unspent forecast capex. In this example the DNSP would be $0.6 million better off in each year of the first period (the capex reduction multiplied by the WACC). In the following period the DNSP would receive carry-over amounts through the EBSS. In this example the DNSP would receive $0.6 million in the first year of the second regulatory control period. The incentive to reduce capex will also depend on whether actual or forecast depreciation is used in the RFM. In this example it has been assumed that forecast depreciation is used in the RFM. (If actual depreciation were used the DNSP would also retain the difference between forecast and actual depreciation.) The net impact of these is that the DNSP is $3.1 million bettor off. This represents 30 per cent of the total benefit of $10.6 million (the NPV of $10 million not being expended and rolled into the RAB).

Should the same opportunity arise in any other year of the regulatory control period the NPV of the capex reduction would also be $3.1 million in the year of the reduction (see tables C.2 and C.3).

The symmetry of the EBSS is demonstrated in table C.4, which demonstrates that the impact of a capex efficiency loss in year one has the opposite impact to an efficiency gain.

Table C.2: Impact of a capex reduction in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100					
Actual (A)	90	100	100	100	100					
Cumulative saving (F – A)	10	0	0	0	0					
Efficiency gain (E)	0.6	0	0	0	0					
Carry-over of gains made in										
1		0.6	0.6	0.6	0.6	0.6				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						0.6	0	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
DNSP benefit	0.6	0.6	0.6	0.6	0.6	0.6	0	0	0	0
PV DNSP benefit	0.6	0.57	0.53	0.50	0.48	0.45	0	0	0	0
NPV DNSP benefit										3.13

Table C.3: Impact of a capex reduction in year 4 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100					
Actual (A)	100	100	100	90	100					
Cumulative saving (F – A)	0	0	0	10	0					
Efficiency gain (E)	0	0	0	0.6	0					
Carry-over of gains made in										
1		0	0	0	0	0				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0.6	0.6	0.6	0.6	0.6	
5						0	0	0	0	0
Carry-over amount						0.6	0.6	0.6	0.6	0
Discount factor	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70
DNSP benefit	0	0	0	0.6	0.6	0.6	0.6	0.6	0.6	0
PV DNSP benefit	0	0	0	0.6	0.57	0.53	0.50	0.48	0.45	0
NPV DNSP benefit										3.13

Table C.4: Impact of a capex increase in year 1 ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100					
Actual (A)	110	100	100	100	100					
Cumulative saving (F – A)	-10	0	0	0	0					
Efficiency gain (E)	-0.6	0	0	0	0					
Carry-over of gains made in										
1		-0.6	-0.6	-0.6	-0.6	-0.6				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						-0.6	0	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
DNSP benefit	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	0	0	0	0
PV DNSP benefit	-0.6	-0.57	-0.53	-0.50	-0.48	-0.45	0	0	0	0
NPV DNSP benefit										-3.13

C.4 Incentives to defer capex

It is also important to consider the incentives to defer capex, both within a regulatory control period and between periods. In the absence of an EBSS DNSPs retain all of the time value of money benefits of deferring capex within a regulatory control period. If forecast depreciation is used in the RFM the amount of capex rolled into the RAB depends only on the total amount of capex spent during the regulatory control period. The timing of the expenditure does not impact the RAB rolled forward. Thus, when forecast depreciation is used in the RFM, the benefit to a DNSP of deferring capex within a regulatory control period is equal to the time value of money benefit of the deferral. When actual depreciation is used in the RFM the amount of capex rolled forward will depend on the timing of the expenditure to the extent it changes the amount of actual depreciation. Consequently DNSPs retain the time value of money benefits of delaying capex plus any difference between forecast and actual depreciation.

Table C.5 illustrates the example of year one capex being deferred to year two. It assumes forecast depreciation is used in the RFM. It illustrates how a capex EBSS would share with consumers $4.2 million, or 70 per cent, of the total $6.0 million in time value of money benefits of capex deferral.

Table C.5: Impact of deferring year 1 capex by one year ($million, year 1 dollars) with an EBSS

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	100	100	100	100					
Actual (A)	0	200	100	100	100					
Cumulative saving (F – A)	100	-100	0	0	0					
Efficiency gain (E)	6	-6	0	0	0					
Carry-over of gains made in										
1		6	6	6	6	6				
2			-6	-6	-6	-6	-6			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						0	-6	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
DNSP benefit	6	0	0	0	0	0	-6	0	0	0
PV DNSP benefit	6	0	0	0	0	0	-4.2	0	0	0
NPV DNSP benefit										1.8

The incentive to defer capex to a later period will depend on the year in which it was forecast to be spent, and the year to which it is deferred. Without an EBSS, a DNSP can retain up to 100 per cent of the benefit of deferring capex to a later period. Table C.6 demonstrates the case of deferring capex forecast to be spent in the first year of a regulatory control period to the first year of the next period.

Table C.6: Impact of deferring year 1 capex to the first year of the next period without an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	0	0	0	0	100	0	0	0	0
Actual (A)	0	0	0	0	0	100	0	0	0	0
Cumulative saving (F – A)	100	0	0	0	0	0	0	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
DNSP benefit	6	6	6	6	6	0	0	0	0	0
PV DNSP benefit	6	5.7	5.3	5.0	4.8	0	0	0	0	0
NPV DNSP benefit										26.8
PV benefit to consumers	0	0	0	0	0	0	0	0	0	0
NPV benefit to customers										0
PV total benefit	106	0	0	0	0	-79.2	0	0	0	0
NPV total benefit										26.8

Whenever capex is deferred to the first year of the next regulatory control period the DNSP retains 100 per cent of the time value of money benefits of that deferral. Table C.7 demonstrates the case where capex forecast to be spent in the third year of a regulatory control period is deferred to the first year of the next period.

Table C.7: Impact of deferring year 3 capex to the first year of the next period without an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	0	0	100	0	0	100	0	0	0	0
Actual (A)	0	0	0	0	0	100	0	0	0	0
Cumulative saving (F – A)	0	0	100	0	0	0	0	0	0	0
Discount factor	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67
DNSP benefit	0	0	6	6	6	0	0	0	0	0
PV DNSP benefit	0	0	6	5.7	5.3	0	0	0	0	0
NPV DNSP benefit										17.0
PV benefit to consumers	0	0	0	0	0	0	0	0	0	0
NPV benefit to customers										0
PV total benefit	0	0	106	0	0	-89	0	0	0	0
NPV total benefit										17.0

Where capex is deferred to a year later than the first year of the next regulatory period, the DNSP retains the same benefit as if they had deferred the capex to the first year. Thus the DNSP receives less than 100 per cent of the time value of money benefit of the deferral and the proportion of benefits received declines the longer the deferral. Table C.8 demonstrates the case where capex forecast to be spent in the third year of a regulatory control period is deferred to the fourth year of the next period. In this example the DNSP retains $17.0 million of the time value of money benefits of the deferral. This is the same benefit as received in the example in table C.7. However, the total benefit has now increased to $31.3 million and thus the DNSP has received 54% of the total time value of money benefits.

Table C.8: Impact of deferring year 3 capex to year 4 of the next period without an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	0	0	100	0	0	0	0	0	100	0
Actual (A)	0	0	0	0	0	0	0	0	100	0
Cumulative saving (F – A)	0	0	100	0	0	0	0	0	0	0
Discount factor	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67
DNSP benefit	0	0	6	6	6	0	0	0	0	0
PV DNSP benefit	0	0	6	5.7	5.3	0	0	0	0	0
NPV DNSP benefit										17.0
PV benefit to consumers	0	0	0	0	0	89.0	0	0	-74.7	0
NPV benefit to customers										14.3
PV total benefit	0	0	106	0	0	0	0	0	-74.7	0
NPV total benefit										31.3

As outlined in table C.9, the percentage of the time value of money benefits retained by the DNSP diminishes the later in the period the opex was originally forecast to be spent and the later it is deferred.

Table C.9: Percentage of time value of money benefits of deferring capex to the following period retained by the DNSP without a capex EBSS

Year in first period of original capex forecast	*Year in following period into which capex deferred*				
	1	*2*	*3*	*4*	*5*
1	100%	86%	75%	68%	62%
2	100%	82%	79%	62%	56%
3	100%	77%	63%	54%	48%
4	100%	69%	53%	44%	37%
5	100%	51%	35%	27%	22%

With an EBSS applied to capex, and when deferred capex can be included in capex forecasts for a subsequent regulatory period, the incentive to defer capex to a later period will also depend on the year in which it was forecast to be spent, and the year to which it is deferred. With an EBSS, a DNSP can receive a benefit greater than the time value of money benefit of deferring the capex. Table C.10 demonstrates the case of deferring capex forecast to be spent in the first year of a regulatory control period to the first year of the next period.

Table C.10: Impact of deferring year 1 capex to the first year of the next period with an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	100	0	0	0	0	100	0	0	0	0
Actual (A)	0	0	0	0	0	100	0	0	0	0
Cumulative saving (F – A)	100	0	0	0	0	0	0	0	0	0
Efficiency gain (E)	6	0	0	0	0	0	0	0	0	0
Carry-over of gains made in										
1		6	6	6	6	6				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						0	0	0	0	0
Carry-over amount						6	0	0	0	0
Discount factor	1	0.94	0.89	0.84	0.79	0.75	0.70	0.67	0.63	0.59
DNSP benefit	6	6	6	6	6	6	0	0	0	0
PV DNSP benefit	6	5.7	5.3	5.0	4.8	4.5	0	0	0	0
NPV DNSP benefit										31.3
PV benefit to consumers						-4.5	0	0	0	0
NPV benefit to customers										-4.5
PV total benefit	106	0	0	0	0	-79	0	0	0	0
NPV total benefit										26.8

The benefit that a DNSP can receive from delaying capex to the next period increases the later in the period the capex was originally forecast to be spent. For example, as demonstrated in table C.1, a DNSP can receive 521 per cent of the time value of money benefits from delaying capex from the last year of the regulatory control period to the first year of the next when an EBSS is in place. (In the example below the DNSP receives $31.3 million in benefits which represents 521 per cent of the total $6.0 million in benefits.)

Table C.1: Impact of deferring year 5 capex to the first year of the next period with an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Forecast (F)	0	0	0	0	100	100	0	0	0	0
Actual (A)	0	0	0	0	0	100	0	0	0	0
Cumulative saving (F – A)	0	0	0	0	100	0	0	0	0	0
Efficiency gain (E)	0	0	0	0	6	0	0	0	0	0
Carry-over of gains made in										
1		0	0	0	0	0				
2			0	0	0	0	0			
3				0	0	0	0	0		
4					0	0	0	0	0	
5						6	6	6	6	6
Carry-over amount						6	6	6	6	6
Discount factor	1.26	1.19	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75
DNSP benefit	0	0	0	0	6	6	6	6	6	6
PV DNSP benefit	0	0	0	0	6	5.7	5.3	5.0	4.8	4.5
NPV DNSP benefit										31.3
PV benefit to consumers						-5.7	-5.3	-5.0	-4.8	-4.5
NPV benefit to customers										-25.3
PV total benefit	0	0	0	0	106	-100	0	0	0	0
NPV total benefit										6.0

As outlined in table C.12, the benefit to a DNSP of deferring capex to the next regulatory control period when there is an EBBS applied to capex often exceeds the time value of money benefits of the capex deferral. The longer the DNSP defers the capex, the lower the proportion of the time value of money benefits it receives. The later in the regulatory control period the capex was originally forecast to be spent the higher the proportion of the time value of money benefits the DNSP receives (this is opposite to the case where there is no EBSS, see table C.9).

Table C.12: Percentage of time value of money benefits of deferring capex to the following period retained by the DNSP with a capex EBSS

Year in first period of original capex forecast	*Year in following period into which capex deferred*				
	1	*2*	*3*	*4*	*5*
1	117%	100%	88%	79%	72%
2	142%	117%	100%	88%	79%
3	184%	142%	117%	100%	88%
4	268%	184%	142%	117%	100%
5	521%	268%	184%	142%	117%

When capex that has been deferred is excluded from capex forecasts, and an EBSS is applied to capex, the DNSP receives a constant proportion of the time value of money benefits from deferring capex to a later period. For example, table C.17 outlines the benefits to a DNSP and consumers of deferring capex forecast to be spent in year 3 of a regulatory control period to year 1 of the next period.

Table C.17: Impact of deferring year 5 capex to the first year of the next period with an EBSS ($million, year 1 dollars)

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Forecast (F)	0	0	100	0	0	0	0	0	0	0					
Actual (A)	0	0	0	0	0	100	0	0	0	0					
Cumulative saving (F – A)	0	0	100	0	0	-100	0	0	0	0					
Efficiency gain (E)	0	0	6	0	0	-6	0	0	0	0					
Carry-over of gains made in															
1		0	0	0	0	0									
2			0	0	0	0	0								
3				6	6	6	6	6							
4					0	0	0	0	0						
5						0	0	0	0	0					
6							-6	-6	-6	-6	-6				
7								0	0	0	0	0			
8									0	0	0	0	0		
9										0	0	0	0	0	
10											0	0	0	0	0
Carry-over amount						6	6	6	0	0	-6	0	0	0	0
Discount factor	1.12	1.06	1	0.94	0.89	0.84	0.79	0.75	0.7	0.67	0.63	0.59	0.56	0.53	0.5
DNSP benefit	0	0	6	6	6	0	0	0	-6	-6	-6	0	0	0	0
PV DNSP benefit	0	0	6	5.7	5.30	0	0	0	-4.2	-4.0	-3.8	0	0	0	0
NPV DNSP benefit															5.0
PV benefit to consumers						84	-4.8	-4.5	0	0	-62.7	0	0	0	0
NPV benefit to customers															12.0
PV total benefit	0	0	106	0	0	-89	0	0	0	0	0	0	0	0	00
NPV total benefit															16.0

Appendix D: Proposed application of the EBSS

This appendix has been prepared to clarify how the EBSS will operate.

For the EBSS to operate, information is required from DNSPs at the following stages:

- in a DNSP's regulatory proposal for the next regulatory control period
- in a DNSP's annual regulatory reports during the next regulatory control period
- in a DNSP's regulatory proposal for the following regulatory control period.

For each DNSP to respond appropriately to the incentives provided by the EBSS, it must be clear how the AER will use the information provided by each DNSP. The AER will provide guidance on how it will use the information provided in:

- the final determination for the next regulatory control period
- the final determination for the following regulatory control period.

The information required at these stages, and the guidance that will be provided by the AER is outlined below.

The DNSPs' regulatory proposals for the next regulatory control period

The following information will be required of each DNSP in its regulatory proposal prior to the commencement of the next regulatory control period:

- a description of its capitalisation policy including any proposed changes to the policy and a calculation of the impact of those policy changes on forecast opex
- the proposed method for accounting for demand growth to be used at the end of the regulatory control period to adjust forecast opex for outturn demand growth (that is, to adjust for any changes in scale). The method proposed must be the same method as used to produce the opex forecasts.
- any proposed cost category exclusions for uncontrollable costs
- forecast opex for the next regulatory control period, including disaggregated forecasts for non-network alternatives and cost categories proposed to be excluded.

The AER's final determinations for the next regulatory control period

In its final determination for the next regulatory control period, the AER will determine whether or not the method for accounting for demand growth proposed by the DNSP is appropriate. The AER will publish the accepted or substituted demand growth adjustment method.

The AER will determine whether it has accepted the cost categories proposed by the DNSP to be uncontrollable costs. The AER will publish all the cost categories deemed to be uncontrollable and to be excluded from the operation of the EBSS.

The AER will determine whether the forecast opex proposed by the DNSP is efficient and publish the accepted or substitute levels of opex.

Annual regulatory reports

In their annual regulatory reports during the next regulatory control period, each DNSP will be required to submit:

- any changes to capitalisation policy and a calculation of the impact of those policy changes on forecast opex
- actual opex disaggregated for non-network alternatives, recognised pass through events and cost categories determined to be uncontrollable and to be excluded from the EBSS.

The DNSPs' regulatory proposals for the following regulatory control period

In their regulatory proposal for the following regulatory control period, each DNSP will be required to complete an EBSS template provided by the AER with the following information:

- the forecast opex accepted or substituted by the AER in the previous regulatory determination
- a detailed description of any changes made to capitalisation policy during the period and a calculation of the impact of those changes on forecast opex during the period
- a detailed description of any changes in responsibilities during the period and a calculation of the impact of those changes on forecast opex during the period (that is, adjustments to forecast opex for any changes in scope). The change in responsibilities may have resulted from compliance with a new or amended law or licence, or other statutory or regulatory requirement, including a requirement that can be demonstrated to arise directly from a recognised policy, practice, or policy generally applicable to similar firms participating in the NEM.
- actual demand growth during the regulatory control period and adjustments to opex forecasts for the period using the demand growth method accepted or substituted by the AER in the previous regulatory determination (that is, adjustments to forecast opex for any changes in scale)
- actual opex during the regulatory control period using the same cost categories as used to calculate the forecasts for that period
- actual opex for cost categories determined as uncontrollable by the AER in the previous regulatory determination
- actual opex for non-network alternatives

- allowed increases or decreases in expenditure associated with recognised pass through events.

The DNSP must also provide an explanation for the profile of opex sufficient to demonstrate that opex during the period did not entail any instances of cost shifting.

The AER's final determinations for the following regulatory control period

The AER will assess the EBSS outcomes proposed by the DNSP against the requirements of the EBSS. The carry-over amounts, either positive or negative, accepted or substituted by the AER will be included as building block elements in the allowed revenue for the following regulatory control period.

Adjustments to forecast and actual opex figures

In calculating the carry-over amounts to be applied in the following regulatory control period, the EBSS will use adjusted forecast and actual opex figures. To ensure that the EBSS outcomes reflect genuine efficiency gains as far as possible, the EBSS uses adjusted forecast and actual opex figures. The AER will assess the adjustments proposed by DNSPs in their regulatory proposal for the following regulatory control period to ensure they are consistent with the EBSS.

Capitalisation policy changes

Each DNSP must adjust the forecast opex figures used to calculate the carry-over amount to account for changes in capitalisation policy. The adjusted forecast opex figures must reflect the capitalisation policy used in the calculation of the actual opex figures.

Demand growth

DNSPs must adjust forecast opex figures to account for the difference between actual and forecast demand growth (that is, adjust for any changes in scale). Each DNSP must use the demand growth adjustment method accepted or substituted by the AER in its final determination for the regulatory control period. The AER will assess whether the adjustments made are consistent with the method in the final determination.

Regulatory responsibilities

DNSPs must adjust forecast opex figures to account for any changes in regulatory responsibilities that were made during the regulatory control period and were not incorporated in the original forecast opex figures.

Uncontrollable costs

Forecast and actual opex for cost categories accepted as being uncontrollable by the AER in the final determination for the regulatory control period must be subtracted from the forecast and actual opex figures used to calculate the carry-over amounts. Proposed uncontrollable cost categories must be expense categories reported in DNSPs' regulatory accounts. DNSPs will not be allowed to make adjustments other than the removal of whole expense categories accepted by the AER as uncontrollable.

Non-network alternatives

Opex expended in undertaking non-network alternatives must be removed from both the forecast and actual opex figures used to calculate carry-over amounts. The AER will assess whether non-network alternative opex has been removed and that the sum removed is consistent with the amount reported in the DNSP's regulatory accounts.

Recognised pass throughs

Recognised pass through event opex must be removed from the actual opex figures used to calculate carry-over amounts. The AER will assess whether the opex removed is consistent with the amount reported in the DNSP's regulatory accounts.

Variances in cost categories and methodologies, and errors.

Adjustments may be made where necessary to correct for variances in cost categories and methodologies, and errors. The AER will asses the forecast and actual opex figures used to calculate carry-over amounts to ensure that the forecast and actual figures are based on the same cost categories and methodologies and do not include any errors.

Appendix E: Proposed efficiency benefit sharing scheme