AER Better Regulation Program

Response to AER Operational Expenditure Forecasting and EBSS Consultation Papers

May 2013

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1. Introduction

Grid Australia welcomes the opportunity to provide this submission to the Australian Energy Regulator (AER) in response to two short papers it recently published focused on the interaction between the Efficiency Benefits Sharing Scheme (EBSS) and operating expenditure forecasts. The first paper was circulated on 6 May 2013 and titled 'Interaction between the EBSS and opex forecasts' (Consultation Paper 1), the second was released on 17 May 2013 and was titled 'Transition issues relating to the proposed opex incentive scheme' (Consultation Paper 2). The AER also released spreadsheet models on the operation of the EBSS in conjunction with the consultation papers.

Grid Australia understands that the focus of the papers released by the AER is on:

- The timing for its decision on whether it will rely on revealed costs as a basis for setting operating expenditure forecasts or instead use amounts derived from external benchmarking techniques, and

- How the use of alternative techniques for deriving operating expenditure forecasts might interact with the EBSS.

Following a summary of key messages and overarching comments, this submission provides responses to the questions raised in each of the consultation papers. A paper from Incenta Economic Consulting has also been provided to support this submission.

1.1 Summary of key messages made in this submission

The key points raised in this submission are as follows:

- Grid Australia strongly endorses the continued use of the existing EBSS and the revealed cost approach as the basis for setting operating expenditure forecasts. The continuous and symmetrical incentives delivered through the EBSS encourages network businesses to reveal their efficient costs. This in turn permits revealed costs to be used as the starting point for setting expenditure forecasts. As such, Grid Australia would expect that alternative approaches would only be applied in extreme circumstances where it is beyond doubt that a business is not responding to incentives. For the avoidance of doubt, the 'revealed cost' approach referred to in this paper is this use of revealed costs as the starting point for setting expenditure forecasts, coupled with the base-step-trend approach.

- Grid Australia considers that the AER has substantially understated the challenges associated with identifying whether NSPs are efficient or not, especially in comparison to how difficult it is to assess whether an NSP is

responding to incentives. Rather than relying on output measures alone, the AER should instead focus on whether there is evidence of businesses striving for improvement as this is the best, and most observable, indicator of whether businesses are responding to incentives.

• The AER is right to recognise the value of certainty in an incentive based regulatory framework, as it is this certainty that allows NSPs to respond to commercial drivers aligned with the interests of consumers. However, the most important certainty the AER can provide is via the ex-ante establishment of expenditure forecast allowances and incentives, which are not later changed retrospectively.

Response to Consultation Paper 1 Questions

• To preserve the Rules requirement that the AER assess whether it will accept or reject the revenue proposal of a TNSP, the AER cannot make a final decision on which approach to setting expenditure forecasting it will take prior to the business submitting its revenue proposal. To do so would mean the AER would not have proper regard to the evidence and reasons put forward by a business to support its proposed forecast for operating expenditure.

    – Nevertheless, the AER should provide as much certainty and transparency about its approach as soon as practicable. This can be achieved by the AER being clear in its guideline about the factors that will guide its decision, including information requirements that would lead it to adopt one type of assessment or another, and also by regularly communicating with NSPs following any assessment of actual performance where it has concerns about the efficiency of operating expenditure.

• The difficulty of assessing whether an NSP is efficient or not combined with the known challenges of applying benchmarking to TNSPs creates a significant risk that operating expenditure forecasts are not sufficient for the network specific costs of a business.

    – The AER also needs to consider the practical realities of running a transmission business when making its assessment. This means that it cannot simply undertake a mechanistic assessment that chooses the lower of a revealed cost or external benchmark value.

• It is necessary for there to be a high materiality threshold prior to it choosing something other than the revealed cost method to set expenditure forecasts. This is to recognise the significant challenges associated with comparative benchmarking of TNSPs and in turn assessing whether or not a business is efficient or responding to incentives. A high threshold is also necessary to have proper regard to the asymmetric consequences of regulatory error.

- If the AER is able to obtain compelling evidence that a business is not responding to incentives and revealed costs cannot be relied upon to set operating expenditure forecasts it is important that any adjustment is not applied in a single step over one year. It is not a trivial task for TNSPs to substantially reduce costs without potentially compromising service performance outcomes. As such, the AER should set a glide path that reflects a realistic expectation of how quickly a business can change to reduce its costs without compromising service performance.

Response to Consultation Paper 2 Questions

- It is crucial for the effectiveness of the incentives framework and long term sustainability of the regime that NSPs have certainty over the payoffs they can expect to receive from certain behaviours. This means that there should be no retrospective adjustment made to the rewards or penalties received by NSPs.

- While the AER has identified an incentive issue that arises from a change in approach between revealed cost and external benchmarking, its proposed solution potentially creates more significant issues than the problem that has been identified. Grid Australia encourages the AER to consider alternative solutions that ensure that NSPs will have certainty about the rewards and penalties they receive under the EBSS. Indeed, certainty about the rewards and penalties received under an EBSS is more important for the effectiveness of the incentives framework than the timing of the decision to apply an alternative EBSS and forecasting approach.

2. Overarching comments

In Consultation Paper 1 the AER is clear that its preferred approach remains to rely on revealed costs as the basis for setting expenditure forecasts. This position is strongly supported by Grid Australia. This is because the base-step-trend approach that is currently applied makes best use of the incentives for network businesses to reveal their efficient costs through the continuous and symmetrical EBSS incentive. In addition to delivering a good result for customers, it also minimises the overall costs of regulation.

The AER also considers, however, that there might be circumstances where it is appropriate to set a network business' operating expenditure forecast on the basis of something other than its revealed costs. In particular, the AER appears concerned about NSPs that it perceives might not respond to incentives, or may be responding to other incentives.[1] In this case the AER indicates it would prefer not to rely on revealed costs as the starting point for deriving operating expenditure forecasts and they would then need to be set in a different way.

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[1] Grid Australia notes that the AER has not yet articulated what these other incentives might be.

The consultation papers are focused on the implementation issues that arise when an alternative approach to the revealed cost method is used for setting expenditure forecasts. Before addressing the specific questions raised in the consultation papers, Grid Australia has a number of more fundamental issues with the AER's proposals in this area relating to:

- The challenges associated with assessing the responsiveness of network businesses to incentives, and

- The need for the AER to provide certainty and predictability on the outcomes network businesses can expect from certain behaviours.

The remainder of this section discusses Grid Australia's views on these matters.

2.1 Assessing the responsiveness to incentives

The AER's proposal to switch between different approaches for forecasting expenditure requirements appears to be premised on it making an assessment about whether a NSP is responding to incentives or not. Grid Australia considers that the AER has substantially understated the challenges associated with assessing whether a NSP is efficient or not. Particularly, where a business is improving performance over time it is not reasonable to say they are not responding to incentives.

Operating a transmission network is an extremely challenging and complex task. The high value that customers place on reliable supply means that considerable effort is required to maintain an appropriate standard of service. The complexity of electricity transmission networks, combined with the fact that each transmission network is unique, means that simple comparisons between businesses cannot be made to determine if a particular NSP is efficient or not. Indeed, it is for this reason that benchmarking techniques should not be applied to TNSPs as anything more than a screening tool.

It is only in hindsight, and having regard to the specific circumstances of the business, that it is possible to assess whether certain actions were efficient or not. This means that even if the management of a business make decisions with the best intentions, they cannot be certain that a particular action will be efficient until after the decision is made. Even in this case, absent a counterfactual, it is difficult for management to know if making alternative decisions would have delivered a better result.

Given it is not possible to know ex-ante whether a chosen solution will be perceived after the event as the most efficient solution, particularly in the context of external benchmarking techniques, what is most important is that businesses are striving to improve their performance. This includes having appropriate processes and frameworks in place so that prudent responses to cost drivers and the circumstances at the time are taken. There are two reasons why it is improvements in performance that are of most relevance in the context of the current debate:

- First, improvements in performance are relatively easy to observe and measure, and

- Second, it ensures that all specific circumstances of the network are taken into account.

Given it is not possible for management, or the AER for that matter, to know with certainty what actions will be considered efficient ex-post against a modelled benchmark, where firms are clearly taking action to improve their performance there is little more that can be asked of them.

For this reason, Grid Australia strongly holds the view that it is not possible for the AER to claim a business is not responding to incentives where it is actually improving performance over time. Further, while there are many factors that might drive a business to improve efficiency, including reputational reasons, the important matter from the perspective of customers is that management is that this improved performance is actually being achieved.

It is also necessary to recognise that outperforming forecasts cannot be the sole determinant of whether firms are improving efficiency or not. There are a number of reasons why the actual operating expenditure costs of the business may exceed forecasts over the regulatory period. These include external events affecting the network (such as extreme weather events like floods, or earthquakes), exposure to movements in labour costs driven by broader economic factors, and changes in the prices of outsourced services. In this circumstance it is important to identify whether the business has taken appropriate action to minimise costs, even where costs are increasing. Again, benchmarking information may not be particularly informative in this situation and engineering review is likely to provide a better indicator of performance.

The challenges associated with assessing efficiency and whether businesses are responding to incentives or not mean that the AER should proceed with caution in this area. Indeed, given setting operating expenditure forecasts with reference to revealed costs has proven to be successful in driving efficiency improvements for some time, a high threshold should be applied before moving to what would be a fundamentally different approach to setting expenditure forecasts.

2.2 Certainty and predictability of outcomes

As indicated in Grid Australia's submission to the Expenditure Incentives Guideline Issues Paper, certainty about the rewards and penalties available under any incentive scheme is critical to its success. This is because certainty and transparency impact on the extent to which businesses can rely on certain behaviours leading to certain outcomes.

The AER's proposed approach to operational expenditure forecasting and the EBSS, however, are likely to introduce considerable uncertainty for TNSPs. In this context, Grid Australia considers it is essential that the approach taken by the AER does not retrospectively remove rewards earned by the business. It is fundamentally important that TNSPs be provided with the necessary information on ex-ante incentives up-front, in order to respond to the incentives within-period, in full knowledge of the regulatory consequences for not doing so.

As explained in more detail in the attached report from Incenta Economic Consulting, the AER's proposal for different EBSS schemes to apply depending on whether a revealed cost or external benchmarking approach is used for setting expenditure forecasts has the potential to lead to retrospective adjustments to the payoffs received by NSPs. Grid Australia considers that this outcome can seriously compromise the effectiveness of the incentives framework. On that basis, the AER is encouraged to consider alternative solutions to address the other incentive issues it has identified.

3. Response to specific questions

The remainder of this section responds to the specific questions that have been posed by the AER it in its consultation papers.

3.1 Consultation Paper 1: Interaction between the EBSS and opex forecasts

Grid Australia understands that the central concern of the AER's Consultation Paper 1 is the question of the time at which the AER should decide the forecasting approach that it will apply to determine a particular TNSP's regulatory allowance for operating expenditure. Implicitly, this will also be the time at which the AER would determine that a business is not responding to incentives and pose an alternative approach to set operating expenditure forecasts.

Question 1: In the interests of providing certainty on matters to be raised during a determination process, should the AER decide whether to accept or potentially adjust base year opex at the Framework and Approach stage?

In order to maintain consistency with the Rules, and specifically to maintain the primacy of the business' revenue proposal, Grid Australia considers that a decision on the approach to expenditure forecasting cannot be made until after the business has submitted its revenue proposal. This ensures that due process is maintained and the AER has proper regard to all the evidence put before it, most notably the revenue proposal of the NSP. Nevertheless, the AER should seek to provide as much certainty about its likely approach as soon as is practicable. This can be achieved by being clear in its guideline what will guide its decision and also by the AER regularly communicating with NSPs following any assessment of actual performance where it has concerns about the efficiency of operating expenditure.

Given the annual benchmarking process that the AER is required to undertake it might consider that it is able to take a view about the efficiency of a particular business before it receives a revenue proposal. Grid Australia agrees that it is important to know as soon as possible if the AER is going to take a different approach to the base-step-trend approach for setting expenditure forecasts. Knowing this sooner will enable TNSPs to tailor their proposal to the approach that is to be applied by the AER.

In practice, however, the Rules require the AER to first consider whether it will accept or reject the revenue proposal put forward by the business having regard to the relevant objectives and criteria of the Rules. Suggesting that it can reject the revealed costs of the business as being efficient before the business has had the chance to put its proposal forward, including with reasons for its actual performance to date, would mean that due process would not be afforded to NSPs.

It is notable that the AEMC reaffirmed through the recent Rule change process on the Economic Regulation of Network Service Providers that the starting point for the AER's assessment remains the revenue proposal of the business and that the AER should justify its conclusions by reference to it:[2]

> *The Commission remains of the view that the AER is not "at large" in being able to reject the NSP's proposal and replace it with its own. The obligation to accept a reasonable proposal, reflects the obligation that all public decision-makers have to base their decisions on sound reasoning and all relevant information required to be taken into account. Some submissions have referred to the concept of an evidentiary burden, or onus of proof, as some submissions have termed it, that the AER has. To the extent the AER places probative value on the NSP's proposal, which is likely given the NSP's knowledge of its own network, then the AER should justify its conclusions by reference to it, in the same way it should regarding any other submission of probative value. In circumstances where the NSP is required to provide information in support of its proposal, and the AER is required to explain its decision, an evidentiary burden does not appear to reside with one party more than another*

Grid Australia notes that the AER's current approach to assessing the revealed costs of a business appears largely appropriate and reflects the Rules requirements. Its usual practice is to take a view about which base year best reflects efficient operating and maintenance costs, and make adjustments where the chosen base year is not reflective of efficient costs, such as removing non-recurrent cost items.

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[2]   AEMC*, Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Final Position Paper,* 29 November 2012, p.112-113

There are benefits, however, in the AER providing as much guidance as possible about the approach it might take to assessing expenditure forecasts as soon as possible.

- In the first instance, the Expenditure Forecast Assessment Guideline should be clear about the evidentiary factors the AER will have regard to when making its decision, including the nature and extent of information that is required to be provided as part of a revenue proposal. This will enable TNSPs to be aware of how they are tracking against those evidentiary factors prior to commencement of their revenue determination process. Some possible criteria for making this assessment are contained in the response to question three.

- The AER should also indicate in its annual benchmarking review process where it has concerns about a NSP's efficiency. This will enable NSPs to address material concerns that have been identified by the AER at the time of the revenue determination process.

- At the Framework and Approach paper stage the AER can indicate whether it remains concerned about the efficiency of actual expenditure and that it might seek to apply certain techniques to test its efficiency, and ultimately, to substitute an amount for forecast expenditure.

- Where the revenue proposal of a business does not address the AER's concerns to its satisfaction it should indicate in its Issues Paper that it intends to rely on something other than revealed costs to inform expenditure forecasts, including the reasons for this position.

The AER is right to recognise the value of certainty in an incentive based regulatory framework, as it is this certainty that allows NSPs to respond to commercial drivers aligned with the interests of consumers. However, the most important certainty the AER can provide is via the ex-ante establishment of expenditure forecast allowances and incentives, which are not later changed retrospectively.

Question 2: What are the risks and other practical implications of the AER attempting to determine the effectiveness of the opex incentive framework by reference to an NSP's performance, which may be the result of other incentives or exogenous factors?

As indicated above, making a definitive assessment of the actual efficiency of a business is a particularly challenging task. Comparing external benchmarks to an NSP's performance risks important network specific cost drivers being ignored. Further, there is a real risk the proposed approach leads to a mechanistic choosing between the lower of a revealed cost or benchmark value, and in doing so, creating the potential that due regard is not given to the practical realities of running an electricity transmission business.

Benchmark analysis that is external to the business, by definition, cannot fully capture the specific circumstances of the business and as such its particular cost drivers. As indicated in previous submissions, this is particularly the case for TNSPs given the nature of the service, the difference in the environmental factors between networks, and the limited data set available (ie. given there are only five TNSPs in the NEM).

Given the considerable limitations of benchmarking techniques, the AER's proposals are likely to introduce substantial regulatory risk for TNSPs that their revenue allowance is not adequate to compensate for the genuine cost drivers of the business. This in turn threatens the achievement of the revenue and pricing principle that NSPs be afforded the opportunity to recover at least their efficient costs.

It may be tempting for the AER to choose the lower of a revealed cost or benchmark value at the time of a determination. Doing so, however, would be arbitrary and introduce uncertainty and risk that cannot be managed by TNSPs. For instance, even if a business is striving for efficiency and performing well, the fact that an external benchmarking approach cannot ever fully account for the specific circumstances of the business means that there is a chance that the benchmark value is lower than the genuine and efficient needs of the business. As a consequence, the business would be penalised through a lower expenditure forecast even though it was responding appropriately to incentives.

Mechanically choosing the lower of a revealed cost or benchmark would also ignore the practical realities of running a business. In any given year or quarter, cost pressures in particular areas rise or fall. A prudent business will prioritise its work to meet this changing environment. This might include moving resources from one area to another, or delaying when some work is undertaken for a limited period of time and managing the interim risk. When resources are moved out of an area temporarily or work is delayed this might appear, based on the data, to be a new efficient frontier. However, the need to incur costs in these areas has not disappeared but has merely been delayed in order to avoid more serious problems in another area. If a mechanistic approach was taken and the expenditure forecast was set purely on the basis of this revealed cost it could mean that expenditure forecasts would not be sustainable and TNSPs would not be adequately compensated when it became time to incur those costs again. While this should not necessarily imply that the benchmark value is used instead in this instance, it does reinforce the need for the AER to have full regard to the evidence put before it in a revenue proposal.

Given the considerable risks that expenditure forecasts might not be sufficient for the network specific costs of a business under an external benchmarking approach, Grid Australia welcomes the AER's proposal that the EBSS in this circumstance would limit the size of the risk that is faced by businesses. However, in the first instance, the AER should only look to an approach other than revealed costs in exceptional circumstances, particularly as there is no real evidence to indicate that TNSPs are not responding to operating expenditure incentives. As discussed further in response to the following question, this implies that the AER impose a high threshold on its decision to use external benchmarking to set expenditure forecasts.

Question 3: Should the AER consider placing a higher threshold on making adjustments to the base year and departing from the current revealed cost framework?

Grid Australia considers that it is necessary for there to be a high materiality threshold prior to it choosing something other than the revealed cost method to set expenditure forecasts. This is to recognise the significant challenges associated with applying benchmarking techniques to transmission businesses and also to recognise the asymmetric consequences of regulatory error.

As indicated throughout this submission, it is not reasonable for businesses to be confident that their actions will be assessed as efficient ex-post against an industry-wide benchmark. Particularly given the limitations of benchmarking techniques when applied to TNSPs. Therefore, other than striving for efficiency improvements, there is little a business can do to manage the risk that the AER determines that its revealed costs are not efficient.

The revenue and pricing principles of the National Electricity Law require that the framework for economic regulation allow NSPs to recover at least the efficient costs of service provision. This recognises that customers place a high value on reliable supply and this is most threatened where a business is unable to recover its efficient costs. That is, for customers, the consequences of an allowance above or below efficient cost are asymmetric.

Grid Australia considers that the most appropriate threshold to apply would be an evidentiary threshold rather than some numerical value. The evidentiary threshold would be based on the AER's assessment against a number of criteria. The criteria would be focused on indicators of whether or not a firm is responding to incentives. Relevant considerations in this regard would include:

- Whether there is evidence of improvements and cost efficiencies being identified and implemented by management

- Whether appropriate governance arrangements and decision making processes are in place to promote efficient outcomes, and

- Whether recurrent expenditure has been incurred over expenditure forecasts for a number of years without sufficient justification for this outcome.

*Question 4: Are there preferable alternatives to addressing the material
inefficiencies in an NSP's base year expenditure to simply adjusting the
expenditure of that year (prior to applying step and trend changes)? For
example, are there circumstances where it would be appropriate for opex
allowances to reflect the progressive removal of efficiencies over several
years?*

If the AER finds that it is able to obtain sufficient and compelling evidence that a
business is not responding to incentives such that expenditure forecasts will not be
set on the basis of revealed costs, it is important that this adjustment not be applied
over a single year.

As indicated above, NSPs face the real practicalities of running a business, which
includes ensuring that service performance standards are maintained. However, it is
not possible to immediately and substantially reduce operating expenditure without
potentially threatening the ability for a TNSP to meet its service performance
requirements.

The challenges and time lags associated with implementing cost efficiencies,
including through making changes to processes or operating models, is one of the
reasons that NSPs focus largely on making incremental improvements. Making large
efficiency improvements very quickly would likely impose unacceptable network
reliability risks for customers and safety risks for a TNSP's employees.

Given it is unlikely to be prudent to implement material cost reductions immediately
(assuming these had not already been identified or explored by the business itself), if
the AER was to make its adjustment over a single year it would mean that an
additional penalty would be imposed on TNSPs for costs over the new benchmark
until it was able to prudently reduce costs. Therefore, the AER should consider any
adjustment that is not based on revealed costs in terms of a glide path. The glide path
should look to reflect a realistic expectation of how quickly a business can reduce its
costs without compromising service performance.

3.2 Consultation Paper 2: Transition issues relating to the proposed opex incentive scheme

Grid Australia understands that Consultation Paper 2 released by the AER was
focused more on the operation of the EBSS and the incentives created where there is
a change from the prevailing approach to setting expenditure forecasts.

Grid Australia has responded briefly to the questions posed by the AER below.
However, these are extremely complex matters that have only recently been raised
and are matters upon which Grid Australia does not as yet have a settled position.
Grid Australia has sought advice on these matters from Incenta Economic Consulting,
and has attached that advice to this submission for the benefit of the AER.

Question 1: Do stakeholders agree that any transitional arrangements should aim to provide NSPs with the same marginal benefit if we set opex forecasts exogenously or by applying a base year approach?

Grid Australia notes that there are a number of desirable principles that should be pursued when determining this matter, one of which is that NSPs face a constant and appropriate reward for achieving efficiency gains and that this should be independent of how forecasts are to be set. However, it is also essential that NSPs have some certainty as to the rewards or penalties that will accrue as a consequence of performance during a particular regulatory period, and that there should be no scope for an NSP's reasonably expected share of the efficiency benefits it achieved to be retrospectively removed.

With respect to the marginal benefit or incentive rate, the approach the AER has proposed to deliver the same marginal benefit from efficiency gains irrespective of the AER's forecasting approach brings with it the potential for retrospective removal of a NSP's reasonably expected share of the efficiency gains it delivered (and gains that will be passed on to customers). Accordingly, in this case, Grid Australia does not unconditionally support the AER seeking perfection in the incentive rates, but instead that the AER should strive for an outcome that best meets what appear to be important but competing principles. This is particularly the case given external benchmarking should only be used in a very limited number of extreme circumstances, and those circumstances are when it is found beyond doubt that a business does not, in any event, respond to incentives. This matter is considered further next.

Question 2: Do stakeholders agree with the transitional issues identified above?

Notwithstanding the issues with the use of an external benchmarking approach, outlined earlier, Grid Australia accepts the AER's finding that if it changes from a revealed cost approach to an external benchmarking approach there will be incentive issues created towards the end of the regulatory period if the same EBSS is applied. The incentive issue, explained further in the Incenta paper, occurs where an NSP knows in advance that a different approach to setting expenditure forecasts will apply for the next regulatory period.

Grid Australia considers that a key response to this matter is for the AER to confirm its intention for "revealed cost" to be the default method to determine operating expenditure allowances, with benchmarking applied only in truly exceptional cases. Provided this commitment is maintained, this issue will become significant in a very limited number of cases.

In addition, where the issue does arise, the AER's proposed solution to this matter, however, creates more substantial issues than the incentive issues it is trying to resolve. While the solution does address the incentive issue identified by the AER, it could create a substantial change in the EBSS amounts that are calculated in respect

of the NSP's performance in the current regulatory period. In particular, the solution creates the potential for a retrospective removal of efficiency benefits.

Grid Australia notes in addition, that the incentive problems referred to by the AER are unlikely to be as material as they would appear at first sight. Notably, an incentive issue only arises after the business knows that an alternative approach to expenditure forecasting, and application of an EBSS, will arise. This can therefore only be at the very end of the regulatory period. As such, scrutiny of the behaviour of NSPs at this time might be particularly effective.

Grid Australia considers it is critical to the success of the incentives framework that expected benefits or penalties are actually delivered to network businesses. However, this objective cannot be achieved under the AER's present proposal to address incentive issues that arise when a different approach is taken to set expenditure forecasts. Grid Australia considers that it would better to apply the revealed cost EBSS and pursue modifications to the NSP's proposed expenditures, or undertake other supervision, to address incentive issues. A number of options in this respect are identified in the Incenta paper.

Memorandum

To:	Grid Australia Regulatory Managers
From:	Jeff Balchin
Date:	29 May 2013
File reference:	GA1
Subject:	Integration of opex forecasting with the efficiency benefit sharing scheme: transitional issues

1. Introduction and summary of findings

1.1 Purpose

The purpose of this note is to comment on the transitional issues that arise if the Australian Energy Regulator (AER) decides at some future point to change from setting the regulatory allowance for operating expenditure (opex allowance) using the "revealed cost" method to a method whereby that allowance is set using external benchmarking techniques.

These issues were first raised by the AER staff in a paper for a workshop that was held on 29 April 2013 (and subsequently in that workshop), where the AER staff observed that incentive issues would exist if it continued to apply the "revealed cost" efficiency benefit sharing scheme (EBSS) method in a case where it switched to the use of external benchmarks. The AER's proposal at that stage was to apply a different method of calculating the EBSS for the *past period* depending upon whether it uses the revealed cost method or benchmarking to set the operating expenditure allowance for the *next period*. It was commented at the workshop that, putting aside issues with the marginal incentive rates, the EBSS amounts under the different methods would differ materially, and so allowing for such a switch between EBSS calculation methods had broader implications that needed to be considered.

The AER subsequently released a further staff discussion paper setting out its analysis of the incentive issues (accompanied by a spreadsheet model), but noting that it was considering the appropriate response further.

1.2 Statement of the problem

Prior to summarising our conclusions, it is important to clarify the nature of the problem the AER has identified.

- It is assumed that an expenditure allowance has been set for the "first regulatory period". The matter being addressed is the method that is to be used to calculate the EBSS in respect of expenditure performance in the "first regulatory period", noting that these EBSS amounts will flow through into revenues in the "second regulatory period". The factor that is giving rise to issues is how the opex allowance is to be determined for the second regulatory period.

- The AER wants to be able to make a decision about how the opex allowance is to be determined for the second regulatory period towards the end of the first regulatory period. However, by leaving open the question of how the allowance should be determined, it is possible that the EBSS method that was foreshadowed to be applied to expenditure performance in the first regulatory period may be inconsistent with how the opex allowance ultimately is determined for the second regulatory period. In particular:

  – if the AER changes from a revealed cost forecast to one based upon benchmarks but retains the revealed cost EBSS, then the wrong incentives are provided at the end of the first regulatory period, and

  – while not considered by the AER, if benchmarking was used to set expenditure allowances and a benchmarking EBSS expected, but the AER then decided to revert to a revealed cost forecast, then incentive issues at the end of the first regulatory period also arise.

- The AER's original proposal was to change the EBSS method for the first regulatory period to match how it planned to set forecasts for the second regulatory period, noting that this may imply applying a different EBSS method than what had been foreshadowed or expected in respect of performance in the first regulatory period (and with this fact only becoming known towards the end of the first regulatory period). The AER has now recognised that there are issues with this proposal, and is considering the matter further.

1.3   Findings

Turning first to the nature of the issue:

- The AER is correct that an incentive issue exists at the end of the first regulatory period if the NSP acts as if the AER will set the opex allowance for the second regulatory period using external benchmarks, but the revealed cost EBSS is expected to be applied. The incentives would be corrected if the AER instead applied the benchmarking EBSS method in respect of performance in the first regulatory period.

- However, changing the EBSS method will also create a material change to the EBSS amounts that are calculated in respect of performance in the first regulatory period, and so change the share of the efficiency gain the NSP retains from what was expected.[1]

  – It would be a reasonable outcome for the benefit to the NSP under the revealed cost EBSS to be applied to an NSP where that NSP was underspending at the end of the regulatory period. This is because the gains generated by the NSP would be passed through to customers (with an additional gain for customers also being created as a consequence of benchmarking).[2]

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[1]   For the avoidance of doubt, if the AER did change from using the revealed cost method to set opex allowances to using external benchmarks, then the revealed cost EBSS should be discontinued and the AER's proposed benchmarking EBSS would be preferable. This is because the revealed cost EBSS would exacerbate the consequences of error in the external benchmarks, whereas the benchmarking EBSS would reduce (but not remove) the consequences of this error.

[2]   The latest staff discussion paper suggests that an NSP may obtain more than 30 per cent of a permanent efficiency gain it creates if the AER sets opex allowances using external benchmarks but leaves the revealed cost EBSS in place (third page [unnumbered]). However, for this to be correct, the new

– In contrast, it may be reasonable to modify the application of the revealed cost EBSS where the NSP was overspending at the end of the first regulatory period. This reflects the fact that consumers would be insulated from the full efficiency losses that are "counted" in the revealed cost EBSS.[3]

The particular shortcoming with the AER's original proposal is that the financial outcome to an NSP flowing from its efficiency initiatives in the first regulatory period change substantially depending upon whether the AER (at its discretion) chooses to set the next opex allowance using the revealed cost method or benchmarking. To be clear, it would be consistent with the AER's statements for the use of benchmarking to imply that an NSP should expect to make a loss in the second regulatory period.[4] This is not being challenged in this note. However, by also changing the EBSS method that is applied in respect of performance in the first regulatory period, the rewards from past efficiency gains is also altered (and with a potentially very material effect). This uncertainty in outcomes – together with the scope for accusations of opportunistic behaviour[5] – is not conducive to the long term sustainability of the regime.

Notwithstanding the incentive issues the AER has identified, in our view, changing the calculation of the EBSS with what would amount to a retrospective and material effect on the parties is a response that should be avoided if at all possible. Having said that, we consider that there is an argument for altering the operation of the EBSS if an NSP was overspending at the end of the regulatory period as commented upon above.[6]

In deciding the appropriate response to the incentive concern, it can be observed that the materiality of the issue depends in large part on whether the revealed cost method is applied as the default method, with benchmarking applied only in exception cases. By confirming this intention, the potential for adverse incentives to be created where the revealed cost EBSS is applied is minimised.

(benchmark) opex allowance would need to exceed the allowance that would be set using the revealed cost method, which is assumed in this paper not to be plausible. The comment is correct about the marginal incentive rate, but not about the absolute share of the efficiency gains the NSP receives.

[3] That is, the asymmetric treatment of underspending and overspending situations follows from the assumption that the outcome of benchmarking will be asymmetric (i.e., only applied where this would generate an opex allowance that is lower than the revealed cost method). This would be consistent with the revealed cost method being the default and for benchmarking only to be applied in exceptional cases.

[4] This would arise where the benchmark opex allowance was less than the expenditure the NSP incurred.

[5] For example, if the AER had a desire to reduce customer prices, it may be asserted that the AER would have the incentive to apply benchmarking to just "shave" the revealed costs in a situation where a firm had made substantial cost reductions. This would permit all of the cost reductions to be passed on to customers from the commencement of the second regulatory period (and indeed to claw back some of the gain that the NSP made in the first regulatory period), rather than leaving a share of these gains with the NSP.

[6] The solution to the choice of EBSS and forecasting methods that avoids either or both (i) creating incentive issues and/or (ii) delivering outcomes that are materially different to expectations, is for the method of determining the opex allowance for the second regulatory period to be "locked in" at the start of the first regulatory period, and for the corresponding EBSS to be selected for the first regulatory period. However, this option would not deliver to the AER the flexibility that it seeks to respond to exceptional cases. Preserving the flexibility to switch forecasting methods inevitably requires accepting some compromises across the objectives, including possibly the clarity of the incentives provided.

In addition, there is reason to believe that the incentive issues the AER has raised are not as material as they may appear at first sight.[7] First and foremost, the adverse incentive issue can only arise:

- after the time from when the NSP believes that the opex allowance will be set using benchmarks, but

- in a context where, at the start of the first regulatory period, all parties expected the revealed cost approach to be used to set opex allowances for the second regulatory period (which is why the revealed cost EBSS was also expected to be applied).

In practice, such a change in expectations could only take place during the conduct of the review preceding the second the regulatory period, and so most of the concern with adverse incentives would exist in relation to opex in year 5.[8] Moreover, we observe that there are modifications that could be applied to the revealed cost EBSS that could ameliorate the incentive issues.

- First, the incentive for NSPs to manipulate their expenditure in year 5 if the revealed cost EBSS is applied would be reduced substantially if the incremental efficiency gain between year 4 and 5 is ignored (which is what the AER assumes in its modelling), which could be considered as a response that arguably is preferable to dispensing with the revealed cost EBSS.[9]

- Secondly, a further response to the adverse incentive issues may be for the AER to reserve the discretion to test whether the last measured year was in some sense unusual (as it would be if there had been a material deferral of opex activities to future years) and adjust the EBSS if such a concern was demonstrated.

Lastly, it is also noted that the ability for an NSP to respond to the adverse incentives is subject to a natural limit, namely where its expenditure is such that the AER decides to retain the revealed cost approach.

1.4   Remainder of this note

The remainder of this note elaborates upon the analysis that sits behind the findings set out above.

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[7]   An issue that is not touched upon in this note is the fact that the AER's analysis assumes that if benchmarking is used then the new opex allowance will be set completely independently of the NSP's outturn expenditure. This is quite an extreme assumption – the more likely outcome is that the new allowance is informed in part by the NSP's actual expenditure and in part by benchmarking. The incentive concerns identified by the AER would be reduced to the extent that outturn expenditure was considered alongside benchmarking in those cases where the revealed cost method was not applied.

[8]   In addition, the AER has noted that it intends that benchmarking techniques would only be applied to set expenditure allowances where the NSP was considered not to be responding to the financial incentives that are provided by the revealed cost regime. Given the absence of such a response, it could also be questioned how responsive the NSP in question would be to the adverse incentives discussion in this note.

[9]   It is noted, however, that if the standard EBSS formula is applied, the NSP will not receive the intended share of efficiency gains. This is because the standard formula provides the NSP with an implicit benefit by ignoring the actual gains made between years 4 and 5 when setting the opex allowance for the next regulatory period, but this would be lost if opex allowances were set instead using benchmarks. For the NSP to receive the share of efficiency gains intended under the revealed cost EBSS the EBSS would also need to be calculated for year 5 – for example, using a forecast of year 5 expenditure and with a correction at the following review.

2. Comparing the outcomes of the revealed cost EBSS and benchmarking EBSS

2.1 Converting the current EBSS into an equivalent NPV calculation

It is easier to compare the different calculation methods by first converting the revealed cost EBSS into an equivalent NPV calculation. This is illustrated in the simple example below, under the following simplifying assumptions:[10]

- a real WACC of 7.5 per cent (the real WACC is the relevant input where adjustments to forecasts or actuals are made for inflation)[11]

- expenditure is incurred / revenue is received at the end of each year, and

- information on actual expenditure is available for year 5 at the time of the review.[12]

Under these assumptions, the target share of the EBSS is 35.2 per cent – this is obtained by calculating the proportion of a perpetual gain that is accounted for by the first 6 years, that is:

$$Share = 1 - \frac{1}{(1+r)^n}$$

where *r* is the discount rate and *n* is the holding period for the gains, and substituting r = 7.5 per cent and n = 6 years.

The following simple example below shows that the revealed cost EBSS rewards the NSPs for two components of cost reduction:

- The NSP gets the "target share" of the difference between the forecast and actual expenditure incurred during the regulatory period, and

- The accumulated cost saving at the end of the regulatory period is assumed to continue (and be reflected into customer prices) forever – and the NSP also gets the "target share" of this perpetual benefit.

This last assumption (i.e., that the cost reduction continues in perpetuity) – which is implicit in the revealed cost EBSS – may sound extreme, but is quite reasonable. This is because any deterioration in cost in the future would be treated in a symmetrical manner (i.e., as a permanent increase in cost). If an efficiency gain that is made now had a finite life, then there would be a future penalty when the

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[10]   The modelling results presented in this section sit behind the comments that I made at the workshop on 29 April 2013. Since then, the AER has released models that also demonstrate some of the matters considered in this section. I have undertaken a brief review of those models and have found the calculations to be consistent (albeit with slightly different inputs) and with the broad themes from this section able to be replicated.

[11]   This WACC is also intended to be an approximate pre tax figure in view of the fact that changes to expenditure will also change tax deductions.

[12]   This is not a limiting assumption – depending upon the circumstances, an identical result may be achieved by using a suitable imputed value for year 5 expenditure, as is done under for the current EBSS. Alternatively, a correct could be made as required at the subsequent review.

gain had come to an end, so that the original benefit and subsequent penalty providing a net reward that was commensurate with the efficiency gain actually delivered.

Figure 1: Current EBSS expressed as an NPV calculation

			1	2	3	4	5	6	7	8	9	10
[1]	Carry over period (years)	6										
[2]	WACC (real)	7.50%										
[3]	Implied "target share" of efficiency gains	35.2%										
[4]												
[5]	**Regulatory year**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
[3]	Forecast		100	100	100	100	100					
[4]	Actual		95	91	88	86	85					
[5]	Underspend		5	9	12	14	15					
[6]	Incremental gain		5	4	3	2	1					
[7]	*Incremental gain for year*	*1*	*5*	*5*	*5*	*5*	*5*	*5*	*0*	*0*	*0*	*0*
[8]	*Incremental gain for year*	*2*	*0*	*4*	*4*	*4*	*4*	*4*	*4*	*0*	*0*	*0*
[9]	*Incremental gain for year*	*3*	*0*	*0*	*3*	*3*	*3*	*3*	*3*	*3*	*0*	*0*
[10]	*Incremental gain for year*	*4*	*0*	*0*	*0*	*2*	*2*	*2*	*2*	*2*	*2*	*0*
[11]	*Incremental gain for year*	*5*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*
[12]	Benefit retained by NSP during regulatory period		5	9	12	14	15					
[13]	EBSS carry over into next period							15	10	6	3	1
[14]	**Total benefit to NSP**		**5**	**9**	**12**	**14**	**15**	**15**	**10**	**6**	**3**	**1**
[15]												
[16]	Discount factor (to calculate NPV as at start of yr 6)		1.335	1.242	1.156	1.075	1.000	0.930	0.865	0.805	0.749	0.697
[17]												
[18]	*Carry over calculation*											
[19]	Benefit received during period	NPV	61.78									
[20]	Carry over	NPV	30.38									
[21]	Total benefit	NPV	92.16									
[22]												
[23]	*Calculation of carry over - revealed cost method (expressed in terms of an NPV calculation)*											
[24]	Cost saving during period	NPV	61.78									
[25]	Perpetual cost saving	NPV	200.00									
[26]	Total cost savings	NPV	261.78									
[27]	Target share		35.2%									
[28]	Target share of "during period" savings	NPV	21.75	24%								
[29]	Target share of "perpetual" savings	NPV	70.41	76%								
[30]	Target share of total savings	NPV	92.16	**100%**								
[31]	Benefits received during period	NPV	61.78									
[32]	**Required carry over**	**NPV**	30.38									

Note: all NPVs are calculated as at the start of year 6

The actual calculations are as follows:

- Rows 5 to 14 show the normal EBSS calculation (assuming year 5 is known), and rows 18 to 21 show the benefits retained by the NSP, with a benefit of 61.78 gained during the regulatory period and the EBSS (carry over) adding another 30.38, implying a total benefit of 92.16.

- Rows 23 to 32 set out how identical amounts are derived by an NPV calculation. the first goal is to calculate the total benefit (cost saving) that the NSP produces, which is the sum of the cost saving during the regulatory period (which is the same as the benefit the NSP receives during the period, 61.78) and the perpetual benefit – this is just the NPV of the accumulated underspend at the end of the period (15.00) on the assumption that this continues forever $\left(= \frac{15}{0.075}\right)$.

- Once the total benefit is calculated, the target share to the NSP is then calculated as 35.2 per cent of this, as shown in rows 27 to 30. Note that the intended NSP share of the benefits (92.16, row 30) is identical to the result of the simple EBSS calculation.

- The carry over is then calculated by comparing the benefit that the NSP is intended to receive from these efficiency gains with the benefit the NSP had already received during the regulatory period. In this case, the target total is 92.16 (row 30), 61.78 (row 31) had already been received during the regulatory period merely through the operation of revenue cap, and so an additional 30.38 (row 32) needs to be given to the NSP in the next period.

- There are two things to note from this simple example (which become relevant in the discussion of the benchmark EBSS below).

— First, if expenditure is reduced over the regulatory period compared to the forecast, then the "perpetual benefit" can account for the majority of the measured efficiency benefit for which the NSP is credited (and hence for a majority of the NSP's share of the efficiency benefits). In this simple example, the perpetual benefit from the NSP's efficiency initiatives account for 76 per cent (row 29) of the total benefit that is created.

— Secondly, and partly as a corollary of the above, during the regulatory period, an NSP can receive a greater share of the efficiency gains that it created than the intended "target share" of those gains (in the simple example, the NSP created gains of 61.78 and retained all of this gain, whereas its target share of these gains was 21.75). In this simple example, however, there is still a positive carry-over under the revealed cost EBSS because the NSP is credited with creating the much larger perpetual benefit.

2.2 Comparing the revealed cost EBSS with the benchmarking EBSS

The difference between the revealed cost EBSS calculation and the AER's new benchmark EBSS calculation lies in the treatment of the "perpetual saving".

- Under the revealed cost EBSS, the NSP is credited with creating the "perpetual saving", which in turn flows from the fact that its cost level at the end of the regulatory period feeds directly into the forecast in the next period.

- In contrast, under the benchmark EBSS, there is no link between the NSP's expenditure in one regulatory period and the allowance in the next, and so the efficiency benefits that are attributable to the NSP in the EBSS calculation are limited to the benefits generated during the regulatory period. However, as explained below, the fact that the opex allowance is not reset in line with the NSP's outturn expenditure implies that a benefit from an expenditure initiative continues implicitly into the next regulatory period (and beyond).

Figure 2 expands the simple example above, and sets out the equivalent benchmark EBSS calculation (rows 34 to 43).

Figure 2: Revealed cost EBSS vs. Benchmark EBSS – Underspending case

			1	2	3	4	5	6	7	8	9	10
[1]	Carry over period (years)		6									
[2]	WACC (real)	7.50%										
[3]	Implied "target share" of efficiency gains	35.2%										
[4]												
[5]	**Regulatory year**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
[3]	Forecast		100	100	100	100	100					
[4]	Actual		95	91	88	86	85					
[5]	Underspend		5	9	12	14	15					
[6]	Incremental gain		5	4	3	2	1					
[7]	*Incremental gain for year*	*1*	*5*	*5*	*5*	*5*	*5*	*5*	*0*	*0*	*0*	*0*
[8]	*Incremental gain for year*	*2*	*0*	*4*	*4*	*4*	*4*	*4*	*4*	*0*	*0*	*0*
[9]	*Incremental gain for year*	*3*	*0*	*0*	*3*	*3*	*3*	*3*	*3*	*3*	*0*	*0*
[10]	*Incremental gain for year*	*4*	*0*	*0*	*0*	*2*	*2*	*2*	*2*	*2*	*2*	*0*
[11]	*Incremental gain for year*	*5*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*
[12]	Benefit retained by NSP during regulatory period		5	9	12	14	15					
[13]	EBSS carry over into next period							15	10	6	3	1
[14]	**Total benefit to NSP**		**5**	**9**	**12**	**14**	**15**	**15**	**10**	**6**	**3**	**1**
[15]												
[16]	Discount factor (to calculate NPV as at start of yr 6)		1.335	1.242	1.156	1.075	1.000	0.930	0.865	0.805	0.749	0.697

[17]			
[18]	***Carry over calculation***		
[19]	Benefit received during period	NPV	61.78
[20]	Carry over	NPV	30.38
[21]	Total benefit	NPV	92.16
[22]			
[23]	***Calculation of carry over - revealed cost method (expressed in terms of an NPV calculation)***		
[24]	Cost saving during period	NPV	61.78
[25]	Perpetual cost saving	NPV	200.00
[26]	Total cost savings	NPV	261.78
[27]	Target share		35.2%
[28]	Target share of "during period" savings	NPV	21.75	*24%*
[29]	Target share of "perpetual" savings	NPV	70.41	*76%*
[30]	Target share of total savings	NPV	92.16	*100%*
[31]	Benefits received during period	NPV	61.78
[32]	**Required carry over**	**NPV**	**30.38**
[33]			
[34]	***Calculation of carry over - benchmarking method***		
[35]	Cost saving during period	NPV	61.78
[36]	Perpetual cost saving	NPV	0.00
[37]	Total cost savings	NPV	61.78
[38]	Target share		35.2%
[39]	Target share of "during period" savings	NPV	21.75
[40]	Target share of "perpetual" savings	NPV	0.00
[41]	Target share of total savings	NPV	21.75
[42]	Benefits received during period	NPV	61.78
[43]	**Required carry over**	**NPV**	**-40.03**

Note: all NPVs are calculated as at the start of year 6

The only difference between the calculations is in rows 36 and 40. The "perpetual cost saving" of 200 that is attributed to the NSP under the revealed cost EBSS method (row 25) is not included (i.e., is set to zero) under the benchmark EBSS calculation (rows 36 and 40). The implications of the different calculation methods for the EBSS carry-over amount in this example are material, with the value of the EBSS falling from positive 30.38 under the revealed cost EBSS to negative 40.03 under the benchmarking EBSS (a turnaround of 70.41).

Conversely, where an NSP had spent more than the regulatory allowance, then the use of the benchmark EBSS calculation would be beneficial to the NSP as it would relieve the NSP of what may be a large, negative carry over. This is illustrated in Figure 3.

Figure 3: Revealed cost EBSS vs. Benchmark EBSS – Overspending case

			1	2	3	4	5	6	7	8	9	10
[1]	Carry over period (years)	6										
[2]	WACC (real)	7.5%										
[3]	Implied "target share" of efficiency gains	35.2%										
[4]												
[5]	**Regulatory year**		1	2	3	4	5	6	7	8	9	10
[3]	Forecast		100	100	100	100	100					
[4]	Actual		105	109	112	114	115					
[5]	Underspend		-5	-9	-12	-14	-15					
[6]	Incremental gain		-5	-4	-3	-2	-1					
[7]	*Incremental gain for year*	*1*	*-5*	*-5*	*-5*	*-5*	*-5*	*-5*	*0*	*0*	*0*	*0*
[8]	*Incremental gain for year*	*2*	*0*	*-4*	*-4*	*-4*	*-4*	*-4*	*-4*	*0*	*0*	*0*
[9]	*Incremental gain for year*	*3*	*0*	*0*	*-3*	*-3*	*-3*	*-3*	*-3*	*-3*	*0*	*0*
[10]	*Incremental gain for year*	*4*	*0*	*0*	*0*	*-2*	*-2*	*-2*	*-2*	*-2*	*-2*	*0*
[11]	*Incremental gain for year*	*5*	*0*	*0*	*0*	*0*	*-1*	*-1*	*-1*	*-1*	*-1*	*-1*
[12]	Benefit retained by NSP during regulatory period		-5	-9	-12	-14	-15					
[13]	EBSS carry over into next period							-15	-10	-6	-3	-1
[14]	**Total benefit to NSP**		**-5**	**-9**	**-12**	**-14**	**-15**	**-15**	**-10**	**-6**	**-3**	**-1**
[15]												
[16]	Discount factor (to calculate NPV as at start of yr 6)		1.335	1.242	1.156	1.075	1.000	0.930	0.865	0.805	0.749	0.697
[17]												
[18]	*Carry over calculation*											
[19]	Benefit received during period	NPV	-61.78									
[20]	Carry over	NPV	-30.38									
[21]	Total benefit	NPV	-92.16									
[22]												
[23]	*Calculation of carry over - revealed cost method (expressed in terms of an NPV calculation)*											
[24]	Cost saving during period	NPV	-61.78									
[25]	Perpetual cost saving	NPV	-200.00									
[26]	Total cost savings	NPV	-261.78									
[27]	Target share		35.2%									
[28]	Target share of "during period" savings	NPV	-21.75	*24%*								
[29]	Target share of "perpetual" savings	NPV	-70.41	*76%*								
[30]	Target share of total savings	NPV	-92.16	*100%*								
[31]	Benefits received during period	NPV	-61.78									
[32]	**Required carry over**	**NPV**	**-30.38**									
[33]												
[34]	*Calculation of carry over - benchmarking method*											
[35]	Cost saving during period	NPV	-61.78									
[36]	Perpetual cost saving	NPV	0.00									
[37]	Total cost savings	NPV	-61.78									
[38]	Target share		35.2%									
[39]	Target share of "during period" savings	NPV	-21.75									
[40]	Target share of "perpetual" savings	NPV	0.00									
[41]	Target share of total savings	NPV	-21.75									
[42]	Benefits received during period	NPV	-61.78									
[43]	**Required carry over**	**NPV**	**40.03**									

Note: all NPVs are calculated as at the start of year 6

In this case:

- Under the revealed cost EBSS, the NSP would face a large negative carry over (row 20 or 32), which largely reflects the "perpetual" effect of spending more than the previous forecasts (row 29).

- In contrast, under the benchmark EBSS, the NSP would receive a positive carry over. This is because the perpetual effect is ignored, and because the NSP would have borne all of the cost rise during the regulatory period, whereas it should only have borne the target share of 35.2 per cent.

Lastly, Figure 4 illustrates for completeness that the two methods will generate the same result if the NSP's actual expenditure at the end of the regulatory period is the same as the original forecast (meaning that there would not be a perpetual cost saving or cost increase).

Figure 4: Revealed cost EBSS vs. Benchmark EBSS – end of period spending at the forecast

			1	2	3	4	5	6	7	8	9	10
[1]	Carry over period (years)	6										
[2]	WACC (real)	7.5%										
[3]	Implied "target share" of efficiency gains	35.2%										
[4]												
[5]	**Regulatory year**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
[3]	Forecast		100	100	100	100	100					
[4]	Actual		90	70	110	120	100					
[5]	Underspend		10	30	-10	-20	0					
[6]	Incremental gain		10	20	-40	-10	20					
[7]	*Incremental gain for year*	*1*	*10*	*10*	*10*	*10*	*10*	*10*	*0*	*0*	*0*	*0*
[8]	*Incremental gain for year*	*2*	*0*	*20*	*20*	*20*	*20*	*20*	*20*	*0*	*0*	*0*
[9]	*Incremental gain for year*	*3*	*0*	*0*	*-40*	*-40*	*-40*	*-40*	*-40*	*-40*	*0*	*0*
[10]	*Incremental gain for year*	*4*	*0*	*0*	*0*	*-10*	*-10*	*-10*	*-10*	*-10*	*-10*	*0*
[11]	*Incremental gain for year*	*5*	*0*	*0*	*0*	*0*	*20*	*20*	*20*	*20*	*20*	*20*
[12]	Benefit retained by NSP during regulatory period		10	30	-10	-20	0					
[13]	EBSS carry over into next period							0	-10	-30	10	20
[14]	**Total benefit to NSP**		**10**	**30**	**-10**	**-20**	**0**	**0**	**-10**	**-30**	**10**	**20**
[15]												
[16]	Discount factor (to calculate NPV as at start of yr 6)		1.335	1.242	1.156	1.075	1.000	0.930	0.865	0.805	0.749	0.697
[17]												
[18]	*Carry over calculation*											
[19]	Benefit received during period	NPV	17.57									
[20]	Carry over	NPV	-11.38									
[21]	Total benefit	NPV	6.18									
[22]												
[23]	*Calculation of carry over - revealed cost method (expressed in terms of an NPV calculation)*											
[24]	Cost saving during period	NPV	17.57									
[25]	Pepetual cost saving	NPV	0.00									
[26]	Total cost savings	NPV	17.57									
[27]	Target share		35.2%									
[28]	Target share of "during period" savings	NPV	6.18	*100%*								
[29]	Target share of "perpetual" savings	NPV	0.00	*0%*								
[30]	Target share of total savings	NPV	6.18	*100%*								
[31]	Benefits received during period	NPV	17.57									
[32]	**Required carry over**	**NPV**	**-11.38**									
[33]												
[34]	*Calculation of carry over - benchmarking method*											
[35]	Cost saving during period	NPV	17.57									
[36]	Pepetual cost saving	NPV	0.00									
[37]	Total cost savings	NPV	17.57									
[38]	Target share		35.2%									
[39]	Target share of "during period" savings	NPV	6.18									
[40]	Target share of "perpetual" savings	NPV	0.00									
[41]	Target share of total savings	NPV	6.18									
[42]	Benefits received during period	NPV	17.57									
[43]	**Required carry over**	**NPV**	**-11.38**									

Note: all NPVs are calculated as at the start of year 6

3.   Analysis of specific issues

3.1   Share of the efficiency gains to NSPs if the scheme is changed

The analysis set out in section 2 demonstrated that a change to the EBSS method from what was expected will also create a material change to the EBSS amounts that are calculated in respect of performance in the first regulatory period. The direction of this change depended upon how the NSP's outturn expenditure compared to the forecast at the end of the first regulatory period, with the change in EBSS method reducing the EBSS amounts if the NSP was underspending against the original regulatory allowance, and being a positive for the NSP if the NSP was spending more than the original regulatory allowance. The analysis in section 2 also showed that, under plausible assumptions, this change to the EBSS amounts could be very material.

As the AER has explained, where opex allowances are set using external benchmarking techniques, the prospect also exists that NSPs will obtain an additional benefit arising from the fact that the opex allowance for the second regulatory period is not recalibrated in line with the outturn expenditure for the first regulatory period. Thus, the NSP will benefit by the fact that any reductions that it achieves in its actual opex will not reduce its opex allowance. The AER has suggested that if it applies the revealed cost EBSS but sets opex allowances using external benchmarks, there is a prospect that an

NSP may capture more than the target share of the efficiency benefits it creates (and that are passed on to customers) and so earn a windfall gain.

However, if the focus is upon the absolute gain to the NSP rather than the marginal gain, then the prospect is remote that the revealed cost EBSS (if applied with benchmarking) will create a windfall gain (assuming away for now the incentive issues discussed in the next section), and so the conclusions reached above hold.

The revealed cost EBSS provides the NSP with its target share of the efficiency gains the NSP generates on the assumption that the new opex allowance is set in line with the NSP's outturn expenditure at the end of the first regulatory period. It is assumed in this paper that if external benchmarking is used to set expenditure allowances, then the allowance will be lower than the NSP's outturn expenditure – this is consistent with the idea that benchmarking would be applied only in the exceptions of cases where the NSP is not responding fully to the incentives. The implication of this is that the NSP must be worse off than it would have been under external benchmarking than revealed cost, even if the revealed cost EBSS continued to be applied.[13] A reasonable interpretation of this outcome is that the NSP would receive the target share of the efficiency gains that it creates, and that an additional gain would be provided to customers (this gain being a product of the AER's benchmarking analysis).[14]

The discussion above was focussed on the case of an NSP that was underspending at the end of the first regulatory period. Where an NSP is overspending at the end of the period, a different outcome may be reasonable. In particular, the revealed cost EBSS will imply materially negative amounts for the NSP; however, those negative EBSS amounts are calculated on the assumption that the loss in efficiency is passed on to customers through a higher opex allowance. However, if the AER switches to a benchmarking approach, then it is likely that the increase in opex to customers will be ameliorated or eliminated altogether. Given that the NSP's increase in expenditure is not being passed through (or fully passed through) to customers,[15] it would appear reasonable for the negative EBSS amounts also to be ameliorated.

3.2 Incentive issues with the transition from one scheme to another

The discussion above has focussed on the absolute position of the NSP at the commencement of the second regulatory period depending upon whether the revealed cost or benchmarking EBSS is applied in respect of performance in the first regulatory period. The finding is that changing from a revealed

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[13] If the AER switches to using benchmarking and applies the benchmarking EBSS, the NSP will only be in the same position as it would have under the revealed cost method if the new opex allowance is equal to the opex allowance at the end of the first regulatory period.

[14] It is true that a benchmarking approach may permit a NSP to continue to retain gains from efficiency initiatives into the next regulatory period (by virtue of the opex allowance not automatically passing on those gains); however, in the current context, the "gains" that are retained into the next regulatory period are almost certainly going to amount to losses given the expectation that the allowance would be set below the NSP's outturn level of expenditure. The AER's comments about the effect of benchmarking on the anticipated gains from efficiency initiatives are correct when applied to marginal incentive rates, just not to the absolute share of efficiency gains.

[15] While this does imply an asymmetric treatment of underspending and overspending NSP's, it reflects the assumption that efficiency gains and losses will be treated asymmetrically if the AER adopts a benchmarking approach: that is, if the NSP that was underspending, the efficiency gains would be passed on in full (together with an additional gain), whereas if the NSP was overspending, the efficiency loss would not be passed on in full (if at all).

cost EBSS to the benchmarking EBSS would be likely to have substantial effect on the share of the efficiency benefits (in aggregate) associated with initiatives in the first regulatory period that are retained by the NSP. I also observe for completeness that if the opex allowances are to be set using benchmarking for the second regulatory period and the revealed cost EBSS is retained, then a change to that EBSS calculation would be required to provide the NSP with the same benefit that it would have received if revealed cost had continued. The reason for this is because the revealed cost EBSS calculation uses imputed values for expenditure in year 5 (and in some cases also year 4), and so does not provide an explicit reward for additional efficiency gains made in year 5 (and in some cases also year 4). Instead these gains earn a reward implicitly, which is achieved through these gains being ignored when setting the new opex allowance. However, if the new opex allowances are set using benchmarking, then this implicit allowance would be lost, and generating the same benefit to the NSP would require these gains to be calculated explicitly.[16]

Turning now to the incentive issues, the AER's principal concern is that if it sets opex allowances using benchmarking but continues to apply the revealed cost EBSS, then incentive issues may be created at the end of the first regulatory period. The analysis undertaken above implies that there will be issues with the incentives during the first regulatory period if the NSP expects the revealed cost method to be replaced with benchmarking when setting expenditure allowances, but for the revealed cost EBSS to be retained, and I agree with the AER's finding in this regards. The issue is particularly material for the last year (or last measured year, if an imputed value is used for year 5 – see below) of the first regulatory period.

The problem arises because the reward that the NSP would receive for an additional expenditure reduction under the revealed cost EBSS is based on the assumption assumes that any cost reduction is factored into the next period opex forecast. That is, the reward from the initiative is high to offset what would otherwise be a dampening of incentives arising from the benefits of that expenditure reduction being passed onto customers. However, if the change in expenditure has no effect on the opex allowance – which would be the case if the new opex allowance is completely independent of outturn expenditure – then the reward to the NSP from a given expenditure reduction is too high.[17] Table 1 shows the financial effect on the NSP from a one-off change in expenditure of $1 in year 5 compared to the effect of a one-off change in expenditure in year 6, on the assumption that the revealed cost EBSS takes account of actual performance in year 5.[18]

Table 1: Marginal incentive reward (penalty) from a $1 reduction (increase) in operating expenditure (with year 5 incorporated into the EBSS calculation)

Year	4	5	6
Benchmarking with revealed cost EBSS	...	5.05	0.33
Benchmarking with benchmarking EBSS	...	0.35	0.33

Note: payoffs are in NPV terms calculated as the start of year 6.

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[16] The simplest means of achieving this would be to calculate EBSS amounts for year 5, first using updated forecasts of actual expenditure and then correcting at the next review.

[17] Note that this does not mean that the NSP will receive more than the "target share" of its efficiency gains in the previous regulatory period. The extent of the benefit that the NSP retains overall from its past gains depends upon the level of the new opex allowance, as discussed in section 3.1.

[18] These results are consistent with those calculated by the AER for one-off gains, albeit expressed in a different manner.

As discussed above, the revealed cost EBSS as currently specified ignores the effect of the incremental efficiency gains that are made in year 5. Instead, an imputed value is used for year 5 on the assumption that no further incremental efficiency gains are made, and the NSP is rewarded implicitly from the fact that gains made in year 5 are also ignored when the new opex allowance is determined. If an imputed value is used for year 5 when calculating the revealed cost EBSS, then the incentive problems with year 5 expenditure are reduced, and instead the critical year for incentive concerns becomes year 4, which is shown in Table 2 below.

Table 2: Marginal incentive reward (penalty) from a $1 reduction (increase) in operating expenditure (with year 5 excluded from the EBSS calculation)

Year	4	5	6
Benchmarking with revealed cost EBSS	5.42	1.00	0.33
Benchmarking with benchmarking EBSS	0.38	0.35	0.33

Note: payoffs are in NPV terms calculated as the start of year 6.

The implication of these incentive rates is that the NSP would get a much larger payoff from reducing its expenditure in the first regulatory period than in the second. The key concern for regulatory design from these incentive rates is that the NSP would benefit materially by deferring expenditure out of the last year that is used in the revealed cost EBSS, and particularly if the expenditure is shifted into the second regulatory period.

However, an important issue in practice is the extent to which these incentive issues are likely to be material in practice and, if they are, whether there are other measures that may obviate the possible consequences. These matters were addressed in section 1.3.