Grid Australia ‘Straw Man’

Electricity Transmission Network Service Providers

Expenditure Forecast Assessment Guidelines

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Shortened forms

AER	Australian Energy Regulator
NEL	National Electricity Law
NER	National Electricity Rules
NSP	Network Service Provider
RIN	Regulatory information notice, or regulatory information instrument, or regulatory information order, as the context requires
TNSP	Transmission Network Service Provider

1. Purpose and authority

1.1 Introduction

These *guidelines* explain how the AER will use various *assessment techniques* to determine whether a TNSP's capital and operating expenditure forecasts (which form part of its Revenue Proposal) comply with the National Electricity Rules (NER).

In accordance with clause 6A.10.1(h) of the NER, a TNSP's *Revenue Proposal* must be accompanied by information required by these *guidelines* as set out in the *framework and approach paper*.

1.2 Authority

Clause 6A.5.6(a) of the NER requires the AER to develop and publish the *Expenditure Forecast Assessment Guidelines* in accordance with the *transmission consultation procedures*.

1.3 Structure of these guidelines

The structure of these *guidelines* is as follows:

- Section 1 sets out the relevant NER provisions and explains the relationship between these *guidelines*; the incentive mechanisms provided for in the NER; and the *annual benchmarking reports*
- Section 2 explains the expenditure assessment framework and its integration with the *revenue determination* process
- Section 3 identifies the types of *assessment techniques* that are potentially available to the AER
- Section 4 sets out the objectives and principles that the AER will apply in selecting the specific *assessment techniques* for a particular *revenue determination*
- Appendix A sets out the *assessment techniques* that will apply to TNSPs and the information requirements to enable the AER to conduct its expenditure assessment.

Explanatory note 1:

The intention is to set out a framework in sections 2, 3 and 4 that is expected to remain substantially unchanged. The practical application of the framework to TNSPs is set out in Appendix A. It is expected that this would be subject to periodic change in light of experience.

1.4 Law and Rules requirements

The development and application of these *guidelines* must comply with the following provisions in the National Electricity Law (NEL) and the NER:

(a) Subsection 16(1) of the NEL requires the AER to perform or exercise an economic regulatory function or power in a manner that will or is likely to contribute to the achievement of the national electricity objective, which is defined as follows:

> The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

(b) Subsections 7(A)(2) to (7) of the NEL set out the revenue and pricing principles. Those subsections that are relevant to the assessment of expenditure forecasts are:

> (2) A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—
>
> (a) providing direct control network services; and
>
> (b) complying with a regulatory obligation or requirement or making a regulatory payment.
>
> (3) A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides. The economic efficiency that should be promoted includes—
>
> (a) efficient investment in a distribution system or transmission system with which the operator provides direct control network services; and
>
> (b) the efficient provision of electricity network services; and
>
> (c) the efficient use of the distribution system or transmission system with which the operator provides direct control network services.
>
> (6) Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider in, as the case requires, a distribution system or transmission system with which the operator provides direct control network services.
>
> (7) Regard should be had to the economic costs and risks of the potential for under and over utilisation of a distribution system or transmission system with which a regulated network service provider provides direct control network services.

The assessment of expenditure forecasts under this guideline will be done in such a way as to contribute to the national electricity objective and uphold the revenue and pricing principles in the NEL.

(c) Clause 6A.5.6 of the NER sets out the purpose and requirements of this guideline. It states that:

> (a) The AER must, in accordance with the *transmission consultation*

procedures, develop and publish guidelines (the *Expenditure Forecast Assessment Guidelines*) that specify the approach the AER proposes to use to assess the forecasts of operating expenditure and capital expenditure that form part of TNSP's *Revenue Proposals* and the information the AER requires for the purposes of that assessment.

(b) There must be *Expenditure Forecast Assessment Guidelines* in force at all times after the date on which the AER first publishes the *Expenditure Forecast Assessment Guidelines* under these Rules.

(d) Clause 6A10.1A(b) of the NER sets out the purpose and requirements of the *framework and approach paper*. It states that:

> The *framework and approach paper* that applies in respect of a *revenue determination* must set out the AER's proposed approach (together with its reasons for the proposed approach), in the forthcoming *revenue determination*, to the following matters:
>
> (5) the application to the TNSP of the *Expenditure Forecast Assessment Guidelines*.

(e) Clause 6A.10.1(h) of the NER sets out the requirements of TNSPs in respect to the *Expenditure Forecast Assessment Guidelines*. It states that:

> The *Revenue Proposal* must be accompanied by information required by the *Expenditure Forecast Assessment Guidelines* as set out in the *framework and approach paper*.

(f) Clause 6A.2.3(c) of the NER provides for the *guideline* to be non-binding. It states that:

> Except as otherwise provided in this Chapter, a *guideline* is not mandatory (and so does not bind the AER or anyone else) but, if the AER makes a *transmission determination* that is not in accordance with the *guideline*, the AER must state, in its reasons for the *transmission determination*, the reasons for departing from the *guideline*.

1.5 Confidentiality

The AER's obligations regarding confidentiality and the disclosure of information provided to it by a TNSP are governed by the Competition and Consumer Act 2010, the National Electricity Law, the NER and the Confidentiality Guideline published by the AER.

1.6 Definitions and interpretation

(a) In these *guidelines*:

(1) the words and phrases presented in italics *such as this* are defined in the glossary of these *guidelines* and have the meaning given to them in:

(i) the glossary or

(ii) if not defined in the glossary, the NER

(2) the words 'shall' and 'must' indicate mandatory requirements relating to a provision of the NEL or NER, unless the overall meaning of the phrase in which one of these words appears, is otherwise.

(b) Explanations in these *guidelines* about why certain information is required are provided for guidance only. They do not limit in any way the AER's objectives, functions or powers.

1.7 Processes for revision

The AER may amend or replace these guidelines from time to time according to clause 6A.2.3(e) of the NER and the *transmission consultation procedures*.

1.8 Version history and effective date

A version number and an effective date of issue will identify every version of these guidelines.

1.9 Relationship of Expenditure Forecast Assessment Guidelines with incentive mechanisms, annual benchmarking report, and Consumer Engagement Guidelines

Explanatory note 2:

The purpose of this section is to clarify the relationship between this *guideline* and other regulatory mechanisms and guidelines. Grid Australia considers that inclusion of the information in this section should help to minimise any potential confusion that may arise.

(a) In accordance with the *national electricity objective*, the regulatory framework is designed (amongst other things) to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of electricity consumers. Achievement of this objective is facilitated through the incentive based regulatory framework. The ex-ante revenue determination approach is a key feature of the incentive based framework. Within that framework, the following incentive mechanisms and reports are intended to ensure that efficiency improvements are achieved in a balanced manner across operating expenditure, capital expenditure and service performance, irrespective of the timing of *transmission determinations*:

(1) the *service target performance incentive scheme*; the *efficiency benefit sharing scheme*; the *capital expenditure sharing scheme*; arrangements for the reduction of inefficient past capital expenditure (in accordance with schedule S6A.2.2A of the NER); and *small-scale incentive schemes*

(2) the AER's determination that either forecast or actual depreciation should be adopted for the purpose of establishing the regulatory asset base

(3) the AER's publication of *annual benchmarking reports* in accordance with clause 6A.31 of the NER and the previous publications of Electricity Performance Reports for TNSPs.

(b) The incentive mechanisms described in sections 1.9(a)(1) and (2) may be amended, in accordance with the NER, on a prospective basis in order to further promote the

achievement of the national electricity objective in the forthcoming *regulatory control period*.

(c) For the avoidance of doubt, as these *guidelines* are concerned with assessing forecast expenditure, the application of these *guidelines* in respect of a *revenue determination*:

(1) will not affect the financial rewards or penalties arising from the application of the incentive mechanisms listed in sections 1.9(a)(1) and (2) in respect of the current *regulatory control period*.

(2) is not directly relevant to the publication of the *annual benchmarking report*, which reports on each TNSP's actual cost and service performance.

Explanatory note 3:

The guideline should also contain a provision which clarifies the relationship between the expenditure assessment and the Efficiency Benefit Sharing Scheme (EBSS). Grid Australia's position is that the incentive payments receivable or payable by a TNSP under the EBSS for the current *regulatory control period* must not be affected by the forecast operating expenditure for the forthcoming *regulatory control period*, as set out in paragraph 1.8(c)(1) above.

It is possible that the AER may accept or substitute a forecast of operating expenditure for the forthcoming *regulatory control period* (in accordance with clause 6A.6.6(c), clause 6A.6.6(c1) or clause 6A.13.2(b)(3) and (5)) that departs from historic operating expenditure. In the unlikely event that forecast operating expenditure is set 'afresh' with limited reference to historic operating expenditure, the EBSS calculations will need to operate so as to ensure that:

1. The EBSS payments for the current *regulatory control period* are closed out by calculating an appropriate reward / penalty in relation to year 5 of the current *regulatory control period*.
2. The EBSS is reset appropriately to apply from year 1 of the forthcoming regulatory period.

Such provisions should also be reflected in the EBSS documentation. It is noted, however, that these matters are currently the subject of a separate consultation between the AER and stakeholders.

(d) The AER's *annual benchmarking report* describes each TNSP's historical cost and service performance. The *annual benchmarking report* is a factor to be considered by the AER under clauses 6A.6.6(e)(4) and 6A.6.7(e)(4) of the NER. In addition the *annual benchmarking report* will assist the AER in forming a view on the relative efficiency performance of each TNSP and the incentive mechanisms that should apply to that TNSP in the next regulatory period, in accordance with the NER.

(e) To ensure the maintenance of the incentive properties of the incentive mechanisms described in sections 1.9(a)(1) and (2), the *annual benchmarking reports* will not have any bearing on the financial rewards or penalties arising from the application of those mechanisms in respect of the current *regulatory control period*.

(f) The Consumer Engagement Guidelines published by the AER are designed to promote effective consumer engagement in the economic regulation of TNSPs in accordance with Chapter 6A of the NER. Those guidelines provide specific guidance to TNSPs on the AER's expectations regarding best practice approaches to:

(1) setting priorities and topics for engagement

(2) the process for engaging with consumers

(3) monitoring outcomes, evaluating performance and undertaking reviews to drive continuous improvement in consumer engagement.

(g) In relation to each of the areas noted in paragraph (f), the AER expects each NSP to employ the best practice principles set out in the Consumer Engagement Guidelines. The AER would expect a TNSP to provide evidence that the principles have been taken into account in its consumer engagement activities.

2. Overview of the expenditure assessment framework

2.1 Regulatory context

(a) These guidelines set out the expenditure assessment that will be applied in the making of a *revenue determination* for a TNSP. The following provides a summary of how the expenditure assessment fits within the determination process.

(1) The *guidelines* establish an assessment framework which comprises:

(i) a description and appraisal of the *assessment techniques* that are potentially available to the AER in its review of a TNSP's expenditure forecasts

(ii) objectives, principles and criteria that govern the AER's selection of the particular *assessment techniques* that will apply in the making of a *revenue determination* for a TNSP

(2) Appendix A of the *guidelines* sets out the AER's current approach in terms of the *assessment techniques* that should apply to TNSPs, determined in accordance with the objectives and principles described in these *guidelines*.

(3) For each determination, in accordance with these *guidelines* the AER's *framework and approach paper* will confirm, or modify with reasoning:

(i) the *assessment techniques* that will be applied in respect of that determination;

(ii) how each *assessment technique* will be applied and the stage(s) of the determination process at which each will be applied; and

(iii) the information requirements to give effect to those techniques, using the categories of operating and capital expenditure listed in Tables 2 and 3 respectively of Appendix A.

Explanatory note 4:

The expenditure categories set out in Tables 2 and 3 of Appendix A are consistent with the categorisation of expenditure applied by TNSPs for the purpose of regulatory accounting and the preparation of Revenue Proposals. The high-level description of these expenditure categories in the Guidelines will ensure that the information requirements specified by the AER can be met readily by the TNSPs, and the AER's data is consistent across TNSPs.

(4) The AER will issue a Regulatory Information Notice (RIN), which is consistent with the information requirements specified in the *framework and approach paper*. The TNSP's *Revenue Proposal* must provide the information specified in the RIN.

(5) With the exception of reviews conducted in accordance with the savings and transitional provisions in Chapter 11 of the NER, the AER will conduct a *first pass assessment* of the expenditure forecasts in the TNSP's Revenue Proposal. A *first pass assessment* is a preliminary application of the expenditure assessment in order to:

- identify those aspects of the operating and capital expenditure forecasts that warrant further detailed assessment
- facilitate a more targeted use of *engineering reviews* and other *expert reviews* which provide independent advice to the AER on specialist matters
- assess the validity and performance of the selected *assessment techniques,* having regard to the limitations of *benchmarking* techniques as noted in section A2.1.2 of Appendix A.

Explanatory note 5:

The first pass assessment was proposed by the AER in section 4.4 (page 33) of its Issues Paper on the Expenditure Assessment Guidelines, December 2012. Grid Australia supports the concept of a first pass assessment, and the role of the first pass assessment described here is consistent with the Issues Paper. It is recognised that the AER may choose to conduct a first pass assessment of revenue proposals submitted under the transitional provisions even though the transitional arrangements do not mandate this, in which case, the drafting of clause 2.1(a)(5) would need to be modified.

(6) The outcome of the AER's *first pass assessment* will be published in an issues paper, in accordance with clause 6A.11.3(b) of the NER. This provides an opportunity for consumer engagement in the assessment process. The AER may refine its selected *assessment techniques* in light of the written submissions to the issues paper, in accordance with clause 6A.12.1(a1)(2) of the NER. However, the AER will not adopt *assessment techniques* that have not been specified in the *framework and approach paper*.

(7) The AER's Draft Decision will explain any refinements to the *assessment techniques.*

(8) The refined *assessment techniques* will apply in relation to the AER's Draft Decision and Final Decision.

Explanatory note 6:

Grid Australia considers it important that the AER is able to refine its assessment techniques following the publication of the Issues Paper, and input from consumer groups and other stakeholders. However, the AER should not adopt new assessment techniques that were not identified in the framework and approach paper, and which potentially require new information to be provided by the TNSP. Such an approach may not be consistent with the requirements of section 16(1) of the NEL, which provides that if a function or power performed or exercised by the AER relates to the making of a transmission determination the AER must ensure that the relevant TNSP is informed of material issues under consideration by the AER; and given a reasonable opportunity to make submissions in respect of that determination before it is made. The late adoption of new assessment techniques by the AER would not be conducive to a timely and fair determination process, nor would it be consistent with these NEL requirements,

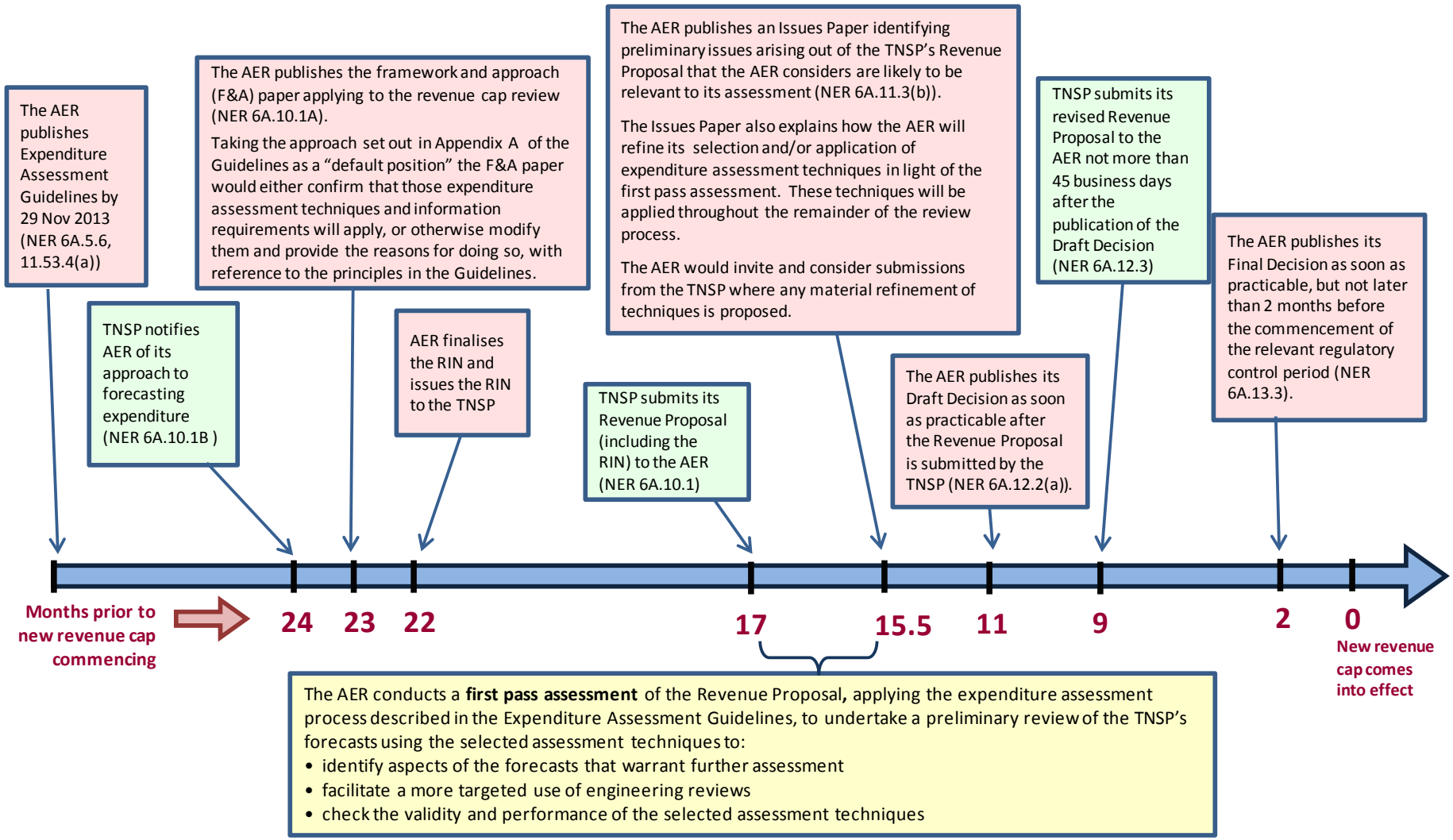
The AEMC's Final Determination on the Economic Regulation of Network Service Providers Rule change also saw the framework and approach process as an opportunity to settle a number of issues prior to a TNSP lodging its Revenue Proposal (see p. 29). The approach is intended to provide TNSPs with a reasonable opportunity to respond to material issues under consideration, such as potential changes to *assessment techniques*.

(b) The diagram on the following page shows the timeline for the regulatory process described in section 2.1(a). It depicts the timeline for a determination that is not affected by the savings and transitional provisions in Division 3 of Part ZW of Chapter 11. An alternative timeline for the reviews that are to be conducted in accordance with these transitional provisions (which apply to Transend and TransGrid only) is set out in Appendix B of these *guidelines*.

Explanatory note 7:

The one year transitional control period which applies to Transend and TransGrid from 1 July 2014 to 30 June 2015 will only be subject to an expenditure assessment after the event, as part of the review of the subsequent control period. Therefore, the AER will not publish an Issues Paper in relation to the transitional Revenue Proposals, and so the AER's first pass assessment will not apply for these transitional reviews.

Timeline: Expenditure assessment process



2.2 Expenditure assessment framework

(a) The following points provide a more detailed explanation of the expenditure assessment framework:

(1) The expenditure assessment commences with the TNSP's expenditure forecasts which form part of a Revenue Proposal submitted to the AER, as specified in NER clause 6A.10.1.

Explanatory note 8:

As explained in section 1.1, the purpose of the guidelines is to explain how the AER will use various *assessment techniques* to determine whether a TNSP's capital and operating expenditure forecasts - lodged as part of its revenue proposal - comply with the NER.

Grid Australia considers it important that the guidelines specifically recognise that the AER's expenditure assessment must commence with the TNSP's revenue proposal. This is consistent with the Rules and the AEMC's intentions (page 96 of the Rule determination, 29 November 2012).

(2) The assessment of the TNSP's expenditure forecasts will be carried out in accordance with the relevant provisions of the NEL and NER, including: the *national electricity objective*; the *revenue and pricing principles*; the *expenditure objectives*; *expenditure criteria;* and the *expenditure factors*.

(3) The AER's expenditure assessment comprises *total expenditure assessments* and *category based assessments*. *Total expenditure assessments* are concerned with total expenditure; whereas *category based assessments* review the efficiency and prudence of expenditure at a more disaggregated level. The nature of these expenditure assessments will differ between operating expenditure and capital expenditure, in order to recognise the particular characteristics of each type of expenditure.

(4) The various *assessment techniques* may be applied to perform either *total expenditure assessments* or *category based assessments*. It is essential that each of the selected *assessment techniques* is suited to the expenditure category that is being assessed. Further detail on each of these techniques and their application is provided in Appendix A.

(5) The AER will apply the *assessment techniques* in a manner that recognises the *expenditure factors*, which are set out in the NER, and the environmental factors that affect the costs of providing transmission services, but are beyond each TNSP's control. In addition, the AER will recognise that no single *assessment technique* can address all of the NER requirements relating to the AER's assessment of a TNSP's expenditure forecasts. Moreover, each expenditure *assessment technique* has particular limitations that must be recognised in its application, as explained in Appendix A.

(6) Appendix A sets out further general considerations relating to the use of *benchmarking*.

Explanatory note 9:

Grid Australia's proposed distinction between *total expenditure assessments* and *category based assessments* is broadly consistent with the AER's Expenditure Forecast Assessment Guidelines Issues Paper (page 27). It is also consistent with the AEMC's Rule determination on the economic regulation of NSPs Rule change (page 97) which noted that the AER should not be limited to assessing a proposal on the basis of a "bottom up", engineering-based approach.

Attachment B of the Expenditure Forecast Assessment Guidelines Issues Paper discusses *category based assessments*, but it is focused on DNSPs. The Issues Paper seeks to identify expenditure categories that have distinct expenditure drivers primarily for modelling and benchmarking purposes. Grid Australia's proposed drafting is somewhat broader in order to include engineering reviews, but is otherwise consistent with the Issues Paper.

Importantly, transmission expenditure categories are currently set out in the AER's submission guidelines. Grid Australia's view is that these categories are generally fit for purpose, although consideration of some refinements may be worthwhile. Furthermore, for the reasons set out in Grid Australia's submission to the Issues Paper (page 34), business cost modelling such as the repex model is unlikely to be appropriate at the transmission level.

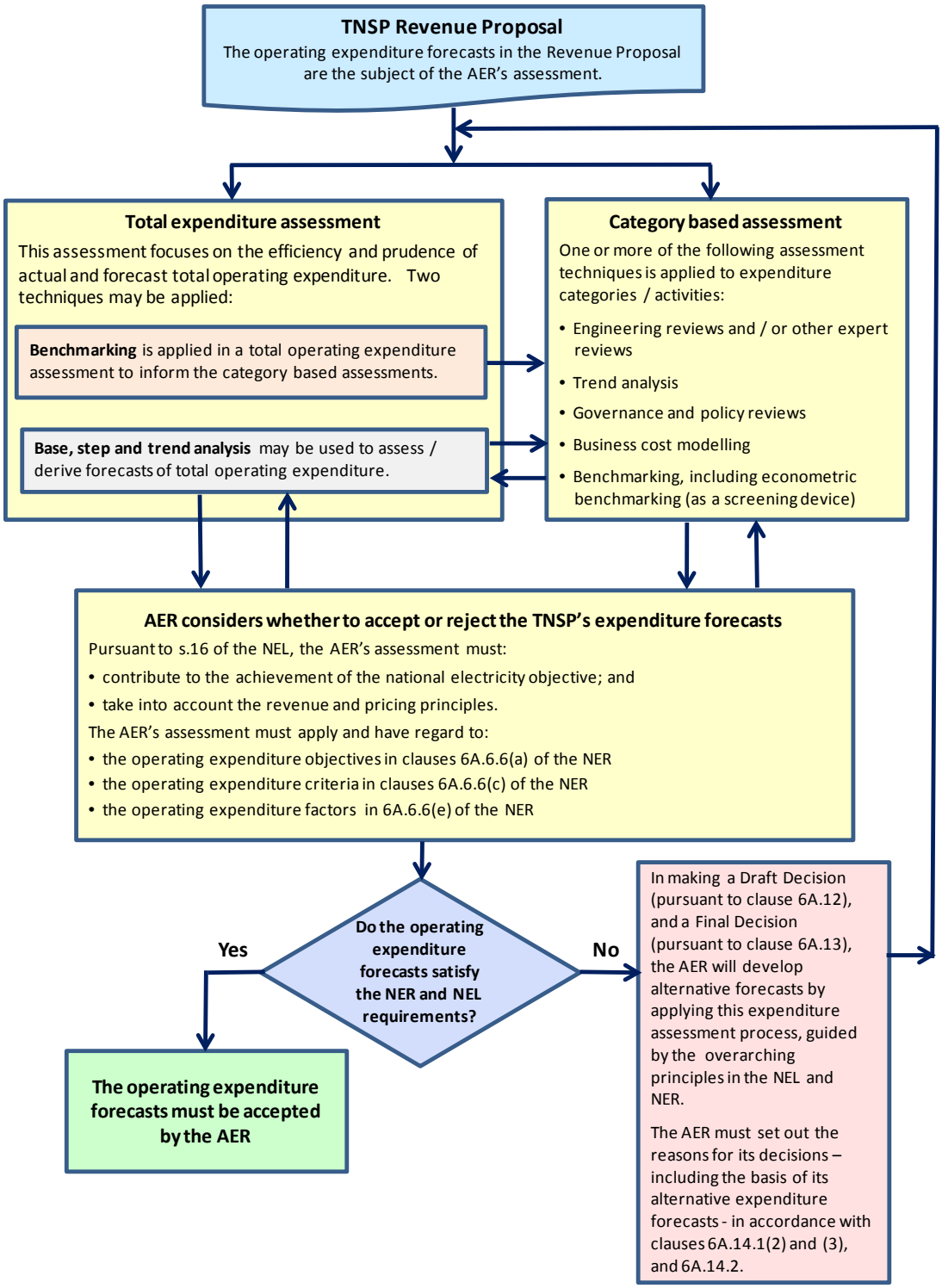
Grid Australia maintains its view that the scope of *total expenditure assessments* is very limited in the case of transmission because of the difficulties of benchmarking at a total expenditure or total cost level. Grid Australia's view is consistent with the AEMC's TFP Final Report, 30 June 2011, page 9, which concluded that it is unlikely that TFP could be applied to transmission sectors because of the small number of service providers, the lumpiness of capital expenditure and difficulties in measuring outputs.

(7) In accordance with the NER, the AER must accept the TNSP's forecasts of total operating and capital expenditure if it is satisfied that those forecasts comply with the NER.

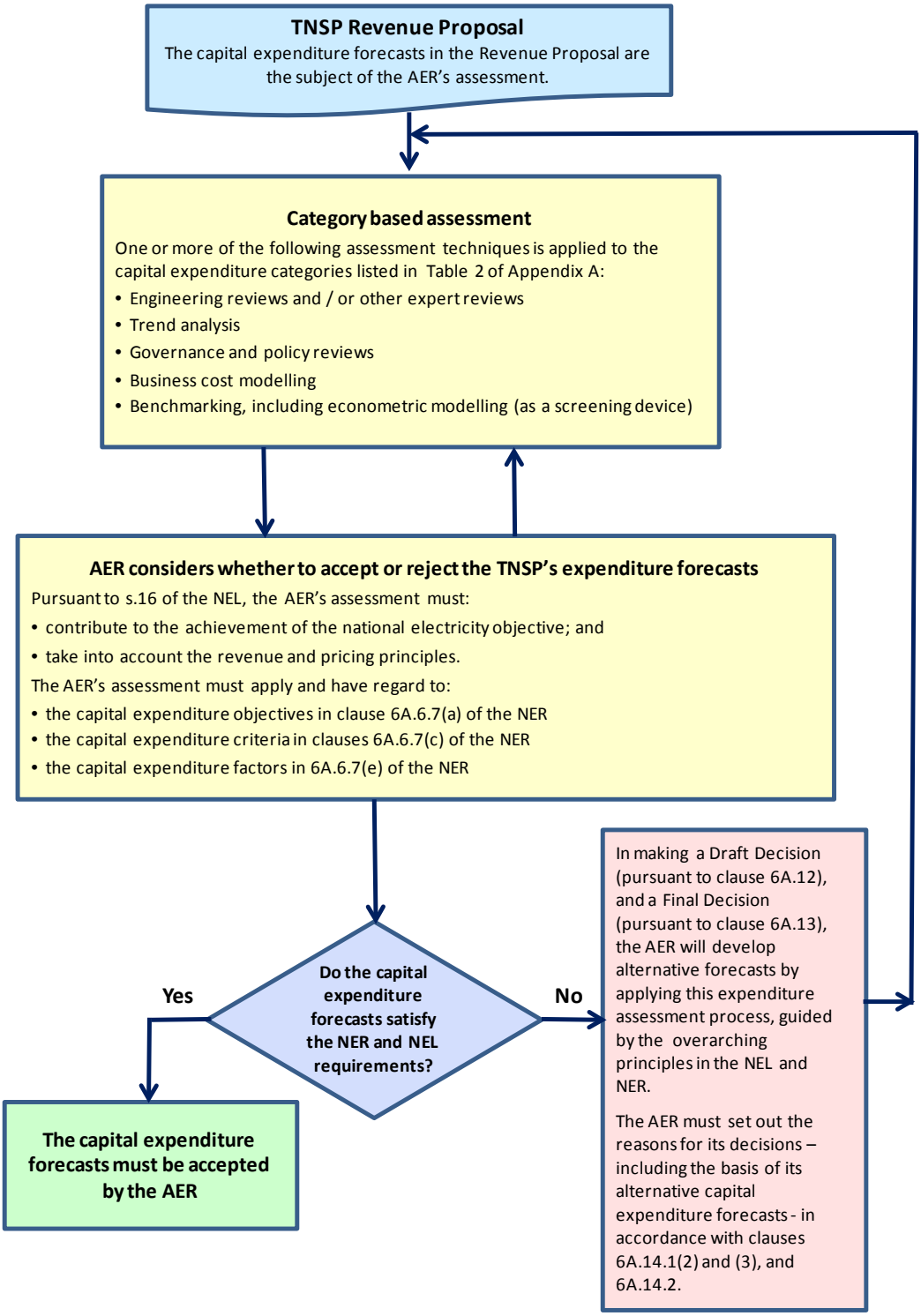
(8) If the AER concludes that the TNSP's forecasts do not comply with the NER, it will apply the expenditure assessment process set out in these *guidelines* to determine an alternative forecast in accordance with the applicable provisions of the NER.

(b) The diagrams on the following pages illustrate the expenditure assessment framework for operating expenditure and capital expenditure described in section 2.2(a).

Operating expenditure assessment framework



Capital expenditure assessment framework



2.3 AER's approach to conducting the expenditure assessment

The AER will conduct its expenditure assessment in a manner that:

(a) provides each TNSP with reasonable certainty and transparency on how the AER will assess the capital and operating expenditure forecasts that form part of the TNSP's *Revenue Proposal*

(b) streamlines the processes by which each TNSP provides information to the AER as part of the determination process and in relation to the AER's benchmarking reports

(c) minimises the compliance burden and associated costs on each TNSP by taking a proportionate approach to the analysis, which focuses on those elements of an expenditure forecast warranting detailed review

(d) ensures that the *assessment techniques* and the resulting conclusions are:

- soundly based, transparent and replicable; and
- sufficiently non-technical to be meaningful to consumer groups and other stakeholders.

3. Objectives of the expenditure assessment

(a) The objectives of the AER's expenditure assessment are:

(1) to review a TNSP's expenditure forecasts that form part of the TNSP's *Revenue Proposal* to determine whether the forecasts comply with the NER

(2) to determine a substitute expenditure forecast which is consistent with the NER, in the event that the AER considers that the TNSP's expenditure forecasts do not comply with the NER.

(b) In relation to the objectives listed in section 3(a), the expenditure assessment must be conducted in a manner that:

(1) contributes to the achievement of the *national electricity objective*

(2) takes into account the *revenue and pricing principles.*

(c) In relation to the objective in section 3(a)(1), the expenditure assessment must be concerned with determining whether:

(1) the total of the forecast operating expenditure for the regulatory control period reasonably reflects the *operating expenditure criteria,* taking into account the *operating expenditure factors*

(2) the total of the forecast capital expenditure for the regulatory control period reasonably reflects the *capital expenditure criteria,* taking into account the *capital expenditure factors*

Explanatory note 10:

Grid Australia considers that the expenditure assessment must be focused on satisfying the NER and *NEL* requirements. Importantly, the expenditure assessments must first consider whether the TNSP's total operating and capital expenditure for the *regulatory control period* reasonably reflect the *operating and capital expenditure criteria,* taking into account the *operating and capital expenditure factors*, in accordance with clauses 6A.6.6(c) and 6A.6.7(c) of the NER. If the AER is not satisfied that this is the case, it must determine an appropriate substitute forecast by applying the same principles in the NER, in accordance with clauses 6A.13.2(b)(3) and 6A.13.2(b)(4), as the case may be.

Grid Australia is concerned that some of the discussion in the Issues Paper and in recent workshops runs the risk of adopting an expenditure assessment that is inconsistent with the NER framework.

(d) For ease of reference, the *operating expenditure criteria* (and *capital expenditure criteria*) in clauses 6A.6.6(c) (6A.6.7(c)) of the NER are:

(1) the efficient costs of achieving the *operating expenditure objectives* (*capital expenditure objectives*)*;*

(2) the costs that a prudent operator would require to achieve the *operating expenditure objectives* (*capital expenditure objectives*)*;* and

(3) a realistic expectation of the demand forecast and cost inputs required to achieve the *operating expenditure objectives* (*capital expenditure objectives*).

(e) For ease of reference, the *operating expenditure objectives* and *capital expenditure objectives* in clauses 6A.6.6(a) and 6A.6.7(a) of the NER are:

(1) meet or manage the expected demand for *prescribed transmission services* over that period;

(2) comply with all applicable *regulatory obligations or requirements* associated with the provision of *prescribed transmission services*;

(3) maintain the quality, reliability and security of supply of *prescribed transmission services*; and

(4) maintain the reliability, safety and security of the *transmission system* through the supply of *prescribed transmission services*.

(f) For ease of reference, the *operating expenditure factors* and *capital expenditure factors* in clauses 6A.6.6(e) and 6A.6.7(e) of the NER (renumbered sequentially) are:

(1) the most recent *annual benchmarking report* that has been published under clause 6A.31 and the benchmark expenditure that would be incurred by an efficient TNSP over the relevant *regulatory control period;*

(2) the actual and expected expenditure of the TNSP during any preceding *regulatory control periods*;

(3) the extent to which the expenditure forecast includes expenditure to address the concerns of electricity consumers as identified by the TNSP in the course of its

engagement with electricity consumers;

(4) the relative prices of operating and capital inputs;

(5) the substitution possibilities between operating and capital expenditure;

(6) whether the expenditure forecast is consistent with any incentive scheme or schemes that apply to the TNSP under clauses 6A.6.5A, 6A.7.4 or 6A.7.5;

(7) the extent the expenditure forecast is referable to arrangements with a person other than the TNSP that, in the opinion of the AER, do not reflect arm's length terms;

(8) whether the expenditure forecast includes an amount relating to a project that should more appropriately be included as a *contingent project* under clause 6A.8.1(b);

(9) the most recent NTNDP and any submissions made by AEMO, in accordance with the Rules, on the forecast of the TNSP's required expenditure;

(10) the extent to which the TNSP has considered and made provision for efficient and prudent non-network alternatives;

(11) any relevant project assessment conclusions report required under clause 5.16.4; and

(12) any other factor the AER considers relevant and which the AER has notified the TNSP in writing, prior to the submission of its revised Revenue Proposal under clause 6A.12.3.

(g) In relation to the objective in section 3(a)(2), if the AER is not satisfied that:

(1) the total of the forecast operating expenditure for the *regulatory control period* reasonably reflects the *operating expenditure criteria*, taking into account the *operating expenditure factors*; or

(2) the total of the forecast capital expenditure for the *regulatory control period* reasonably reflects the *capital expenditure criteria*, taking into account the *capital expenditure factors*,

then the AER will employ the expenditure assessment to determine:

(3) the forecast operating expenditure for each regulatory year which the AER is satisfied reasonably reflects the *operating expenditure criteria*, taking into account the *operating expenditure factors*; or

(4) the forecast capital expenditure for each regulatory year which the AER is satisfied reasonably reflects the *capital expenditure criteria*, taking into account the *capital expenditure factors*,

in accordance with clauses 6A.12.1(1)(c), 6A.13.2(b)(3) or 6A.13.2(b)(4) as the case may be, and the AER will set out its reasons in the draft decision or final decision in accordance with clauses 6A14.1(2)(ii), 6A.14.1(3)(ii) and 6A.14.2.

4. Principles for the selection of assessment techniques

4.1 Consistency with achieving the objectives

The AER's selected *assessment techniques* for a particular *revenue determination* must contribute to the achievement of the objectives specified in section 3 of these *guidelines*.

4.2 Assessment techniques used in combination

The AER may use multiple *assessment techniques* to the extent that each provides a cost effective contribution to achieving the objectives specified in section 3 of these *guidelines*.

4.3 Selection criteria

(a) In selecting the *assessment technique(s)* that will apply in a particular revenue determination, the AER will adopt those techniques that best satisfy the criteria below. The *assessment technique(s)* should:

(1) take into account:

(i) the *operating expenditure factors* and *capital expenditure factors*

(ii) the environmental factors referred to in section 4.3(d) of these *guidelines*

(iii) service performance levels, and any plans that the TNSP may have to address any service performance issues in the forthcoming regulatory control period

(iv) the factors and expenditure drivers that cause expenditure to change over time

(2) not rely on extrapolating from historic to forecast expenditure unless there is a reasonable basis for doing so

(3) be transparent, replicable and robust

(4) be statistically valid

(5) be proportionate to the size of the issue at hand and therefore not excessively costly to implement

(6) be not unduly complex

(7) rely on objective information that is capable of being specified in the *framework and approach paper* and provided in the *Revenue Proposal* without imposing undue costs on the TNSP

(8) provide insights into the source(s) of any inefficiency in the forecast expenditures so that TNSPs are able to take corrective action to improve their efficiency over time.

Explanatory note 11:

Grid Australia considers that the above selection criteria are generally satisfied by the AER's current practice in relation to transmission.

The selection criteria highlight the importance of the AER exercising reasoned and transparent judgment in any expenditure assessment, rather than relying solely on modelling benchmarking analysis or other mechanistic assessment. Grid Australia is concerned that the expenditure assessment must be accessible and understandable to stakeholders, including customer groups and TNSP Boards and executives. Grid Australia is concerned that some of the benchmarking analysis currently under consideration for transmission is a 'black box' that would not by itself meet a number of the above criteria, particularly criteria (1), (5) and (7).

(b) In giving weight to the *assessment techniques* in a particular determination, the AER will have regard to:

(1) the effectiveness of the *assessment technique* in previous determinations and other jurisdictions

(2) the inherent limitations of the *assessment technique* in informing a reasonable and reliable assessment of expenditure forecasts

(3) the need to ensure that the reliance placed on an *assessment technique* is proportionate to the reliability and accuracy of those techniques

(4) the availability of evidence to corroborate the information provided by an *assessment technique*.

(c) The reasons for the AER's selection and application of the *assessment technique(s)* that will apply in a particular revenue determination will be set out in the issues paper published by the AER in accordance with clause 6A.11.3(b) of the NER, and the draft decision.

(d) The environmental factors referred to in section 4.3(a) of these *guidelines* are those identified by the relevant TNSP in its *Revenue Proposals*, including:

(1) location and types of generation on each network and location of points of interconnection with other TNSPs or Market Network Service Providers

(2) variability of generation dispatch patterns due to intermittent generation, for example, where contributions from hydro or wind generation are material

(3) location and distribution of loads, whether centralised or distributed among major flow paths, across each network

(4) length/distance and topology of the network, that is, the degree of meshing or extension of each transmission network, potentially reflected as "network density"

(5) system operating voltages and power carrying capabilities of network assets

(6) different ranges of nominal operating voltages at which TNSPs connect to DNSPs and direct connect consumers

(7) major circuit structures (for example, single circuit or double circuit, which can impact on credible contingencies in the NEM)

(8) weather and climatic effects, that is, performance characteristics of the network and the extent to which these may be affected by storms, bushfires and other weather-related events (which in turn can depend on factors such as altitude, wind and the propensity for natural phenomena such as cyclones)

(9) terrain and vegetation

(10) peak demand

(11) different jurisdictional standards such as planning standards

(12) the age profile and rating of existing network assets

(13) the effect of scale economies (that is, "lumpy" investment profiles) on network performance and future capital expenditure requirements

(14) implications of technical requirements and standards set out in the schedules to Chapter 5 of the NER

(15) variations in cost drivers between jurisdictions

(16) any other factor beyond the TNSP's control that affects cost or service performance.

5. Expenditure assessment techniques

5.1 Categories of assessment techniques

(a) Subject to satisfying the principles set out in section 4 of these *guidelines*, the AER's review of the capital and operating expenditure forecasts that form part of a TNSP's *Revenue Proposal* may employ *assessment techniques* from one or more of the following assessment categories:

(1) *base, step and trend analysis* in relation to total operating expenditure

(2) *expert reviews*, including *engineering reviews*

(3) *governance and policy reviews*

(4) *trend analysis* for expenditure categories

(5) *business cost modelling* and

(6) *benchmarking*, including econometric modelling.

(b) Subject to satisfying the principles set out in section 4 of these *guidelines, assessment techniques* will be employed by the AER to conduct:

(1) *total expenditure assessments*; and/or

(2) *category based assessments*.

5.2 Total expenditure assessment

(a) A *total expenditure assessment* provides analysis in relation to the efficiency and prudency of the TNSP's actual and forecast:

(1) total operating expenditure; or

(2) total capital expenditure; or

(3) total revenue requirement.

(b) The purpose of the *total expenditure assessment* is to:

(1) inform the *category based assessments* particularly in relation to the scope and level of resourcing required in relation to those assessments

(2) provide a high-level cross-check of findings that are made through *category based assessment*.

(c) The *total expenditure assessment* may involve *assessment techniques* from one or more of the following assessment categories:

(1) base, step and trend analysis

(2) *benchmarking*, subject to the limitations set out in section 5.2(g) and (h).

(d) Transmission capital expenditure requirements may vary significantly from year to year. Therefore, *base, step and trend analysis* may only be applied as a *total expenditure assessment* in relation to operating expenditure.

(e) The AER may use *base, step and trend analysis* to review total operating expenditure by taking the following steps:

(1) establish an efficient base year, by adopting the actual operating expenditure in either the third or fourth year of the current *regulatory control period*

(2) remove any operating expenditure category from the efficient base year where the recent actual expenditure for that category cannot be used as a basis for forecasting future expenditure

(3) add step changes to reflect the operating expenditure associated with scope changes between the base year and the forecast period

(4) adjust for factors over the forecast period such as network growth, economies of scale, labour and materials escalation

(5) add in forecasts of expenditure, using a zero-based budgeting approach, in relation to any expenditure categories that are best determined as zero-based or that have been removed from the efficient base year in step (2).

(f) Subject to satisfying the principles set out in section 4 of these *guidelines*, for the purpose of *total expenditure assessments*, *benchmarking* may include one or more of the following *assessment techniques*:

(1) Partial performance indicators, including the ratio analysis conducted by the AER in recent transmission determinations

(2) Outcomes from independent benchmarking studies

(3) Econometric modelling.

Explanatory note 12:

Grid Australia notes that Stochastic Frontier Analysis and Data Envelopment Analysis are not included in the list of potential benchmarking techniques because of the serious data limitations that would arise in attempting to apply these techniques to transmission networks. Total factor productivity (TFP) is also excluded on the basis of the AEMC's conclusion in its TFP Final Report (of 30 June 2011) that the technique cannot be applied at this time. It is recognised that TFP may be potentially useful at some future time, in which case these *guidelines* could be revised to include it as a potential *assessment technique*.

(g) *Benchmarking* is to be used to inform the *category based assessment* and thereby ensure the effective direction of resources used in assessments, and must not be used as the sole basis for determining the total operating expenditure or capital expenditure forecasts.

(h) The weight placed on the results of *benchmarking* analysis will reflect:

(1) The extent to which outcomes from the different benchmarking analyses conflict with one another;

(2) The adequacy of the sample size given the analysis being undertaken;

(3) The extent to which the analysis accounts adequately for environmental factors;

(4) The extent to which the results of the benchmarking analysis can be validated with reference to other benchmarks and evidence from *category based assessments* including *policy and governance reviews*, having regard to the limitations of the various techniques as noted in section A.2.1.2 of Appendix A.

Explanatory note 13:

Grid Australia considers that only credible benchmarking analysis should be given weight in the expenditure assessments. Grid Australia is concerned that benchmarking may be applied without proper assessment of its robustness. As already noted, the AEMC has highlighted the problems of small sample sizes in the transmission sector, the lumpiness of capital expenditure and the difficulties in measuring outputs. Grid Australia considers that these issues place significant natural limitations on the usefulness of benchmarking in the transmission sector.

5.3 Category based assessment

(a) A *category based assessment* provides analysis that assesses the efficiency and

prudency of a TNSP's:

(1) actual and forecast expenditure in relation to a category of expenditure

(2) actual and forecast expenditure in relation to a program of expenditure or project(s)

(3) systems, processes or policies.

(b) The scope and depth of a *category based assessment* may be informed by the outcome of a *total expenditure assessment*. For instance, where a *total expenditure assessment* or high level *category based assessment* indicates that an expenditure forecast satisfies the NER requirements, the need for more detailed *category based assessments* may be reduced or obviated.

(c) Subject to satisfying the principles set out in section 4 of these *guidelines*, the *category based assessment* may involve *assessment techniques* from one or more of the following assessment categories:

(1) *expert reviews* including *engineering reviews*

(2) *governance and policy reviews*

(3) *trend analysis* for expenditure categories

(4) *Business cost modelling*

(5) *benchmarking*, as a screening device in accordance with section 5.3(i).

(d) An *expert review*, which includes an *engineering review*, examines the TNSP's justification for its forecast expenditure in relation to a specific expenditure category. This type of review is conducted by a suitably qualified expert.

(e) A *governance and policy review* examines the TNSP's systems, processes and policies that drive operating and capital expenditure (such as asset management plans and strategies, and investment approval processes), recognising the importance of good electricity industry practice. This type of review is conducted by a suitably qualified expert.

(f) Typically, *trend analysis* compares forecast expenditure for a particular category with the recent actual level of expenditure for that category. It should be noted that there are potential limitations in using historic transmission expenditure to forecast future expenditure requirements, as some categories of transmission expenditure are 'lumpy'.

(g) Subject to satisfying the principles set out in section 4 of these *guidelines, business cost modelling* may include one or more of the following:

(1) modelling of input costs, such as specific categories of labour, materials or plant and equipment

(2) modelling of cost estimation risk factors to ensure that the forecast capital expenditure is sufficient to provide the TNSP with a reasonable opportunity to recover at least its efficient costs, in accordance with the revenue and pricing principles in the *NEL*

(3) modelling that relates categories of expenditure to particular cost drivers for the purpose of projecting future expenditure requirements. For example, network augmentation expenditure may be determined through a probabilistic analysis of various demand growth and generation scenarios

(4) modelling the expenditure impact of changes to inspection and maintenance cycles for particular asset types.

(h) Subject to satisfying the principles set out in section 4 of these *guidelines*, for the purpose of *category based assessments*, *benchmarking* may include one or more of the following:

(1) benchmarking of input costs, such as specific categories of labour, materials or plant and equipment

(2) the outcomes from independent benchmarking studies

(3) partial performance indicators.

(i) For the purpose of *category based assessments*, *benchmarking* may be used only as a screening device which directs the AER to:

(1) accept the forecasts in relation to that expenditure category; or

(2) conduct further analysis, possibly including *engineering reviews* and *expert reviews*.

As a screening device, *benchmarking* alone is unlikely to provide sufficient evidence for the AER to reject the TNSP's forecast expenditure and substitute its own forecast. The AER must have regard to the TNSP's particular circumstances, including the environmental factors referred to in section 4.3(d) of these *guidelines*, to the extent these circumstances affect the efficient and prudent expenditure for the TNSP.

Explanatory note 14:

Grid Australia considers that the AER should not rely entirely on benchmarking to determine whether to reject a TNSP's forecast expenditure. Grid Australia's position is that the NER's focus on efficiency and prudency requires the AER to consider the TNSP's particular circumstances, including the environmental factors referred to in section 4.3(d). Grid Australia also notes the AER Chairman's views that the nature of electricity transmission lends itself more to detailed engineering review of capital expenditure.

(j) In applying the *category based assessments*, the AER will also consider the total operating expenditure and total capital expenditure over the *regulatory control period* in order to ensure that the NEL and NER requirements are satisfied. In particular, the AER:

(1) must not adopt a combination of outcomes from *category based assessments* that would result in an unreasonably low total expenditure forecast, contrary to the revenue and pricing principles.

(2) will recognise that an apparently high expenditure in relation to one expenditure category may be more than offset by low expenditure in relation to another expenditure category or categories (whether within or between capital

expenditure and operating expenditure).

Explanatory note 15:

Grid Australia notes that the NER requirements relate to the total operating expenditure and total capital expenditure over the regulatory control period. It is therefore appropriate to note that the AER must have regard to the total expenditure forecasts in applying the *category based assessments*.

It is also noted that the NEL requires that a regulated NSP should be provided with a reasonable opportunity to recover at least the efficient costs it incurs in providing regulated services. Section 5.3(i) therefore highlights the need for the AER to ensure that any forecasts of total capital expenditure or total operating expenditure derived from the aggregation of *category based assessments* meets that NEL requirement.

Glossary

assessment techniques	are the techniques used by the AER in accordance with these *guidelines* to determine whether a TNSP's capital and operating expenditure forecasts comply with the NER.
base, step and trend analysis	has the meaning set out in section 5.2(e) of these *guidelines.*
benchmarking	when used in relation to a *total expenditure assessment* has the meaning set out in section 5.2(f) of these *guidelines.* when used in relation to a *category based assessment* has the meaning set out in section 5.3(h) of these *guidelines.*
business cost modelling	has the meaning set out in section 5.3(g) of these *guidelines.*
category based assessment	has the meaning set out in section 5.3 of these *guidelines.*
engineering review	is a form of *expert review.*
expert review	has the meaning set out in section 5.3(d) of these *guidelines.*
first pass assessment	has the meaning set out in section 2.1 of these *guidelines.*
governance and policy review	has the meaning set out in section 5.3(e) of these *guidelines*
guidelines	means, unless stated otherwise, Expenditure Forecast Assessment Guidelines made by the AER under clause 6A.5.6(a) of the NER.
total expenditure assessment	has the meaning set out in section 5.2 of these *guidelines.*
trend analysis	has the meaning set out in section 5.3(f) of these *guidelines.*

Appendix A – Current Assessment Techniques For TNSPs

In accordance with these *guidelines*, this Appendix sets out the assessment techniques that will apply to TNSPs from 29 November 2013.

A1 Overview and explanation of assessment techniques

As explained in section 5.1, there are two types of assessments:

(1) *total expenditure assessments*; and

(2) *category based assessments*.

These two types of assessments are discussed in more detail below in sections A2 and A3 of this Appendix A.

The table on the following pages provides a consolidated list of the *assessment techniques* that will apply in assessing a TNSP's expenditure forecasts. It also indicates whether these are currently used in *total expenditure assessments* and / or *category based assessments*. A description of each technique is provided, along with a brief explanation of the reasons for the current mode of application of each technique.

Table 1: Explanation of assessment techniques and their current application

Assessment technique	Currently used in:		Description of technique / rationale for current application
	Total expenditure assessments?	Category based assessments?	
Expert reviews, including engineering reviews	**No**	**Yes**	Expert reviews are conducted only in relation to category based assessments. These reviews provide advice to the AER on specialist matters, where alternative assessment techniques provide inconclusive or unreliable information. The majority of expert reviews relate to planning and investment matters, and are conducted by engineering consultants. Other expert reviews may include reviews of non-network expenditure by suitably qualified experts, for example in relation to insurance or land procurement. A recent example of an expert engineering review commissioned by the AER is the work conducted by Energy Market Consulting associates and Strata Energy Consulting in the ElectraNet revenue cap decision. The purpose of that review was to examine ElectraNet's past and forecast capital expenditure and operating expenditure, and to advise the AER on whether the expenditure forecasts were considered to have met the requirements of NER. The scope of the review included: • A review of actual and forecast expenditure for the current period and identification of variations from forecasts on which the current period's revenue allowance was based. Assessment of any implications arising from the findings on the forecast expenditures for the next period. • A description and assessment of the methods and assumptions used by ElectraNet when determining the capex and opex forecasts. • An assessment of ElectraNet's innovation and efficiency management. • A review of the cost estimation methodologies used by ElectraNet for capex and opex projects. • A review of a sample of projects that are included in ElectraNet's capex forecast. • A review of input data and opex plan development methodologies and practices (including asset age and condition monitoring, total asset life cycle management, work prioritisation). The AER considers that future expert engineering reviews will be similar in approach to that described above. In applying these reviews and interpreting their results, the AER will ensure that company specific issues are taken into consideration, including the environmental factors described in these *guidelines* and the expenditure factors in the NER.

Assessment technique	Currently used in:		Description of technique / rationale for current application
	Total expenditure assessments?	Category based assessments?	
Base, step and trend analysis	**Yes, for opex only**	**Yes, for opex only**	Base, step and trend analysis applies to operating expenditure only. It is not an appropriate assessment technique for capital expenditure, given its lumpiness. The AER applied a base, step and trend analysis approach to its assessment of controllable opex in its April 2013 final decision for ElectraNet. In that particular decision, the AER adopted an efficient base year opex amount and then added allowances for additional costs associated with: • Asset base growth • Labour cost escalation • Step changes (relating to superannuation shortfall, insurance, operational refurbishment, routine maintenance, transmission licence fees, office accommodation) • cost forecasts for items removed from the efficient base year opex and estimated using a zero based approach (land tax, self insurance, line remediation, regulatory reset costs). It is expected that the AER's approach to applying the base, step and trend analysis assessment technique in the future will be similar to that described above.
Trend analysis	**No**	**Yes**	Trend analysis is conducted only in relation to category based assessments, but not as a primary assessment technique. Trend analysis provides a top down assessment of the TNSP's forecast expenditure for a particular expenditure category by examining the recent historic expenditure. For example, the AER may decide not to accept a TNSP's operational refurbishment expenditure forecast if the company is unable to sufficiently demonstrate its proposed operating expenditure reflects a prudent and efficient step-change increase in its expenditure requirements. Trend analysis is therefore used as a mechanism for seeking further explanation and justification from the TNSP for a proposed increase in expenditure. Only where the TNSP is unable to provide a satisfactory explanation for the proposed increase in expenditure will the AER use the trend analysis in determining a substitute amount. Trend analysis is not appropriate for expenditure categories that are inherently lumpy.

Assessment technique	Currently used in:		Description of technique / rationale for current application
	Total expenditure assessments?	Category based assessments?	
Governance and policy reviews	**Yes**	**Yes**	Governance and policy reviews can be considered in both total expenditure assessments and category based assessments. In the recent ElectraNet review, the AER commissioned an independent review which examined ElectraNet's policies and procedures associated with capital and operating expenditure. The scope of that review included: • A review of ElectraNet's asset governance and asset management framework (network and non-network) under which capex and opex programs and projects are established. • A description of the ElectraNet's capex planning methodology, and assessment of the company's capex planning and management methodologies. An assessment of the likelihood of the methodologies producing reasonable outcomes. • A review of ElectraNet's asset management and maintenance methods and systems, and their application. It is expected that the scope of governance and policy reviews undertaken in the future will be similar to that described above. In applying these reviews and interpreting their results, the AER will ensure that company specific issues are taken into consideration, including the environmental factors described in these *guidelines* and the expenditure factors in the NER.

Assessment technique	Currently used in:		Description of technique / rationale for current application
	Total expenditure assessments?	Category based assessments?	
Business cost modelling	**No**	**Yes**	Business cost modelling is conducted only in relation to category based assessments. Business cost modelling refers to spreadsheet-based analysis that examines a particular cost driver or input to the expenditure forecast. For example, cost estimation risk factors are modelled in preparing capital project cost estimates. The cost estimation risk factors recognise the inherent asymmetric risk associated with estimating the cost of capital projects due to unforseen factors at the time of the initial estimate. It is a matter for each TNSP to determine the business cost modelling that should be used to support its expenditure proposals. The AER will assess these business cost models and may also develop its own modelling to further stress test the TNSP's forecasts. The AER is investigating the further development of high-level models to assess replacement capital expenditure ("repex") and augmentation capital expenditure ("augex"). However, these particular models are not readily applicable to TNSPs for the following reasons: • Transmission investment for augmentations and replacements in particular is very lumpy in nature. • It is common for transmission augmentation projects to have more than one driver (for instance, demand growth generation development, system stability, and in some cases net market benefits). • The drivers of augmentation capex are more complex than age or average age of assets. Asset condition and risk are key drivers, and assets may deteriorate at an accelerated rate with higher loadings. These factors, along with the scope for coordination of works and trade-offs between capex and opex are not readily accommodated in high-level models.

Assessment technique	Currently used in:		Description of technique / rationale for current application
	Total expenditure assessments?	Category based assessments?	
Benchmarking using econometric modelling	**Yes**	**No**	Econometric modelling may involve the use of a 'cost function', which explains the relationship between a TNSP's outputs and inputs. Such modelling estimates the TNSP's efficient costs to deliver transmission services, given the TNSP's particular operating conditions and environmental factors. Outputs typically defined for transmission networks are somewhat abstract from TNSP's operating processes and cost drivers, and therefore this technique should be used cautiously. Modelling of capital inputs in econometric cost functions is particularly problematic, so this assessment technique is only potentially useful in relation to operating expenditure. The AER has not yet employed econometric modelling for the purpose of assessing a TNSP's expenditure forecasts. The AER is mindful of the limitations of econometric modelling and the technical and data requirements for such modelling to ensure that the analysis is robust. Further discussion of the issues relating to such modelling is provided in section A2.1.2 of this Appendix.
Benchmarking studies	**Yes**	**No**	Benchmarking studies are typically conducted at the total or operating expenditure level. The studies are likely to be most reliable in relation to operating expenditure, given the inherent lumpiness of capital expenditure for TNSPs. As noted in the criteria in section 4.3(a) and (b), benchmarking studies must be robust if weight is to be placed on them in an assessment.
Benchmarking using partial performance indicators	**Yes**	**Yes**	Benchmarking using partial performance indicators (PPI) can be applied in total expenditure assessments and category based assessments. The limitations of these techniques must be recognised. Further details of the AER's application of PPI are provided in section A2.1.2 of these *guidelines*.
Benchmarking using TFP, DEA or SFA	**No**	**No**	Benchmarking using total factor productivity (TFP), data envelopment analysis (DEA) or stochastic frontier analysis (SFA) is not suitable for application to TNSPs at this time. This is due to the data limitations that would arise in attempting to apply these techniques to transmission networks, and the difficulty with some techniques in establishing confidence intervals in the results. Total factor productivity (TFP) is also excluded on the basis of the AEMC's conclusion in its TFP Final Report (of 30 June 2011) that the technique cannot be applied at this time. It is recognised that techniques such as these may be potentially useful at some future time, in which case these *guidelines* could be revised to include them as potential *assessment techniques*.

A2 Total expenditure assessment

In accordance with section 5.2(a) of these *guidelines*, a total expenditure assessment provides analysis in relation to the efficiency and prudency of the TNSP's actual and forecast:

(1) total operating expenditure; or

(2) total capital expenditure; or

(3) total revenue requirement.

The *assessment techniques* that the AER proposes to use in a *total expenditure assessment* are set out below.

A2.1 Total operating expenditure

A2.1.1 Base, step and trend analysis

The AER notes that the regulatory regime provides incentives for TNSPs to deliver prescribed services efficiently. Given these incentives, actual operating expenditure over a particular period is likely to reveal the efficient level of operating expenditure required for that period to provide prescribed services. In accordance with these *guidelines*, therefore, the AER considers that *base, step and trend analysis* is an appropriate assessment technique for assessing whether a TNSP's total operating expenditure forecasts satisfy the NER requirements.

Base, step and trend analysis allows the AER to assess expenditure forecasts with reference to the efficient base level of operating expenditure. Once the efficient operating expenditure for the base year is set, the AER will assess the following adjustments:

- step changes, to provide an additional operating expenditure allowance for an activity that that is not incorporated in the base year

- annual cost trends, to account for forecast labour and material cost changes, network growth and scale efficiencies.

The AER will reconcile:

- its top down operating expenditure forecast using *base, step and trend analysis*; and

- the operating expenditure forecasts developed through 'bottom up' *category based assessments*.

Subject to this reconciliation, the AER will use *base, step and trend analysis* as the primary *assessment technique* in relation to total operating expenditure.

A2.1.2 Benchmarking

The AER will continue to use the Partial Performance Indicators (PPI)[1] or ratio analysis that it presently uses to compare total operating expenditure across TNSPs. The AER may also continue to have regard to other available benchmarking studies in assessing each TNSP's

[1] PPI analysis calculates a single explanatory variable and therefore requires less data than other benchmarking approaches such as TFP.

operating and service performance. In addition, the AER will incorporate the most recent available regulatory accounting information into its PPI analysis.

The following ratio analysis from the AER's recent Issues Paper for SP AusNet[2] illustrates the type of approach that the AER will apply in its total operating expenditure assessments.

Figure A.2 Opex/line length ($million, nominal)

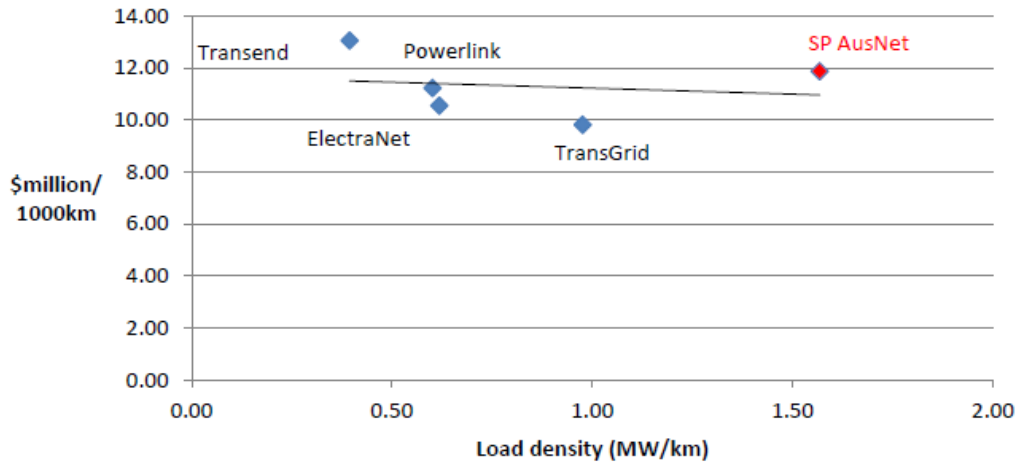
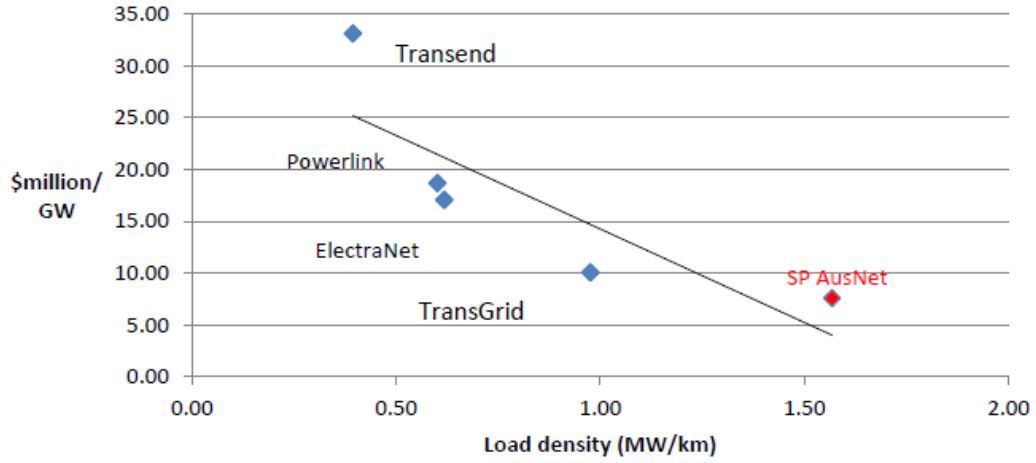
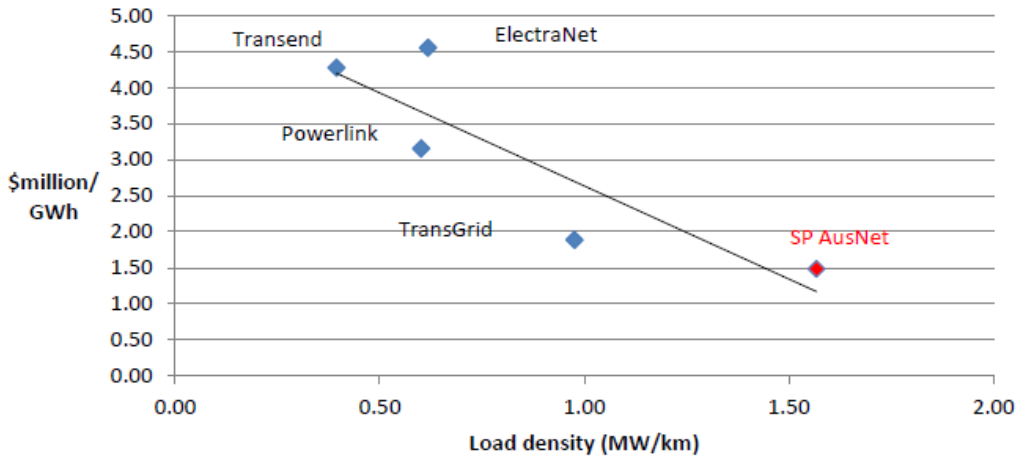


Figure A.3 Opex/peak demand ($million, nominal)



[2] The figures included here are from appendix A (Benchmarking) of the AER's Issues Paper: SP AusNet's electricity transmission revenue proposal, 2014–15 to 2016–17, 1 May 2013, pages 30 and 31.

Figure A.4 Opex/electricity distributed ($million, nominal)



In undertaking PPI analysis as part of an *expenditure assessment*, the AER will publish information to enable interested parties to understand how the AER is using that analysis to inform its assessment. The AER will also publish sufficient information to enable interested parties to replicate its calculations, including:

- the functional forms of the PPI ratios
- the data used in all calculations
- the sources of all data.

The AER's application of PPI ratios will reflect the limitations of this particular approach, which include:

- Results obtained by PPI may suggest that significant cost differences exist between businesses. However, PPI can only provide a partial indication of performance and is not able to separately account for multiple inputs. Therefore, where possible multiple PPI ratios should be considered together.
- While PPIs provide some insights, they can give misleading information regarding the overall economic performance of energy utilities producing multiple outputs and multiple inputs.
- PPIs assume a linear relationship between the input and output measures and also assume that any change in the input measure can be described by a change in the output measure. However, in most circumstances the change in an input usage will be dependent on a number of inputs, outputs and other factors that may not be described in the model. In particular, PPIs used in isolation cannot easily take into account environmental factors that are beyond the control of management.
- Partial productivity measures can be misleading because they disregard substitution possibilities between inputs. The partial approach to productivity measurement neglects the fact that businesses may choose to substitute one type of expenditure for another, hence giving them best performance on some measures but not on others, leaving an overall performance difficult to measure. This can lead to the selection of an infeasible combination of partial measures (sometimes referred to as "cherry-picking") to derive an unreasonably low forecast of total expenditure requirements.

To date, the AER's benchmarking analysis has focused principally on PPI analysis of actual operating expenditure. In future, benchmarking may be extended to consider forecast operating expenditure, and to include other ratio analyses in addition to those shown above.

Subject to satisfying the objectives and principles in these *guidelines*, the AER may also undertake econometric modelling to estimate total operating expenditure with reference to a number of explanatory variables. It is expected that this type of modelling will augment the Partial Performance Indicator (ratio) analysis that the AER currently conducts. Any use of econometric modelling will recognise that it is critical to control for exogenous influences, being the environmental factors referred to in section 4.3(d) of these *guidelines*, which are beyond the control of the regulated business.

The AER notes the limitations of benchmarking analysis for transmission networks. These limitations include the following:

- Effective benchmarking may require the modelling of relevant factors affecting the expenditure of the TNSPs. TNSPs provide a range of services using different types of inputs, and they operate in different environmental conditions. Inevitably, benchmarking requires some aggregation of those services, inputs, or environmental conditions into a few variables, resulting in some degree of approximation in the estimation.

- The small sample size for Australian TNSPs imposes significant limitations on the reliability of econometric results. In particular, it is difficult to isolate differences in efficiency across TNSPs (which is the purpose of the analysis) from the environmental and operational factors that will also affect relative cost and service performance.

- Academic studies have found that different benchmarking techniques do not exhibit a very high degree of mutual consistency. In some cases, the inability to produce similar results with alternative model specifications and methods require further investigation so that benchmarking outcomes can be supported by more rigorous analysis.

In light of these limitations, the AER regards benchmarking of total operating expenditure as a cross-checking mechanism. Benchmarking will inform the extent to which the category based assessments are required in order to verify the outcomes from the *base, step and trend analysis*. It is noted that this position is consistent with the conclusions of an ACCC/AER working paper published in May 2012, which stated:[3]

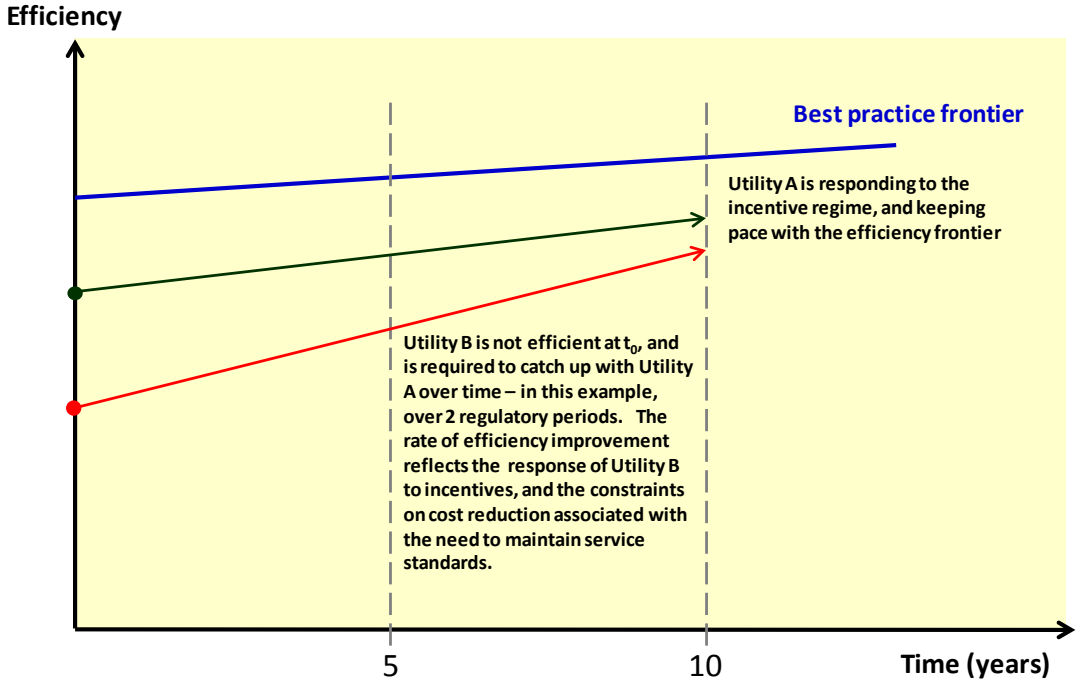
> "Reflecting current practice and existing expertise, benchmarking should initially be used as an informative tool rather than a determinative one. For example, it can be used as a starting point for a conversation with regulated utilities about the level of operating and/or capital expenditures being incurred and proposed. A more sophisticated application could emerge over time."

If the AER concludes that a TNSP's actual cost performance has not been efficient, the AER will not expect the TNSP to move to the 'efficiency frontier' with immediate effect. The AER notes that placing such a demand on a TNSP is likely to put service levels at risk. A company cannot improve performance without implementing significant changes to business practices.

As depicted in the following diagram, the AER would adopt a glide path approach, which provides a TNSP with sufficient time to move towards the efficiency frontier. The figure

[3] ACCC/AER, Benchmarking Opex and Capex in Energy Networks, Working Paper no. 6, May 2012, page 14.

depicts an inefficient company, utility B, which is required to 'catch up' with the better performing utility A.



A2.2 Total capital expenditure

Capital expenditure requirements for transmission networks cannot be estimated reliably at an aggregate level. This is because capital expenditure requirements are inherently 'lumpy' by nature and the expenditure drivers need to be assessed at a category level. Therefore, the AER does not intend to undertake a *total expenditure assessment* for capital expenditure.

A2.3 Total revenue requirements

The AER will not apply any *assessment techniques* that are focused on the TNSP's total revenue requirements.

Given the difficulties of estimating capital expenditure at an aggregate level, it is not possible to estimate a TNSP's total revenue requirements using techniques such as Total Factor Productivity (TFP). In addition, the AER recognises that measuring outputs for TNSPs is inherently problematic, and therefore the outcomes from TFP analysis will not provide reliable information on a TNSP's total revenue requirements. This position is consistent with the findings of the ACCC/AER's May 2012 working paper on benchmarking, which stated:[4]

> "In principle it is preferable to compare the total expenditure across businesses. However, this requires an assessment of the consumption of the volume of capital services in a period (or an allocation of the total capital expenditure to that period). There are conceptual issues in carrying out that assessment or allocation. As a consequence, many regulators put aside capital expenditure and compare operating expenditure across businesses."

[4] Ibid, page 11.

A3 Category based assessments

In accordance with section 5.3(a) of these *guidelines*, the AER will employ the following *category based assessments* in relation to operating and capital expenditure:

(1) *expert reviews* including *engineering reviews*

(2) *governance and policy reviews*

(3) *trend analysis* for expenditure categories

(4) *business cost modelling*

(5) *benchmarking*, as a screening device in accordance with the section 5.3(h) of these *guidelines*.

A3.1 Operating expenditure

As noted in relation to the *total expenditure assessment*, the AER's primary assessment technique for assessing the efficiency and prudency of operating expenditure is *base, step and trend analysis*. The *category based assessment* is therefore a cross-check for the conclusions that are reached using the *base, step and trend analysis* in the *total expenditure assessment*.

Table 2 below shows the categorisation of operating expenditure that will be adopted by the AER in specifying the information requirements (in a framework and approach paper or a RIN) applying to a TNSP.

Table 2 – Operating expenditure categories

Direct Operations and Maintenance
Field Operations and Maintenance • Lines • Land and easements • Substations • Secondary systems • Communications
Asset Works Program/ Operational Refurbishment
Field Activity Support
Network Control Includes real time monitoring, planning and management of the transmission network. Excludes field operations/ switching as those activities are included in field operations and maintenance
Other Operating Expenditure
Asset Management
Corporate Support
Network support
Insurance
Self insurance
Equity raising
Debt raising

A3.2 Capital expenditure

Given the lumpy and non-recurrent nature of most capital expenditure for TNSPs, primary *assessment techniques* are *governance and policy reviews* and *engineering reviews*. At a high level, *trend analysis* may be used to identify areas for further detailed review.

Table 3 below shows the categorisation of capital expenditure that will be adopted by the AER in specifying the information requirements (in a framework and approach paper or a RIN) applying to a TNSP.

Table 3 – Capital expenditure categories

NETWORK: Load/network security driven
Augmentation[5]
Connections[5]
Land and easements
NETWORK: Asset reliability/compliance driven
Replacement/Refurbishment
Physical Security/Compliance
Other network
NON NETWORK
Information Technology
Buildings, vehicles and minor plant

A4. Information requirements

The information requirements to give effect to the *expenditure assessments* will be specified in the Regulatory Information Notice (RIN). The AER has published standard RIN templates together with this guideline and will consult on amendments to RIN templates, if proposed, at the time of each determination after the publication of the framework and approach paper.

As already noted, the RIN will include the expenditure categories specified in Tables 2 and 3 (with the exceptions already noted for SP AusNet). The data and supporting explanatory information required to conduct the *category based assessments* for operating and capital expenditure will be provided in each TNSP's Revenue Proposal. The AER will maintain its current practice of seeking any additional explanatory information required from each TNSP during the course of the review process.

The AER also expects that each TNSP's Revenue Proposal will provide sufficient information to enable the AER to conduct the *base, step and trend analysis* for operating expenditure in accordance with the section 5.2(e) of these *guidelines*.

Benchmarking approaches that may be used in *total expenditure assessments* or *category based assessments* typically require data to be collected over a number of years. These assessment techniques will rely on the following source material that has been used in the production of the AER's Electricity Performance Reports for TNSPs:

[5] These expenditure categories do not apply to SP AusNet because parties other than SP AusNet determine the level of augmentation and connection capital expenditure, and so those categories of expenditure are excluded from SP AusNet's revenue cap.

(1) annual regulatory financial statements and service standards performance data provided by the TNSPs in accordance with the AER's transmission information guidelines

(2) Revenue Proposals made by the TNSPs

(3) annual statutory reports and reviews published by the TNSPs

(4) current revenue determinations made by the AER (and previously by the ACCC)

(5) other AER publications such as the State of the Energy Market reports; and previous TNSP performance reports.

Subject to addressing any confidentiality issues, the AER will establish a database to facilitate public access to input data for benchmarking techniques to assist stakeholders undertaking their own analysis.

Appendix B – Timeline for Revenue Determinations for a subsequent regulatory control period under Division 3 of Part ZW of NER chapter 11