

---

<b>To</b>	ElectraNet
<b>From</b>	Ann Whitfield & Tom Graham
<b>Subject</b>	Selecting the assessment period for a RIT-T and inclusion of terminal values
<b>Date</b>	7 February 2019

---

This memo was initially prepared in November 2018 to provide guidance on the framework under the Regulatory Investment Test for Transmission (RIT-T) regarding the selection of an appropriate assessment period. It also outlines how this framework has been applied in the context of the South Australian Energy Transformation (SAET) RIT-T.

This memo has been updated to cover the appropriateness of including terminal values as part of the RIT-T assessment, and consistency of this approach with cost benefit analysis more generally.

### Framework for selecting an appropriate assessment period under the RIT-T

The National Electricity Rules (NER) and the Australian Energy Regulator's (AER) RIT-T Guidelines are not prescriptive regarding the choice of assessment period.

The AER RIT-T Guidelines state that:<sup>1</sup>

'the duration of modelling periods should take into account the size, complexity and expected life of the relevant credible option to provide a reasonable indication of the market benefits and costs of the credible option. This means that by the end of the modelling period, the network is in a 'similar state' in relation to needing to meet a similar identified need to where it is at the time of the investment.'

The AER RIT-T Guidelines also state that:<sup>2</sup>

'in the case of very long-lived and high-cost investments, it may be necessary to adopt a modelling period of 20 years or more'.

In our opinion, the guiding principle for determining the relevant assessment period should be that it is sufficiently long as to capture the *differences* in the key costs and market benefits across the credible options assessed. In theory, the assessment period should be the point at which identification of the preferred option stabilises, ie, assuming a longer period would not change the identified preferred option, as beyond this point the relativity of the costs and benefits between options is not expected to change materially.

This implies that the assessment period should extend out past the point that any material changes in the costs or benefits associated with one option compared to another are expected to occur (and the network is therefore in a 'similar state'). We note that the application of the discount rate in the NPV analysis means that benefits that are further out receive a lower weight in the assessment.

The assessment period clearly needs to be considered on a case-by-case basis and should reflect factors such as project size, the expected asset life, the key drivers of benefits for the different options being considered and the likely timing of future network augmentation.

Examples of the assessment periods these considerations have yielded for RIT-Ts for other significant investments are:

---

<sup>1</sup> AER, *Regulatory Investment Test for Transmission Application Guidelines*, 14 December 2018, p. 63.

<sup>2</sup> AER, *Regulatory Investment Test for Transmission Application Guidelines*, 14 December 2018, p. 63.

- 20 years for the recent ElectraNet Eyre Peninsula RIT-T (and for the previous 2012/13 RIT-T);<sup>3</sup>
- 20 years for the 2017 TransGrid and Ausgrid Powering Sydney's Future RIT-T;<sup>4</sup>
- 41 years for the ElectraNet and AEMO Heywood Interconnector RIT-T;<sup>5</sup> and
- 50 years for the 2014 TransGrid and Powerlink QNI RIT-T.<sup>6</sup>

## Selection of the assessment period for the SAET RIT-T

The economic modelling undertaken for the SAET PADR found there to be differences in the drivers of the benefits accruing between options, particularly in the medium to long-term. In particular, for the NSW-South Australia options, there were found to be significant benefits as coal plants in NSW retire, which include the deferral of new generation investment (through an increased ability to utilise generation in South Australia) as well as benefits associated with avoiding transmission expenditure associated with connecting Renewable Energy Zones (REZs), which accrued from the mid-2030s.

Not all of the other options considered provide the same longer-term benefits. Relevant to the selection of an appropriate assessment period is the finding that the credible options have different estimated avoided transmission costs associated with connecting REZs, by virtue of their differing capacities and routes.

The SAET RIT-T has adopted an assessment period extending to 2040 to ensure that both short and long-term market benefits are captured, consistent with the long-lived nature of the assets involved. Given the difference between options in relation to longer-term benefits, this approach provides a reasonable indication of the *differences* in expected net market benefits between options over their expected life.

Adopting a shorter assessment period risks identifying a suboptimal option as preferred, as it would omit the market benefits associated with options that enable NSW demand to be met with low cost generation as NSW coal plant retires in the 2030s, as well as omitting the benefit from avoiding transmission expenditure that is expected to be required to connect REZs from the mid-2030s. In both cases, these benefits, although longer-term, still occur relatively early in the overall expected life of the assets. Since these longer-term benefits do not accrue equally across all options, omitting them would result in material differences in the benefits expected between options not being taken into account in the investment decision.

To the extent that there is considered to be uncertainty relating to these longer-term benefits (due, for example, to uncertainty in the timing of NSW coal plant retirement, or the extent of future REZ transmission requirements), this should be reflected in the RIT-T analysis via scenarios or sensitivity testing, rather than through truncating the assessment period.

We note that the 21-year assessment period to 2040 adopted in the PADR includes the time taken to plan, procure and construct the options as well and so the period of modelled market benefits for each credible option in the assessment is actually less than this. For the preferred option in the PADR there are 17 years of modelled market benefits.

We consider that the period selected is consistent with the guidance provided by the AER in its RIT-T Application Guidelines.

---

<sup>3</sup> ElectraNet, *Project Assessment Conclusions Report*, 18 October 2018, p. 103.

<sup>4</sup> TransGrid and Ausgrid, *Project Assessment Conclusions Report*, Powering Sydney's Future, November 2017, p. 62.

<sup>5</sup> ElectraNet and AEMO, *Project Assessment Conclusions Report*, South Australia-Victoria (Heywood) Interconnector Upgrade, p. 73.

<sup>6</sup> Powerlink and TransGrid, *Project Assessment Conclusions Report*, Development of the Queensland-NSW Interconnector, 13 November 2014, p. 46.

## Inclusion of a terminal value for undepreciated asset costs at the end of the assessment period

Inclusion of terminal values for assets whose lives extend beyond the assessment period is a standard feature of RIT-T assessments.

The use of terminal values ensures that options with differing asset lives (and different mixes of capital and operating expenditure) are assessed on the same basis. It recognises that, for long-lived assets, the investment will remain in place at the end of the assessment period, with the potential to provide benefits.

The use of terminal values is an alternative to either conducting the analysis across the whole of the asset's life (which in the case of the SAET RIT-T would be more than 40 years), or instead estimating capital costs on an annual basis<sup>7</sup> for each year of the assessment period.

The use of terminal values is consistent with standard cost benefit analysis. For example, Commonwealth Department of Finance guidance states:<sup>8</sup>

'When conducting a [cost benefit analysis (CBA)], all of the benefits and costs of a programme or project should generally be discounted over the life of the programme or project. [...]. Where a shorter timeframe is adopted, it is critical that a terminal value be included in the CBA, to reflect all subsequent benefits and costs'. (emphasis added)

Similar guidance is provided in recent guidelines published by other government and public bodies, including Infrastructure Australia and NSW Treasury.<sup>9</sup>

Terminal values can be calculated either in relation to the residual cost of the asset at the end of the assessment period (after taking account of depreciation), or the future value of the benefit streams expected over the remainder of the asset's life.<sup>10</sup>

Terminal values are a standard feature of RIT-T assessments. The AER's RIT-T Guidelines advise that relevant and material terminal values should be included within RIT-T assessments, where appropriate,<sup>11</sup> but do not provide explicit guidance on the method by which those terminal values should be derived. Terminal values for RIT-T assessments, including those on which a determination has been made by the AER, are typically calculated on the basis of the remaining undepreciated cost of the assets at the end of the assessment period, usually using straight-line depreciation.

A 'remaining cost' approach to terminal values is again consistent with the approach taken in other cost benefit analyses more generally.<sup>12</sup> Inclusion of a terminal value based on undepreciated asset cost rather than future benefits avoids the need to project future benefit streams beyond the assessment period, which are typically subject to greater uncertainty. It also represents a more conservative approach, where the market benefit being generated by the asset is above its annual depreciation cost at the end of the assessment period.

---

<sup>7</sup> By including an estimate of the return on and return of (depreciation) of the investment in each year, rather than incorporating the entire investment cost in the year in which it is incurred.

<sup>8</sup> Commonwealth Department of Finance, *Introduction to cost-benefit analysis and alternative evaluation methodologies*, Financial management reference material no. 5, January 2006, p 22.

<sup>9</sup> For example, see: Infrastructure Australia, *Assessment framework for initiatives and projects to be included in the Infrastructure Priority List*, March 2018, p 90; New South Wales Treasury, *NSW Government guide to cost-benefit analysis*, March 2017, p 55; Transport and Infrastructure Council, *Australian transport assessment and planning guidelines | Cost benefit analysis*, May 2018, p 16.

<sup>10</sup> Where residual values are calculated in relation to benefits, the full cost of the investment is included in the assessment.

<sup>11</sup> AER, *Regulatory Investment Test for Transmission Application Guidelines*, 14 December 2018, p. 63.

<sup>12</sup> See for example, Infrastructure Australia, *Assessment framework for initiatives and projects to be included in the Infrastructure Priority List*, March 2018, p 90 and p152; Transport and Infrastructure Council, *Australian transport assessment and planning guidelines | Cost benefit analysis*, May 2018, p 20 (which recommends an estimation approach for terminal values based on straight-line depreciation).