

# Issues Paper

New Facilities Investment Test Application for Western  
Power's Mid West Energy Project (Southern Section)  
Submitted by Western Power

August 2011

**Economic Regulation Authority**

WESTERN AUSTRALIA

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# 1 Introduction

On 3 August 2011, the Economic Regulation Authority (**Authority**) received a new facilities investment test application from Western Power submitted under section 6.71(b) of the *Electricity Networks Access Code 2004* (**Access Code**). A version suitable for publication was received on 16 August 2011.<sup>1</sup> The application is for the Authority to determine that forecast new facilities investment proposed by Western Power, for the Mid West Energy Project (Southern Section) (**project**), meets the new facilities investment test. The project is estimated to cost \$383.4 million and involves the construction of a double circuit 330 kV transmission line between Neerabup and Three Springs and a new terminal station interconnecting the 132 kV and 330 kV transmission systems at Three Springs.

Western Power's new facilities investment test application has been published on the Authority's website together with this issues paper.<sup>2</sup>

The new facilities investment test is applied to determine the extent to which the cost of the new facilities investment can be financed by adding all, or part of, the new facilities investment to the capital base of Western Power's covered network and hence recovered through regulated tariffs. The test seeks to ensure that only efficient investment which benefits all users of the network is recovered through these regulated tariffs.

In making a determination on Western Power's new facilities investment test application, the Authority is required to consult with the public in accordance with the requirements of Appendix 7 of the Access Code. The Authority has prepared this issues paper to assist interested parties in understanding the new facilities investment test and Western Power's application.

The issues paper addresses the following matters:

- a description and explanation of the new facilities investment test under the Access Code;
- a description of the proposed works; and
- an overview of Western Power's assessment of the investment in the proposed works against the requirements of the new facilities investment test.

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<sup>1</sup> Western Power, August 2011, New Facilities Investment Test Pre-Approval Application Mid West Energy Project (Southern Section) Neerabup to Three Springs Terminal via Eneabba (hereafter referred to as "**new facilities investment test application**").

<sup>2</sup> Economic Regulation Authority website:  
[http://www.erawa.com.au/2/537/48/electricity\\_\\_network\\_augmentations.pm](http://www.erawa.com.au/2/537/48/electricity__network_augmentations.pm)

## 2 The New Facilities Investment Test

### 2.1 Purpose

“New facilities investment” is defined in section 1.3 of the Access Code as:

[T]he capital costs incurred in developing, constructing and acquiring the new facility, where “new facility” means any capital asset developed, constructed or acquired to enable the service provider to provide covered services, including assets required for the purpose of facilitating competition in retail markets for electricity.

The new facilities investment test is a determination of whether, or to what extent, the new facilities investment associated with a new network asset, or set of assets, can be added to the capital base of the covered network and recovered through regulated network tariffs applied to users of the network. Under the new facilities investment test, the extent to which the cost of an augmentation can be financed through the capital base is determined by tests of the prudence and efficiency of investment, the nature of the benefits of the augmentation, and the distribution of these benefits across users generally. Only that amount of new facilities investment that meets the new facilities investment test can be added to the capital base of the network and recovered through regulated network tariffs.

If all or part of new facilities investment associated with a new network asset does not meet the new facilities investment test, the amount that does not meet the test would need to be financed by some means other than recovery through regulated network tariffs. For example, if the augmentation is required by a specific customer then that customer may be required to make a capital contribution.

### 2.2 Distinction from the Regulatory Test

The new facilities investment test is one of two tests under the Access Code that service providers may need to apply to capital investment. The other test is the “regulatory test”, which is set out in Chapter 9 of the Access Code.

The purpose of the regulatory test is to ensure that the service provider of a covered network has identified the optimal solution to a constraint in electricity supply (either as a network solution or other solution) before committing to the augmentation, whereas the purpose of the new facilities investment test is to determine the extent to which investment in a network solution may be financed through network tariffs applying to all network users, or must be financed by some other means (such as capital contributions from specific network users).

Under the regulatory test, a service provider is required to demonstrate that a major augmentation<sup>3</sup> of a covered network meets the regulatory test before the service provider can commit to the augmentation. In general terms, the purpose of the regulatory test is to determine whether a proposed augmentation to an electricity transmission and/or distribution network is the best way of overcoming constraints in the wider electricity system to provide services, taking into account alternative means of overcoming the

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<sup>3</sup> The Access Code defines a major augmentation to be an augmentation for which the new facilities investment for the shared assets exceeds \$10.9 million (2011 CPI adjusted amount) where the augmentation is to be part of a distribution system and exceeds \$32.7 million (2011 CPI adjusted amount) where the augmentation is to be part of a transmission system or part of both a distribution and transmission system.

constraints, such as, alternative network investments, investment in generation, or management of electricity demand.

The regulatory test is used to identify the best network, generation or demand-management option, which is the option that would maximise the net economic benefits to those who generate, transport and consume electricity. The regulatory test is used only to determine whether a proposed investment in the network is the best option for overcoming constraints in the electricity system. The test is not concerned with demonstrating the efficiency of forecast costs for the proposed network investment, or the extent to which the network investment will be financed by increasing the general level of network tariffs. Both of these matters are addressed by the new facilities investment test.

A determination by the Authority that an augmentation of a covered network meets the regulatory test does not mean that the new facilities investment associated with the augmentation meets the new facilities investment test, and vice versa.

## 2.3 Requirements of the Access Code

Section 6.52 of the Access Code sets out the new facilities investment test.

6.52 New facilities investment may be added to the capital base if:

- (a) the new facilities investment does not exceed the amount that would be invested by a service provider efficiently minimising costs, having regard, without limitation, to:
  - (i) whether the new facility exhibits economies of scale or scope and the increments in which capacity can be added; and
  - (ii) whether the lowest sustainable cost of providing the covered services forecast to be sold over a reasonable period may require the installation of a new facility with capacity sufficient to meet the forecast sales;
- and
- (b) one or more of the following conditions is satisfied:
  - (i) either:
    - A. the anticipated incremental revenue for the new facility is expected to at least recover the new facilities investment; or
    - B. if a modified test has been approved under section 6.53 and the new facilities investment is below the test application threshold - the modified test is satisfied;
  - or
  - (ii) the new facility provides a net benefit in the covered network over a reasonable period of time that justifies the approval of higher reference tariffs; or
  - (iii) the new facility is necessary to maintain the safety or reliability of the covered network or its ability to provide contracted covered services.

New facilities investment may be assessed against the requirements of the new facilities investment test either as part of an access arrangement review process or outside an access arrangement review process.

During an access arrangement review process, the Authority undertakes an assessment of whether an actual amount of new facilities investment satisfies the new facilities

investment test (under section 6.52 of the Access Code). In addition, a forecast of new facilities investment may be taken into account when determining reference tariffs for the access arrangement period (under section 6.51 of the Access Code). In this instance, the Authority makes and publishes a determination, in respect of the new facilities investment, in accordance with the access arrangement review process that is set out in Chapter 4 of the Access Code.

Outside an access arrangement review process, under section 6.71 of the Access Code, a service provider may at any time apply to the Authority for it to determine whether actual (or forecast) new facilities investment made (or proposed) by the service provider meets (or will meet) the new facilities investment test. In this instance, the Authority must make and publish its determination within a reasonable time. While the Access Code does not specify what a reasonable time period is, the Authority must, before making its determination, consult with the public in accordance with Appendix 7 of the Access Code and is hence confined to the time limits specified in Appendix 7.

Where the Authority makes a determination outside an access arrangement review process, the determination binds the Authority, when it next approves proposed revisions to the service provider's access arrangement, to allow the addition of the new facilities investment that is determined to satisfy the new facilities investment test. In the case of forecast new facilities investment, the determination only binds the Authority if the investment proceeded as proposed. The Authority considers this to include the investment proceeding as planned and the cost not exceeding the forecast. Should the cost exceed the forecast, then a further application would be necessary for this amount under the new facilities investment test provisions of the Access Code.

Whilst it is a relatively straightforward matter to monitor the level of actual expenditure incurred to ensure that only the efficient cost is included in the capital base, it is less straightforward to monitor the actual benefits arising from the augmentation. This is because potential benefits arising, such as increased revenue or market benefits, are likely to accrue over a long period of time so a decision on the new facilities investment test application can only be made based on a forecast of those benefits. If those benefits fail to materialise, potentially network users will incur the costs of the augmentation without an offsetting benefit. Consequently, it is important that forecasts of benefits are sufficiently robust for reliance to be placed upon them for the purposes of assessing the new facilities investment test.

Western Power's new facilities investment test application that is the subject of this issues paper is made under section 6.71 of the Access Code (i.e. outside the access arrangement review process) and involves a forecast of new facilities investment.

## **2.4 The Structure of the New Facilities Investment Test**

The new facilities investment test has several elements. These elements and the general structure of the test are discussed in detail at Appendix A of this issues paper.

## 3 The Proposed New Facility

### 3.1 Reasons for the Proposed Works

Western Power indicates that the drivers for the project are to overcome current network constraints, allowing the connection of future mining and other loads at Three Springs and to facilitate the future connection of generation in the Mid West. The establishment of a new 330/132 kV terminal located at Three Springs will provide support to the broader Geraldton region.

Karara Mining Limited (**KML**) is developing an iron ore and magnetite mine approximately 100km east of Three Springs. The project will have an electricity peak demand of 120 MW (taking an initial limited 132 kV supply from February 2012 and then 95 MW from June 2012 under an interim non firm arrangement) with the possibility of an additional 180 MW staged over a five year period if a planned mine expansion takes place. KML is currently constructing a double circuit 330 kV transmission line between Eneabba and its mine site at Karara (via Three Springs). It is intended that the section of line between Eneabba and Three Springs will ultimately be integrated into the south west interconnected network (**SWIN**).

### 3.2 Proposed Works

The proposed new facilities investment includes:

- A new 189 km double circuit 330 kV transmission line between Pinjar and Eneabba substation;
- A 12 km double circuit 330 kV transmission line between Eneabba substation and the future Eneabba Terminal (currently being constructed by Karara Mining Limited);
- A 58 km transmission line between the future Eneabba Terminal and Three Springs (currently being constructed by Karara Mining Limited);
- Upgrading the existing Neerabup to Pinjar line from operating at 132 kV to 330 kV and building a new 330 kV circuit bay at Neerabup; and
- A new 330/132 kV terminal located at Three Springs interconnecting the 132 kV and 330 kV voltage systems to provide support to the Geraldton region.

Further details of the project are provided in section 2 of Western Power's new facilities investment test application.

### 3.3 Forecast Cost

Western Power indicates a forecast capital cost for the project of \$383.4 million. This cost comprises a number of components which are set out in the table below.



Component of Works	Estimated Cost
(1) 189 km 330 kV transmission line between Pinjar and Eneabba substation including upgrading the existing Neerabup to Pinjar line from operating at 132 kV to 330 kV and building a new 330 kV circuit bay at Neerabup	To be delivered by Western Power
(2) 12 km 330 kV transmission line from Eneabba Substation to Eneabba Terminal	Currently being constructed by KML and subject to commercial negotiations between Western Power and KML.
(3) 58 km 330 kV transmission line from Eneabba Terminal to Three Springs	Currently being constructed by KML and subject to commercial negotiations between Western Power and KML.
(4) 330/132 kV Three Springs Terminal	Three Springs terminal electrical works will be contracted to KML, with the remainder of the work to be delivered by Western Power. The building of the terminal is initially being funded by KML.
<b>Total cost of project</b>	<b>\$383.4 million</b>

## 4 Western Power's Assessment under the New Facilities Investment Test

### 4.1 Western Power's Submission

Western Power submits that the total estimated cost for the project (i.e. \$383.4 million) satisfies the new facilities investment test and therefore should be included in the regulated capital base with reference tariffs increased accordingly.

In applying the new facilities investment test to the project, Western Power has given separate consideration to three elements of the new facilities investment test:

- the “efficiency test” under section 6.52(a) of the Access Code;
- the “incremental revenue test” under section 6.52(b)(i)A of the Access Code; and
- the “net benefits test” under section 6.52(b)(ii) of the Access Code.

Western Power has estimated that the net present value of the incremental revenue arising from the proposed augmentation will amount to \$206 million over the next 40 years. This comprises \$187 million from iron ore mining and \$19 million from wind turbine generation. The forecast revenue from iron ore mining includes revenue from an interim supply arrangement with Karara.

Western Power estimates that the net present value of other benefits arising from the proposed augmentation amount to \$271 million. This comprises \$236 million relating to market based benefits, \$26 million arising from deferral of other network expenditure and \$9 million relating to a reduction in system losses.

Western Power's considerations are outlined in the remaining sections of this issues paper.

### 4.2 Efficiency Test

The efficiency test refers to the test under section 6.52(a) of the Access Code of whether the “new facilities investment does not exceed the amount that would be invested by a service provider efficiently minimising costs”. For the new facilities investment test to be satisfied, the requirements of the efficiency test must be met.

In its new facilities investment test application, Western Power submits that the total cost of the project meets the efficiency test of section 6.52(a). To substantiate this claim, Western Power submits that it must demonstrate that:

- the most appropriate option has been selected to meet the requirements associated with reasonable forecasts of growth of covered services;
- the design and design standards are appropriate; and
- the delivery (including acquisition) cost of the new facility is efficient.<sup>4</sup>

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<sup>4</sup> Western Power, New facilities investment test application, pages 15.

Western Power considers that the choice of network option is linked to the requirements of the regulatory test defined in the Access Code. The Authority approved a regulatory test for the Mid West Project (Southern Section) in February 2011.<sup>5</sup> Given that the proposed new facilities investment included in the new facilities investment test application is materially the same as that described in Western Power's approved regulatory test application, Western Power submits that the new facilities investment proposed in this application represents the option that best satisfies the requirements of section 6.52(a) of the Access Code.

With respect to the appropriateness of design and design standards, Western Power has included several documents that relate to the design and design standards for this project. A summary is set out in section 3.2 of Western Power's application and copies of the Design Reports are included in the attachments to Western Power's application.

With respect to demonstrating efficient cost delivery, Western Power submits that it uses a suite of approaches in its project delivery portfolio to ensure, on an ongoing basis, an efficient cost is achieved. The following delivery mechanisms are proposed:

- competitive tender;
- preferred supplier;
- Western Power internal resource; and
- acquired from or contracted to KML.

KML is currently constructing the double circuit 330kV transmission line between Eneabba and its mine site at Karara (via Three Springs). KML is also funding the advancement of the Western Power 132/330 kV Three Springs Terminal.

KML will retain ownership of the transmission line between Three Springs and the Karara mine site and this does not form part of Western Power's application. Western Power will supply the Golden Grove mine via a Wheeling Agreement with KML as the existing line section from Three Springs to Koolyoonooka, currently used by Western Power to supply Golden Grove mine, will be demolished.

Western Power and KML are in the process of agreeing the commercial arrangements that will apply to enable Western Power to integrate the KML built assets into its network. The new facilities investment test application has been based on the following<sup>6</sup>:

- Three Springs terminal electrical works will be contracted to KML, with the price being the lower of actual documented costs KML incur, and the value that Western Power has estimated the costs to be under an efficient contracting methodology. The building of the terminal is initially being funded by KML and Western Power will refund it for the costs which pass the new facilities investment test.
- The transmission line between Eneabba and Three Springs terminal will be acquired at the cost that Western Power estimates the line can be constructed efficiently, based on the actual line route and actual tower suite, which Western Power considers were the efficient decisions at the time of construction.
- The transmission line between Eneabba and the proposed Eneabba Terminal will be acquired from KML at the cost that Western Power proposed to build the line.

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<sup>5</sup> This decision is available on the ERA's website:

[http://www.era.gov.au/3/954/48/mid\\_west\\_energy\\_project\\_southern\\_section\\_augmentat.pm](http://www.era.gov.au/3/954/48/mid_west_energy_project_southern_section_augmentat.pm)

<sup>6</sup> Western Power, New Facilities Investment Test Application, page 18.

This cost is the actual cost quoted by Western Power to KML, prior to its decision to build the line itself.

- The forecast costs include interest during construction in relation to the components built by KML based on the forecast construction cash flow profile with interest applied of 8.9%.<sup>7</sup>

Further details of the basis of the forecast costs are set out in section 4 and 5 of Western Power's application.

Submissions are invited from interested parties on whether Western Power has adequately established that the forecast of new facilities investment, for the proposed augmentation, does not exceed the amount that would be invested by a service provider efficiently minimising costs.

### 4.3 Incremental Revenue Test

The incremental revenue test refers to the test under section 6.52(b)(i)A of the Access Code to determine whether the "anticipated incremental revenue for the new facility is expected to at least recover the new facilities investment".

Western Power has estimated that the net present value of the incremental revenue arising from the proposed augmentation will amount to \$206 million over the next 40 years.<sup>8</sup> This comprises \$187 million from new iron ore mining loads (including revenue from an interim supply arrangement with KML) and \$19 million from wind turbine generation.

To derive its forecasts of revenue from iron ore mining loads Western Power has carried out a number of economic analyses. Details of this work are set out in section 6.3.3 and Attachment 4 of Western Power's application. The scenario put forward to support the forecast incremental revenue in Western Power's application is largely based on KML's Stage 1 demand and the Extension Hill magnetite project. The forecast average annual demand ranges from 120 MW to 230 MW and has been forecast over 40 years discounted at 7.98%.<sup>9</sup> The average tariff used ranges from \$125/kW to \$96/kW.<sup>10</sup>

The forecast revenue from wind turbine generation assumes an additional 230 MW of new wind turbine generation will be connected as a result of the proposed augmentation. The forecast increase in generation is based on a report<sup>11</sup> prepared by ACIL Tasman and the additional revenue has been forecast over a 25 year period with the net present value calculated using a discount factor of 7.98%. It has been assumed that connecting generation pays 20 per cent of the tariff applied to loads.

<sup>7</sup> Western Power, New Facilities Investment Test Application, page 36.

<sup>8</sup> Western Power, New Facilities Investment Test Application, page 19.

<sup>9</sup> Western Power, New Facilities Investment Test Application, page 48 and Appendix 2.

<sup>10</sup> Western Power, New Facilities Investment Test Application, page 48.

<sup>11</sup> Western Power, New Facilities Investment Test Application, Attachment 4.

Western Power notes that it has excluded natural load growth from its forecasts of incremental revenue on the basis that it is not a primary source of revenue growth for the Mid West Energy Project (Southern Section) and, in the absence of the step-change in demand, would probably be captured via alternative network reinforcement options. The forecast incremental revenue also excludes loads further to the north which would require reinforcement that is additional to the Mid West Energy Project (Southern Section).

Further details of the calculation of incremental revenue are set out in section 6.3 of Western Power's application. As noted in section 2.3 above, if the forecast incremental revenue fails to materialise, potentially network users will incur the costs of the augmentation without an offsetting benefit. Consequently, it is important that forecasts of incremental revenue are sufficiently robust for reliance to be placed upon them for the purposes of assessing the new facilities investment test.

Submissions are invited from interested parties on Western Power's assessment of the incremental revenue test arising from the proposed augmentation. In particular they may wish to consider:

- the forecast level of additional loads and generation;
- the time period over which the revenue has been forecast; and
- the tariffs used to forecast revenue.

## 4.4 Net Benefits Test

The net benefits test refers to the test under section 6.52(b)(ii) of the Access Code of whether the "new facility provides a net benefit in the covered network over a reasonable period of time that justifies the approval of higher reference tariffs". Under the Access Code, "net benefit" is limited to those who generate, transport and consume electricity in, as the case may be, the covered network and/or any interconnected system.

Western Power commissioned ACIL Tasman to estimate benefits that are likely to arise from:

- reductions in the total cost of energy to consumers; and
- increases in generators revenue.

Western Power estimated the benefit that would be realised by:

- deferring planned network reinforcements that would need to be implemented to maintain a safe and reliable supply to customers if the proposed augmentation was not built; and
- reductions in network losses.

Western Power estimates that the net present value of total benefits arising from the proposed augmentation amount to \$271 million.<sup>12</sup> Further details are set out in the table below.

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<sup>12</sup> Western Power, New Facilities Investment Test Application, page 20.

<b>Benefit</b>	<b>Net Present Value</b>
Reductions in total cost of energy to consumers	\$149 million
Benefits to generators	\$87 million
Deferral of planned network reinforcements that would need to be implemented to maintain a safe and reliable supply to customers if the proposed augmentation was not built	\$26 million
Reduction in network losses	\$9 million
<b>Total Benefits</b>	<b>\$271 million</b>

The reductions in the total cost of energy to consumers are based on a report prepared by ACIL Tasman for Western Power which forecasts the proposed augmentation will lead to lower STEM<sup>13</sup> prices due to lower operating costs arising from greater wind farm capacity and less combined cycle gas turbine (CCGT) capacity. Details of this analysis are shown on pages 52 to 53 of the ACIL Tasman report included in Attachment 4 of Western Power's application.

The benefits to generators are based on a forecast increase in Renewable Energy Certificate (REC) revenue due to increased wind generation and lower operating costs of wind generation compared with CCGT, offset by the higher capital costs of wind generation compared with CCGT and the reduction in STEM prices referred to in the paragraph above. Details of this analysis are shown on pages 52 to 53 of the ACIL Tasman report included in Attachment 4 of Western Power's application.

The benefits arising from the deferral of planned network reinforcements and reductions in network losses have been calculated by Western Power. Further details are set out in sections 6.5.4 and 6.5.5 respectively of Western Power's application.

As noted in section 2.3 above, if the forecast benefits fail to materialise, potentially network users will incur the costs of the augmentation without an offsetting benefit. Consequently, it is important that forecasts of benefits are sufficiently robust for reliance to be placed upon them for the purposes of assessing the new facilities investment test and justify the approval of higher reference tariffs.

<sup>13</sup> STEM refers to the Short Term Energy Market which is a market operated by the Independent Market Operator (IMO) each day to facilitate short term energy trading. The STEM exists to allow participants to either sell any excess generation capacity that they have, or purchase extra energy at specified times of the day.

Submissions are invited from interested parties on Western Power's assessment of the net benefits arising from the proposed augmentation. In particular they may wish to consider:

- the forecast net present value of the benefits identified by Western Power;
- whether the period of time over which the benefits have been forecast is reasonable; and
- whether the benefits identified by Western Power justify the approval of higher reference tariffs.

## 4.5 Safety and Reliability Test

The safety and reliability test is the test under section 6.52(b)(iii) of the Access Code of whether “the new facility is necessary to maintain the safety or reliability of the covered network or its ability to provide contracted covered services”.

Western Power submits that the primary driver for the Mid West Energy Project (Southern Section) is to connect the new mining loads and generation in the Mid West. Without this driver, Western Power would not require the proposed augmentation to maintain network safety and reliability. The proposed augmentation does allow Western Power to defer other augmentations that would be required for safety and reliability of supply to the Geraldton region, however, Western Power notes that it has captured this benefit under the net benefits test evaluation.<sup>14</sup>

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<sup>14</sup> Western Power, New Facilities Investment Test Application, page 20.

## Appendix A: The Structure of the New Facilities Investment Test

The new facilities investment test has several elements. These elements and the general structure of the test are set out in Figure 1 and described below.

The first step in applying the new facilities investment test is defining the “new facility” to which the test is being applied. The Access Code contemplates the test being applied to new facilities investment associated with a discrete new facility. However, for many types of new facility there may be a need to aggregate investment projects and associated new facilities investment for the purpose of applying the new facilities investment test.

The second step in applying the new facilities investment test is the determination of the amount of new facilities investment (relating to the particular new facility or aggregate of facilities). This amount is shown as “Value A” in Figure 1.

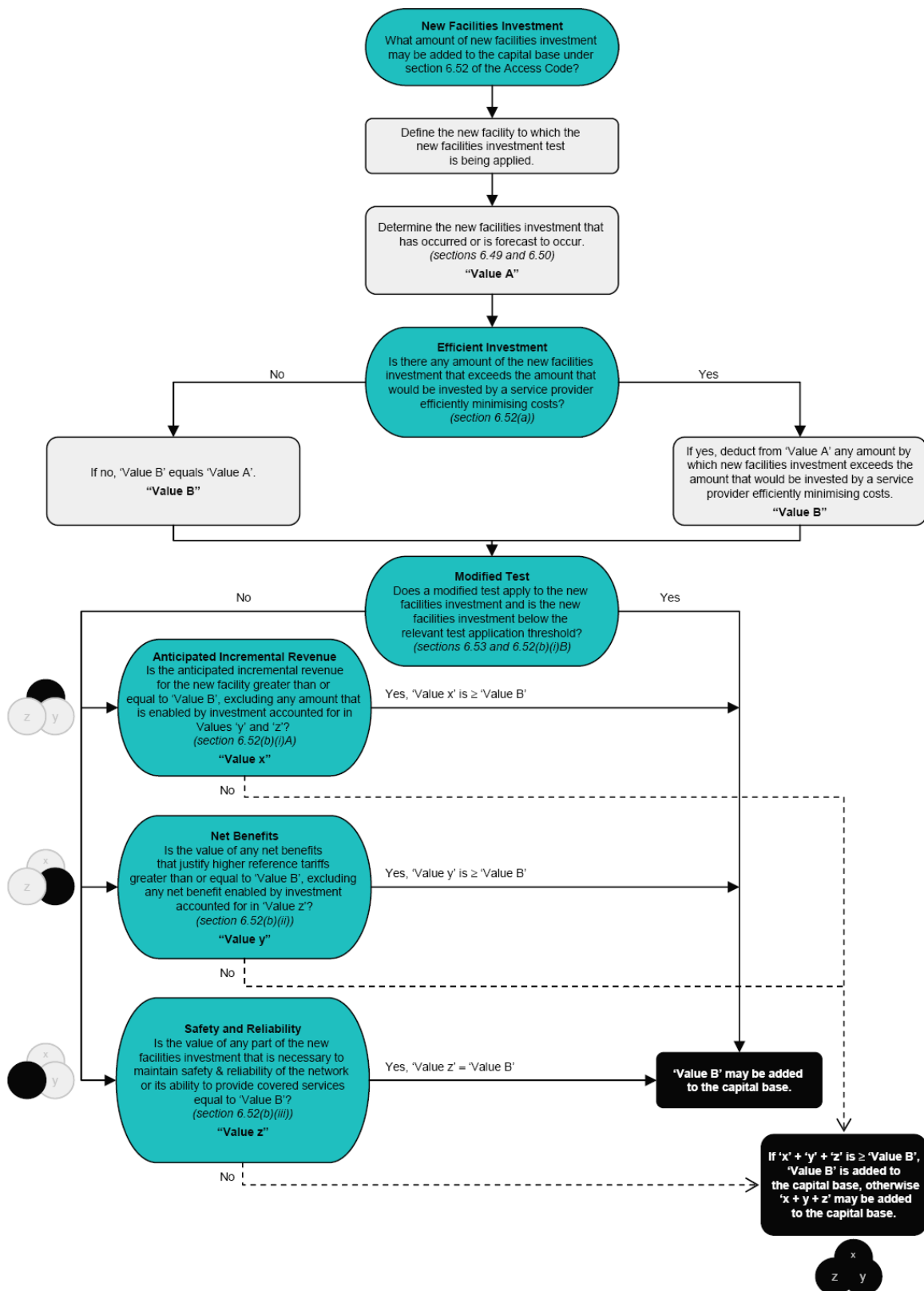
Section 6.52(a) of the Access Code requires that any new facilities investment, that is to be added to the capital base, does not exceed the amount that would be invested by a service provider efficiently minimising costs. The third step in the new facilities investment test is therefore, to determine whether the amount of new facilities investment for a facility meets the requirement of section 6.52(a).

In order to assess the new facilities investment amount (“Value A”) against the efficiency test (i.e. section 6.52(a)), a determination needs to be made of the amount that would be invested by a service provider efficiently minimising costs (efficient investment). Such a determination would need to take into consideration the definitions and guidance provided within the Access Code (for example, the meaning of “efficiently minimising costs”). Once a determination is made of the amount that would be invested by a service provider efficiently minimising costs, the amount of the new facilities investment that exceeds the amount of efficient investment is deducted from “Value A”. It is this residual amount that is henceforth considered under the new facilities investment test (“Value B” in Figure 1).

If, on the other hand, the investment amount (“Value A”) is less than or equal to the amount invested by an efficient service provider, then this amount is the amount that is henceforth considered under the new facilities investment test (i.e. “Value A” becomes “Value B” in Figure 1).

Section 6.52(b) of the Access Code sets out three further conditions, one or more of which must be satisfied, in addition to meeting the requirement of section 6.52(a), for the new facilities investment to be added to the capital base.



**Figure 1: The structure of the new facilities investment test**

The first condition (section 6.52(b)(i)) comprises two sub-conditions:

- the anticipated incremental revenue for the new facility is expected to at least recover the new facilities investment (section 6.52(b)(i)A); or
- a modified test applies to the new facilities investment and the amount of the new facilities investment is below the value of the test application threshold (section 6.52(b)(i)B).

The modified test referred to in section 6.52(b)(i)B refers to one or more modified tests that may be set out in an access arrangement under section 6.53 of the Access Code and provides a mechanism whereby new facilities investment may pass the new facilities investment test, without assessment against the other conditions of section 6.52(b). Any modified test must have an associated “test application threshold”, which will be the maximum value of new facilities investment that may be considered under the modified test.

The terms of section 6.52(b)(i) indicate that only one of the two sub-conditions is applied to the consideration of new facilities investment. That is, if a modified test applies to the new facilities investment under section 6.53 and the relevant amount of new facilities investment (either the total amount or the amount passing the test of section 6.52(a)) is below the relevant test application threshold, then the amount of the new facilities investment that satisfies the condition of section 6.52(b)(i) is the relevant amount of new facilities investment.

In effect, this means that if a modified test applies and the relevant amount of new facilities investment is below the test application threshold, then the relevant amount of new facilities investment satisfies the conditions of 6.52(b) of the Access Code and none of the other conditions of section 6.52(b) need to be considered. As such, a logical construction of the tests in section 6.52(b) is that the first consideration under 6.52(b) is whether the new facilities investment satisfies a modified test, and it is only if a modified test is not satisfied that consideration is given to the other conditions of 6.52(b).

If no modified test applies or the amount of new facilities investment is greater than the test application threshold, then consideration is given to the other conditions of section 6.52(b).

The first of these other conditions is that the value of anticipated incremental revenue for the new facility is expected to at least recover the cost of the new facilities investment. The value of incremental revenue expected to be generated as a result of the new facility is shown as “Value x” in Figure 1.

The second condition of section 6.52(b) is that the new facility provides a net benefit in the covered network over a reasonable period of time that justifies the approval of higher reference tariffs (section 6.52(b)(ii)). The “net benefits” referred to in this section do not necessarily include benefits of all types, but rather a subset of benefits that are considered to justify the approval of higher reference tariffs. The amount of new facilities investment that meets this condition is indicated as “Value y” in Figure 1.

The third condition of section 6.52(b) is that the new facility is necessary to maintain the safety or reliability of the covered network, or its ability to provide contracted covered services (section 6.52(b)(iii)). The consideration of this condition would, in the first instance, require an assessment of the purpose of the new facility. If the sole purpose of the new facility is one or other of the purposes within the scope of section 6.52(b)(iii), then the entire amount of the relevant new facilities investment (“Value B” in Figure 1) would meet the new facilities investment test.

It is also possible that a new facility may serve multiple purposes and only part of the purpose is one or other of those within the scope of section 6.52(b)(iii). In this case, it may be necessary to ascribe a value to an amount of new facilities investment that would be required to meet the relevant purposes under section 6.52(b)(iii). The amount of new facilities investment attributed to one or other of the purposes of section 6.52(b)(iii) by either of these two approaches is indicated as “Value z” in Figure 1.

A situation relevant to describing the assessment of new facilities investment against the conditions of section 6.52(b) of the Access Code is that where the total relevant amount of new facilities investment (“Value B” in Figure 1) does not fully satisfy any one of the conditions, but may fully or partly satisfy two or more of the conditions. A practical application in this situation is that the assessment against the conditions of section 6.52(b) is an ‘aggregation’ process but, so as to avoid double counting, excluding the extent to which the values of “x”, “y” and “z” overlap. That is, independent assessments can be made of the amounts of new facilities investment that meet the individual conditions of sections 6.52(b)(i)A, 6.52(b)(ii) and 6.52(b)(iii) of the Access Code, and these amounts can be aggregated, excluding any overlaps, to determine the total amount of new facilities investment that satisfies the conditions of section 6.52(b). For example, this is indicated in Figure 1 as the sum total of the relevant parts of values “x”, “y” and “z”, where:

- “value z” is an amount that satisfies section 6.52(b)(iii);
- “value y” is an amount that satisfies section 6.52(b)(ii), but excludes any net benefit enabled by investment accounted for in “value z”; and
- “value x” is an amount that satisfies section 6.52(b)(i)A, but excludes any incremental revenue that is enabled by investment accounted for in values “y” and “z”.

Furthermore, there is no need to assess new facilities investment against the conditions of section 6.52(b) in any particular order, except to first consider whether a modified test is satisfied (as addressed above). The order in which the conditions are addressed could be determined with a view to the primary purpose of the new facility. For example, if the primary purpose of a new facility was to maintain reliability of the network, then consideration could first be given to whether the condition of section 6.52(b)(iii) is satisfied, and consideration given to the other conditions only if the total relevant amount of new facilities investment does not satisfy section 6.52(b)(iii).

## Elements of the New Facilities Investment Test

For convenience, the components (or elements) of the new facilities investment test are referred to below as the “efficiency test”, “incremental revenue test”, “net benefits test” and “safety and reliability test”. For the new facilities investment test to be satisfied, the new facilities investment must satisfy the efficiency test and one or more of the other three tests.

### *The efficiency test*

The efficiency test refers to the test under section 6.52(a) of the Access Code of whether the “new facilities investment does not exceed the amount that would be invested by a service provider efficiently minimising costs”.

A demonstration of the efficiency of new facilities investment could include:

- demonstration of the optimal design and construction of the new facility, taking into account forecast demand for covered services, and economies of scale and scope;
- demonstration of consistency of unit rates of construction with historical unit rates for the covered network and unit rates of similar works in other networks, taking into account trends in productivity improvements and underlying costs; and
- demonstration that the procedures of construction planning, contracting and cost control are consistent with best practice in minimising costs.

### *The incremental revenue test*

The incremental revenue test refers to the test under section 6.52(b)(i)A of the Access Code of whether the “anticipated incremental revenue for the new facility is expected to at least recover the new facilities investment”.

“Anticipated incremental revenue” is defined in the Access Code as:

“anticipated incremental revenue” for a new facility means:

- (a) the present value (calculated at the rate of return over a reasonable period) of the increased income from charges (excluding any capital contributions) reasonably anticipated to arise from the increased sale of covered services on the network to one or more users (where “increased sale of covered services” means sale of covered services which would not have occurred had the new facility not been commissioned),

minus

- (b) the present value (calculated at the rate of return over the same period) of the best reasonable forecast of the increase in non-capital costs directly attributable to the increased sale of the covered services (being the covered services referred to in the expression “increased sale of covered services” in paragraph (a) of this definition),

where the “rate of return” is a rate of return determined by the Authority in accordance with the Code objective and in a manner consistent with Chapter 6, which may (but does not have to) be the rate of return most recently approved by the Authority for use in the price control for the covered network under Chapter 6.

The incremental revenue test has application to new facilities investment that is undertaken to extend the network or to expand the capacity of a network in order to provide a service to one or more new users.

The incremental revenue test may be applied by:

- discounted cash-flow analysis, with the necessary condition for roll-in of new facilities investment into the capital base being that the present value of revenues from current tariffs, that would be paid from time to time by the users of the new facility (with roll-in of the new facilities investment), is equal to or greater than the present value of new facilities investment and additional non-capital costs of the new facility; or
- a discounted weighted average tariff (**DWAT**) analysis, with the necessary condition for roll-in of new facilities investment being that the roll-in of the new facilities investment results in a reduction in the DWAT for the covered network.

For either of these forms of analysis, the incremental revenue test should be applied such that:

- the analysis should be undertaken over a period of no longer than the expected economic life of the principal assets of the new facility; and
- the discount rate applied in the analysis may be the rate of return applied in the determination of reference tariffs in either the current access arrangement or proposed revisions to the access arrangement, or may be a rate of return otherwise determined by the Authority to be in accordance with the Code objective and in a manner consistent with Chapter 6 of the Access Code.

### ***The net benefits test***

The net benefits test is the test under section 6.52(b)(ii) of the Access Code of whether “the new facility provides a net benefit in the covered network over a reasonable period of time that justifies the approval of higher reference tariffs”.

“Net benefits” is defined in the Access Code as:

“net benefit” means a net benefit (measured in present value terms to the extent that it is possible to do so) to those who generate, transport and consume electricity in (as the case may be):

- (a) the covered network; or
- (b) the covered network and any interconnected system.

The net benefits test applies to new facilities investment that gives rise to some benefits to all, or a large proportion of, network users, other than through providing economies of scale in the network and reductions in tariffs to existing network users. These latter benefits would be captured under the incremental revenue test of section 6.52(b)(i)A of the Access Code and, as such, would not sensibly also be considered under section 6.52(b)(ii).

Application of the net benefits test should take into account the following principles.

- Benefits considered under the net benefits test should be limited to benefits to those parties who produce, transport and consume electricity in the capacities of these parties as producers, transporters or consumers of electricity.
- Benefits considered under the net benefits test should not include any benefits to users that fall within the scope of consideration under the incremental revenue test.
- Benefits considered under the net benefits test should generally accrue to the same parties that would bear the costs of the higher reference tariffs.
- Benefits considered under the net benefits test should not include benefits that are simply transfer payments between producers of electricity, the network owner, network users and/or consumers of electricity; that is, where the benefit to one party is offset by a corresponding and associated cost to another party.
- Any claimed benefit must be explicitly identified with clear demonstration of how the new facility will provide the claimed benefit.

- There should be persuasive evidence that the particular investment would provide the claimed benefit.
- Where reasonably practical, benefits should be quantified using engineering and economic models.

For the net benefits test to be satisfied, the present value of the benefits should exceed the present value of the sum of the new facilities investment associated with the new facility, and of the best reasonable forecast of the change in non-capital costs directly attributable to the new facility.

### *The safety and reliability test*

The safety and reliability test is the test under section 6.52(b)(iii) of the Access Code of whether “the new facility is necessary to maintain the safety or reliability of the covered network, or its ability to provide contracted covered services”.

The safety and reliability test would have application to new facilities investment that is undertaken to maintain the network to a particular level of service capability, or to meet particular requirements for safety in operation or reliability of services. The test relates to the purpose of the new facility and the necessity of the new facility to achieve the purpose. There is no suggestion under section 6.52(b)(iii) of an assessment of the benefits and costs of the new facility.

The Access Code does not provide any guidance on the meaning of safety or reliability of the covered network. The scope of new facilities that may be considered under the safety and reliability test is therefore a matter of interpretation and could potentially include, for example:

- investment required to meet best-practice standards or statutory requirements for safety in the operation of the network; or
- investment required to achieve or maintain reliability of services or capacity of the network sufficient to meet contractual obligations to users or mandatory requirements.