Issues Paper

New Facilities Investment Test Application for Transmission Works to Supply the Binningup Desalination Plant Submitted by Western Power

12 November 2010

Economic Regulation Authority
WESTERN AUSTRALIA

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1 Introduction

On 12 October 2010, 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**).[1] The application is for the Authority to determine that forecast new facilities investment proposed by Western Power, for transmission works to supply electricity to the Binningup Desalination Plant, meets the new facilities investment test. The proposed transmission works are estimated to cost $52.63 million and involve the installation of a second 330/132 kV transformer at Kemerton Terminal and construction of a 132 kV transmission line to connect the desalination plant.

Western Power's new facilities investment test application has been published on the Authority's website together with this issues paper.[2]

The proposed transmission works were the subject of an application made to the Authority in October 2009 for the Authority to waive requirements for the regulatory test under Chapter 9 of the Access Code. The Authority waived the requirement for the regulatory test on the basis that the nature of the funding of the proposed transmission works would not cause a net cost to those who generate, transport and consume electricity in Western Power's (covered) network and any interconnected system.[3]

The new facilities investment test is a further test under the Access Code that is separate from the regulatory test and requires a separate determination by the Authority. The new facilities investment test is applied to determine the extent to which the cost of an augmentation of the network (i.e. the amount of new facilities investment) can be financed by adding all, or part of, the new facilities investment to the capital base of the Western Power covered network and recovering the investment through 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 transmission works; and
- an overview of Western Power's assessment of the investment in the proposed transmission works against the requirements of the new facilities investment test.

[1] Western Power, 1 October 2010, Approval of New Facilities Investment: Installation of a second 330/132kV transformer at Kemerton Terminal and construction of a 132kV transmission line to supply Binningup Desalination Plant (hereafter referred to as "**new facilities investment test application**").

[2] Economic Regulation Authority website: http://www.erawa.com.au/2/537/48/electricity__network_augmentations.pm

[3] Economic Regulation Authority, 4 January 2010, Determination on an Application from Western Power to Waive the Regulatory Test for New Transmission Works to Supply the Binningup Desalination Plant.

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.

2.2 Distinct 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[4] 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, taking into account alternative means of overcoming the constraints, such as,

[4] The Access Code defines a major augmentation to be an augmentation for which the new facilities investment for the shared assets exceeds $17.8 million (2010 CPI adjusted amount) where the augmentation is to be part of a distribution system and exceeds $35.6 million (2010 CPI adjusted amount) where the augmentation is to be part of a transmission system or part of both a distribution and transmission system.

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 with 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 in allowing the addition of the actual new facilities investment to the capital base at the time that the Authority approves proposed revisions to the access arrangement for the covered network. In the case of forecast new facilities investment, the determination only binds the Authority if the new facilities investment has proceeded as proposed. The Authority considers this to include the new facilities 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.

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 Transmission Works

Western Power indicates that the driver for the proposed transmission works is to connect the Water Corporation's second desalination plant in Binningup, approximately 50 km north of Bunbury. The Water Corporation has submitted a network access application to Western Power for an initial supply of 30 MW.

3.2 Proposed Transmission Works

Western Power has, in partnership with the Water Corporation, investigated various options to meet the forecast load requirements of the Binningup Desalination Plant. The option that has been determined involves use of the Kemerton Terminal, which is located in the Bunbury load area. Western Power indicates that Kemerton Terminal utilises three different voltage systems (66 kV, 132 kV and 330 kV), with most of the existing lines built in the 1960s and designed for relatively small loads distributed over large distances. As this network has limited capacity for transferring large amounts of power due to thermal and voltage limitations, a new transmission line will be constructed to the Binningup Desalination Plant and Kemerton Terminal will be upgraded.

Western Power's proposed transmission works includes the installation of a second 330/132 kV transformer and construction of a 132 kV switchyard at Kemerton Terminal and construction of a 10 km 132 kV transmission line to connect the Binningup Desalination Plant. Further details of the proposed transmission works are provided in section 3 of Western Power's new facilities investment test application.

3.3 Forecast Cost

Western Power indicates a forecast capital cost for the proposed transmission works of $52.63 million. This cost comprises four distinct components of work.

Component of Works	Estimated Cost
(1) Binningup 132kV substation works	$3.30 million
(2) Binningup substation to Kemerton Terminal 132kV transmission line	$16.53 million
(3) Kemerton Terminal connection of the 132kV transmission line	$1.50 million
(4) Kemerton Terminal works including installation of a second 330/132 kV transformer and construction of a 132 kV switchyard	$31.30 million
TOTAL	**$52.63 million**

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

4.1 Western Power's Submission

Western Power submits that $31.30 million of the estimated total capital cost for the proposed transmission works (i.e. $52.63 million) satisfies the new facilities investment test.

In applying the new facilities investment test to the proposed transmission works, 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 "safety and reliability test" under section 6.52(b)(iii) of the Access Code; and
- the "incremental revenue test" under section 6.52(b)(i)A of the Access Code .

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

- Western Power submits that while the costs relating to the first three components of works (i.e. the Binningup substation, the 132 kV transmission line, and transmission line connection) meet the "efficiency test" these costs do not meet any of the other tests for reason of being connection assets. That is, the assets in question are dedicated to and only required for the connection of the Binningup Desalination Plant. Western Power submits that the costs associated with these connection assets ($21.33 million) should be recovered directly from the customer (Water Corporation) via a capital contribution.
- Western Power submits that the cost relating to the fourth component of works (i.e. the Kemerton Terminal works) is associated with shared network assets. That is, while the assets in question are required to connect the desalination plant, they are not dedicated for use by any single customer. Western Power submits that the total cost of these shared assets meets the "efficiency test" and that of the $31.30 million:
    - $25.30 million also meets the "safety and reliability test"; and
    - $6.00 million also meets the "incremental revenue test".

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 transmission works meets the efficiency test of section 6.52(a). To substantiate this claim, Western Power submits that the following criteria must be demonstrated:

- 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 cost of the new facility is efficient.[5]

Western Power submits that the first of these criteria have been met on the basis of the work undertaken for the regulatory test waiver submission, which was approved by the Authority on 4 January 2010.[6] In particular, Western Power is of the opinion that the choice of network option is closely analogous to the requirements of the regulatory test under the Access Code. Western Power therefore submits that if the regulatory test has been satisfied, then the best option has already been determined having regard to all reasonable alternatives.

To demonstrate the appropriateness of design and design standards, Western Power has included as part of its new facilities investment application (Attachments 2 and 3) two technical documents:

- *Transmission Design Report: Binningup Desalination Plant Project*
- *Transmission Design Standard. Part 2 – Functional Specification 330/132 kV Terminal Yard*

With respect to demonstrating efficient cost delivery, Western Power indicates that it uses a suite of approaches to deliver projects to ensure an efficient cost is achieved. In particular, Western Power indicates that its "delivery portfolio" for the proposed transmission works consists of six delivery mechanisms: competitive tender; internal resource; alliance delivery; preferred supplier; offsets and easements; and re-use of materials. Western Power provides further details on its delivery strategy in Appendix 1 of its application.

Submissions are invited from interested parties on:

- the criteria proposed by Western Power to demonstrate that new facilities investment satisfies the requirements of section 6.52(a) of the Access Code (that is, the "efficiency test"); and
- whether Western Power has adequately established that the forecast of new facilities investment, for the proposed transmission works, does not exceed the amount that would be invested by a service provider efficiently minimising costs.

4.3 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".

[5] Western Power, New facilities investment test application, pages 8 -13.

[6] Western Power states in its application (page 9) that the Authority's decision was dated 7 January 2010. This statement is incorrect – the Authority's decision to waive the application of the regulatory test is dated 4 January 2010.

Western Power submits that, with natural load growth, an upgrade of Kemerton Terminal would be required by 2013 and at that time would meet the requirements of the safety and reliability test, as the upgrade would be necessary to maintain the safety and reliability of supply for customers supplied by this terminal.[7]

To connect the desalination plant, however, the Kemerton Terminal upgrade must be brought forward from 2013 to 2011. To establish the additional cost incurred of bringing the works forward Western Power has undertaken an economic analysis of the cost of undertaking the works in 2011 compared with 2013 and calculated the difference in net present cost to be $6 million. The cost of advancing the Kemerton Terminal upgrade is therefore estimated to be $6 million.

Western Power indicates that the option of advancing (or "bringing forward") the Kemerton Terminal upgrade is a direct result of the load requirements of the Binningup Desalination Plant and as such the 'brought forward' costs (i.e. $6 million) should be allocated to the customer (Water Corporation). Western Power submits that the remaining cost associated with the upgrade works of $25.3 million (i.e. $31.3 million minus $6 million) satisfies the requirements of the safety and reliability test.

Submissions are invited from interested parties on Western Power's assessment of the forecast cost of the proposed transmission works under the safety and reliability test.

4.4 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 calculated the net present value of the incremental revenue that will arise from the connection of the Binningup Desalination Plant over a 15 year period. In its calculation Western Power has estimated tariff revenue to be $890,000 per annum and has assumed flat real network access prices from the date of commissioning and a real discount rate of 7.98%.[8] Western Power provides further details of the calculation in Appendix 2 of its application.

Western Power submits that the incremental revenue will be sufficient to cover the $6 million expenditure to upgrade the Kemerton Terminal which does not meet the safety and reliability test. The $6 million associated with bringing forward the Kemerton Terminal upgrade is therefore assessed by Western Power to meet the requirements of the incremental revenue test.

[7] Western Power, New facilities investment test application, page 14.

[8] Western Power, New facilities investment test application, page 14 and Appendix 2.

Submissions are invited from interested parties on Western Power's assessment of the forecast cost of the proposed transmission works under the incremental revenue test.

4.5 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 has not given consideration to the net benefits test in its assessment of whether the proposed transmission works satisfies the new facilities investment test. Western Power considers that the new facilities investment does not provide any quantifiable net benefit to network users at this point in time as the investment is to provide for the connection of a single customer and would not be required otherwise.

Submissions are invited from interested parties on Western Power's view that there are no quantifiable net benefits to those who generate, transport and consume electricity.

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.

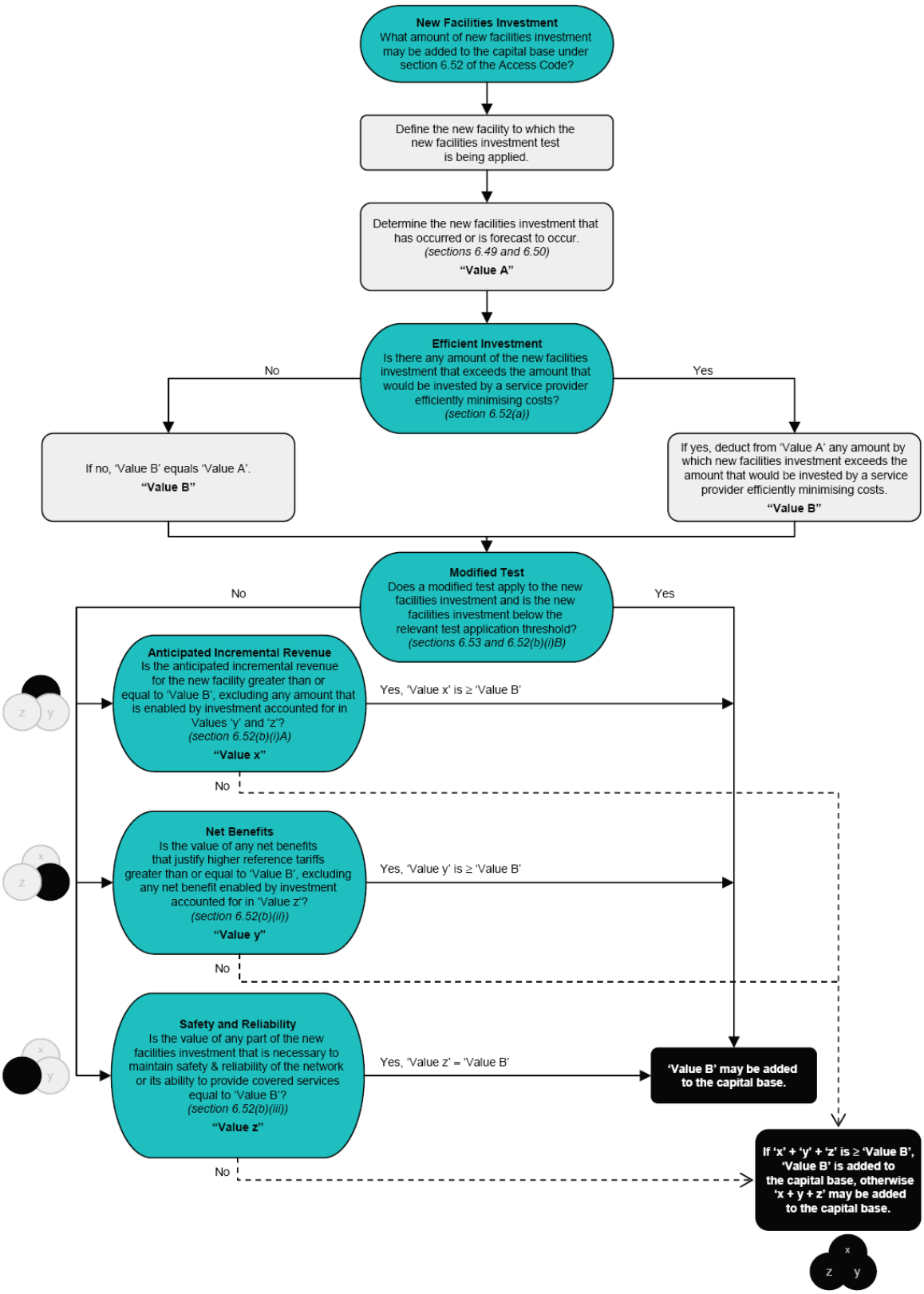
Section 6.52(a) of the Access Code requires that any new facilities investment, that is to be added to the capital base, does not exceed the amount that would be invested by a service provider efficiently minimising costs. The third step in the new facilities investment test is therefore, to determine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