Issues Paper on the New Facilities Investment Test for a 330 kV Transmission Line and Associated Works in the Mid-West Region of Western Australia

Submitted by Western Power

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Economic Regulation Authority
WESTERN AUSTRALIA

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CONTENTS

INTRODUCTION

1. On 9 April 2008, Western Power submitted to the Economic Regulation Authority ("**Authority**") an application under section 6.71 of the *Electricity Networks Access Code 2004* ("**Access Code**"). The application seeks the Authority to determine that forecast new facilities investment proposed by Western Power for a 330 kV transmission line and associated works in the Mid-West region of Western Australia ("**proposed transmission line**") meets the new facilities investment test.[1]

2. Western Power's pre-approval application has been published on the Authority's web site (www.era.wa.gov.au) together with this issues paper.

3. The proposed transmission line was the subject of a major augmentation proposal made to the Authority in October 2007 for a determination by the Authority under the regulatory test of Chapter 9 of the Access Code.[2] The Authority determined that the proposed transmission line satisfied the regulatory test.[3] The new facilities investment test is a separate test under the Access Code, requiring a separate determination by the Authority.

4. In making a determination on the pre-approval 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 pre-approval application.

5. The remainder of this 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 line; and
   - an overview of Western Power's assessment of the investment in the proposed transmission line against the requirements of the new facilities investment test.

[1] Western Power, 7 April 2008, Submission to the Economic Regulation Authority Pre-Approval of New Facilities Investment 330 kV Transmission Line and Associated Works in the Mid-West Region of Western Australia (hereafter cited as the "pre-approval application").

[2] Western Power, 2 October 2007, Submission to the Economic Regulation Authority Major Augmentation Proposal 330 kV Transmission Line and Associated Works in the Mid-West Region of Western Australia (Hereafter cited as the "major augmentation proposal").

[3] Economic Regulation Authority, 7 December 2007, Determination on the Regulatory Test for a 330 kV Transmission Line and Associated Works in the Mid West Region of Western Australia.

THE NEW FACILITIES INVESTMENT TEST

Purpose

6. New facilities investment is defined in section 1.3 of the Access Code as:

> the 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.

7. 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. 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.

8. 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. This typically occurs through the charging of capital contributions and, accordingly, the new facilities investment test is important in the determination of amounts of capital contributions.

Difference from the Regulatory Test

9. 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 set out in Chapter 9 of the Access Code. The purpose of the regulatory test is to identify the optimal solution to a constraint in electricity supply (either as a network solution or other solution), 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).

10. Under the regulatory test, a service provider is required to demonstrate that a major augmentation of a covered network meets the regulatory test before the service provider can commit to an 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, alternative network investments, investment in generation or management of electricity demand. The regulatory test is used to identify the alternative that would maximise the benefits to those who generate, transport or consume electricity; that is, the assessment after taking into account both cost and benefits. The test does not require the service provider to demonstrate the efficiency of forecast costs, and it is not concerned with the mechanism by which the network investment will be financed.

11. The new facilities investment test is separate from the regulatory test and 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 covered network and recovering the investment through regulated tariffs. 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.

12. 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.

Requirements of the Access Code

13. Section 6.52 of the Access Code sets out the new facilities investment test, as follows.

> 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.

14. 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.

15. 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.

16. 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.

17. Where the Authority makes a determination outside an access arrangement review process, the determination binds the Authority in allowing the addition of the new facilities investment to the capital base, when 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.

18. Western Power's pre-approval application is made under section 6.71 of the Access Code (i.e. outside the access arrangement review process).

The Structure of the New Facilities Investment Test

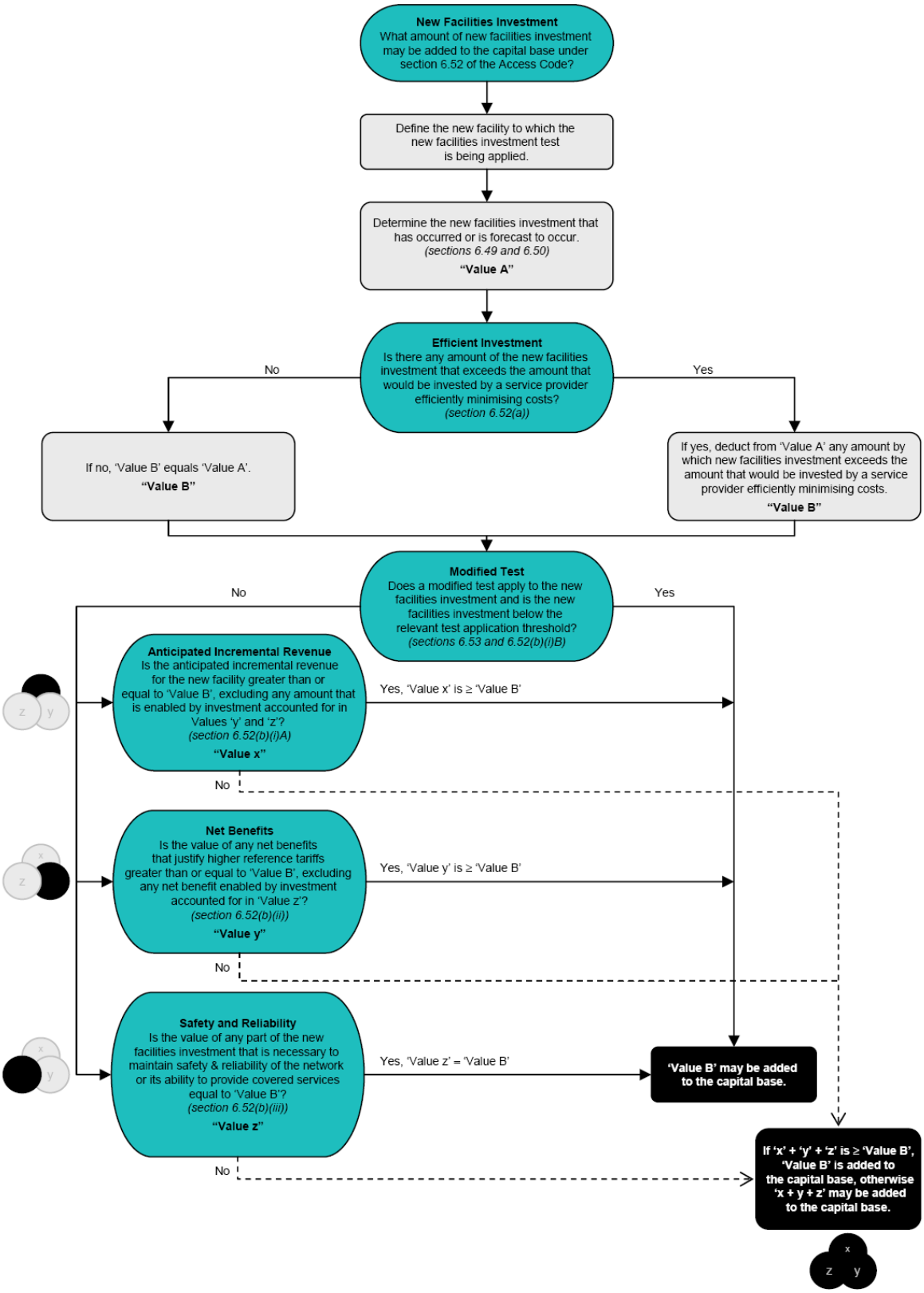
19. The new facilities investment test has several elements. These elements and the general structure of the test are set out in Figure 1 and described below.

20. 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.

21. 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.

22. 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).

Figure 1: The structure of the new facilities investment test



23. 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).

24. 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).

25. 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.

26. 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).

27. 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.

28. 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.

29. In practical 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).

30. 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).

31. 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.

32. 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.

33. 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.

34. 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.

35. 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. The most practical construction of section 6.52(b) 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".

36. As a further matter of construction, 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

37. For convenience, the component tests (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 tests.

The efficiency test

38. 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".

39. 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

40. 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".

41. "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.

42. 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.

43. 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 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.

44. 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

45. 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".

46. "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.

47. The net benefits test has application 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).

48. 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.

49. 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

50. 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".

51. 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.

52. 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 human and environmental safety in 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.

THE PROPOSED NEW FACILITY

Proposed Transmission Line

53. Western Power's proposed new facility is a 330 kV double-circuit transmission line between Pinjar and Geraldton. The new facility includes:

- a new 330/132 kV terminal station at Moonyoonooka;
- a new 330 kV circuit at Neerabup; and
- a new 132 kV line circuit at Pinjar.[4]

54. The transmission and associated assets are referred to collectively in this issues paper as the proposed transmission line.

Reasons for the Proposed Transmission Line

55. Western Power submits that the proposed transmission line is required to overcome network constraints and maintain system reliability in the face of forecast increases in electricity demand and demand for connection of generation in an area described by Western Power as the North Country Region.

56. Western Power presented three forecasts of peak load for the region that Western Power refers to as the North Country Region, as follows.[5]

- "Low forecast", based on a historical trend in load growth (natural load growth) plus small block loads that have already been approved by Western Power. This forecast is for an approximately linear increase in peak load from about 130 MW in 2007 to 195 MW in 2016.
- "Central forecast", being the low forecast plus "diversified prospective loads" with a probability weighting. This forecast is indicated to include probability weighted loads of 300 MW of new block loads and 900 MW of new generation (600 MW of gas and coal generation and 300 MW of wind generation) with increases in peak load from 130 MW in 2007 to 315 MW in 2012 and 335 MW in 2016.
- "High forecast", being low forecast plus 100 per cent of prospective loads, with increases in peak load from 130 MW in 2007 to 430 MW in 2012 and 475 MW in 2016.

[4] Pre-approval application, p. 7.

[5] Pre-approval application, pp. 4 – 6; Major augmentation proposal, pp. 6, 7.

57. Western Power indicated that the existing transmission network in the North Country Region has a supply capacity of approximately 155 MW. Western Power expects this to be exceeded by peak demand at some time during the period 2008 to 2010, depending upon the demand forecast considered.[6] More particularly, Western Power indicated that constraints on the electricity transmission system comprise:[7]

- constraints on import of energy into the North Country Region from the South West, with forecasts of loads indicating a risk of load shedding and power supply disruptions during periods of peak summer demand from 2010/11 onwards; and
- a lack of transmission capacity to connect new generation between Pinjar and Eneabba, with significant forecast demand for connection from existing proposals for wind-farm, coal-fired and gas-fired generation.

58. Western Power also indicated that the need for network augmentation arises from uncertainty after October 2009 in the availability of existing local generation (from Mungarra Power Station and Geraldton Gas Turbine) that currently supplies energy and system support.[8]

Forecast Cost

59. Western Power indicates that the forecast cost of the proposed transmission line is $300 million.[9] Further details of the cost forecast has been provided to the Authority as a confidential Appendix to the pre-approval application.

WESTERN POWER'S ASSESSMENT UNDER THE NEW FACILITIES INVESTMENT TEST

Western Power's Submission

60. Western Power submits that the entire amount of new facilities investment for the proposed transmission line meets the new facilities investment test on the basis that:

- the forecast new facilities investment meets the efficiency test of section 6.52(a) of the Access Code; and
- the proposed transmission line is necessary to maintain the safety and reliability of the covered network and its ability to provide contracted covered services, and therefore the proposed new facilities investment meets the safety and reliability test of section 6.52(b)(iii) of the Access Code.

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6 Major augmentation proposal, p. 8.

7 Pre-approval application, p. 4; Major augmentation proposal, pp. 4 – 6.

8 Major augmentation proposal, p. 8.

9 Pre-approval application, p. 8.

61. Western Power further submits that, in addition to satisfying the safety and reliability test, the proposed new facilities investment would in any case satisfy the incremental revenue test of section 6.52(b)(i)A of the Access Code.

62. Western Power does not make any claim or present any analysis of the proposed transmission line against the requirements of the net benefits test of section 6.52(b)(ii) of the Access Code.

63. The reasons underlying Western Power's submission that the full amount of the new facilities investment meets the new facilities investment test are examined in further detail in the following sections.

Efficiency Test

64. 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".

65. Western Power submits that the forecast new facilities investment for the proposed transmission line meets the efficiency test of section 6.52(a) of the Access Code for reasons that:

- the proposed transmission line was determined by the Authority to meet the regulatory test and, accordingly, it is reasonable to assume that the proposed transmission line is the lowest sustainable cost option for addressing constraints in the electricity system; and
- Western Power's procurement and implementation strategy ensures that the new facilities investment does not exceed the amount that would be invested by a service provider efficiently minimising costs, while achieving the required project outcome.[10]

66. Further to the second of these reasons, Western Power indicates that the proposed transmission line would be constructed by contractors commissioned under "alliance arrangements" under which the contractors are commissioned on the basis of a cost estimate and paid for costs incurred in construction. Western Power claims that these arrangements achieve the lowest cost of construction through:

- a "painshare / gainshare" arrangement that provides incentives to achieve targets for cost, quality and timeliness;
- provision for an independent estimator to review the cost estimates developed jointly by Western Power and contractors to ensure that the cost estimates are "market reflective"; and
- "open book" accounting, presumably meaning that the costs incurred by the contractors are open for scrutiny by Western Power.

67. Western Power further submits that:

- alliance arrangements of the type entered into by Western Power are more likely to achieve the lowest costs of construction than a tender process in

[10] Pre-approval application, pp. 14 – 16.

circumstances, such as currently exist in Western Australia, of excess demand for line-construction services;

- the alliance arrangements of the type entered into by Western Power are similar to arrangements successfully used by the Main Roads Department and Water Corporation in Western Australia, and by energy utilities in the National Electricity Market; and
- the alliance arrangements have been discussed with the Western Australian Government's State Supply Commission, which has not raised issues with the arrangements.

68. Western Power has not provided as part of its submission:

- information from studies, if any, that Western Power has undertaken to satisfy itself that the procurement and implementation strategies that it would apply in construction of the proposed transmission line achieve lowest costs in construction; or
- any information enabling a comparison of forecast unit costs for construction of the proposed transmission line with unit costs achieved in similar projects undertaken by Western Power or other electricity-transmission businesses.

Submissions are invited from interested parties on whether Western Power has provided sufficient information to enable an assessment of whether a forecast of new facilities investment for the proposed transmission line does not exceed the amount that would be invested by a service provider efficiently minimising costs.

Safety and Reliability Test

69. 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".

70. Western Power submits that a new facility may be considered necessary for the purposes of the safety and reliability test if the new facility is constructed to meet:

- statutory requirements, such as requirements to comply with the Technical Rules;
- requirements to meet industry best-practice standards;
- statutory requirements for human and environmental safety;
- investment requirements to achieve or maintain reliability of services sufficient to meet contractual obligations; and
- requirements for prudent asset management, including investment of a replacement and renewals nature.[11]

[11] Pre-approval application, pp. 10, 11.

71. Western Power submits that the proposed transmission line is a necessary investment for the purposes of the safety and reliability test as the investment is primarily required to maintain the operation of the network in accordance with the Technical Rules, in the face of increasing energy demand from existing and new electricity customers.[12]

72. In its consideration of the pre-approval application, the Authority will address the interpretation of the safety and reliability test under section 6.52(b)(iii) of the Access Code and potential inconsistencies in the application of this test.

Submissions are invited from interested parties on the interpretation given by Western Power to the safety and reliability test under section 6.52(b)(iii) of the Access Code and whether the new facilities investment for the proposed transmission line meets this test.

Incremental Revenue Test

73. 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".

74. Western Power submits that the forecast new facilities investment for the proposed transmission line meets the incremental revenue test of section 6.52(b) of the Access Code and refers to an analysis of costs and incremental revenue undertaken for Western Power by CRA International and provided to the Authority as part of the major augmentation proposal submitted for the regulatory test on the proposed transmission line.[13]

75. CRA International derived forecasts of the present value of incremental revenue from additional demand for network services that could be met after construction of the proposed transmission. The forecasts were derived by applying the following calculation methods and assumptions.

- Three scenarios of demand were considered:
  - "natural" load growth plus new generation and block loads with an ascribed probability of greater than or equal to 50 per cent;
  - natural load growth plus a probability weighted estimate of new generation and block loads; and
  - "natural" load growth plus new generation and block loads with an ascribed probability of greater than 50 per cent.
- Demand and revenue was considered for the period to 2030.

[12] Pre-approval application, pp. 17, 18.

[13] Major augmentation proposal, Attachment 2, CRA International, 30 March 2007, Reinforcement Options for the North Country Region (Confidential Version).

- Transmission and distribution prices for the 2006/07 year would apply for the whole of the period to 2030.
- Non-capital costs were not taken into account.
- Present values of forecast revenues were calculated with a real discount rate of 6.6 per cent.

76. CRA International determined present values of forecast incremental revenue to be in excess of the present value of costs for the proposed transmission line ($296.8 million) under all demand scenarios, with a present value of revenue for the "central" demand forecast of $331.8 million. On this basis, CRA International concluded that the incremental revenue from the proposed transmission line exceeds the capital cost and, hence, the incremental revenue test is satisfied.

77. The report by CRA international did not include details of the demand forecasts and revenue calculations used. The Authority will seek details of calculations prior to making a determination on the pre-approval application.

78. Western Power submits in its pre-approval application that the analysis of incremental revenue undertaken by CRA International may be out-dated due to the following factors:

- the cost of construction of the proposed transmission line may be greater than considered for the purposes of the major augmentation proposal and in the analysis by CRA International;
- the demand for network services may be greater than considered for the purposes of the major augmentation proposal and in the analysis by CRA International; and
- the transmission and distribution prices are likely to be greater than assumed by CRA international in the calculation of incremental revenue.

79. Western Power has not undertaken a revised analysis of incremental revenue, but suggests that the finding that the new facilities investment for the proposed transmission line meets the incremental revenue test is still valid.[14]

Submissions are invited from interested parties on Western Power's analysis of incremental revenue under section 6.52(b)(i) of the Access Code and whether the new facilities investment for the proposed transmission line meets the incremental revenue test.

[14] Pre-approval application, p. 17.