

# Draft Determination 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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## DRAFT DETERMINATION

1. On 9 April 2008, Western Power submitted to the Economic Regulation Authority (“**Authority**”) an application (“**pre-approval application**”) under section 6.71 of the *Electricity Networks Access Code 2004* (“**Access Code**”).<sup>1</sup> The application is for 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.
2. 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.<sup>2</sup> The Authority determined that the proposed transmission line satisfies the regulatory test.<sup>3</sup> The new facilities investment test is a separate test under the Access Code, requiring a separate determination by the Authority.
3. 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. As part of this consultation, the Authority prepared an Issues Paper<sup>4</sup> to assist interested parties in understanding the new facilities investment test and Western Power’s pre-approval application. The Authority issued an invitation for submissions on 23 May 2008, with a closing date for submissions of 9 June 2008.
4. Submissions were received from the following parties:<sup>5</sup>
  - Alinta Sales Pty Ltd
  - Aviva Corporation Ltd
  - Extension Hill Pty Ltd
  - Geraldton Iron Ore Alliance
  - Griffin Energy
  - Mid West Development Commission
  - Office of Energy
  - Western Power

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<sup>1</sup> 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”).

<sup>2</sup> 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”).

<sup>3</sup> 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.

<sup>4</sup> Economic Regulation Authority, 23 May 2008, 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.

<sup>5</sup> Submissions from interested parties to the Economic Regulation Authority are available on the Authority’s web site: [http://www.era.wa.gov.au/3/644/48/330kv\\_midwest\\_a.pm](http://www.era.wa.gov.au/3/644/48/330kv_midwest_a.pm)

5. After consideration of the pre-approval application and submissions received from interested parties, the Authority's Draft Determination is that the forecast new facilities investment of \$300 million for the proposed transmission line meets the new facilities investment test.
6. Under section 6.74 of the Access Code, a determination by the Authority that forecast new facilities investment meets the new facilities investment test is contingent upon the new facilities investment proceeding as proposed. The Authority considers that this includes the proposed transmission line being constructed as proposed and the cost not being different than the forecast cost set out in the pre-approval application.

## REASONS FOR DRAFT DETERMINATION

7. The reasons for the Draft Determination address the following matters:
  - the requirements for the new facilities investment test under section 6.52 of the Access Code;
  - the structure and elements of the new facilities investment test;
  - details of the proposed transmission line; and
  - the assessment of the proposed transmission line investment against the requirements of the new facilities investment test.

## The New Facilities Investment Test

8. 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.
- 9. For convenience, the component tests (or elements) of the new facilities investment test are referred to below as the “efficiency test” (section 6.52(a)), “incremental revenue test” (section 6.52(b)(i)A), “net benefits test” (section 6.52(b)(ii)) and “safety and reliability test” (section 6.52(b)(iii)). 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.
- 10. New facilities investment may be assessed against the requirements of the new facilities investment test either as part of, or outside of, an access arrangement review process. The pre-approval application that is the subject of this Draft Determination is for an assessment of a forecast amount of new facilities investment outside of an access arrangement review process, as provided for under section 6.71(b) of the Access Code.
- 11. Section 6.71(b) of the Access Code allows a service provider to, at any time, apply to the Authority for it to determine whether an amount of actual or forecast new facilities investment meets, or will meet, the new facilities investment test. Under section 6.75, the Authority:
  - is required to make a determination if the forecast new facilities investment is greater than \$15 million, or may make a determination if the forecast new facilities investment is less than \$15 million; and
  - may make the determination subject to such conditions as the Authority may consider appropriate.
- 12. Under section 6.74 of the Access Code, the effect of a determination that new facilities investment meets the new facilities investment test is to bind the Authority to adding the new facilities investment to the capital base of the covered network when the Authority approves proposed revisions to the access arrangement, as long as the new facilities investment proceeded as proposed.

## Western Power’s Application

- 13. The proposed transmission line comprises 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 line circuit at Neerabup; and
  - a new 132 kV line circuit at Pinjar.<sup>6</sup>

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<sup>6</sup> Pre-approval application, p. 7.

14. Western Power indicates that the forecast cost of the proposed transmission line is approximately \$300 million.<sup>7</sup> Further details of the cost forecast were provided to the Authority as a confidential appendix to the pre-approval application.
15. 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.
16. 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.
17. 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.
18. 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.

## Assessment Under the New Facilities Investment Test

### Efficiency Test

#### Western Power's Submission

19. Western Power submits that the efficiency test under section 6.52(a) of the Access Code requires consideration of two matters.
20. First, Western Power submits that the efficiency test requires consideration of whether the most appropriate network option or other option (defined as "alternative options" under the Access Code and including generation or demand-side management options) has been selected to meet requirements associated with reasonable forecasts of growth in demand for covered services. Western Power submits that this is equivalent to the regulatory test under Chapter 9 of the Access Code and determination by the Authority that the regulatory test is satisfied for the proposed transmission line is sufficient to demonstrate satisfaction of this element of the new facilities investment test.<sup>8</sup>
21. Secondly, Western Power submits that the efficiency test requires consideration of whether the service provider has efficiently minimised costs while achieving the

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<sup>7</sup> Pre-approval application, p. 8.

<sup>8</sup> Pre-approval application, p. 9, 14.



required project outcome, which can be effectively demonstrated where an appropriate procurement and implementation strategy has been employed.<sup>9</sup> In the pre-approval application, Western Power describes its procurement process of “alliance arrangements” that are long term arrangements entered into with contractors, with the arrangements characterised by:

- long term relationships with resource companies based on co-operation and collaborative effort to provide greater certainty of supply in return for greater certainty of work and lower margins than would be expected in tender negotiations;
- a “painshare / gainshare” arrangement to drive all parties to achieve cost, quality and timeliness targets;
- provision for an independent estimator to review the cost estimates developed jointly by Western Power and the non-owner participants to ensure they are market reflective; and
- “open book” accounting.<sup>10</sup>

22. 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 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.<sup>11</sup>

### *Public Submissions*

23. Four of the submissions received on the Authority’s Issues Paper addressed the efficiency test of section 6.52(a) of the Access Code. All of these submissions support Western Power’s claim that the proposed transmission line satisfies the efficiency test.
24. Extension Hill Pty Ltd supports Western Power’s alliance approach to contracting, indicating that this approach is well proven and “with appropriate governance and cooperative behaviour will deliver a lower cost, better delivery time and better quality outcome than traditional contracting methods”.
25. Geraldton Iron Ore Alliance submits that “Western Power’s intended alliance approach to construction is a practical way forward to the timely progression of the project, with the benefits of sound risk and cost management”.

<sup>9</sup> Pre-approval application, p. 14, 15.

<sup>10</sup> Pre-approval application, p. 15.

<sup>11</sup> Pre-approval application, p. 16.

26. Griffin Energy submits that the Authority's determination that the proposed transmission line satisfies the regulatory test is sufficient to also indicate satisfaction of the efficiency test.
27. Alinta Sales Pty Ltd submits that it is unable to comment on Western Power's contracting strategies, but supports Western Power's general reasoning.

### *Considerations of the Authority*

28. In assessing whether the proposed transmission line meets the efficiency test of section 6.52(a) of the Access Code, the Authority has given consideration to issues of both the choice of project and the timing of the project and technical efficiency (whether costs are minimised for the particular project).
29. On the choice of project, the Authority accepts that satisfaction of the regulatory test is an adequate demonstration that the proposed transmission line represents an efficient choice of project.
30. On the matter of technical efficiency, 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/or
  - demonstration that the procedures of construction planning, contracting and cost control are consistent with minimising costs.
31. Western Power has provided a general description of its alliance arrangements to support a claim that its procedures of construction planning, contracting and cost control are consistent with minimising costs. Several submissions from interested parties indicate support for this contracting strategy being consistent with minimising costs.
32. In its assessment of the major augmentation proposal for the proposed transmission line under the requirements of the Access Code for the regulatory test, the Authority considered the unit costs underlying the forecast cost for the proposed transmission line and accepted that the unit costs are consistent with benchmarks for unit costs for transmission lines in Australian conditions.<sup>12</sup>
33. Taking into account both Western Power's procedures for contracting and cost control and consistency with benchmark unit rates, the Authority accepts that forecast new facilities investment for the proposed transmission line of \$300 million is consistent with minimising costs for a given project.

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<sup>12</sup> 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, pp. 21, 22.

34. The Authority therefore considers that the proposed transmission line meets the efficiency test of section 6.52(a) of the Access Code.

## *Incremental Revenue Test*

### *Western Power's Submission*

35. Western Power does not rely on the incremental revenue test in its pre-approval application. Nevertheless, 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, which was provided to the Authority as part of the major augmentation proposal submitted for the regulatory test on the proposed transmission line.<sup>13</sup>
36. 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 line.
37. 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.<sup>14</sup>
38. 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.
39. 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.<sup>15</sup>

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

<sup>14</sup> Pre-approval application, pp. 13,14.

<sup>15</sup> Pre-approval application, p. 17.

### *Public Submissions*

40. Only one of the submissions received on the Authority's Issues Paper addressed the incremental revenue test of section 6.52(b)(i)A of the Access Code. Griffin Energy submits that Western Power's estimated cost for the proposed transmission line of \$300 million is a significant under-estimate of the likely cost and that the incremental revenue calculations cited by Western Power (from a study undertaken by CRA International) may be out of date and that incremental revenue will not meet the significantly higher capital cost of the proposed transmission line.

### *Considerations of the Authority*

41. The Authority has reviewed the claims by Western Power that the proposed transmission line satisfies the incremental revenue test, including the report by CRA International submitted by Western Power to the Authority as part of Western Power's earlier major augmentation proposal.
42. The Authority notes that both Western Power and Griffin Energy have indicated that the cost of the proposed transmission line may be greater than the cost forecast indicated in both the major augmentation proposal and pre-approval application. Western Power has not, however, indicated a different forecast of costs in its pre-approval application and, accordingly, the Authority has considered only the forecast cost of \$300 million in assessment of the pre-approval application.

### *Net Benefits Test*

#### *Western Power's Submission*

43. Western Power does not rely on the net benefits test in its pre-approval application. Western Power submits that the proposed transmission line will provide "market benefits", but does not expand on this claim.<sup>16</sup>

### *Public Submissions*

44. Six of the submissions received on the Authority's Issues Paper addressed matters that would be relevant to a consideration of the net benefits test of section 6.52(b)(ii) of the Access Code. All of these submissions indicate that the proposed transmission line would give rise to benefits for the SWIS, including improvements in reliability and security of electricity supplies and greater competition in the wholesale electricity market.
45. Extension Hill Pty Ltd raises issues in its submission that would relate to net benefits of the proposed transmission line for the SWIN, including:
- a reduction in transmission constraints in the South West region of Western Australia;
  - an increase in generation and primary-energy diversity in the SWIN, with benefits to whole-of-system security; and
  - increased competition in the wholesale electricity market.

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<sup>16</sup> Pre-approval application, p. 18.

46. Aviva Corporation submits that “[the proposed transmission line] is an augmentation of the SWIS, not a new line to individual customers and as such is a reinforcement of the SWIS, which will provide benefits to both generators and customers in the SWIS no matter where they are located” ... “providing benefits in terms of reliability and security to the SWIS as a whole”.
47. Geraldton Iron Ore Alliance submits that the proposed transmission line provides benefits to the SWIS by enabling new base loads to be established in the Mid-West region.
48. Griffin Energy submits that investment in the 330 kV bulk transmission system that meets both the requirements of the regulatory test and the efficiency test under the new facilities investment test should automatically be added to the capital base and smeared across all users of the network, that is, “prudent investment in expanding the bulk transmission system in the SWIS should be uninhibited as a matter of policy”.
49. The Office of Energy submits that it is “somewhat surprising that Western Power makes little mention of the net benefits test, especially where such an enhancement to the main transmission backbone of the SWIS would connect new renewable and non-renewable generation and new industrial loads that are important to the economic development of the State” and that this “would appear to be a significant omission”.
50. The Mid West Development Commission submits that the proposed transmission line has energy security benefits as it “will support and encourage third party power generation within the Mid-West helping the region and the State to insulate itself against a reliance on relatively few energy sources, such as gas from the North-West”.

### *Considerations of the Authority*

51. On the basis that the proposed transmission line will allow for connection of new generators to the SWIN, the Authority accepts that there will be benefits to the SWIN that will extend beyond the Mid-West region including, as noted by Western Power and claimed in submissions by Western Power, potential for increased competition in the wholesale electricity market and potential for increased reliability and security of electricity supplies. However, as there has been no detailed consideration given to the nature or magnitude of these benefits, the Authority has not taken the possible benefits into account in assessment of the pre-approval application.

## ***Safety and Reliability Test***

### *Western Power’s Submission*

52. 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.<sup>17</sup>

53. 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.<sup>18</sup> In support of this submission, Western Power refers to load forecasts presented in its earlier major augmentation proposal (submitted to the Authority in relation to the regulatory test) and indicates that these load forecasts are considered conservative.

### *Public Submissions*

54. Six of the submissions received on the Authority's Issues Paper addressed the safety and reliability test of section 6.52(b)(iii) of the Access Code. All of these submissions support Western Power's claim that the proposed transmission line satisfies the safety and reliability test.
55. Extension Hill Pty Ltd submits that the proposed transmission line is required to meet growth in energy demand in the Mid-West region and that a new transmission line with steel or concrete poles is necessary to prevent the safety and reliability of the regional electricity supply from being compromised.
56. Aviva Corporation submits that the proposed transmission line is warranted on grounds of maintaining reliability of supply for existing and known planned loads.
57. Geraldton Iron Ore Alliance submits that the proposed transmission line is necessary to meet substantial new energy demands from proposed mining operations.
58. Griffin Energy submits that the proposed transmission line is required to maintain reliability in the SWIS, given continued growth in energy demand in the northern extremities of the SWIS.
59. Alinta Sales Pty Ltd supports Western Power's application of the safety and reliability test, being that the investment is necessary to maintain operation of the network in accordance with the Technical Rules in the face of connection of new generation and increasing demand.
60. The Mid West Development Commission submits that the proposed transmission line is necessary to meet future energy demand in a safe and reliable manner.
61. In addition to these submissions, the Office of Energy commented on the scope for the safety and reliability test to potentially include best practice standards for human and environmental safety in the operation of the network. In its view, the intent of the Access Code was to include the consideration of safety to "life, limb and

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<sup>17</sup> Pre-approval application, pp. 10, 11.

<sup>18</sup> Pre-approval application, pp. 17, 18.



property”, and that to extend this interpretation to environmental safety would be beyond what was originally intended.

### *Considerations of the Authority*

62. The Authority notes the comments made by the Office of Energy in response to the potential scope of the safety and reliability test of section 6.52(b)(iii) of the Access Code. Given the view expressed by the Office of Energy, the Authority concludes that environmental safety is likely to be beyond the original policy intent and falls outside the scope of the new facilities investment test under the Access Code.
63. Western Power submits that the proposed transmission line is necessary to maintain operation of the network in accordance with requirements of the Technical Rules. This necessity arises from increases in energy demand in the Mid-West region and demands for connection of new generation in the region.
64. The Authority notes that forecasts of energy demand provided by Western Power in the pre-approval application (reproduced from the earlier major augmentation proposal) indicate that the capacity of the existing transmission network will be exceeded with natural load growth by 2010. As such, the Authority is satisfied that some augmentation of the existing transmission system would be necessary even to meet only natural load growth.
65. The forecasts of energy demand provided by Western Power also include seven substantial new “block load” connections between 2008 and 2011, principally for new mining and industrial activities, and nine substantial new generation developments between 2008 and 2011. It is these new connections and developments that give rise to the requirement for the proposed 330 kV transmission line rather than a lesser augmentation of the transmission network.
66. The Authority observes that the nature of demand for network services, that gives rise to the threat to the ability of Western Power to operate the network in accordance with the Technical Rules, is such that no individual new load or generation connection gives rise to the requirement for the proposed transmission line. Rather it is natural load growth, in combination with a substantial number of new loads and generators, that gives rise to the threat.
67. The Authority also observes that the proposed transmission line constitutes an augmentation of the existing shared transmission network of the SWIS and does not constitute an extension in the area covered by the SWIS, or an extension of the SWIS to locations not already serviced by the existing network.
68. In these circumstances, the Authority considers that the proposed transmission line is an augmentation of the transmission network that is necessary to maintain the reliability and safety of the covered network within the meaning of section 6.52(b)(iii) of the Access Code. Accordingly, the Authority is satisfied that the proposed transmission line meets the safety and reliability test.