

Issues Paper

Regulatory Test Application for the  
Mid West Energy Project (Southern  
Section) Submitted by Western  
Power

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Economic Regulation Authority



WESTERN AUSTRALIA

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# 1 Introduction

On 26 November 2010, the Economic Regulatory Authority (**Authority**) received a major augmentation proposal from Western Power submitted under section 9.15 of the *Electricity Networks Access Code 2004 (Access Code)*.<sup>1</sup> The proposal comprises information required to be provided by Western Power in respect of the regulatory test under Chapter 9 of the Access Code for its proposed major augmentation – the Mid-West Energy Project (Southern Section).

Western Power's major augmentation proposal has been published on the ERA's website together with this issues paper.<sup>2</sup>

As part of its assessment of Western Power's major augmentation proposal, the Authority is undertaking consultation with interested parties as provided for under section 9.19 of the Access Code. The Authority has prepared this issues paper to help interested parties make submissions. In particular, the issues paper covers some of the significant issues to be addressed by the Authority in determining whether the regulatory test is satisfied, including:

- the requirements of the regulatory test under Chapter 9 of the Access Code;
- key aspects of the proposed major augmentation;
- Western Power's public consultation process;
- the identification of alternative options; and
- the assessment of net benefits of the proposed major augmentation and alternative options.

## 2 The Regulatory Test

Chapter 9 of the Access Code establishes the regulatory test that is applied to proposals for major augmentations of a covered network. In general terms, the regulatory test is intended to prevent a service provider from committing to a major augmentation of its network until it has been determined that the requirements of the regulatory test have been satisfied.

Specifically, the regulatory test is defined in section 9.3 of the Access Code as “an assessment under Chapter 9 [of the Access Code] of whether a proposed major augmentation to a covered network maximises the net benefit after considering alternative options”.

### Purpose of the Regulatory Test

The purpose of the regulatory test is to determine whether a proposed major 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

<sup>1</sup> Western Power, November 2010, Submission to the Economic Regulation Authority Major Augmentation Proposal Mid West Energy Project – Southern Section Neerabup to Karara Mine Site via Eneabba (hereafter referred to as “**major augmentation proposal**”)

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

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

The regulatory test is applicable only to “major augmentations”; defined in section 1.3 of the Access Code:

- 1.3 “major augmentation” means an augmentation for which the new facilities investment for the shared assets:
- (a) exceeds \$10 million (CPI adjusted), where the network assets comprising the augmentation are, or are to be, part of a distribution system; and
  - (b) exceeds \$30 million (CPI adjusted), where the network assets comprising the augmentation are, or are to be, part of:
    - (i) a transmission system; or
    - (ii) both a distribution system and a transmission system.

A service provider must not commit a major augmentation before the Authority determines, or is deemed to determine, that the regulatory test is satisfied.

### **Regulatory Test Process**

The process of the regulatory test commences with the service provider submitting a “major augmentation proposal” to the Authority. This may occur either:

- under section 9.10 of the Access Code, with the major augmentation proposal submitted as part of a proposed access arrangement, and the Authority’s determination of whether the regulatory test is satisfied forming part of the Authority’s decision on the proposed access arrangement; or
- under section 9.15 of the Access Code, with a major augmentation proposal submitted other than as part of a proposed access arrangement and the Authority’s determination on whether the regulatory test is satisfied being a determination separate from the approval proposal for a proposed access arrangement.

Western Power’s major augmentation proposal for the Mid-West Energy project (Southern Section), which is the subject of this issues paper, has been submitted under the second of these two processes.

Section 9.16 of the Access Code establishes the requirements for a major augmentation proposal submitted to the Authority other than as part of a proposed access arrangement:

- 9.16 A major augmentation proposal submitted under section 9.15:
- (a) must describe in detail each major augmentation to which the major augmentation proposal relates; and
  - (b) must state that, in the service provider’s view, each proposed major augmentation maximises the net benefit after considering alternative options; and
  - (c) must demonstrate that the service provider has conducted a consultation process in respect of each proposed major augmentation which:
    - (i) included public consultation under Appendix 7; and
    - (ii) gave all interested persons a reasonable opportunity to state their views and to propose alternative options to the proposed major augmentations, and that the service provider had regard to those views and alternative options; and

- (iii) involved the service provider giving reasonable consideration to any information obtained under sections 9.16(c)(i) and 9.16(c)(ii) when forming its view under section 9.16(b);
- and
- (d) must comply with the current requirements published under section 9.17 [and]
- (e) may include a request that the Authority give prior approval under section 6.72 in respect of the new facilities investment for one or more proposed major augmentations.

“Alternative options” and “net benefit”, referred to in section 9.16(b), are defined under Chapter 1 of the Code:

- 1.3 “alternative options”, in relation to a major augmentation, means alternatives to part or all of the major augmentation, including demand-side management and generation solutions (such as distributed generation), either instead of or in combination with network augmentation.
- ...
- “net benefit” means a net benefit (measured in present value terms to the extent possible) 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.

### Satisfying the Regulatory Test

For a major augmentation proposal submitted to the Authority other than as part of a proposed access arrangement, the requirements for satisfying the regulatory test are set out in section 9.20 of the Access Code.

- 9.20 The test in this section 9.20 is satisfied if the Authority is satisfied that:
- (a) the service provider’s statement under section 9.16(b) is defensible; and
  - (b) the service provider has applied the regulatory test properly to each proposed major augmentation:
    - (i) using reasonable market development scenarios which incorporate varying levels of demand growth at relevant places; and
    - (ii) using reasonable timings, and testing alternative timings, for project commissioning dates and construction timetables for the major augmentation and for alternative options;
  - and
  - (c) the consultation process conducted by the service provider meets the criteria in section 9.16(c).

### Regulatory Test Assessment

Section 9.18 of the Access Code establishes the timeframes for a determination by the Authority on whether the regulatory test is satisfied or not satisfied:

- 9.18 The Authority must in respect of a major augmentation proposal submitted under section 9.15 make and publish a determination whether the test in section 9.20 is satisfied or not satisfied, and must do so:
- (a) if the Authority has consulted the public under section 9.19 – within 45 business days; and
  - (b) otherwise – within 25 business days,

after receiving the augmentation proposal.

If the Authority has not made a determination within the time limits under section 9.18 of the Access Code, the Authority is deemed, under section 9.22 of the Access Code, to have determined that the regulatory test is satisfied.

The role of the Authority is to consider the information provided by a service provider in the major augmentation proposal and to determine whether the regulatory test set out in section 9.20 of the Access Code is satisfied. Section 9.21 of the Access Code places the onus on the service provider to demonstrate that the regulatory test is satisfied.

- 9.21 If the Authority is unable to determine whether the test set out in section 9.20 is satisfied or is not satisfied because the service provider has not provided adequate information (despite the Authority having notified the service provider of this fact and given the service provider a reasonable opportunity, having regard to the time periods specified in section 9.18, to provide adequate information), then the Authority may determine that the test in section 9.20 is not satisfied.

The Authority's role ends with the determination of whether the regulatory test is satisfied or not satisfied. If the latter determination is made, the Authority does not have a role to remedy any deficiency in the major augmentation proposal or to make any determination on the alternative option that may maximise net benefits.

## 3 Western Power's Proposed Major Augmentation

### 3.1 Reasons for Proposed Augmentation

Western Power's submission states that the Mid-West region is an area of Western Australia that is experiencing strong population and economic growth, with potential for major new developments in the mining and power generation industries. Historically the region has been supported through a 132 kV transmission network. The existing electricity network is nearing its capacity and does not have the capability to meet future requirements.

The key drivers for the proposed major augmentation relate to the need to meet the electricity demands of existing and prospective customers, particularly:

- major new iron ore mining and processing loads east of Three Springs and load growth from the proposed new port developments and industrial estate at Oakajee north of Geraldton;
- substantial new generation projects seeking to connect to the network along the coastal region north of Pinjar (primarily wind resources, but other proposals such as gas, coal and solar thermal exist); and
- underlying natural load growth, mainly in the Geraldton region.<sup>3</sup>

The first major load proposal is Karara Mining Limited's (**KML**) new mine at Karara (approximately 100 km northwest of Three Springs). KML has approached Western Power to provide a network supply to its iron ore mine site. As part of an interim supply arrangement, KML is proposing to fund and construct a 330 kV transmission line from Eneabba to its mine site via Three Springs and Koolyanooka.

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<sup>3</sup> Western Power, Major augmentation proposal, page 2.

## 3.2 Proposed Major Augmentation

Western Power’s preferred option for network augmentation is construction of a 330 kV double circuit transmission line from Neerabup to the Karara mine site and the interconnection of the existing 132 kV Three Springs substation with a new 330 kV Three Springs Terminal, to form a 330 kV transmission interconnection between Perth and the Karara mine site and to provide enhanced support to the 132 kV network north of Three Springs (“**proposed transmission line**”).

The section of line to Eneabba will be constructed by Western Power. As noted in section 3.1 above, the segment of line from Eneabba to the Karara mine site will be funded and constructed by KML as part of an interim supply arrangement.<sup>4</sup> Western Power proposes to enter into commercial arrangements with KML to enable it to use the line constructed by KML to form part of the shared transmission network.

Further details of the proposed transmission line are set out in section 7 of Western Power’s major augmentation proposal.<sup>5</sup>

## 4 Public Consultation undertaken by Western Power

### 4.1 Requirements of the Access Code

The requirements for Western Power to undertake public consultation on the major augmentation proposal are set out in section 9.16(c) of the Code:

9.16 A major augmentation proposal submitted under section 9.15:

...

- (c) must demonstrate that the service provider has conducted a consultation process in respect of each proposed major augmentation which:
  - (i) included public consultation under Appendix 7; and
  - (ii) gave all interested persons a reasonable opportunity to state their views and to propose alternative options to the proposed major augmentations, and that the service provider had regard to those views and alternative options; and
  - (iii) involved the service provider giving reasonable consideration to any information obtained under sections 9.16(c)(i) and 9.16(c)(ii) when forming its view under section 9.16(b);

...

Appendix 7 of the Access Code establishes the following requirements on Western Power in undertaking consultation on the major augmentation proposal:

- publication of an invitation for submissions (section A7.6 of the Access Code);

<sup>4</sup> As indicated in Western Power’s major augmentation proposal (page 1) KML are yet to finalise the interim supply arrangement.

<sup>5</sup> Western Power, Major augmentation proposal, pages 41-47.

- specification of the length of time allowed for the making of submissions that must be at least 10 business days and no greater than 20 business days (sections A7.7 and A7.9 of the Access Code); and
- publication of submissions received (section A7.20 of the Access Code).

Appendix 7 also allows, but does not require, Western Power to:

- produce and publish an issues paper examining the issues relating to the major augmentation proposal (section A7.4 of the Access Code); and
- consider any submissions made after the time for making that submission has expired (section A7.21 of the Access Code).

## 4.2 Consultation undertaken by Western Power

Western Power conducted a two stage public consultation process.<sup>6</sup> A discussion (options) paper outlining the network constraints, forecast needs and detailing the options considered was published in July 2010. Submissions relating to this discussion paper were invited, with the closing date for submissions specified as 4 August 2010. A number of industry and community forums were held in various locations in Perth and the Mid-West region in July to provide further details to key stakeholders.

During the initial consultation period Western Power received independent advice that the regulatory test may need to be expanded to include the proposed assets from Eneabba to the Karara mine site that will be constructed by KML. In light of this advice, Western Power published a revised discussion (options) paper and conducted a second round of consultation in September 2010, lasting 10 business days.

Submissions are invited from interested parties on whether Western Power:

- gave all interested parties a reasonable opportunity to state their views on the major augmentation proposal and to propose alternative options; and
- had adequate regard to the views and alternative options that were submitted.

## 5 Identification of Alternative Options

### 5.1 Requirements of the Access Code

Under section 9.16(b) of the Access Code, Western Power is required to have considered alternative options to the proposed transmission line. “Alternative options” is defined under Chapter 1 of the Code:

“alternative options”, in relation to a major augmentation, means alternatives to part or all of the major augmentation, including demand-side management and generation solutions (such as distributed generation), either instead of or in combination with network augmentation.

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<sup>6</sup> Western Power, Major augmentation proposal page 48.

## 5.2 Alternative Options Identified by Western Power

Western Power considered a range of network and non-network alternatives.<sup>7</sup>

- Non-network solutions included:
  - local generation (as an isolated non-grid supply);
  - local generation (as network support control service); and
  - demand side management.
- Network solutions included:
  - reactive compensation;
  - high voltage direct current link (HVDC);
  - a 132 kV double circuit transmission line;
  - a 220 kV double circuit transmission line;
  - a 275 kV double circuit transmission line;
  - a 330 kV double circuit transmission line; and
  - a 330 kV single circuit transmission line.

Western Power submits that “no alternative options that could effectively (economically) alleviate the identified constraints were proposed through the public consultation process”.<sup>8</sup>

Submissions are invited from interested parties on whether Western Power has:

- identified a relevant set of alternative options to the proposed transmission line; and
- given reasonable consideration to the alternative options proposed by interested parties in submissions made as part of Western Power’s consultation process.

## 6 Assessment of Net Benefits

### 6.1 Western Power’s Submission

Western Power states that all viable options were assessed as similar in terms of benefit delivery (i.e. the ability to meet forecast need).<sup>9</sup> The alternative options were compared by considering the net present cost of each option to meet the central load forecast, the

<sup>7</sup> Western Power, Major augmentation proposal pages 19-26.

<sup>8</sup> Western Power, Major augmentation proposal, page 48.

<sup>9</sup> Western Power, Major augmentation proposal, page 37.

additional costs of work that would be required to extend each option to supply the high load forecast scenario, and non-economic benefits delivered.<sup>10</sup>

## 6.2 Demand Forecasts

In assessing network capability and identifying appropriate options for reinforcement, Western Power has considered central, low and high load growth scenarios.<sup>11</sup> The load forecast has been broken down into underlying (natural) growth of the existing customer base and block load growth relating to the development of potential major new loads in the Mid-West region, as indicated in the table below.

Demand Components	2020 Demand Scenario (MW)		
	Low	Central	High
2010 Peak Load	115	115	115
Underlying (natural) growth	36	42	51
<b>Block Loads</b>			
Small block loads including Port of Oakajee and Oakajee Industrial Estate	27	38	113
Karara Stage 1	-	102 (up to 120)	102 (up to 120)
Karara Stage 2	-	-	152
Extension Hill	-	-	119
Non-Diversified System Peak	205	333	701
Diversified System Peak	178	297	652

Submissions are invited from interested parties on whether the forecasting methods adopted by Western Power are consistent with good industry practice and form an appropriate basis for the consideration of alternative options for increasing capacity of the electricity system in the Mid-West region.

## 6.3 Feasibility Analysis of Alternative Options

Western Power indicates that it undertook an initial screening assessment of the alternative options to separate the viable and non-viable solutions. To be assessed as a potential viable solution, the solution needed to:

- be capable of meeting the central load forecast demand scenario; and
- have the potential to incorporate extensions or enhancements to accommodate the high load demand forecast scenario.

Further information is set out in Western Power's major augmentation proposal (page 19).

<sup>10</sup> Western Power, Major augmentation proposal, page 37.

<sup>11</sup> Western Power, Major augmentation proposal, pages 13-16.

On the basis of the above viability criteria, the following solutions were identified by Western Power to be viable solutions:

- a 220 kV double circuit transmission line;
- a 275 kV double circuit transmission line;
- a 330 kV double circuit transmission line; and
- a 330 kV single circuit transmission line.<sup>12</sup>

Submissions are invited from interested parties on whether Western Power's feasibility analysis of alternative options is reasonable and robust; and whether Western Power has adequately justified the elimination of certain alternative options for reasons of technical infeasibility or the provision of insufficient capacity to meet demand.

## 6.4 Approach to Analysis of Net Benefits

Western Power's approach to the analysis of net benefits is set out in section 6 of its major augmentation proposal.<sup>13</sup> Western Power has essentially assessed the proposed transmission line and viable alternative options on the basis only of costs, for reason that all the alternatives have been assessed as delivering similar benefits to those who produce, consume and transport electricity in the South West interconnected system. Western Power's net present cost assessment includes the expenditure required to meet both the central load forecast and high load forecast scenarios.

Western Power submits that its preferred option (a 330 kV double circuit transmission line) maximises net benefits as it:

- meets the needs of the foundation customer (KML) and the load forecast for the next 20 years;
- provides an additional 220 MW of network capacity (80% of the total) above the single circuit line option at a net present cost of approximately \$30 million (7%) greater for the central load forecast, demonstrating economies of scale;
- has a lower net present cost of \$137 million (30%) for the high load forecast scenario, should it eventuate;
- minimises the environmental and social impacts faced by local communities by maximising the power transfer potential along the transmission line corridor;
- reduces the environmental, social and commercial risks that would be associated with the single circuit option under a high load case scenario (i.e. a potential need for a further major reinforcement in the region within a few years); and
- maximises the potential for new generation connections in the region (by maximising the new capacity provided).<sup>14</sup>

<sup>12</sup> Western Power, Major augmentation proposal, page 27.

<sup>13</sup> Western Power, Major augmentation proposal, pages 37-40.

<sup>14</sup> Western Power, Major augmentation proposal, page 40.

Submissions are invited from interested parties on whether the approach applied by Western Power in the assessment of net benefits is appropriate.