Our ref: DM#7836441

6 January 2010

Elizabeth Walters
Manager, Projects Access
Economic Regulation Authority
PO Box 8469
Perth BC WA 6849

Dear Elizabeth,

Western Power submission: Mid West Energy Project Southern Section – Economic Regulation Authority - call for Public Submissions

Western Power would like to provide the following submission in response to the Economic Regulation Authority's (ERA) notice of 20 December 2010, seeking public comment on Western Power's proposed Mid-West Energy Project (Southern Section); a Major Augmentation Proposal that has been submitted to the Authority under Chapter 9 of the *Electricity Networks Access Code 2004* (**Access Code**) for a determination on whether it satisfies the Regulatory Test. We appreciate the opportunity to comment.

Please note that this submission only provides information that is in addition to what is contained in our Major Augmentation Proposal. This document is available on Western Power's and the ERA's websites.

Comment on each section of the ERA issues paper is provided below.

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**

Western Power Response:

- Western Power has conducted a thorough and inclusive public consultation process, which included:
  - 2 rounds of public comment, during which a total of 37 submissions were received, and these, together with responses, were published.
  - A series of advertising (in The West Australian, The WA Business News, online and in community newspapers and localised newsletters) providing the public with project information and inviting them to attend public forums and make a submission.
  - A comprehensive public information brochure
  - Regular media updates at key project milestones.
  - A series of industry and public forums in Perth (2 sessions), Three Springs, and Geraldton. These sessions were attended by over 150 participants.

- A number of additional stakeholder briefings on the request of various organisations, including:
  - Extension Hill Pty Ltd
  - Geraldton Iron Ore Alliance
  - Independent Market Operator
  - Chamber of Minerals and Energy
  - Geraldton Infrastructure Committee
  - Hon. Mia Davies MLC
- A regularly updated website (which includes key project documentation) http://www.westernpower.com.au/networkprojects/substationPowerlineProjects/Mid_West_Energy_Project.html, together with regular email/post project updates.
- Please refer to **Attachment 1** for a copy of the Presentation from Public Forums.
- Please refer to **Attachment 2** to view the Public Information Brochure.

- Western Power provided thorough responses to the options raised, referenced in the 'Western Power responses to public submissions'- http://www.westernpower.com.au/documents/networkprojects/midwest/Public_submission_responses.pdf
- In regard to the consideration of alternative options submitted, Western Power has provided thorough responses to each submission, including those which raise alternatives. All responses and submissions are available on the Western Power website (link provided previously).

2. 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 as part of Western Power's consultation process**

Western Power Response:

- Western Power's Major Augmentation Proposal (see link below) details the alternative options and assesses in detail the viable options (both network and non-network solutions) considered. Western Power has no further comment.
- http://www.westernpower.com.au/documents/networkprojects/midwest/Reg_Test_submission_to_ERA.pdf

3. 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

Western Power Response:

- Western Power recently commissioned Sinclair Knight Merz (SKM MMA) to provide an independent review of our demand forecasting methodology and forecasts for the electricity supply in the SWIS. SKM MMA generally concludes that the forecasting methodology adopted by Western Power is comparable with good industry practice throughout Australia. The executive summary of this report has been included at **Attachment 3**.

- A recent review by the Public Accounts Committee of Western Australia Parliament in reference to a number of projects, supported that there are a number of factors which contribute to a value for money outcome, including (but not limited to):
  - Long term planning
  - Well-developed business cases
  - Selecting appropriate contract and funding methods
  - Ensuring efficient risk management strategies are in place.

4. 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

Western Power Response:

- Western Power's Major Augmentation Proposal (see link below) details the feasibility analysis of alternative options. Western Power has no further comment.
- http://www.westernpower.com.au/documents/networkprojects/midwest/Reg_Test_submission_to_ERA.pdf

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

Western Power Response:

- Western Power's demonstration of maximising net benefits is available in Section 6 'Net Benefits' of the Major Augmentation Proposal.
- http://www.westernpower.com.au/documents/networkprojects/midwest/Reg_Test_submission_to_ERA.pdf

Please Douglas Thomson on (08)9326 6174 or via email Douglas.thomson@westernpower.com.au should you require any further information or clarification.

Yours sincerely

[redacted]

Peter Mattner
Manager, Pricing and Regulation
Western Power

Attachment 1 – Presentation from Public Forums

Attachment 2 – Public Information Brochure

Attachment 3 – SKM Review of Western Power's Demand Forecasts for the AA3 Period (2011/12 to 2016/17) – Executive Summary

As part of Western Power's AA3 submission Sinclair Knight Merz was engaged to provide an independent review of Western Power's forecasting methodology. Section 0 presents their results and conclusions.

SKM / MMA Executive Summary

In preparation for Western Power's submission to the Economic Regulation Authority (ERA) for the proposed revisions to the access arrangement (for period AA3), Sinclair Knight Merz through its new division SKM MMA, was commissioned to provide an independent review of Western Power's demand forecasting methodology and forecasts for the electricity supply in the SWIS to assure stakeholders that the results, method and input assumptions are robust. SKM MMA's expertise in conducting network demand forecast reviews is based on staff industry experience and previous assignments that have involved reviews of forecasts prepared by almost all Australian network businesses. SKM has previously reviewed forecasts prepared by Western Power, ActewAGL, TransGrid and others. MMA has reviewed forecasts prepared by all of the network operators in New South Wales, Victoria, Queensland and South Australia; in all cases apart from Victoria on two or more occasions.

SKM MMA generally concludes that the forecasting methodology adopted by Western Power is comparable with good industry practice throughout Australia.

SKM MMA's key findings can be summarised:

- *The suite of forecasting software (ForeSite) used by Western Power is perhaps the best integrated demand forecasting package that SKM MMA has reviewed;*
- *The process and practices used in accessing and processing input data are well established and technically sound;*
- *The treatment of load transfers and block loads (historical and forecast) is consistent with good industry practice;*
- *The calculation of trends in historic data and the forecast of future demands using regression analysis is technically sound;*
- *The forecasts produced by Western Power are robust and repeatable;*
- *Western Power does not explicitly weather correct the historic data. This is a key difference between the Western Power approach and typical industry practice; there is no evidence that this affects or biases the 50 POE demand forecasts.*
- *Western Power does not develop an econometric top-down demand forecast. Western Power has made a decision to utilise the IMO econometric forecast for comparison purposes;*
- *Western Power does prepare an alternate high economic growth scenario demand forecast but this is based on the same underlying growth trend as the base forecast, but with more optimistic assumptions regarding future block load development;*

- *Western Power's assessment of new block loads over the forecast period is more conservative (lower) than the IMO, resulting in a lower demand forecast than that included in the IMO's Statement of Opportunities;*
- *The treatment of new block loads and transmission losses account for much of the difference between the Western Power and the IMO 50 POE forecasts;*
- *The adjustment of the 50 POE forecast to provide a 10 POE forecast is based on a statistical analysis of the historic series and calculation of a Prediction Interval. This is another key difference between the Western Power approach and typical industry practice which normally uses temperature correction to estimate the demand under a 10 POE temperature condition. The impact of this difference is estimated to be an approximately 50 MW understatement of the 10 POE forecast which in the context of Western Power's peak demand of 4000 MW is considered not significant.*

These findings are discussed in more detail in the body of this report.

SKM MMA also has some more theoretical concerns with Western Power's decision not to explicitly correct for weather on two grounds:

1) *The assumption that in the historical figures any abnormal days are distributed evenly across the history – this may indeed be the current situation over recent years, but it is clear that a congregation of abnormal days can skew the trend curve – impacting 50 POE as well as 10 POE forecasts. SKM acknowledges that this has not affected the data used for the AA3 forecasts which therefore are not skewed but it could affect the approach in future;*
2) *The assumption that temperature dependence is reasonably constant (therefore represented in the historical series) –SKM MMA analysis suggests that the sensitivity of demand to temperature (MW/degree) appears to be changing – therefore the historic series may not capture future sensitivity. However our tests of an alternative approach that may address this proved inconclusive and in view of the small 50 MW understatement of the 10 POE forecast the alternative is not recommended.*

SKM MMA believes that the methodology adopted by Western Power and the forecasts produced are technically sound, conservative and generally in line with good industry practice.

Mid West Energy Project – (Southern Section) Stage 1

Public Forums

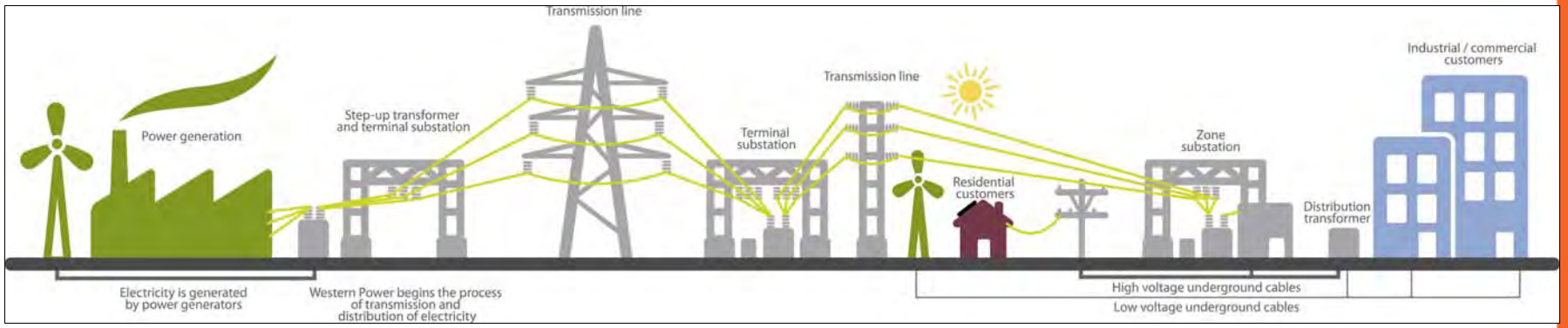
David Bones, Branch Manager Network Planning & Development
Douglas Thomson, Principal Engineer, Transmission Planning and Projects

Welcome

- Purpose
  - Public consultation process to seek public submissions as a part of Western Power's Regulatory Test submission.
  - Provide a project briefing
  - Seek comment and answer questions

- Agenda
  - Western Power - overview
  - Mid West Energy Project
  - Project drivers
  - Regulatory Test process/ framework
  - Submissions
  - Q and A Session

The electricity network



Generation – Verve & others
Retail – Synergy & others
Transmission – Western Power
Distribution – Western Power

Mid West Energy Project - History

- Original project proposed 330kV double circuit line from Pinjar (near Perth) to Moonyoonooka (near Geraldton)
  - Regulatory approvals in 2007 and New Facilities Investment Test (NFIT) Pre-approval 2008
- Detailed cost studies showed total cost would be significantly higher than originally proposed estimates
- Load growth would be lower than expected brought about by the Global Financial Crisis
- Government and Western Power initiated a review of the project during 2009
  - Recommended the Mid West Energy Project be undertaken in stages.
  - Funding of Southern Section was conditional on agreeing commercial terms with Karara Mining Limited (KML), achieving relevant regulatory approvals and submission of a business case to State Government.

Mid West Energy Project overview

- The existing 132kV network through the Mid West is operating close to its full capacity

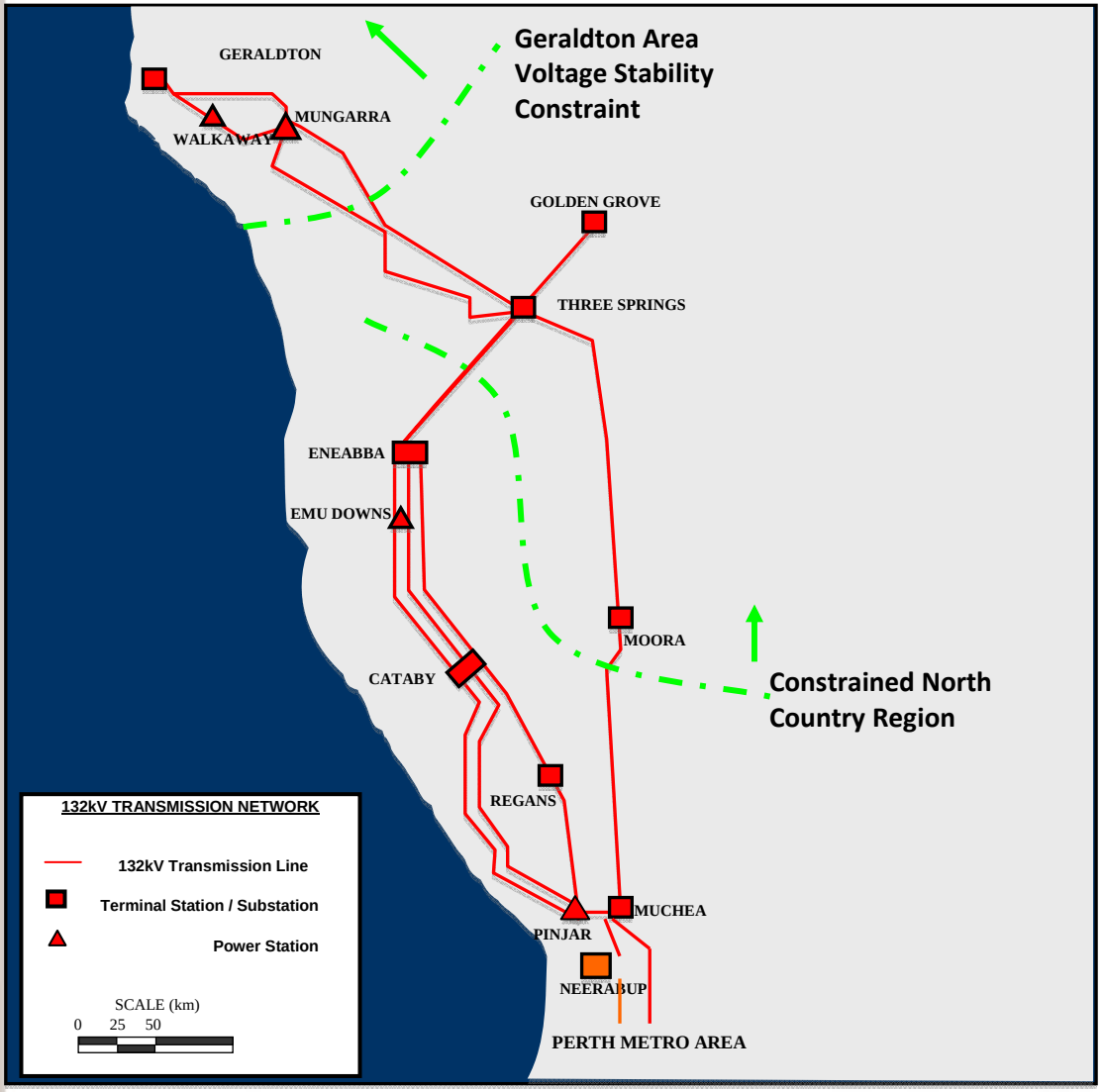
- The proposed Mid West Energy Project will support:
    1. Forecast load growth from **existing** Mid West customers and
    2. Connection of prospective **new loads** in the Mid West, and
    3. Connection of prospective **new generators** in the Mid West

- Both load and generation developments must be considered to develop the most prudent overall solution

- The proposed Mid West Energy Project will provide critical infrastructure to support the development of significant prospective resource and generation developments in the Mid West

- The proposed development is based on establishing a double circuit 330kV transmission line from Perth to Geraldton in two stages

The existing 132 kV network will not support large new generators or loads due to a number of constraints



Current peak load demand = 125MW

More than 500MW of prospective new loads, including

- Karara Mine
- Extension Hill
- Port of Oakajee
- Geraldton Port

More than 1400MW of prospective new generation

Planning is based on a number of key parameters

Load

- Peak demand
- Load growth scenario analysis
  - Low: underlying load growth + committed new projects
  - Central: low case + highly likely major loads
  - High: central case + prospective major loads
- Sensitivity analysis of key inputs
- Load diversity
- Load characteristics

Generators

- Type and operating characteristics
- Location

Western Power regularly checks its assumptions with all key stakeholders

A large number of network capacity enhancement options have been considered

- 132kV, 220 kV, 275 kV, 330 kV
- Direct current
- Single and double circuit configuration
- Staged single-circuit and double circuit configuration
- Demand management
- Local generation isolated and grid-connected
- Reactive compensation

A combination of methods can be deployed to suit the timing and size of new developments

A two-stage development is proposed

Stage 1: southern section from Neerabup to Eneabba by Q1 2013

- New 200 km double circuit 330 kV line between Pinjar and Eneabba
- Conversion of existing Neerabup to Pinjar line from 132 kV to 330 kV
- A new 132/330 kV terminal at Three Springs
- Estimated cost of $320M

Stage 2: northern section from Eneabba (or Three Springs) to Geraldton

- New double circuit 330 kV line between Eneabba (or Three Springs) and a new Moonyoonooka Terminal near Geraldton
- Subject of *Infrastructure Australia* funding submission
- Scope of Stage 2 works will be reviewed via ongoing planning studies leading to the selection of a preferred option

The primary timing dependency for stage 1 is resource development but no significant new generation can connect in the Mid West without network enhancement

Photograph examples

132kV existing line

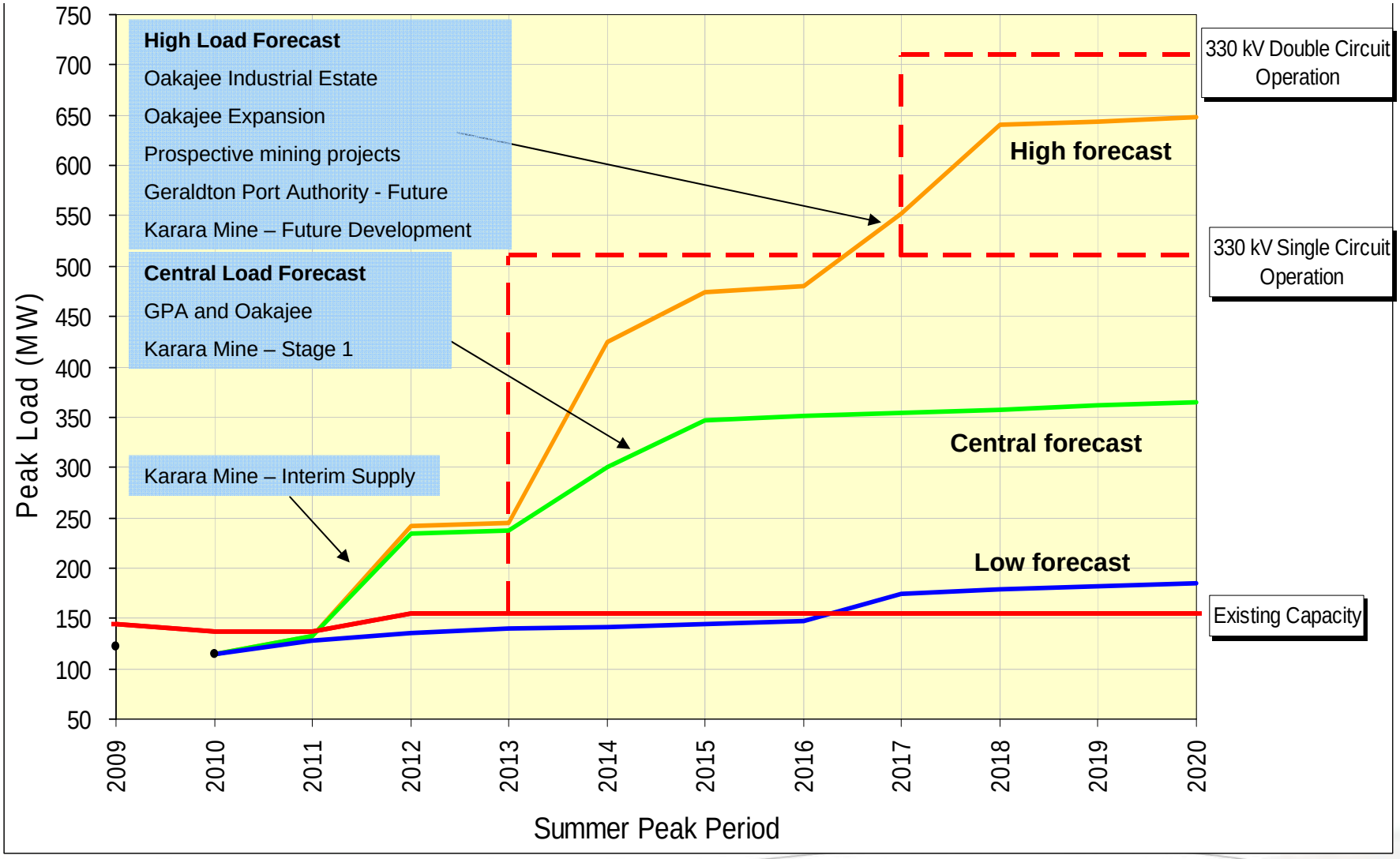
A 330kV structure

Proposed Mid West Energy Project

The Mid West Energy Project (formerly know as the North Country Reinforcement Project) is one of the most important infrastructure projects in Western Australia.

It will provide the capacity to meet an increasing demand for electricity and facilitate the connection of power generators to the network.

A double circuit 330kV line is required to support the high load forecast; upgrading the northern section is also required



Note: capacity is based on a 1 in 10 year probability of exceedance

Mid West Energy Project - Stage 1 summary

- The Mid West Energy Project is dependent on Stage 1 approval by State Government and the Economic Regulation Authority
- Stage 1 is subject to negotiations with the foundation customer – Karara Mining Limited
- The estimated cost for stage 1 is $320M
- The milestones for Stage 1 are:
  - Business Case submitted to State Government - July 2010
  - Conditional funding approval sought – July 2010
  - Public consultation period – July 2010
  - Economic Regulation Authority regulatory approvals – January 2011
  - Final Board and Ministerial approval to proceed – January 2011
  - Project construction phase starts (February 2011)
  - Construction completed (Q1 2013)

Mid West Energy Project - Stage 2 summary

- Stage 2 will be the subject of a separate business case to government and submissions to the Economic Regulatory Authority
- Stage 2 development is required to support significant new loads and generators in the Geraldton area
- The estimated cost for stage 2 is $280M
  - Oct 2009 estimate
  - Double circuit 330 kV
- The milestones for Stage 2 are:
  - Development of preferred supply option for Geraldton area
  - Outcome of Western Power's *Infrastructure Australia* funding application
  - Scope of Stage 2 works will be reviewed via ongoing planning studies leading to the selection of a preferred option

Western Power will continue to work closely with industry, State Government, and other key stakeholders to optimise the development

Regulatory Test process – Introduction

- Western Power is required to undertake a Regulatory Test process which includes a public consultation process for major transmission projects that exceed $30M which:
  - Is undertaken in accordance with requirements of appendix 7 of the Code.
  - Gives all interested parties a reasonable opportunity to state their views and to propose alternative options. Western Power must demonstrate that it has regard to these views and alternative options.
- Public Consultation : The aim is to undertake a comprehensive and inclusive process which will meet the needs of the ERA, Western Power, stakeholders and the community.
- The proposed Regulatory Test process ensures: that the major augmentation has been “properly assessed to determine whether it maximised net benefits after considering all reasonable alternative options”

New Facilities Investment Test (NFIT)

- The proposed new investment will only be included in the regulated asset base to the extent that it passes the NFIT (assuming that a Regulatory Test approval has been achieved). Western Power will seek pre-approval of the NFIT prior to constructing the southern section of the Mid West Energy Project to provide certainty around the regulated value.
- The NFIT is described in clause 6.52 of the Access Code. For a project to pass the NFIT the project must demonstrably efficiently minimise costs, with regard to scale, capacity increments and planning horizon and satisfy at least one of the following criteria:
- Additional revenue is sufficient to cover cost; or
- The net benefit justifies a general tariff increase; or
- The investment is necessary to maintain safety, reliability or existing network capability.

New Facilities Investment Test (NFIT) elements (Component tests per Code S6.52)

NFIT Elements	Assessment
Safety and Reliability	Not Assessed
Anticipated Incremental Revenue	Electricity and REC Market Modelling Economic risk modelling of forecast new loads
Net Benefits	Electricity and REC Market Modelling (Generation and Consumers)
	Planning Study ▪ With MWEP (Stage 1) ▪ Without MWEP (Stage 1)

Regulatory Test Process – Mid West Energy Project Stage 1

- Western Power is conducting a new Regulatory Test assessment for the Mid West Energy Project (MWEP) Southern Section comprising:
  - 330kV double circuit line from Neerabup to Eneabba
  - 330/132kV terminal interconnection at Three Springs

- Conditional on the Karara project proceeding which comprises:
  - Interim supply from 132kV system via 132/330kV transformer at Three Springs
  - 330kV double circuit line from Eneabba to Koolanooka,
  - 330kV line from Koolanooka to Karara minesite
    - double circuit using the existing Western Power 132kV Golden Grove line route to Koolanooka tee-off.

Regulatory Test Process – Mid West Energy Project Stage 1 (Continued)

- Western Power may need to expand the Regulatory Test to include the transmission assets (Eneabba to Three Springs to Koolanooka) which will be leased (from Karara Mining Limited) under the current proposal.
    - Western Power is considering this matter and will provide a further updates during the consultation.

Satisfying the Regulatory Test – Maximising Net Benefits

- All options considered, will deliver similar benefits to parties who produce, consume and generate electricity
- Net benefits are assessed in the NFIT
- Alternative options considered the net present cost of each option to supply the central case load forecast but capable of meeting the high load forecast
    - The double circuit 330kV option (ie the Mid West Energy Project (southern section)) satisfies the Regulatory Test as it:
    - Has a NPC which is comparable with other options capable of supplying the Central Case load forecast;
    - Offers a significantly lower cost option for supplying the High Case load forecast;
    - Delivers similar net benefits to other network options; and
    - Delivers additional non-economic benefits.

How to lodge a submission

- **Post to:**
  Mid West Energy Project
  Customer Service Centre
  Western Power
  GPO Box L921
  Perth WA 6842

- **Hand deliver to:**
  363 Wellington Street, Perth, WA

- **Email:**
  Midwest.submission@westernpower.com.au

The deadline to lodge a submission is 5pm Wednesday 4th August 2010.

All submissions, and Western Power's responses, will be made available on the Western Power website from 16 August 2010

www.westernpower.com.au

Contact Us

Phone 13 10 87

Email:

midwest.submission@westernpower.com.au

Website

www.westernpower.com.au

Questions?

Thank you

The Mid West Energy Project

INFORMATION SHEET JULY 2010

The Mid West Energy Project is one of the most important infrastructure projects in Western Australia. It will provide the capacity to meet increasing demand for electricity and facilitate the connection of power generators to the network.

Mid West Energy Project Stage 1 – Southern Section

Facts at a glance

- A new 200 km double circuit 330 kV line from Neerabup to Eneabba together with establishing a new 330/132 KV terminal at Three Springs.
- Western Power has conducted a detailed process to determine the most appropriate solution in negotiation with Karara Mining Ltd as the foundation customer.
- The target completion date for Stage 1 is March 2013. Completion by this date is conditional on receiving all necessary approvals to commence by January 2011.
- Karara Mining Ltd will fund a new line from Eneabba to their Karara mine site east of Three Springs.
- The business case for Stage 1 is currently being considered by the State Government, for funding approval.
- Concurrently, Western Power is undertaking an extensive consultation process to provide the community and stakeholders with the opportunity to understand and comment on Western Power's preferred solution to meeting the electricity needs of the Mid West in Stage 1 of Mid West Energy Project.
- Following the consultation process, Western Power will seek regulatory approvals from the Economic Regulatory Authority (ERA) to build Stage 1.

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Mid West Energy Project Stage 2 – Northern Section

- Current predictions of underlying natural load growth in Geraldton can be met by the existing transmission lines until approximately 2015/16 with minor works to address voltage constraints. This date may be brought forward if there are applications from any major loads/generators, and to potentially accommodate Oakagee.
- The key drivers for network reinforcement for Stage 2 relate to the need to meet the electricity demands of existing and prospective customers, particularly:
  - Underlying natural load growth in the Geraldton region,
  - Load growth from the proposed new port and industrial estate developments at Oakajee north of Geraldton, and
  - New generation seeking connection to the grid.
- The size of these prospective new loads suggests a 132 KV reinforcement option may be sufficient. However substantial new wind (and other) generation projects seeking to connect to the network along the coastal region near Geraldton may eventually trigger the need for a 330 KV solution.
- In December 2009, Western Power applied for Infrastructure Australia funding from the Australian Government to build Stage 2. This is to accommodate proposed major infrastructure developments in the Mid West e.g. Oakajee Industrial Estate and proposed renewable energy generation projects. This application was based on a new 160 km double circuit 330 KV line from Eneabba to Moonyoonooka. A decision on this application is hoped for in the near future.
- Western Power will conduct a more detailed planning assessment over the next 12 months in consultation with key regional and industry stakeholders to determine the best method and timing for meeting these future requirements.

Please note submissions are only sought on Stage 1 of this project. When the time comes, a separate process will be undertaken for Stage 2.

Western Power's preferred power solution

Western Power considered and evaluated a number of options to increase power supply to the region, to meet the forecast demand for electricity, together with a forecast increase in electricity generation in the area.

Western Power's recommended option

330 kV Double circuit from Neerabup to Eneabba

- Consists of a new 200 km double circuit, 330 kV transmission line between Neerabup and the future Eneabba terminal substation location; an existing Neerabup – Pinjar 330 kV line conversion; and a new 330/132 kV terminal at Three Springs.
- The line will initially be operated with one circuit at 132 KV and the other at 330 KV. When additional capacity is required to meet Mid West mining loads the line can be operated with both circuits at 330 KV for a relatively modest additional cost.
- Conditional on receipt of regulatory and funding approvals.
- Provides an additional 200 MW of network capacity (85% of the total) above the single circuit line option demonstrating economies of scale, which is sufficient to meet both central and high load forecasts for the region.
- Maximises net benefits amongst other options.
- Has a net present cost which is comparable with other options capable of supplying the central case load forecast.
- Offers a significantly lower cost option for supplying the high case load forecast.
- Reduces risks faced by network users of a further major reinforcement in a region within a few years, and the potential risk of delays for future customer connections.
- Makes efficient use of the transmission line corridor secured for this project – i.e. the existing line.
- Narrower environmental footprint (through use of single corridor).
- Minimum lead time for major resource projects.
- Planning studies concluded that this option meets the central and high case load forecasts for the region. Western Power considers the 'high' forecast scenario to have a high probability of being realised.
- Community engagement has been undertaken with landowners regarding the line route, and environmental approvals have been sought for this line route.

Please note that Western Power is only seeking submissions on the project solution and not the line route. Communication with individual landowners will continue should this project receive relevant approvals.

Western Power recognises that a failure to deliver this project could result in the inability to connect future new loads and generation to the network in the area north of Perth which may also result in higher wholesale electricity prices in WA.

A summary of other options considered is available on the Western Power website, www.westernpower.com.au

Mid West Energy Project

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Further information resources

The following information resources are available in the Network Projects section of our website www.westernpower.com.au

- Draft options document
- Notice of consultation overview paper
- Further information on the details in this brochure, such as options considered, the regulatory process and timelines and so forth.
- Presentations from forums
- From August 10 – Public submissions received and responses to submissions

Public submissions

The pubic is invited to lodge submissions outlining an alternative option or comment on Western Power's preferred option for the network reinforcement.

Submissions close on Wednesday 4 August 2010.

A document outlining Western Power's preferred option for the new transmission line and other important information is available online at: www.westernpower.com.au or in hard copy by request.

Please note that this is a separate process to the detailed line route selection, which is now complete.

To lodge a submission

Post to:
Mid West Energy Project
Customer Service Centre
Western Power
GPO Box L921
Perth WA 6842

Deliver to:
Mid West Energy Project
Customer Service Centre
Reception, 363 Wellington Street
Perth WA

Email to:
Midwest.submission@westernpower.com.au
Please place in the email subject line 'Public Submission'.

The deadline to lodge submissions is 5pm Wednesday 4 August 2010.

All responses and submissions will be made available on the Western Power website by 16 August 2010.

Contact us

Queries about the project can be directed to:

Phone: 13 10 87

Email: Midwest.submission@westernpower.com.au

Please note – queries and questions raised at the forum are not considered to be a formal submission.

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