



**Submission
by
Extension Hill Pty Ltd
To the
Economic Regulation Authority**

**In response the ERA Issues Paper titled
Regulatory Test Application for the Mid West Energy Project (Southern Section)
Submitted by Western Power Date 20 December 2010**

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Introduction to Extension Hill Pty Ltd (EHPL)

EHPL's Extension Hill Magnetite Project (EHMP) is well advance and on track to commence operation in the 1st quarter 2014.

The attached power point presentation provides a good summary of EHPL and the EHMP. We would be happy to meet with the ERA to present the presentation.

Following is an extract from the presentation setting out the project development schedule. The IS is the Implementation Study, which is the Front End Engineering Design for the project.

EVENT	DATE	STATUS
Feasibility Assessment	1Q 2006	Complete
Environmental Approvals	4Q 2007	Complete
Equity Funding	4Q 2010	Complete
Award Implementation PMC	1Q 2011	EOI / RFP Issued
Debt Funding	4Q 2011	Mandates Issued, Banks Engaged
Implementation Plan / FEED	4Q 2011	
Final Investment Decision	1Q 2012	Aligned with IS and Debt Timing
Groundbreaking	1Q 2012	
Commissioning	3Q 2013	Aligns with WPC 330 kV power
First Concentrate on Ship	4Q 2013	
Nameplate Achieved	2Q 2014	



EHMP Demand

The estimated demand for EHMP is,

- Mine site 125MW
- Geraldton Port 20MW
- Tathra bore field 2MW
- Midline pump station 3MW
- Total 150MW

The Tathra and Mid Line pump station loads will be 33kV connections out of Three Spring.

The total energy is estimated at 1,100GWh per annum.

Project Expansions

The 600 million tonnes of concentrate resource can support a 20Mtpa increase for 20 years. The total resource of 8Bt of resource can support multiple expansions and a much longer life. While planning for stage two has not commenced, it is likely to do so in the second or third quarter of 2011 and be for 20Mtpa. It is likely that a second 20Mtpa expansion will follow that.

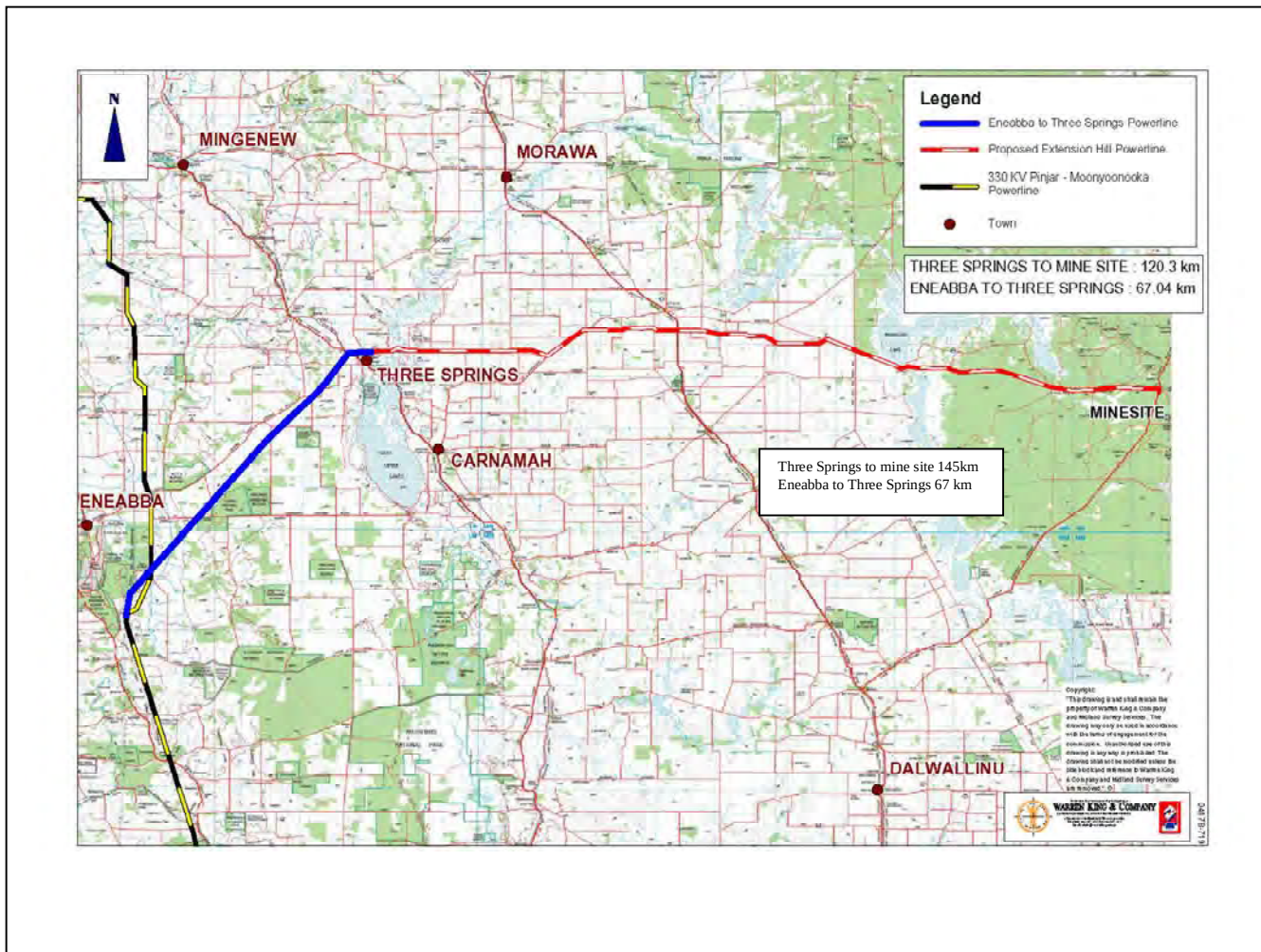
Should these staged increases materialise the demand would increase proportionately as shown below.

	Capacity MW	Energy GWH	Cumulative MW	Cumulative GWh pa
Stage 1	150	1,100	150	1,100
Stage 2	300	2,200	450	3,300
Stage 3	300	2,200	750	5,500

It should be noted that the load is base load supporting 24 hr 7 day a week operations.

Network Connection Requirements

EHPL has secured a corridor from Three Springs to the EHMP mine site, a distance of 145km for its dedicated 330kV connection. The construction is likely to be dual circuit, to cater for future mine expansions. The map below shows the line route that has been secured by EHPL after lengthy negotiations



The Mid West Energy Project as proposed by WPC is crucial to the EHMP, as is the extension to Three Springs by KML. However, if KML is unable to build this section of line EHPL is ready and able to do so.

The need for Northern Augmentation

EHPL attaches its submission to WPC's first round consultation paper, as it summarises our position on most issues.

In WPC's statements regarding the Geraldton supply, it has explicitly addressed only the normal underlying growth associated with the base case, while the statements regarding the Southern Section relate solely to the central and high case. There is a disconnection between the planning approaches of the two sections, as Northern Section augmentation uses the base projection and the Southern Section the central and high case. They should be the same.

As can be seen from the EHMP Stage 1 demand, it alone brings on the need for a Northern Section augmentation.



The Approach to the Northern Augmentation

There is a great risk that in the current regulatory setting, the next increment to Geraldton north of Eneabba and Three Springs could be driven to a 132kV augmentation. WPC hints at a 132kV augmentation from Eneabba to Geraldton in 3.5 paragraph 3 as below,

There is a 132kV network reinforcement option (Eneabba to Geraldton) available to provide an incremental increase in network capacity that will serve the underlying load growth needs of the region. However, this option does not provide any opportunity for new developments in the region. These industries have high potential for being realised, but have vastly greater power demands than the existing network is able to provide and their progress has been impeded to date due to this limitation. To enable development of these industries, a network augmentation that provides an 'order of magnitude' increase in network capacity is required.

The paltry life gained out of the Pinjar to Eneabba dual circuit 132kV augmentation of 2004 is a clear demonstration of the nature of the non-linear physics of power transmission lines. Once a transmission system encroaches on its inherent transfer impedance characteristics, enhancements at that voltage level are marginal, since small load increases create an increasingly disproportionate increase in detrimental effects, such as volt drop, thermal limitations, stability, both voltage and real.

The Mid West has passed that level and now requires a step change in voltage. Incremental augmentation at 330kV construction is the only sensible approach to the design and delivery of this fundamental back bone transmission system. An augmentation may be run at 132kV for a bit as it is in the Southern Section planning, but the assets must be designed to be compatible with 330kV operation.

EHPL urges WPC to proceed quickly with planning for the Northern Section augmentation.

Shared Transmission Networks (Confidential)

The following sections address the issues raised in the ERA's issues paper.



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.

EHPL provided a detailed submission to WPC's first round invitation to provide comments on their consultation paper dated, July 2010.

WPC provided a one on one meeting with EHPL, where EHPL's submission was discussed point by point.

EHPL has been very satisfied with the level of information provided and the consultation.

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.

EHPL contends that WPC's process of identifying alternatives, and the consideration given to each, has erred on being over worked. Given the load projections and the nature of loads included in the high case, the selected option is the only sensible one.

As set out above, EHPL has moved from being prospective to having commenced the development process, which further supports WPC's proposed augmentation approach.

EHPL's demand is substantial and will likely precipitate the need for running the second side of the Neerabup to Three Springs 330kV line at 330kV, to provide adequate reliability and compliance with the technical rules N-1 criteria and potentially a number of other technical rules.



As far as we know, WPC has not carried out the studies necessary to determine these issues, but EHPL can state that the load shedding regime accepted by KML to enable WPC to seek a derogation of the N-1 technical rule is unlikely to be acceptable to EHPL.

The circumstances under which load shedding, and time the load would have to remain disconnected, will increase dramatically with EHPL's load added to KML's load. This is likely to arise due to the impact that the load shedding of approximately 250MW, 130MW EHPL and 120MW KML, will have on the South West Interconnected System. For overnight situations, there is a high likelihood, that in this situation, generators will shut down, as they will already be running at their minimum stable operating load, and the loss of such a large block of load is likely to drive them into unstable, low load operation. To protect the machines, protections systems are likely to shut some down. With some generation then unavailable, alternate plant will have to be started to enable the shed load to be reconnected, all taking time and adding cost the system connected customers.

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.

EHPL points the ERA to our submission to WPC's first round consultation, where we make the point that EHPL's stage 1 and Karara's stage 2 should be considered in the central case. EHPL's stage 2 should be considered in the high case. It is our contention that the load projections are very conservative.

WPC also makes the point on a number of occasions that the load projections are conservative, such as.

- WPC states on page 7 under "Load Forecast" that "This proposal relates specifically to the central and high forecasts cases." EHPL concurs strongly with this statement.
- Further WPC States,
There is some argument that the central and high scenarios are conservative given that no additional "unforeseen" loads have been included in these forecasts. However, balancing this view the loads included do represent an "order of magnitude" increase in relation to the existing network loads.



Extension Hill Pty Ltd

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.

EHPL contends that WPC has been thorough and has properly discriminated between the options to select the most appropriate augmentation.

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

EHPL points the ERA to its submission to WPC's 1st consultation paper on this topic, where it makes the case, that in addition to the financial NPV case being in favour of the dual circuit 330kV option, there are substantial other benefits that have not been given much weight, such as,

- It maximises the long term use of scarce corridors, and leaves the second Moora corridor free for the future. Given the potential loads in the region the second 330kV line through Moora may be needed sooner than later.
- It improves reliability in the Mid West, as the 330kV steel lattice tower construction is inherently far more reliable than the existing wood line poles (this is not discussed at all)
- the impact on farmers and private landholders is reduced as access for inspections, maintenance and emergency repairs is significantly lower for the new power line than the old wood structures. The risks to land owners are, infringement of bio-security plans, one risk being the spread of weeds which has significant cost implications. Further safety is improved as the clearance under the power lines allow all normal farm plant to pass under the line without taking any special precautions. The risk of fires from pole top fires, conductor clashing and lightning strike are all reduced with steel lattice towers. Given the recent incident of severe fires in crops and bush lands, this provides a significant risk reduction and benefit.
- the support and confidence the project will give to regional businesses looking to set up in the mid west is significant.

The NPV approach by the ERA provides a qualitative assessment of the benefits. However, EHPL contends that significant, public, "backbone" infrastructure projects, such as the Northern Section, must be able to get up earlier than otherwise, if the whole range of benefits is also included.



Asia Iron Holdings

**Extension Hill Magnetite Project
Mining and the Midwest Conference
December 2010**

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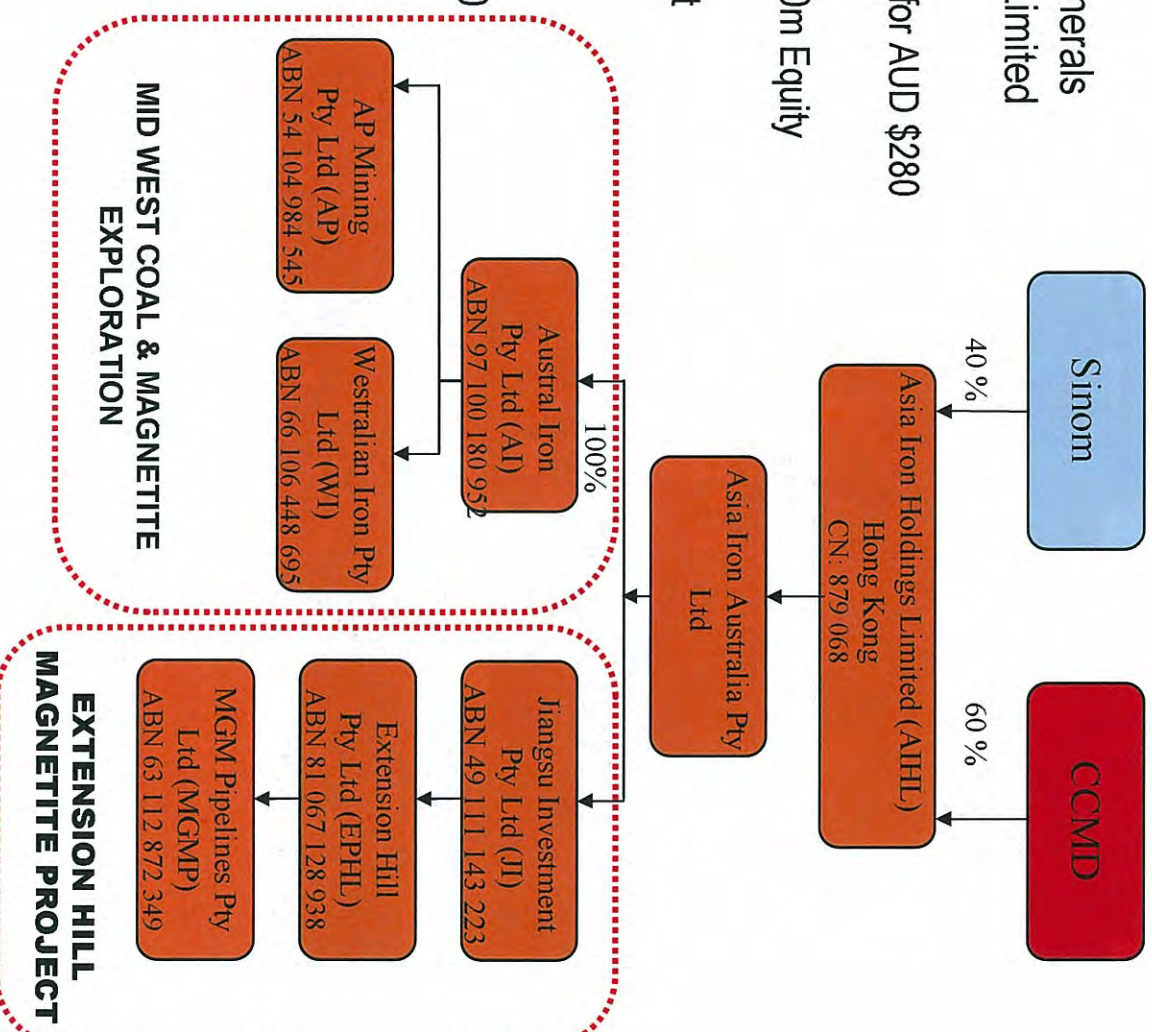
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Asia Iron Ownership Structure

- Chongqing Chonggang Minerals Development Investment Limited (“CCMD”) transaction
 - AIHL placement of 60% for AUD \$280 million
 - CCMD provide AUD\$170m Equity Loan Facility to Sinom
 - Shareholders Agreement
 - Offtake
 - Funding
 - Governance
 - Completed October 2010



Completion Signing Ceremony



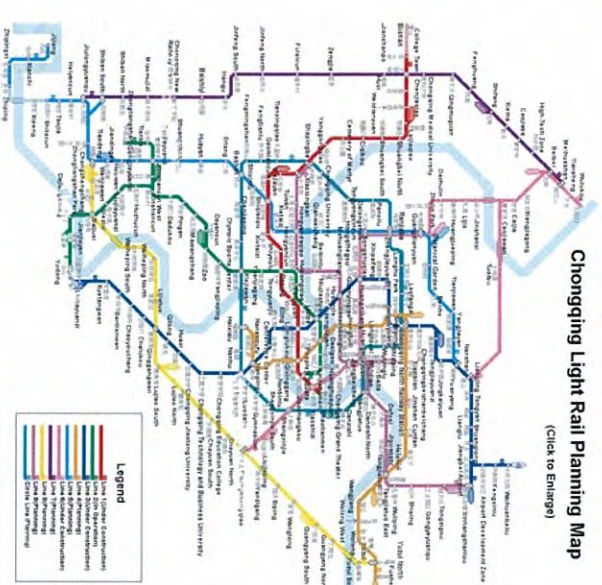
Shareholders

- CCMD is a joint venture company established between:
 - Chongqing Iron & Steel (Group) Company Limited [CISC]; and
 - Chongqing Foreign Trade and Economic Cooperation Group [CFTEC].
- CISC & CFTEC are both incorporated in P.R. China and based on Chongqing.
- CISC is primarily a manufacturer of steel products.
- CFTEC engages in, amongst other activities, international construction projects contracting, equipment and technology import & export and international trade.
- Sinom Investments Limited [SINOM] is engaged in mineral resources development business.



Chongqing

- 1,500 km upstream Yangtse River
- 30+ million population
- Focus of China's "Go West" Policy
- Autonomous Region
- Rapid Urbanisation
- Massive Infrastructure Build
- Historic Steel Production Centre



Chongqing Iron and Steel





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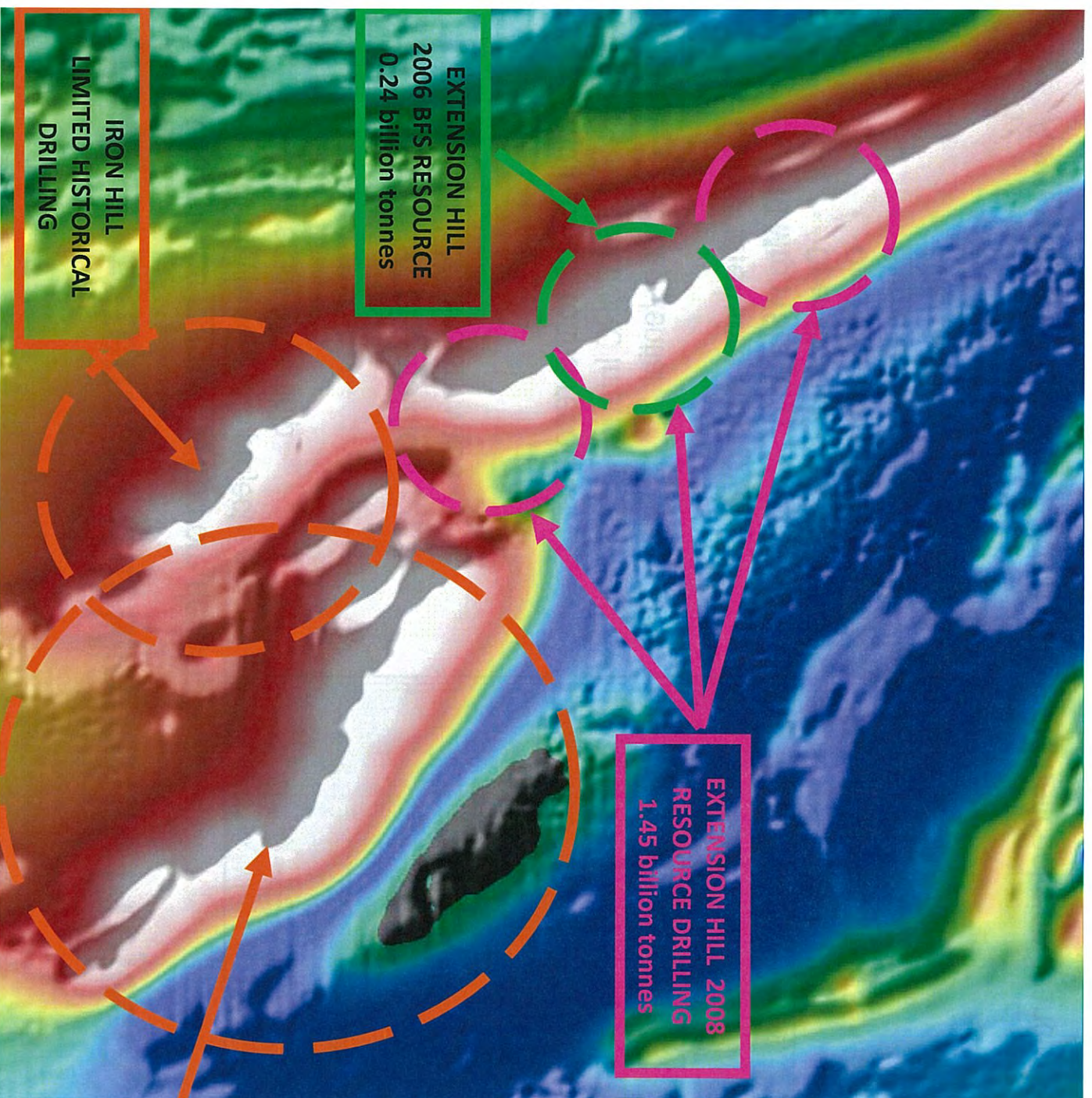


Extension Hill Magnetite Project Configuration

Asia Iron

- Greenfields magnetite iron ore development
 - Hematite separate project
 - Different ownership
- 280 km SE of Geraldton
 - High biodiversity value
- Multi-billion tonne resource
 - 1.6 Bt JORC Inferred
 - > 8 Bt potential
- Comprehensive Approval
 - 10 Mtpa (Stage 1)
 - Open Pit Mine
 - Ore Processing Plant, Concentrator, Site Infrastructure and Services
 - Slurry, Gas and Water Supply Pipelines;
 - Filter plant, Product storage and Shiploading at Geraldton
 - 330 kV Power Transmission Line
- A sustainable project of regional, state and national significance ✓





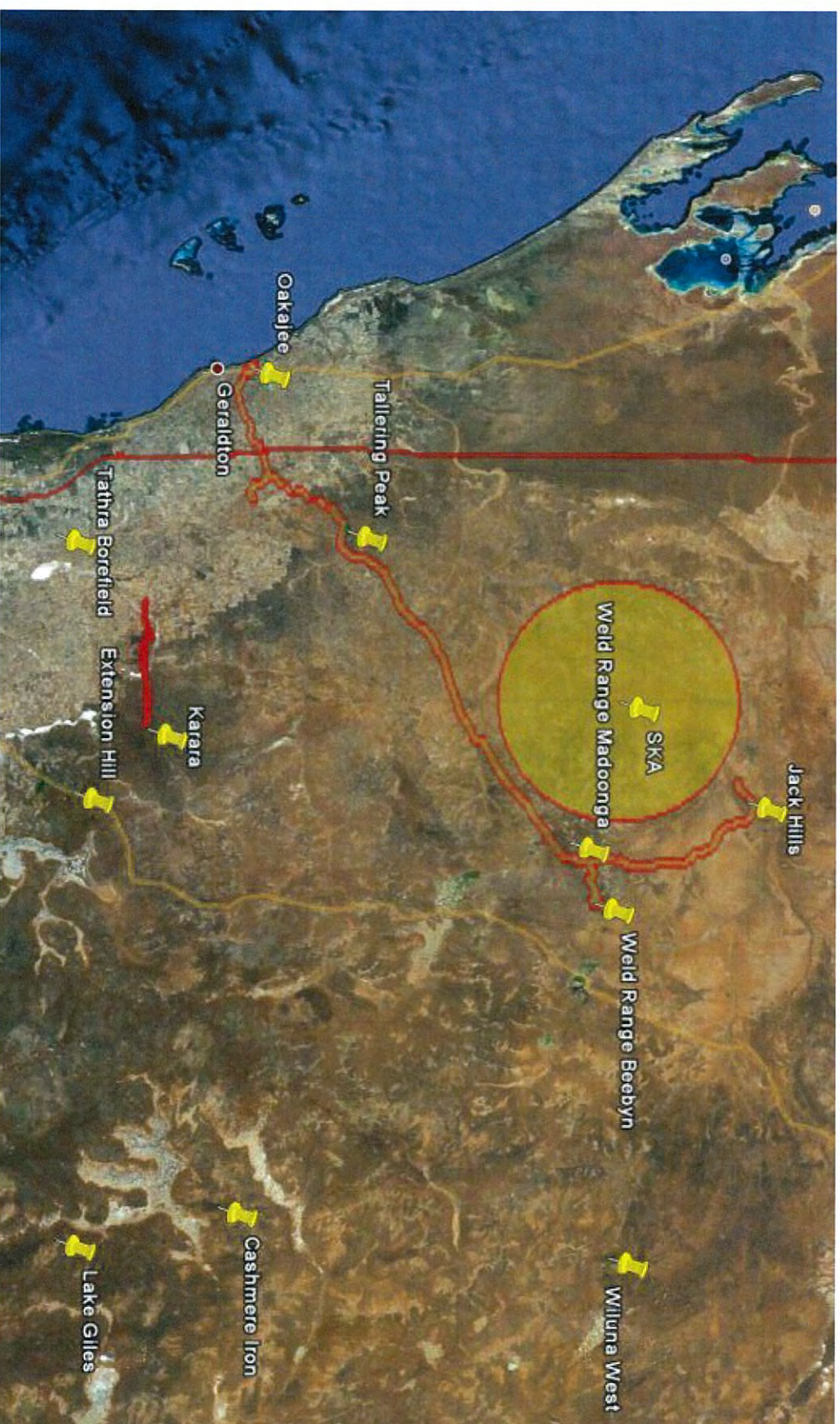
LEGEND

- Tenement Boundary
- Felsic
- Granite
- Mafic
- Fault
- Dyke
- Hematite
- Jaspilite BIF
- Limonite
- Canga (fragments of hematitic cemented by limonitic matrix)
- Canga (pebbles of hematite cemented by clayey matrix)
- Scree, includes weathered greenstones

Favourable Peer Comparison Resource

	Whole Rock Resource	Concentrate Resource	DTR wt %	DTR p100 Grind
Extension Hill JORC Meas, Ind, Inf	1.65 Bt (2009)	0.60 Bt (2009)	36.5% (2009)	75µm
Karara JORC Meas, Ind, Inf	2.52 Bt (2009) 2.52 Bt (2010)	0.63 Bt (2009) 1.03 Bt (2010)	25.0% (2009) 40.8% (2010)	Not Stated
Jack Hills JORC Meas, Ind, Inf	3.22 Bt (2010)	0.86 Bt (2010)	26.6% (2010)	45µm
Extension Hill JORC Exploration Target	8.1 Bt (2009)	3.1 Bt (2009)	39% (2009)	75µm
Extension Hill Project Ranking	1	1	=1	1 ₁₇

Favourable Peer Comparison Location



Favourable Peer Comparison Transport and Infrastructure

	Distance from Geraldton	Transport Distance	Distance from 330 kV SWIS	Distance from DBNGP
Extension Hill	260 km	280 km	135 km	170 km (permitted)
Karara	215 km	280 km	105 km	145 km
Jack Hills	400 km	530 km	390 km	200 km
Weld Range (DSO)	360 km	390 km	350 km	240 km
Extension Hill Project Ranking	2	=1	2	2

Why did Extension Hill Magnetite Project select Geraldton Port?

- Stage 1 Customer discharge port is Nanjing, China.
 - 320 km upstream from Shanghai
 - Directly accessible by Panamax vessels
 - Max draft 12.5 metres
 - Matches existing Geraldton port
 - Higher Panamax unit shipping costs offset by avoidance of transshipment
- Expansion beyond 10 Mtpa Stage 1 will utilise Oakajee port
 - Stage 1 to remain at Geraldton
 - Incremental expansion tonnage to ship through Oakajee



Why did Extension Hill Magnetite Project select Slurry Pipeline Technology?

YIELDS THE BEST ENVIRONMENTAL, SOCIAL & ECONOMIC OUTCOMES

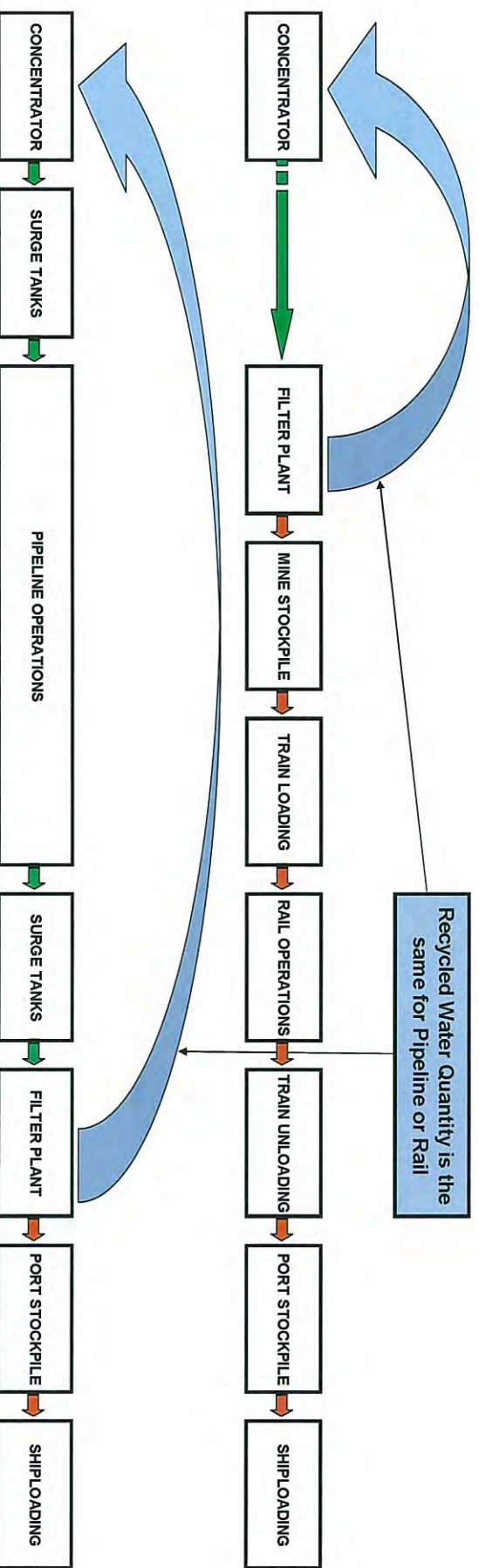
- Magnetite is amenable to Slurry Pipeline Technology
 - Hematite DSO transport assessed separately
 - Extension Hill task is well within proven operating conditions
- Pipeline has lower environmental and community impacts
 - Across rangeland, farmland and residential areas
- Pipeline Capital Cost is lower than new rail
 - Shorter distance
 - Lower unit cost
- Pipeline Operating Cost is very much lower than rail
 - Fixed plant with low maintenance and labour costs
 - No direct diesel fuel consumption

Environmental and Community Benefits of Slurry Pipeline compared with Rail

- Smaller footprint
 - Narrower corridor width
 - Cut/Fill earthworks reduced
 - Drainage impacts reduced
 - Can divert around cultural features
- Corridor reuse after installation
 - Allows for continuation of agricultural activities
 - No restrictions on fauna movement across corridor
- Preservation of community amenity
 - No noise
 - No dust
 - No vibration
 - No traffic interactions

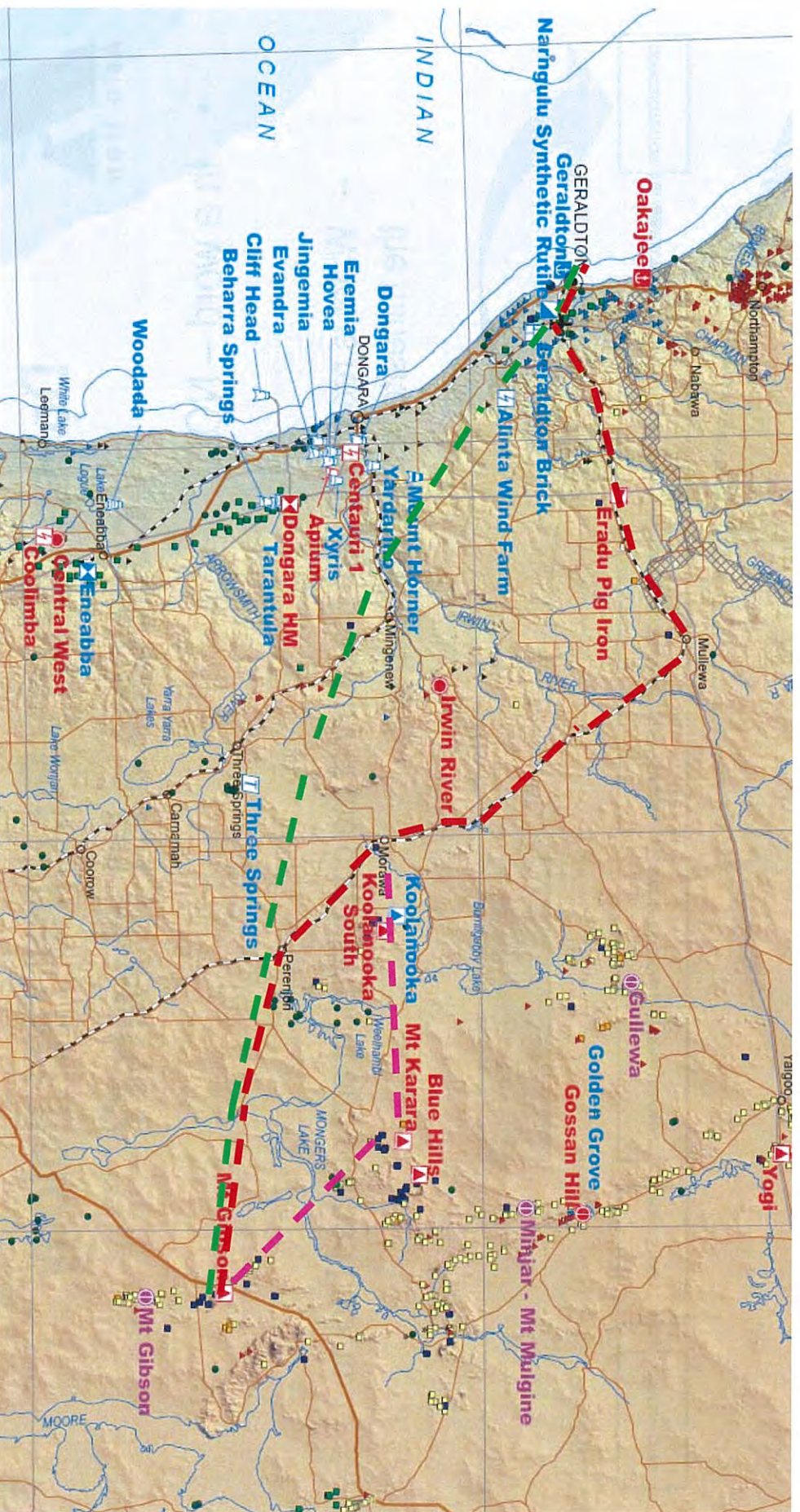
Doesn't Slurry Pipeline Technology consume a lot of water?

- In a word – NO!
- Water is recovered from the slurry at the port filter plant and pumped back to the minesite in a separate pipeline.



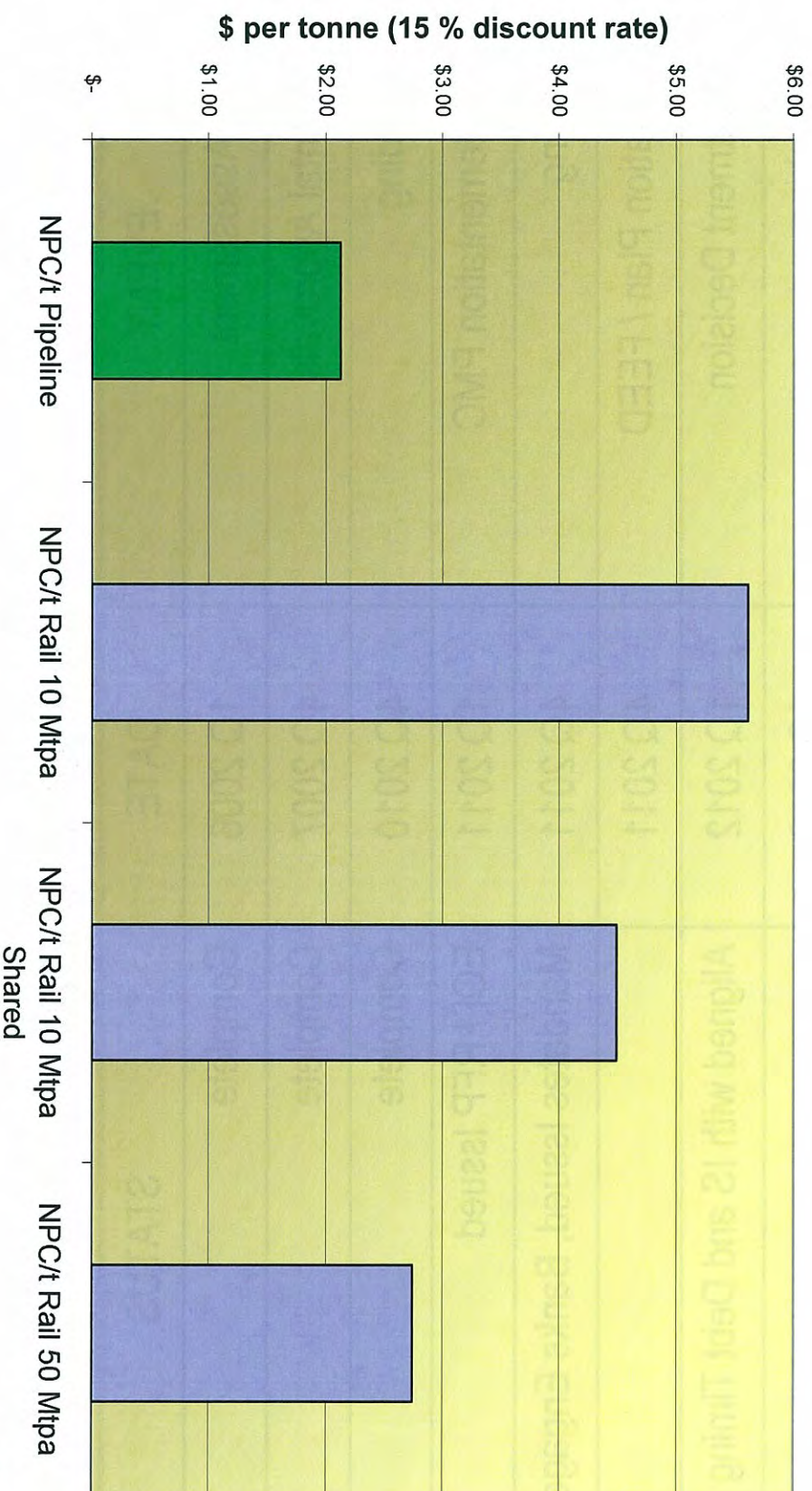


Extension Hill Slurry Pipeline route is 40 km shorter than rail corridor to Geraldton



Pipeline provides the lowest net present transport cost under all EHMP development scenarios

Net Present Cost Per Tonne



Milestone Events

EVENT	DATE	STATUS
Feasibility Assessment	1Q 2006	Complete
Environmental Approvals	4Q 2007	Complete
Equity Funding	4Q 2010	Complete
Award Implementation PMC	1Q 2011	EOI / RFP Issued
Debt Funding	4Q 2011	Mandates Issued, Banks Engaged
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Commissioning	3Q 2013	Aligns with WPC 330 KV power
First Concentrate on Ship	4Q 2013	
Nameplate Achieved	2Q 2014	



Extension Hill Magnetite Project

- “Tier 1” Asset

Summary

- Very large inventory
- Superior grade and characteristics
- High quality, high demand product
- Development will be in stages over several decades
 - **Stage 1 – 10 Mtpa (Pipeline to Geraldton) APPROVED and AUTHORISED ✓**
 - Stage 2 – 40 Mtpa (expansion tonnage delivered through Oakajee Port)
 - Stage 3 – >50 Mtpa with possible downstream processing at Oakajee
- Primary Environmental Approvals in place for Stage 1
 - Mine, Infrastructure and Port have State and Federal Environmental Approval
 - Gives confidence in project scope, configuration and timing
- Startup as early as 2013
 - Stage 1 independent of Oakajee



Extension Hill Pty Ltd

Submission - Major Augmentation Proposal

Matt Duxbury – Manager Infrastructure Services, Extension Hill Pty Ltd.

28/07/10

Introduction

Extension Hill Pty Ltd (EHPL) welcomes the opportunity to provide comment on WPC's Major Augmentation Proposal, Options Paper, Mid West Energy Project – Southern Section Neerabup to Eneabba.

EHPL supports the Recommended Option that entails the construction of a double circuit 330 kV transmission line from the Perth metropolitan area to Eneabba in the Mid West, and the interconnection of the existing 132kV Three Springs substation with a new 330kV Three Springs Terminal.

This vital piece of long term infrastructure is essential for the economic development of the Mid West region. To emphasise the scale and speed with which this region is expected to grow, it is notable that the so called "low case" demand assessed by WPC shows within 10 years a doubling of power demand within the region. The so called "high case" shows a 430% increase in demand over the same period.

We are concerned that by focusing on the constraints of the regulatory setting surrounding this investment, WPC's narrow, incremental analysis presented in the Options Paper does not give appropriate weight to key aspects of back bone transmission system design to service such a significant regional electricity demand. We believe that the Options Paper gives undue emphasis to the commercial and revenue elements of this incremental investment, with little analysis of system reliability, electricity supply competition, power generation, renewable energy, state development, broader community benefits and regional economic growth.

This should be of major concern to all leaders and decision makers, political, regulatory and business.

In this paper we develop a persuasive case not only for the Southern Section Major Augmentation Proposal to proceed, but also to support more rapid and substantial development of the mid west transmission infrastructure by WPC, in line with transmission developments that have traditionally underwritten the state's development.

The main areas are:

1. Application of The Regulatory Test and The New facilities Investment Test is not comprehensive and relies almost solely on the revenue element.
2. The three load scenarios selected are inappropriate and understate the growth in the region.
3. There insufficient reference to and fit with state planning.
4. There is a lack of generation information and no generation capacity plot.
5. The design criteria appears to be an N-0, not N-1, and is not in accord with the Technical Rules.
6. The Options Paper fails to mention or refer to the N-1-1 provisions of the Technical Rules.

7. The northern section must be considered comprehensively as part of the Mid West project, as it has now deteriorated into an N-0 state.
8. Insufficient weight is given to maximising the use of existing line routes as opposed to obtaining new routes.
9. The Eneabba to Three Springs line is an integral part of the solution to the mid west and should be included in the NFIT. It should not stand alone as a separate submission.
10. Another Option – Neerabup-Moora-Three Springs 330kV.
11. General issues.

Before moving on to detailed discussion on these issues, it is timely to reflect on the past. The existing 132kV transmission system servicing the “North Country” was installed at a time when a lower voltage system could have provided an adequate, lower cost solution. The then Government and old State Electricity Commission showed proper regard to long term regional development, the technology characteristics and economics in selection of 132kV. The supply to Geraldton, even then some 40 years ago, was installed with two 132kV lines from Perth, providing full redundancy (N-1, explained later) at the 132kV level.

However, Figure 4 from WPC’s options paper (copied below) illustrates that the North Country section of the SWIS is now capacity constrained

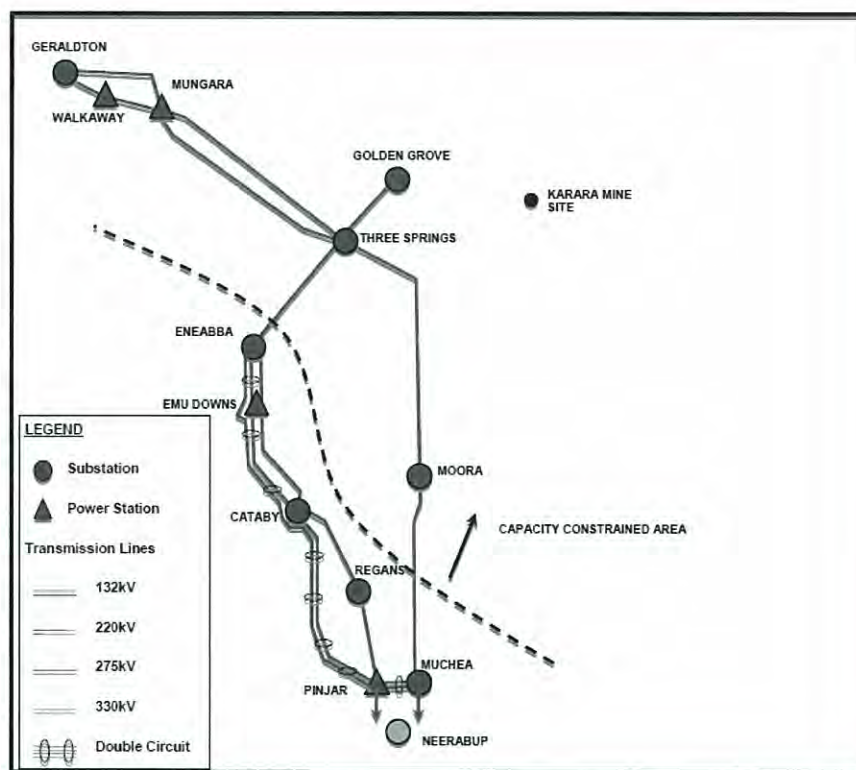


Figure 4: Existing network layout showing area where capacity is constrained

Furthermore, the existing North Country transmission network is rapidly reaching the point where N-1 redundancy of the 132kV system can no longer be maintained. In these circumstances, if one 132kV line trips, there has to be load shedding of customers, including in and around Geraldton. Right now, in Geraldton, a Block Load of say 4MW, which is not a large site, cannot be offered firm supply.

The 2 October 2007 WPC submission to the ERA for the original 330kV project proposal¹ is relevant to this discussion. We have made reference to technical facts and statements from that submission, not presented in the current Options Paper. It is important to note the changes in the North Country since then, because in 2007, no new major mining loads were firm. Since that time the Karara and EHPL have progressed significantly, seeking connections at Three Springs and with significant concomitant loads in Geraldton. So Three Springs must be part of the North Country transmission development and the original 132kV line layout appears to be an obvious and natural development route, with considerable community and technical benefits.

EHPL wishes to leave the readers of this submission with the sense that the current approach to the provision of transmission infrastructure to the North Country is inappropriate. There is a pervasive sense in the Option Paper of a strong tendency to design to a budget constraint, rather than design to a need. EHPL contends that this approach will lead to multiple, sub optimal, incremental projects being developed.

This will ultimately provide a high cost, low efficiency transmission network that will constrain the development of the Mid West region. Both power generation and power consumption in the Mid West are well positioned to grow with the support of a reliable, high voltage transmission system.

1. THE REGULATORY TEST AND NEW FACILITIES INVESTMENT TEST

Development of the power network and the conduct of the service provider (in this case WPC) are set out in the Electricity Networks Access Code 2004. These tests are to be conducted according to the Code Objectives, which are presented below;

Code objective

- 2.1 The objective of this Code ("**Code objective**") is to promote the economically efficient:
- (a) investment in; and
 - (b) operation of and use of,
- networks and services of networks* in Western Australia in order to promote competition in markets upstream and downstream of the *networks*.
- {Note: This Code sets out more specific objectives that also apply in relation to the performance of certain functions under the Code, for example, section 6.4 sets out objectives for the *price control* in an *access arrangement*.}
- 2.2 The Minister, the *Authority* and the *arbitrator* must have regard to the *Code objective* when performing a function under this Code whether or not the provision refers expressly to the *Code objective*.

We will refer to this in the following discussion regarding the Regulatory Test and the New Investment Facilities Test (NFIT).

It should be noted that the objectives are broad, and later direction in Chapter 2 of the Electricity Networks Access Code 2004 sets out some specific objectives, but leaves open a great deal not specified. For example, there are no specific clauses about how to value regional growth or increased market competition.

Our observation is that submissions to date have focussed on the specific clauses Chapter 2 of the Electricity Networks Access Code 2004, in an attempt to make the outcome through the ERA more certain. However, this ignores significant value that arises from regional growth and promotion of competition, which are harder to quantify.

¹ 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

The above Code Objective prevails where there is not a specific provision in the Electricity Networks Access Code 2004.

a. The Regulatory Test

The ability of WPC to recover costs for any transmission augmentation rests on the Regulatory and NFIT tests as set out in the Electricity Networks Access Code 2004. The purpose of the regulatory test is to determine that the proposed project solution is the best possible, having demonstrated by assessment of other options that it is so. The ranking is by determining the Net Benefit of each option. The relevant definition from the Code of Net Benefits is provided below;

‘Regulatory test’ defined

- 9.3 The “**regulatory test**” is an assessment under this Chapter 9 of whether a proposed *major augmentation* to a *covered network* maximises the *net benefit after considering alternative options*.
- 9.4 A “**net benefit after considering alternative options**” 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 the *covered network* and any *interconnected system*, having regard to all reasonable *alternative options*, including the likelihood of each *alternative option* proceeding.

WPC summarises the Net Benefits in section 6 as follows,

- 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 high case load forecast;
- Delivers additional non-economic benefits compared to the other options; and
- Delivers similar benefits to those who generate, transport and consume electricity in the SWIS as other alternatives.

These are appropriate and clearly substantiate the proposed augmentation. Especially given the fact that the revenue test is likely to be sufficient on its own for the NFIT. Our contention is that there are sufficient benefits to substantiate a project similar to Western Power’s, 2 October 2007 proposal to Geraldton. Indeed with the major projects, Oakajee, Ginadalbie, Extension Hill and other added, which were not included in the 2007 load projection, it is difficult to understand why the project only goes to Eneabba. If the additional loads and the other net benefits are fully assessed, EHPL believes the project can immediately include extension to Geraldton.

For instance, WPC makes no reference to the nature of the wood pole lines, their age and the technical limitations with respect to lightning and vulnerability to weather events. There is no reporting of the failure rates and the down time of these lines.

Given the importance of this piece of infrastructure to the State, it is reasonable to suggest that all Net Benefits need to be identified, not normally needed in less strategic infrastructure rate cases. To do this effectively the state planning and other government departments have to be involved.

b. The New facilities Investment Test

The New Facilities Investment Test (NFIT) is the assessment carried out by the ERA in accordance with the Electricity Networks Access Code 2004. The relevant clause is set out below.

WPC's 2 October 2007 submission relied solely on 6.52 (b) (i) A, that projected revenue covered the investment and appears to be the case again, which is great, as the case to invest is unequivocal.

To substantiate more extensive development, full assessment and weight needs to be given to the provisions of 6.52 (b) (ii) and (iii), because these clauses capture the other benefits. Traditional, sound back bone transmission planning and development rely more on these clauses, especially 6.52 (b) (ii), than the constrictive and simplistic 6.52 (b) (i) A.

New facilities investment test

6.52 *New facilities investment* may be added to the *capital base* if:

- (a) the *new facilities investment* does not exceed the amount that would be invested by a *service provider* efficiently minimising costs, having regard, without limitation, to:
 - (i) whether the *new facility* exhibits economies of scale or scope and the increments in which capacity can be added; and
 - (ii) whether the lowest sustainable cost of providing the *covered services* forecast to be sold over a reasonable period may require the installation of a *new facility* with capacity sufficient to meet the forecast sales;

and

- (b) one or more of the following conditions is satisfied:
 - (i) either:
 - A. the *anticipated incremental revenue* for the *new facility* is expected to at least recover the *new facilities investment*; or
 - B. if a *modified test* has been approved under section 6.53 and the *new facilities investment* is below the *test application threshold* – the *modified test* is satisfied;
 - or
 - (ii) the *new facility* provides a *net benefit* in the *covered network* over a reasonable period of time that justifies the approval of higher *reference tariffs*; or
 - (iii) the *new facility* is necessary to maintain the safety or reliability of the *covered network* or its ability to provide contracted *covered services*.

6.53 The *Authority* may, in an *access arrangement*, approve a “**modified test**” for the purposes of section 6.52(b)(i)B to apply to a *covered network* in respect of *new facilities investment* below the *test application threshold* where:

- (a) the *service provider* has proposed a *modified test* to apply in respect of *new facilities investment* below a proposed *test application threshold*; and
- (b) the *Authority* determines that approving the *access arrangement* with the proposed *modified test*:
 - (i) would be efficient in that the advantages of approving the *proposed modified test* would outweigh the disadvantages; and
 - (ii) would promote the achievement of the *Code objective*.

6.54 In making a determination under section 6.52 the *Authority* must have regard to whether the *new facilities investment* was required by a *written law* or a *statutory instrument*.

6.55 Section 6.54 does not limit the matters to which regard must or may be had in making a determination under section 6.52.

Recommendation

WPC provide a full account and assessment of the contributions of all benefits in Net Benefit to substantiate accelerated North Country transmission network development to support the augmentation extending to Geraldton.

2. THE THREE LOAD SCENARIOS SELECTED IS INAPPROPRIATE,

This point requires that first we understand the terminology regarding planning. When projecting the future for infrastructure needs or such things as budgets, the usual approach is to develop a low, central and high case. The central case is the one which is usually adopted as the most likely, the low case is a low as can reasonably be expected and the high is one that could reasonably occur. All of this is based on gathered intelligence and then constructed with a substantial amount of judgment. In summary our understanding of the WPC's cases is;

- Low case – historical trend case with no change in the region.
- Central case – includes Karara, Oakajee and small Block Loads totalling 12MW.
- High case - EHMP and other prospective mining loads in the region.

WPC's current approach is also not in accord with WPC's 2 Oct 2007 ERA submission for the original 330kV proposal as reproduced below which is in accord with usually accepted practice,

Low forecast - based on historical load trend growth (called also 'natural' load growth) plus firm already approved small block loads.

Central forecast - including diversified 'prospective loads' with a probability weighting.

High forecast - includes 100% of all 'prospective' loads.

So how does current WPC's Low, Central and High cases compare to this framework?

The amounts allowed and the timing of the large Block Loads is not provided in a clear format and has to be interpreted from general statements throughout the document. This makes it difficult to comment properly on the validity of the planned capacity and its timing. And yet, as WPC points out, the new mine loads of Karara and EHPL are each equivalent to the existing regional demand, they should be explicit, as should Oakajee.

We have taken WPC's Figure 9 and relabelled the projections to reflect a more accepted approach. In WPC's Figure 1, the forecast we have labelled Central in WPC's figure 9 is not shown.

EHPL makes the point that WPC's Low, Central, and High case selection in the Options Paper runs contrary to past practice for selecting the Low, Central and High. In WPC's forum presentation, it was stated that the Central case was based on committed projects, the High case was quite probable and the Low case had next to no chance of being realised.

EHPL contends that the three cases should be possible with the central being most likely. Accordingly, WPC's Central case should be the Low case, since it is based on underlying historical growth plus committed projects and is the reason the augmentation is needed.

The low case, which is historical, should therefore only be presented to emphasise the order of magnitude of change brought about by the new Block Loads.

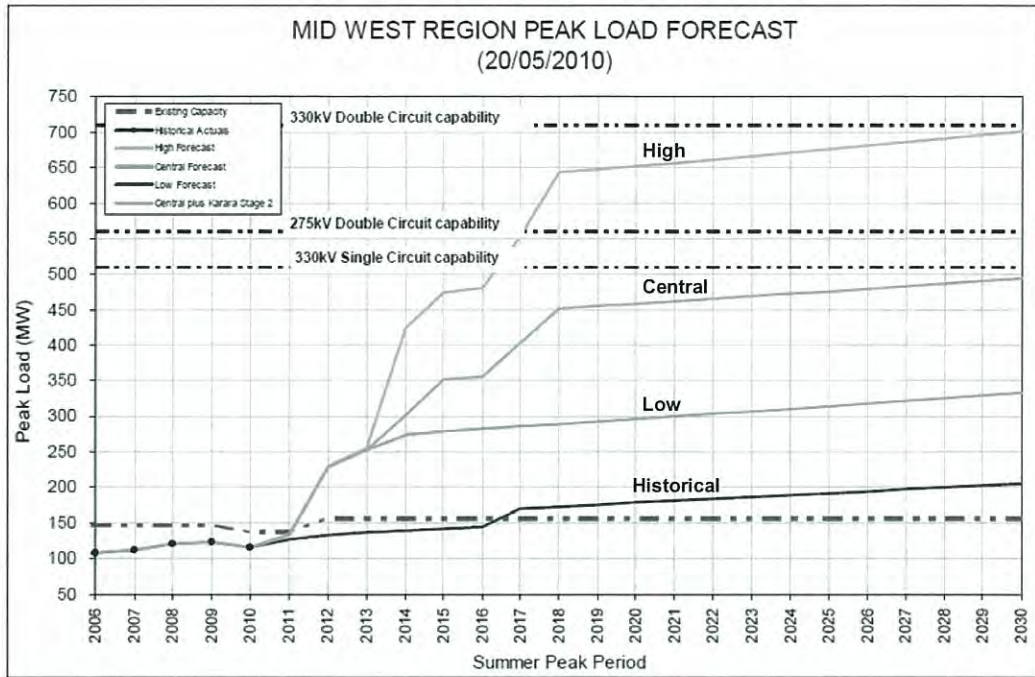


Figure 9: Network Capability vs Forecast Load (Option Comparison)

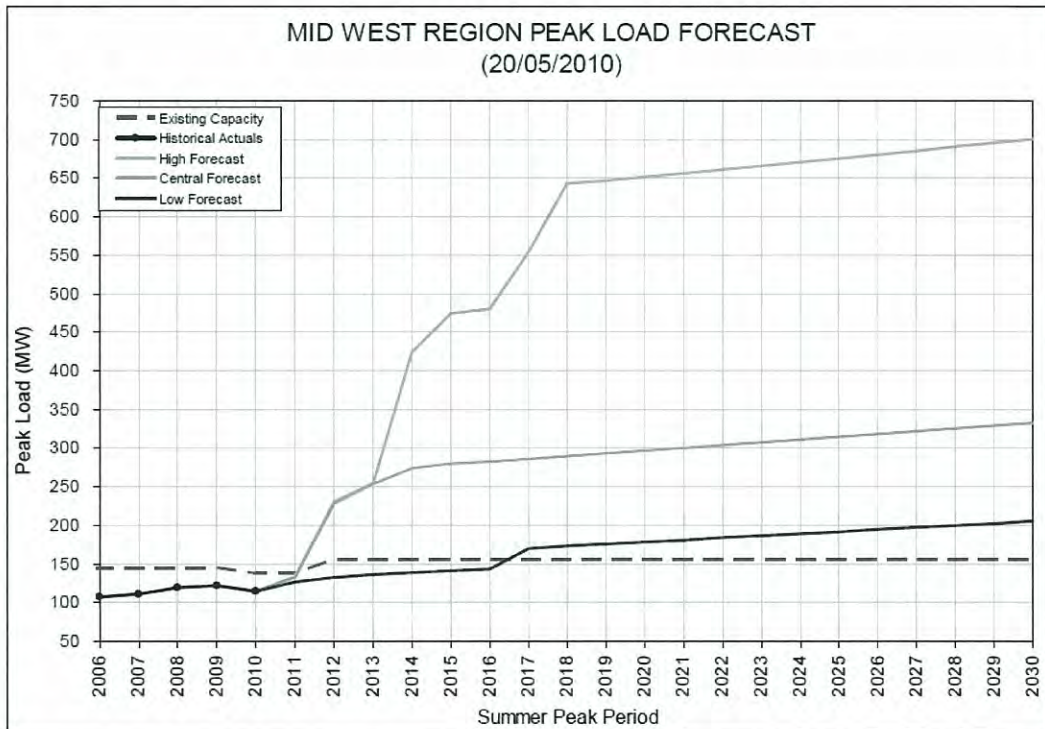


Figure 1: Mid West Peak Load Forecast (ex Eneabba / Muchea)

This presents a critical misdirection of emphasis in internal planning and to the Options Paper's readers, as the focus is on WPC's Central case not on the likely case which could be presented as the Central plus Karara's expansions, or EHPL's demand, represented by the Central case marked up on WPC's figure 9 above. In planning such fundamental backbone infrastructure, the known future should not form the basis of design – longer term potential should be given greater weight. For this reason, we argue that the single circuit or lower voltage solutions are simply not worthy of consideration

Now to the treatment of EHPL's project loads. The status of EHPL has not been properly factored into WPC's Options Paper and to highlight this we contrast below how EHPL's project compares with Oakajee. EHPL's load inclusion in the WPC's forecasts can be deduced by the large increase in demand for WPC's High case at 2013.

Issue	Oakajee	Oakajee Mines (Other than Karara)	EHPL
EP Act Part IV PER published	No	No	Yes
EP Act Part IV received for whole project scope	No	No	Yes
Financial close	4Q 2011	4Q 2011	4Q 2010
1st product	End 2014	End 2014	1 st Qtr 2013

Further to the above, Oakajee's demand does not materialise without the railway line and the two northern mines it services, Jack Hills and Weld Range, being able to supply ore. Based on the above analysis, Oakajee's load and timing is less certain than EHPL's. Attached is EHPL latest press release.

The inclusion of the above projects in the planned case is entirely appropriate, which leads to the question as to why EHPL is not also included in the planned load?

So in summary, using the cases as EHPL proposes and as marked up on WPC's Figure 9, WPC's Low case should include Karara and Oakajee and EHPL, but at the very least EHPL should be included in WPC's Central case.

As a consequence, the resulting focus on the WPC's central case does not properly present the actual load probabilities in the mid west.

Recommendation

EHPL requests WPC to recast the load projection and the case for the Section 1 augmentation in this light.

3. FIT WITH STATE PLANNING

WPC's Options Paper does not mention any integration or reference to State planning.

It is unreasonable to set WPC up to plan such a fundamental piece of state infrastructure without a clear purpose being enunciated as a critical element in an overall state development plan. These plans by their nature are long term, as is the nature of their implementation.

That having been said, a series of public commitments by the State Government have been made that provide sound direction in this respect, such as support and involvement with;

- Oakajee
- Geraldton Port
- Karara
- EHPL

There is substantial political support and commitment to the development of the mid west and it has not been adequately included in the load and growth assessment of the mid west.

4. LACK OF DETAIL FOR DEMAND AND GENERATION,

Firstly, generation has not been properly presented for the reader to understand what has been allowed for and what has not. The fact that a similar capacity plot, as with WPC's demand Figure 9, is not provided for generation and leads to a lack of balance about the impact generation has. In fact the reader cannot properly assess where or what generation has been allowed for and the extent to which generation supports the NFIT is not provided.

The Options Paper really understates the need for transmission to service new generation in the region and how it fits with national and state drivers. Given the focus on load by WPC, we fear the revenue benefits of generation may not be included in the NFIT.

Secondly, EHPL is happy for its demand to be shown explicitly; we were not asked about this. If an organisation does not want to be named, they can be allocated to a node as a block load with others of like mind. But it has to be said that there is strong argument that connection to a monopoly, public, regulated asset should require MW, timing, nature of Block Loads and their location to be public knowledge. No generation details are provided and no explicit load details. For instance the Karara and EHMP loads are largely base load, with little diversity, which is a material issue.

The consequences and benefits of this on the South West Interconnected System are not discussed. The summation of Karara and EHPL's base loads, of the order of 250MW, added to the overnight minimum of 1,200 MW is a 20% increase in overnight load. The economic benefit to generators and wind is not mentioned. The base load nature is however recognised in WPC's Table 3, as the diversified capacity is only of the order of 10% less than the connected peak capacity, compared to residential and commercial loads of closer to 50%.

Finally in WPC's 2 October 2007 ERA submission for the original 330kV project proposal WPC stated there was;

- Uncertainty in availability of existing local generation (from Mungarra PS and Geraldton GT) after October 2010;

Also;

The transmission network in the Mid West is weak and can not transfer large amounts of power due to thermal and voltage limitations. This 400 km transmission network is also susceptible to stability issues caused by disturbances in the network. Heavy reliance is placed on the use of generating plant at Mungarra and Geraldton to maximise capacity in the region.

Where does this now fit into the generation picture and overall economics? It is well known that the Mungarra power plant is past its technical life, and given the reliance indicated above, how is this assessed?

It is not really possible to talk with confidence about WPC's plans without this basic information.

Recommendation

EHPL requests proper disclosure of capacity, location, type (generation or demand), the timing and nature, i.e. intermittent, temperature dependent, peak or base load as part of its case to extend the 330kV to Geraldton.

5. THE DESIGN CRITERIA IS AN N-0 AND IS NOT IN ACCORD WITH THE TECHNICAL RULES

Whilst EHPL supports the Recommended Option, we believe that this only provides a partial solution to the provision of transmission infrastructure to service the North Country. We believe that the planning and design of the augmentation has failed to properly address the requirements of the Technical Rules as it relates to firm supply. The relevant Technical Rules clause excerpts pertaining to this discussion are 2.5.2.1 and 2.5.2.2, which are set out below.

2.5.2.1 N-0 Criterion

- (a) A sub-network of the *transmission system* designed to the N-0 criterion will experience the loss of the ability to transfer power into the area supplied by that sub-network on the loss of a *transmission element*. Following such an event this *power transfer* capability will not be restored until the *transmission element* has been repaired or replaced.
- (b) The N-0 criterion may be applied to sub-networks with a *peak load* of less than 20 MVA and to *zone substations* with a *peak load* of less than 10 MVA. The N-0 criterion also applies to the 220 kV *interconnection* supplying the Eastern Goldfields region.

2.5.2.2 N-1 Criterion

- (a) Any sub-network of the *transmission system* that is not identified within this clause 2.5.2 as being designed to another criterion must be designed to the N-1 planning criterion.

We believe that Technical Rules clause 2.5.2.3 is also germane to the assessment of the appropriate approach to the design of the North Country transmission infrastructure but, WPC fails to list it. We discuss this clause in the next section.

Geraldton and many of the new Block Loads are greater than 20MVA and so clause 2.5.2.1 (N-1) applies to the transmission system North Country.

The existing 132kV system was designed to comply with N-1 design criteria and all WPC's discussion and analysis for north of Three Springs is now focused on how to maintain N-1 at the 132kV level. As soon as loads have to be shed for a transmission element failure, the performance level has slipped from N-1 to N-0. This will be the case for all new Block Loads in north of Three Springs, as they are being offered an interruptible connection. To address this, WPC refers to the need for the Section 2 augmentation.

The application of the Technical Rules design performance criteria of N-1 as opposed to N-0 must be applied to;

- The loads north of Three Springs, Section 2 augmentation, and
- To the proposed Section 1 augmentation.

Application of the N-1 versus N-0 to Section 2 has been address above. However, we believe there is also a problem with Section 1's compliance with the Technical Rules for N-1 versus N-0.

The nature of the generation and load demand as discussed above has a material impact, but the general thrust of this discussion is relevant to WPC's current analysis. Again WPC fails to provide sufficient details to be fully confident of ratings and limits, but the principles and analysis are valid regardless.

Using WPC's Table 3, we have demand in the Central case of 333MW peak and a High case demand of 701MW. If the EHPL proposition is used, the Central case would be 480MW and the high case remains the same.

The issue to analyse is the performance of the system on transmission element failure, such as;

- A lightning strike on the 330kV line with insulator damage that prevents a reclose.
- A 330kV circuit breaker failure, this may be OK if a breaker and a half configuration is utilised from the start.
- A bush fire under the line that persists and re-trips following a re-close
- Failure of the Three Springs 330/132kV step down transformer.

There are many more scenarios that can be contemplated, but these demonstrate the point. Technically the 132kV system may not survive a 330kV re-close, as it is already near its voltage and real power dynamic limits and detailed system modelling would have to be done to determine the system response and whether or not it complied with the Technical Rules. For this discussion it is not included in the failure scenarios, but there is a real possibility it will not be acceptable without load shedding.

Given the loss of the single 330kV transmission element to Three Springs the connected load will suddenly be thrown onto the existing 132kV system through the Three Springs 330/132kV transformer. We know that the existing 132kV system cannot handle even modest new loads, so large loads will have to be shed to protect the system. This fails the N-1 Technical Rules criteria.

For overnight, low load situations, base load generators run at their minimum stable load. Should the event discussed above happen at this time, the generators on line will see a significant loss of load, pushing them into low load instability and automatic shut down. To protect against this, and the potential of system instability, generators will have to be tripped at the same time the loads are tripped. Tripping large coal generators is stressful on the machines, costly and introduces the risk that the uncontrolled shut down will result in the inability to bring the units on line in time for the next day's load, thereby forcing more expensive machines to run and penalising the unit owners' which were forced off line. The additional cost will be paid for by all consumers. This fails the N-1 Technical Rules criteria.

Further, it is reasonable to expect that the network charges would be discounted to reflect the lower class of service, if the N-0 situation were to persist.

In summary, WPC has not addressed how they have complied with the Technical Rules, although they listed a number of clauses in Section 3 "that are of particular interest".

It is unreasonable to plan with out explaining the application of this requirement and if it is not to be complied with for some short development period, an explanation is needed as to why it is reasonable to do so and provide a schedule and plans so as to come into compliance.

Recommendation

We request that WPC address:

- How the approach to Sections 1 and 2 of the mid west, Neerabup to Geraldton complies with the Technical Rules?
- How it intends to develop the North Country network over time to comply with the Technical Rules in this respect?
- How it intends to charge any customers provided with an N-0 service at the transmission level?

6. THE OPTIONS PAPER FAILS TO MENTION OR REFER TO THE N-1-1 PROVISIONS THE TECHNICAL RULES

The discussion in Section 3 above made the point that the application of the Technical Rules dictated at least N-1 performance criteria. On reading 2.5.2.3 it is evident that the North Country planned augmentation should be run past the ruler of clause 2.5.2.3, which is provided below.

2.5.2.3 N-1-1 Criterion

- (a) The N-1-1 Criterion applies to those sub-networks of the *transmission system* where the occurrence of a *credible contingency* during planned maintenance of another *transmission element* would otherwise result in the loss of *supply* to a large number of *Consumers*. Sub-networks of the *transmission system* that are designed to the N-1-1 criterion include:
- (1) all 330 kV lines, *substations* and *power stations*;
 - (2) all 132 kV *terminal stations* in the Perth metropolitan area, and Muja *power station* 132 kV *substation*;
 - (3) all 132 kV *transmission lines* that *supply* a sub-system of the *transmission system* comprising more than 5 *zone substations* with total *peak load* exceeding 400 MVA; and
 - (4) all power stations whose total rated export to the *transmission system* exceeds 600 MW.

If the Technical Rules are reviewed, it clearly differentiates load areas and the mandated transmission infrastructure servicing it into three levels of service, defined as;

- N-0 – Load can be lost on the failure of a transmission element.
- N-1 – No load will be lost on the loss of a transmission element, but will, if a transmission element is out of service and a second element fails. This applies to sub-networks with a load greater than 20MVA and substations of greater than 10MVA.
- N-1-1 – No load will be lost on the loss of a transmission element, or on the loss of an element with an element already out of service, say for maintenance. The criteria states that a large number of customers needs to be connected to qualify, and then goes on to state that all 330kV lines and 330kV substations fit the criteria. It sets 400MVA as a total transfer capacity to qualify.

The defining elements for N-1-1 in the Technical Rules provides scope to argue that the proposed North Country 330kV system fails in the definition because of the “large number of Consumers” element, if Geraldton is not judged to be a large number of consumers, but passes in all other respects. Further, the characterisation of N-1-1 is determined by its potential effect the total system, which for the South West

Interconnected System is self evident at 330kV and an aggregate load of in excess of 400MVA, which are both satisfied.

It is instructive to note that WPC did not refer to any of these clauses in the 2 Oct 2007 ERA submission for the original 330kV augmentation proposal, but it did refer to the following clauses. It seems to indicate that consideration of the N-0, N-1, N-1-1 provisions have not been fully recognised as applicable.

- 2.2.7 - Transient Rotor Angle Stability (Synchronous Stability)
- 2.2.8 – Oscillatory Rotor Angle Stability
- 2.2.9 – Short Term Voltage Stability
- 2.3.7 – Power System Stability and Dynamics, and
- 2.3.8 – Determination of Power Transfer Limits

The point is that at the least the North Country system is transitioning to N-1-1, if not already there, and that the minimum design performance should be to N-1.

Recommendation

We request that WPC address;

- How the approach to Sections 1 and 2 of the mid west, Neerabup to Geraldton will comply with the Technical Rules' N-1-1 performance criteria, now and as the North Country continues to grow.

7. THE NORTHERN SECTION MUST BE CONSIDERED COMPREHENSIVELY AS PART OF THE MID WEST PROJECT, AS IT IS INEXTRICABLY LINKED TO THE SOUTHERN SECTION, TECHNICALLY, BY THE PROJECTS AND THE RESULTANT UNDERLYING GROWTH.

In 2 Oct 2007 WPC made the following statement in its submission to the ERA for its original proposal,

The power transfer limits are currently constrained by the potential risk of synchronous instability. Operation with power transfers above the stability limits would expose the regional network to a risk of islanding from the SWIN with significant load shedding in the area north of Three Springs. The existing stability limits are required until new transmission reinforcements can be constructed. System studies, reviewed by independent consultant –

We believe that the North Country system has been islanded on at least one occasion.

As set out previously, the loads associated with the Gindalbie, Oakajee and Extension Hill at Geraldton, plus the economic regional growth flow on effects have not been added to the Historical load growth for Geraldton.

It can be seen below, from the current Options Paper, that the same situation is stated to persist in 2015, even with the Section 1 Augmentation, for Historical growth. Considering the last transmission development for the region was in 1970, 40 years ago, playing about with 3 years is inferring a load forecast accuracy, given the region is on the cusp of exponential growth that is just not possible.

At the forum, WPC specifically excluded the northern section, Section 2, from consideration. In the Options Paper the following statements are made regarding Section 2;

The existing system is presently operating close to its capacity limit and system studies have identified that for the underlying growth trend there is an impending constraint in 2011/12. This constraint is a voltage stability constraint in the Geraldton region and affects load in the area around Geraldton. A further constraint (thermal capacity of transmission lines) has been identified for 2015/16 and affects all substations located north of Eneabba and Muchea (refer to figure 4).

And,

Network augmentation would be the only alternative available to offer network connection to either:

- substantial new load developments above the natural (underlying) load growth forecast; or
- market generators (i.e. any generator intending to earn income from the reserve capacity and energy markets)

And,

The forecast new block loads contained within the central and high case load forecasts for this region require substantially greater network capacity than the underlying load growth. This need has therefore required the consideration of other, much higher capacity alternatives. The needs of the underlying load growth are acknowledged here to promote the understanding that the proposed project alleviates the need for reinforcement work to address those issues. In the event that a major augmentation to supply the central or high forecast did not proceed then a different major augmentation would be proposed to meet the underlying load growth needs of the region.

The critical issue with exceeding thermal rating in summer is the reduction of conductor clearance over roads and paddocks, presenting an unacceptable safety risk to drivers of vehicles and machinery passing under the lines.

The fact is contrary to WPC's statement above in that the Section 1 augmentation does not relieve the Section 2 limitations for the Base case as presented by EHPL. One has to use the WPC "no change" "Historical" base case to draw this conclusion.

Page 10 (Excerpt below) indicates that the 2015/16 augmentation is needed base on "natural load growth". As discussed above, this is not a believable scenario.

Preliminary technical and economic studies to identify and rank options to resolve the voltage and thermal constraints outlined above have been completed. A number of solutions are available to meet the underlying load growth needs – ranging from demand management, generation connected as a network control service to network augmentation. While a preferred network augmentation has been identified, it does not require substantial expenditure until around 2015/16. It is expected that the issue could initially be managed through the use of demand management and local generation (as network control services).

The discussion in relation to WPC's selection of Low, Central and High demand cases is relevant here. Given the statements above, new Block Loads associated with Oakajee, and Karara and EHPL at the Geraldton Port, cannot be accommodated at an N-1 performance level. Even with Section 1 being completed, failure to deliver N-1 performance north of Three Springs persists. Failure to meet the Technical Rules is further exacerbated due to the frailty of old wood line 132kV system north of Three Springs.

While we appreciate that Section 2 is the subject of a separate funding request from the Federal Government's Infrastructure Australia Fund, it is not appropriate to rely solely on success here to address the issue.

The overall analysis here substantiates the need for the augmentation to include the extension to Geraldton.

Recommendation

EHPL requests WPC as a matter of urgency;

- to complete works to determine the augmentation for Section 2 and address, in the ERA submission for Section 1, the importance of the southern section to the northern augmentation, and
- to put the loads in Geraldton relating to Karara, Oakajee and EHPL into the base case for Section 2 augmentation.

8. INSUFFICIENT WEIGHT IS GIVEN TO MAXIMISING THE USE OF EXISTING LINE ROUTES AS OPPOSED TO OBTAINING NEW ROUTES.

EHPL has had a great deal of recent experience with negotiations and discussions with land owners, councils and community for corridors in the mid west. We have been securing 320km of pipeline and 145km of 330kV power line corridors, mostly through private property.

Services corridors are a crucial element in enabling the development of the state. They are needed for roads, rail, water, power and communication and the like, and yet there is substantial opposition to them from landowners, where new corridors are needed. It can take years and a lot of community angst to secure corridors. Compromises have to be made and new routes end up taking circuitous route alignments rather than the straight line option. An example is the new route obtained by WPC for Section 2 from Eneabba, which ducks and dives considerably compared to the old line corridors.

The alternative is to maximise the use of existing corridors. Any existing corridor is gold! Its value needs to be nurtured and maximised. It is irresponsible to the community and future generations to consume the corridor by installing inadequate infrastructure. A point in case is the poor investment decision for the Pinjar to Eneabba dual circuit 132kV line. WPC summarised the situation in its 2 October 2007 submission to the ERA for the original North Country augmentation project.

In 2001, Western Power sought approval to construct a new 330 kV transmission line between Pinjar and Eneabba, operated initially at 132 kV. Western Power was unable to secure sufficient funding for the project and as a result, a 132 kV construction option of a lower initial capital cost was approved. This line was commissioned in 2004. This line increased supply capability to the Mid-West region, particularly in the area between Pinjar and Eneabba.

It lasted 6 years before its capacity contribution was consumed, leading to the premature need for this Section 1 augmentation. This is an appalling illustration of short term, low cost solutions creating long term costs and constraints. The lesson must be heeded.

Consideration of the 220kV and 275kV cases can be seen as a miss directed attempt to demonstrate a sound assessment of all options. The South West Interconnected System backbone system is 330kV, so it is technical nonsense to add new, inferior, voltage levels. When the load assessment EHPL offers is accepted, compliance with the Technical Rules is considered and the use of valuable corridors is factored into the assessment, the case for dual circuit 330kV is further cemented. Other voltage levels are not real options.

Recommendation

WPC strengthen the argument for Dual circuit 330kV as the only reasonable solution.

9. THE ENEABBA TO THREE SPRINGS LINE IS AN INTEGRAL PART OF THE SOLUTION TO THE MID WEST AND SHOULD BE INCLUDED IN THE NFIT

At the industrial organisations forum, WPC presented the situation where they were contemplating the appropriateness or not of the Three Springs to Eneabba 330kV line being part of the NFIT. WPC initially suggested that the line was simply a customer connection (to Karara) and therefore did not need to be submitted in the case to the ERA.

The issue raised above, relating to N-1 and Section 2 augmentation, makes this line a critical element in the mid west transmission system and overall augmentation. There is no benefit or reason for the Section 1 augmentation without it.

EHPL believes very strongly that the Eneabba to Three Springs leg and Three Springs 330kV/132kV terminal should be included in the overall project submissions to the ERA and not as a separate stand alone project or customer connection asset. It is an integral part of the North Country transmission system. EHPL's connection request has been with WPC since 13 Aug 2007 and must be accommodated.

Any connection at Three Springs must be open access and the connection conditions and basis must be available as soon as the Section 1 augmentation is completed. There must not be another long process to establish an Open Access regime to enable a new connection to use the infrastructure at Three Springs.

EHPL is particularly concerned for its 330KV connection at Three Springs and does not want a regulatory process to delay the connection, if it is determined at a later time that the process has to be followed.

Recommendation

- The Eneabba to Three Springs 330kV line be included in the base regulatory case, and
- WPC to advise that it can ensure that loads such as EHPL's can connect at Three Springs immediately the facilities are available.

10. ANOTHER OPTION – NEERABUP-MOORA-THREE SPRINGS 330KV

An alternative project configuration not canvassed by WPC is a Neerabup, Muchea, Moora, Three Springs dual circuit, constructed at 330kV, one side run at 132kV and the other at 330kV line, replacing the existing wood pole 132kV line. This configuration has several advantages;

- It is inland and avoids the more costly, sandy soil access of much of western route option.
- It is very straight with easier access for construction.
- It provides a much more secure 132kV connection to Moora and Three Springs than the existing 132kV line.
- It leaves the relatively well performing 132kV Eneabba to Three Springs line in place.
- It is approximately 30km shorter than the proposed 330kV route length through Eneabba to Three Springs.

Overall this option appears to deliver substantial additional value at a lower cost. It is quite likely that this route could be in the order of \$30m less than the proposed western option.

Its disadvantage is that it has no environmental approvals for corridor access that the western route has. EHPL is not suggesting WPC's option be ditched in preference to this, but that this, as an alternative, if it has lower cost, should be the basis of the cost recovery from customers, unless the current proposal is part of overall development plans for the North Country to transition into an N-1-1.

Recommendation

A quick assessment should be done to determine if this option could meet the drivers, including time, for Section 1 Augmentation.

11. OTHER ISSUES

a. Renewable Generation

Not enough emphasis has been made of the need of the system to accommodate wind and possibly solar thermal and PV in the region. As WPC properly points out the region is ideal for renewables, there are few alternative regions in the South West Interconnected System. They also correctly identify that if the RET is to be met, and wind is the sole source, some additional 1,350MW is needed. If the State is not to secure most of that here in WA then, the State and WA community will lose. WPC has allowed for 200MW of new wind, but do not indicate where or in what time frame. Firstly 200MW falls far short of what is needed, so it appears to be extremely conservative.

We refer you to our earlier discussion of the nature of the magnetite mine loads, being base load. There is no analysis or discussion on what this means for wind penetration. There is no discussion on the level of wind and the basis for its connection to substantiate the 200MW.

There is no discussion of the incident solar resource in the region and project proponents' investigations.

This area of the Options Paper needs much more information to allow a reasonable assessment of the basis of 200MW of wind and in what time frame.

One of the reasons EHPL elected to connect to the grid instead of self generating on site was to access all types of energy in the competitive market, including renewable energy.

Recommendation

WPC provides more information on specific indigenous energy sources in the area and how that would integrate with the State Government's commitment to the RET's and the resulting need or otherwise for this infrastructure.

b. Cost information

The Net Present Cost, (NPC) does not fully inform the reader of the nature of the cost. WPC should provide the actual CAPEX and differential OPEX values in the time period of the assessment.

Recommendation

WPC to provide a break down over time of capital and operating costs.