Second supplementary submission to the Economic Regulation Authority

# Request for Waiver of Regulatory Test

Major Augmentation to Great Southern Transmission network to supply the Southdown Mine

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Supplementary to submissions dated 14 June and 8 July 2011

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# 1. Introduction & Executive Summary

1.1. This second supplementary submission is provided in response to a request for further information from the Authority relating to Western Power's application for a waiver of the regulatory test (dated 14 June 2011) (**Application**). The Application related to a major augmentation comprising the construction of a 330 kV transmission line from Muja to Southdown to supply the proposed Southdown magnetite mine (**Southdown Mine**) to be operated by the Southdown Joint Venture (**SDJV**). Western Power also provided its first supplementary submission to the Authority in response to a previous request for information on 8 July 2011 (**First Supplementary Submission**).

1.2. The Authority has now requested further information in relation to the following:

(a) the reasons why Western Power is seeking a waiver of the regulatory test for this major augmentation in light of its previous decision to carry out a full regulatory test in relation to the Mid-West Energy Project;

(b) evidence which demonstrates that Western Power has explored all options with a view to maximising "the net benefit after considering alternative options" for the purposes of sections 9.1 (a) and 9.1(b) of the Code. This should include information regarding whether or why the option of building a 330kV double circuit transmission line from Muja to Mount Barker as part of the major augmentation has not been considered in the study annexed to the Application; and

(c) further details in relation to consultation undertaken with respect to the major augmentation and, in particular, the decision to build the section of transmission line from Muja to Kojonup along the existing circuit 81 line route.

1.3. **Executive Summary**

This submission demonstrates that:

(a) the major augmentation is driven by a single project, the Southdown Mine, and the need to deliver power to the project by March 2014;

(b) in order to meet the power supply date, Western Power will need to commence construction in early 2012, which will not accommodate the undertaking of a regulatory test;

(c) without the supply of power to the project by March 2014, and a delay of between 12 months and 5 years that could result from the application of a regulatory test, may render the project unviable for reasons outlined in the Application and as a result it will not proceed. As a consequence, the major augmentation will not proceed and there will be no associated investment in the network;

(d) the existence of alternative options must be considered in light of the likelihood of them proceeding, which in turn must be considered in light of whether they meet the requirements of the project driving the augmentation. Thus, options which do not meet the power supply date for the Southdown Mine can be considered likely to proceed, as the project justifying the augmentation will not proceed;

(e) in this context, the options set out in the study annexed to the application are the only ones which will deliver power to the Southdown Mine by March 2014 and are the only viable alternative options to consider for the purposes of sections 9.1(a) and (b) of the Code;

(f) Western Power has demonstrated that the choice of major augmentation from those options set out in the study maximises the net benefit to those who use, consume and generate electricity on the network and, when integrated with future planned works for the network, will generate a net saving of up to $19.9 million (NPV);

(g) the choice of major augmentation is also the best option considered in light of environmental and landholder issues, having regard to the extensive consultations undertaken by Western Power throughout the project's development;

(h) the level of consultation undertaken to date, and the addressing of issues which arose from the consultation in developing the project line route, obviates the need to undertake any further consultation in relation to this waiver application;

(i) in any case, the risk associated with the investment in the major augmentation is being met by the SDJV through an undertaking to make a capital contribution in accordance with the Contributions Policy for those costs which do not meet the new facilities investment test (**NFIT**);

(j) as the major augmentation is driven by a single customer to supply power to its project in a green-fields location within a constrained timeframe, and that customer has undertaken to make a capital contribution in the manner described above, this project is fundamentally different from the MWEP (refer Section 3.7 below) and justifies the waiver of the regulatory test in all the circumstances;

(k) in the case of the MWEP, it was possible to undertake a regulatory test while also meeting the Chapter 9 objectives, including with respect to project delivery. Western Power remains incentivised to assess and pursue major augmentations which involve the application of the regulatory test where project requirements will allow it; and

(l) ultimately, the provision of access to third party users, the facilitation of competition and investment the network will, in this case, be hampered by the application of the regulatory test and cannot therefore be seen to meet the Chapter 9 objectives or the Code objective.

# 2. Background to application to supply power to Southdown Mine

## 2.1. *Introduction*

There is a vast array of documentation related to the application to supply power to the Southdown Mine and a number of the key documents are attached which provide detail on the progress of this application over time. The original applicant in early 2005 was Grange Resources Limited (**GRL**).

In any such application process, the applicant is likely to revise the details of their application a number of times resulting from discussions with Western Power and other changes to project requirements. Western Power, in turn, explores various solutions to meet those changing requirements. This Southdown Mine application has proceeded in two parts with a substantial break from 2008 to 2010 when the project was placed on hold because of the global financial crisis.

The scope of the current application is different from the original application in that the Southdown Mine's forecast electricity demand is considerably larger. The original application was for an ultimate supply of 75 MW by December 2008. Even at this time, the supply date constituted an urgent timeframe within which to deliver power to the project, and therefore limited the number of options that could be considered viable to meet the customer's needs. In this context, the optimal solution that was considered by Western Power to meet the power supply date was a single circuit 220 kV transmission line between Muja and Southdown, which tracked past the Kojonup substation without connecting to it.

When the Southdown Mine application was recommenced in 2010, GRL (now a participant in the SDJV) had revised its forecast electricity demand to 180 MW with the potential of an even higher load being required should a decision to employ electric trucks at the mine be taken in the future. The SDJV has also identified an electricity demand requirement at the Port of Albany of 11 MW. The power supply date was revised to March 2014, which presented Western Power with yet another urgent timeframe within which to build and commission a transmission line.

### 2.2. *Application during 2005 to 2008*

This section provides some background into evolution of the application during the period 2005 to 2008, after which the project was suspended. It demonstrates that

(a) a number of options, which included line routes from Muja directly to Southdown and other line routes which passed through Albany and Mirrambeena (between Mt Barker and Albany), were considered and studied; and

(b) the chosen option of a 220 kV single circuit line from Muja to Southdown via Kojonup was considered to be the most cost effective and also the only option for which an approved line route could be obtained within the timeframe that met the customer's requirements at the time.

**February 2005**

GRL first requested a 45 MW supply to the Southdown mine and a 2 MW supply to the Port of Albany. A study proposal (DM 2244748) was put together which involved 3 options for a 132 kV supply to Southdown. The required in-service date at this stage was December 2008. As this was a limited time period within which to deliver an augmentation of this scale and based on the total capacity requested, power system studies were commenced and only 132 kV options were considered for the supply.

**May to November 2005**

GRL increased its requested load to 50 MW and indicated that there was a real possibility that it could increase again to 75 MW. Based on this revised load requirement, it was determined that a 132 kV supply voltage might still be able to meet the Southdown Mine's requirements, but this would be based upon the duplication of the lines from Muja to Kojonup and the construction of either a single or double circuit line from Kojonup to Southdown. While there was additional scope to use static VAR compensation, it was understood that the 132 kV supply option would not allow for further increases in the load. As a result, Western Power included a 220 kV supply voltage as an option to be considered.

A study was undertaken in the period between June and November 2005 to determine the costs associated with each supply voltage option which concluded that both options achieved a similar cost outcome (Ref DM 2413772 and DM 2488458).

GRL also funded preliminary work related to line route selection in the second half of 2005.

**January 2006**

As additional connection applications were received at this time for the Albany area, Western Power considered further cost estimates to supply both the Southdown Mine and Albany area simultaneously.

**June – late 2006**

Western Power engaged Maloney Field Services to perform community consultation work on its behalf with a view to completing this phase of the work by February 2007. This was developed in late 2006 when Western Power engaged consultants GHD to undertake a community consultation plan for two alternative line routes between Muja and Southdown, which traversed paths both north and south of the town of Gnowangerup. As there was some opposition to these line routes from environmental groups and landowners as described in the attached consultation report, a 220 kV line route between Muja and Albany via Kojonup was also considered together with a line section from the Albany area to Southdown, to complete the supply to the Southdown Mine.

A scoping document prepared by GHD (DM 8493260) describes their approach taken in relation to this work. The manner in which the concerns raised by various stakeholders were addressed and managed by Western Power and their impact on the ultimate line route selected are detailed in the attached consultation report.

**August 2006**

Based on the work completed to date, Western Power advised GRL that, with the extent of the construction, consultation and approval works required, it would not be in a position to supply power to the project before May 2010.

**March to August 2007**

Further consultations were undertaken with communities affected by the proposed transmission line taking into account the various line routes under consideration. Stakeholders were also advised of the outcomes of the assessments undertaken by independent consultants and the ultimate line route that was proposed.

The necessary environmental approvals were obtained from the Environmental Protection Agency (**EPA**) in August 2007, and the Department of Environment and Conservation (**DEC**) (clearing permits) in September 2007.

On this basis, the line route was finalised.

**October 2007**

The following table summarises the results of the various system studies that had been undertaken up to October 2007, and that are addressed in the planning report (DM 4149229). It shows that the most cost effective solution to supply the Southdown Mine was a dedicated single circuit 220 kV line from Muja to Southdown via Kojonup (option 2). The projects that were the subject of the Albany area applications did not proceed and the proposed 132 kV line from Kojonup to Mirrambeena also contained in option 2 did not proceed.

| | Brief Scope of Works | Indicative Cost | Comments/Notes |
|---|---|---|---|
| 1 | Double circuit 132kV line between Kojonup and Albany plus a single circuit 132kV line between Muja and Kojonup. | $150M<br><br>Not ranked. | Grange Resources Southdown does not proceed. |
| 2 | Double circuit 132kV line between Kojonup and Mirrambeena/Albany plus a single circuit 220kV line between Muja and Southdown. | $276M<br><br>Ranking = 1 (least cost) | No direct interconnection contemplated between Albany and Southdown. Includes a 220/132kV 130MVA transformer at Kojonup. |
| 2a | Double circuit 132kV line between Kojonup and Mirrambeena/Albany plus a double circuit 220kV line between Muja and Southdown. | $353M<br><br>Ranking = 4 | Double circuit 220kV to Southdown provides a greater scope for and eastwards expansion of the network. Includes a 220/132kV 130MVA transformer at Kojonup. |
| 3 | Double circuit 220kV line between Muja and Mirrambeena/Albany plus a double circuit 220kV line between Mirrambeena/Albany and Southdown. | $354M<br><br>Ranking = 4 | 220/132kV step down transformers at Mirrambeena to reinforce Albany 132kV. |
| 3a | Double circuit 220kV line between Muja and Mirrambeena/Albany plus a single circuit 220kV line between Mirrambeena/Albany and Southdown. | $323M<br><br>Ranking = 3 | 220/132kV step down transformers at Mirrambeena to reinforce Albany 132kV. |
| 4 | Double circuit 220kV line between Muja and Southdown plus a double circuit 132kV line between Southdown and Mirrambeena/Albany. | $316M<br><br>Ranking = 2 | 220/132kV step down transformers at Southdown to reinforce Albany 132kV. |
| 4a | Double circuit 220kV line between Muja and Southdown plus a double circuit 220kV line between Southdown and Mirrambeena/Albany. | $358M<br><br>Ranking = 4 | 220/132kV step down transformers at Mirrambeena to reinforce Albany 132kV. |

Following the release of this report to GRL, Western Power and GRL recognised the difficulty in obtaining a line route from Albany to Southdown (or any line east of Mt Barker) with all necessary consultations and environmental and landowner approvals within the time period required to deliver power to the Southdown Mine. GRL and Western Power therefore resolved to abandon the Muja-Kojonup-Albany-Southdown option and to pursue the line route which is now referred to as the indirect line route between Muja and Southdown, tracking past Kojonup (forming the basis of option 0 in the study annexed to the Application).

**2008**

As a result of the global financial crisis, the project was put on hold.

### 2.3. *GRL consideration of non-network vs network options*

During the period up to 2008, GRL had considered a number of options for their electricity supply in parallel with requesting supply from Western Power. These options included on-site generation utilising wind, solar, diesel, gas and biomass, as well connecting to the network. This report (attached) clearly demonstrates the basis upon which GRL have pursued a network connection as the only economically viable option to supply power to the Southdown Mine.

### 2.4. *Application since 2010*

In May 2010, the proponents of the Southdown Mine (now SDJV) approached Western Power to recommence the application. They advised that they had an increased electricity load requirement of 180 MW. SDJV also advised they were considering using electric trucks on site which, together with future expansions of the mine, would increase the load requirement beyond 180 MW. The SDJV also confirmed that it required power to be supplied to the Southdown Mine by no later than March 2014, another very limited timeframe for Western Power to achieve in light of the extent of the works required. As clearly indicated in the letter on behalf of the SDJV that accompanied the Application, the SDJV require power on this date to take advantage of the forecast iron ore prices that make the project viable. Delaying the power supply date may render the project unviable and result in the project not proceeding.

On the basis of this revised application, Western Power considered the following factors which affected the major augmentation options that could deliver power by the date and to the level required to the Southdown Mine:

(a) the revised load requirement and the potential for future increases in the demand related to expansion of the mine capacity would require the line to be constructed and operated at 330 kV; and

(b) it would not be possible to meet the customer's required power supply date other than by utilising the line route between Kojonup and Southdown that had been secured during the original project negotiations. To secure an alternate line route would add 3 to 5 years to the project timeframe, taking into account approvals and consultations required.

Planning work to develop and assess options proceeded on the above basis and community and land owner consultations recommenced, which also allowed Western Power to build upon its prior consultation work relating to the line route. The viable alternative options developed and considered by Western Power in this context which would meet project requirements are summarised in the study annexed to the Application.

Western Power had also offered following the recommencement of the application the option to the SDJV of building the line themselves and taking a connection directly at Muja. The SDJV did consider this option but came to the conclusion that the process of obtaining its own approvals would add 2 to 5 years to the project time-frame which would mean that the Mine target in-service date would not be met. For the reasons outlined in the Application, this may threaten the viability of the project which may mean it is unlikely to proceed.

### 2.5. *Decision to assess the viability of using the circuit 81 line route*

Given the increasing interest of the Commonwealth in Carnaby's Black Cockatoo habitat in the period prior to the recommencement of this project, Western Power considered that there was a high likelihood that a Commonwealth referral would be required with respect to environmental approvals.

Based on lessons learned from the North Country Project, and to evaluate all viable economically efficient options, Western Power decided in July 2010 to test the cost and viability of a direct line route option (12 km shorter) parallel to the existing Muja to Kojonup 81 transmission line. In this regard, Western Power considered that while following the existing 81 line route from Muja to Kojonup would not impact on the customer time-frame, no changes east of Kojonup were going to be possible for the reasons stated in section 2.4 above.

This shorter option utilised the existing corridor to reduce costs and clearing impacts and, if constructed, the double circuit line would provide Western Power with the opportunity to reinforce regional power supplies including Albany and surrounding areas.

As indicated in the Application, there are potential environmental, economic and community benefits associated with the shorter route parallel to the existing corridor. DEC was also consulted in relation to the use of the direct line route option in December 2010.

In December 2010, given the survey results, the quantity of vegetation to be cleared and the latest Commonwealth position on the significance of impacts to Carnaby's Black Cockatoo habitat, Western Power was advised that the original line route would require formal Commonwealth environmental assessment.

While this had the effect of extending the major augmentation timeframe by several months, it created the opportunity for Western Power to continue to develop the line route option utilising the existing circuit 81 line route between Muja and Kojonup. It was considered by Western Power to be a superior option because it could minimise the line's environmental and landowner impacts, while generating economic efficiencies when considered on an integrated basis with planned network reinforcement works over a 50-year horizon. These are set out in the options study annexed to the Application.

### 2.6. *Decision in relation to major augmentation*

Western Power's planning study annexed to the Application clearly identifies, for those options which are capable of meeting the relevant customer's requirements, the relative benefits of a number of options for major augmentations which utilise the circuit 81 and indirect line routes. Any options that did not meet the customer's deadline were understood to threaten the viability of Southdown Mine and, as the sole project driving the major augmentation, were unlikely to proceed. As a result, they were not included in the study.

The study was able to demonstrate that the double circuit option constructed along the 81 line route provided the greatest benefit and also generated material net savings in future investments in the network.

It was also determined that both a single circuit dedicated line using an indirect line route and a double circuit line utilising the existing Muja to Kojonup circuit 81 route would require the following project approvals prior to construction:

- Commonwealth approval under the EPBC Act – typically 8-12 months;
- Conservation Commission endorsement - typically 3-6 months;
- Clearing Permit under the EP Act – typically 5-7 months; and
- Aboriginal Heritage approvals under the Aboriginal Heritage Act 1972 - typically 6-9 months.

The double circuit Muja to Kojonup direct line option would also need to be referred to the EPA but is not expected to require formal approval (usually up to 11 months).

Western Power concluded that the above approvals could be obtained concurrently and the proposed major augmentation schedule contained in the Application therefore includes a total environmental approvals time of 12 months, with all approvals obtained by the end of December 2011.

The attached consultation report also sets out the extent of the consultation undertaken in relation to utilising the line 81 route between Muja and Kojonup as part of the major augmentation since 2010. It highlights that:

- All local authorities were consulted and support was obtained for the replacement of the existing line 81 circuit between Muja and Kojonup in preference to establishing an additional line route corridor;
- The 125 affected landowners were consulted with through a combination of face-to-face meetings and field visits with Western Power personnel, community information sessions were held, and, where necessary, modifications made or considered by Western Power to reduce perceived impacts.;
- Relevant government agencies including State and Federal environmental bodies were extensively consulted and detailed briefings provided, with no concerns outstanding to date;
- Western Power will continue, throughout the implementation of the major augmentation, to consult with affected landowners and other stakeholders, including through further community information sessions scheduled in August 2011;
- Western Power's processes for consulting widely with affected stakeholders are robust and will ensure during the implementation of the major augmentation that feedback received is managed or dealt with appropriately;
- It is not anticipated that further consultation beyond that proposed by Western Power in implementing the major augmentation is necessary or will generate issues not already addressed or currently being managed by Western Power; and
- The SDJV have been and will continue to work collaboratively with Western Power in ensuring the public is informed about the Southdown Mine and proposed transmission line, and has participated extensively in community consultations to date and released information on its website.

The following matters support Western Power's decision to pursue the major augmentation in its current form.

(a) The line route was established for the original application in which the options analysis undertaken at the time demonstrated that the dedicated indirect line route from Muja to Southdown tracking past Kojonup utilising a 220 kV transmission line was the most cost effective to meet the requirements at the time.

(b) The option of building, in relation to the original application, a 220 kV line to Albany or Mirrambeena (between Mt Barker and Albany) was considered but this was more costly and, in addition, obtaining a line route from Albany or Mirrambeena across to Southdown was not achievable within the timeframe to meet the customer's supply date.

(c) With the project being resurrected in 2010, the SDJV indicated that the in-service date of March 2014 was essential to support the viability of their project.

(d) With the increased Federal environmental requirements that apply to this major augmentation there emerged an opportunity to explore the option of a double circuit line from Muja to Kojonup following the existing 81 line route.

(e) While the electricity demand ultimately increased in 2010, the assessment of the most appropriate line route to deliver power to the Southdown Mine which was the subject of community consultations and approvals remains sound and can reasonably be relied upon by Western Power.

(f) Western Power also engaged in further consultations regarding the revision to the Muja to Kojonup portion of the major augmentation as detailed in the attached report which, when combined with previous consultations, obviates the need for further consultations to be undertaken with respect to the major augmentation.

(g) Maintaining the portion of the previously obtained line route east of Kojonup was considered to be the only option that could meet the SDJV's timeframe. Any other option involving new approvals and consultations would add 2 to 5 years to the project time frame,

(h) Western Power has demonstrated that the major augmentation which is the subject of the Application provides superior benefits to the original indirect line route from Muja to Kojonup.

(i) The subsequent application of the NFIT and the undertaking by the SDJV to provide a contribution under the Contributions Policy including those capital costs which do not meet the NFIT provides sufficient protection for other users of the network to ensure there will be no net cost to those who generate, transport or consume electricity as a result of this major augmentation. The SDJV's contribution is conditional on the project proceeding, which is linked to the application for a waiver of the regulatory test.

(j) Construction of the transmission line to supply power to Grange must commence in early 2012 to meet the power supply date. The proposed major augmentation will meet this deadline, but options which connect the Southdown Mine through Albany, Mt Barker or Mirrambeena will not.

## 3. Chapter 9 objectives and waiver of regulatory test

3.1. Section 9.1 of the Code sets out the 'Chapter 9 objectives', which form the basis of a waiver under section 9.23 of the Code.

"The objectives of this Chapter 9 (**"Chapter 9 objectives"**) are:

(a) to ensure that before a *service provider commits* to a proposed *major augmentation* to a *covered network*, the *major augmentation* is properly assessed to determine whether it maximises the *net benefit after considering alternative options*; and

(b) to provide an incentive to a *service provider*, when considering *augmentation* to a *covered network*, to select the option (which may involve a *major augmentation* or may involve not proceeding with an *augmentation* at all) which maximises the *net benefit after considering alternative options*; and

(c) to minimise:

(i) delay to projects and other developments; and

(ii) administrative and regulatory costs; and

(iii) any other barriers to the entry of *generators* and *consumers* into the electricity market,

arising from the application of the *regulatory test*.

3.2. The definition of "regulatory test" and "net benefit after considering alternative options" are set out below.

"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."

3.3. Sections 9.23(a) to (d) of the Code comprise characteristics of a major augmentation which would, prima facie, establish that the conduct of a regulatory test would be contrary to the Chapter 9 objectives.

3.4. Thereafter, it is necessary to consider whether, for the purposes of section 9.23(f), a waiver is necessary to achieve the Chapter 9 objectives. In considering these objectives, it is necessary to have regard to them in context and cumulatively. In the event that a tension exists between the objectives, it is necessary to consider how those objectives can be reconciled in light of Code objective in section 2.1 of the Code. The 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."

3.5. This interpretative rule is set out in section 2.3(b)(ii) of the Code, and was also the subject of consideration in a comparable situation in *Dr Ken Michael AM; ex part Epic* Energy *(WA) Nominees Pty Ltd & Anor* [2002] WASCA 231 at 136 in relation to the section 8.1 of the *National Third Party Access Code for Natural Gas Pipeline Systems 1997* as it then was.

3.6. In considering the Chapter 9 objectives, it is Western Power's submission that:

(a) Western Power has met the objective in section 9.1(a) of the Code as it has demonstrated, through its submissions in support of the waiver and, in particular, the study annexed to the Application, that the major augmentation selected maximises the net benefit after considering alternative options. In particular:

(i) The options that can validly be considered 'alternative options' for the purposes of this section of the Code are only those which are viable in that they are likely to proceed;

(ii) The likelihood of an option proceeding must be interpreted in the context of a major augmentation which is, as is the case here, driven by a single customer whose project is governed by a strict deadline and will not otherwise proceed;

(iii) Thus, only those major augmentation options which meet the relevant customer deadline can be considered to be viable alternatives;

(iv) As a result, those options considered in the study annexed to the Application only included those options which would meet the customer's deadline;

(v) The net benefit has been shown in the study to be maximised through the proposed major augmentation as it generates a net saving in NPV terms of up to $19.9 million, and other benefits including environmental benefits; and

(vi) Western Power's study has been comprehensive, and has also been complemented by extensive consultations with stakeholders in developing and refining the proposed major augmentation and Western Power having secured or being in a position to secure all necessary approvals by the customer's deadline.

(b) Western Power has met the objective in section 9.1(b) of the Code as Western Power remains incentivised for the purposes of section 9.1(b) of the Code to seek the application of the regulatory test to major augmentations due to the benefit in undertaking an assessment of that nature prior to committing to major investments in the network. This is because:

(i) it provides an early opportunity to determine the best option available in designing and implementing a major augmentation in light of extensive analysis and consultation;

(ii) the Code adopts through the NFIT a process whereby the early satisfaction of the regulatory test can assist in meeting some of the criteria of the NFIT, and thus ensure that the portion of the capital costs incurred in undertaking a major augmentation which is included in the regulated asset base for the network is maximised and represents only the amount which has been efficiently incurred by a service provider seeking to minimise costs;

(iii) The Code, however, also considers the effect of major augmentations which are driven by specific customer demand. The Contributions Policy enables a service provider to, where the cost of works required to connect a user exceeds the NFIT, request a contribution from that user, including in relation to those costs which result from the user's particular requirements such as timing and reliability. Indeed, section 9.1(c) of the Code recognises that a user's requirements can affect the application of the regulatory test to a major augmentation and, through section 9.23, whether such a test should be carried out in the circumstances. This is reinforced by section 2.1 setting out the Code objective which aims to promote competition in markets and which therefore centres on enabling third party access to the network; and

(iv) If, as in the present case, the project justifying the major augmentation fails as a result of the application of the regulatory test, the application of the test itself is futile. Western Power has indicated in section 3.7 below why it has taken a different approach in relation to this major augmentation as compared with the MWEP and, for the above reasons, Western Power will remain incentivised to apply the regulatory test to major augmentations in future.

(c) Western Power will be meeting the requirements of section 9.1(c) of the Code by ensuring that the major augmentation which is undertaken enables third party access to the network by meeting the project's requirements. In granting a waiver, Western Power will also not unnecessarily increase regulatory and administrative costs in circumstances where the undertaking of a regulatory test would render the project justifying the major augmentation unviable and thus fail to generate further viable alternative options that are likely to proceed as a result.

(d) Sections 9.1(a) and 9.1(b) of the Code may be in tension with section 9.1(c) of the Code where a customer's requirements are such as to limit those options which may be considered viable alternative options with a reasonable likelihood of proceeding. As the Code objective emphasises promoting competition in markets, it is Western Power's submission that meeting the customer's requirements to access the network would, where the application of the regulatory test would have the effect of threatening the viability of the project and the associated major augmentation itself, comprise an overriding objective in determining whether the Chapter 9 objectives as a whole have been met. The proposed major augmentation set out in the Application fits within this criteria.

(e) The choice of major augmentation is also the best option considered in light of environmental and landholder issues, having regard to the extensive consultations undertaken by Western Power throughout the project's development.

(f) The level of consultation undertaken to date, and the addressing of issues which arose from the consultation in developing the project line route, obviates the need to undertake any further consultation in relation to this waiver application.

(g) As a result, it is Western Power's submission that its Application and First Supplementary Submission establish those matters set out in sections 9.23(a), (b) and (d) of the Code, and therefore the carrying out of a regulatory test in relation to the major augmentation would not satisfy the Chapter 9 objectives. Thus, Western Power submits that the waiver of the regulatory test under section 9.23(f) is justified and is necessary to meet the Chapter 9 objectives.

3.7. Western Power did not choose to seek a waiver of the regulatory test in the case of the MWEP because of the different circumstances involved. Specifically:

(a) In this case the major augmentation is driven by a single customer to supply power to its project in a green-fields location within a constrained timeframe, and that customer has undertaken to make a capital contribution in the manner described above. This mine project is substantially advanced, and is expected to proceed to financial commitment early in 2012. Thus this project is fundamentally different from the MWEP and justifies the waiver of the regulatory test in all the circumstances;

(b) The MWEP has broader network benefits and implications than the proposed major augmentation in terms of its reinforcement of the North Country network. In the context of discussions with project proponents and other customers who would receive the benefits of the MWEP, it was determined that a regulatory test could be carried out without impinging on project delivery timeframes. As Western Power is incentivised to apply the regulatory test where projects which form the basis of a major augmentation will permit it, it therefore proceeded with the regulatory test for the MWEP. This is not the case with the proposed major augmentation to supply the Southdown Mine;

(c) It was therefore the case for the MWEP that it was possible to undertake a regulatory test while also meeting the Chapter 9 objectives;

(d) Ultimately; the provision of access to third party users and facilitation of competition and investment the network will, in this case, be hampered by the application of the regulatory test and cannot therefore be seen to meet the Chapter 9 objectives or the Code objective. This was not the case in relation to the MWEP which is why a waiver of the regulatory test was not sought by Western Power.

3.8. For the foregoing reasons, Western Power submits that a waiver of the regulatory test is justified in relation to the proposed major augmentation and is necessary to meet the Chapter 9 objectives and will not have the effect of otherwise undermining those objectives or the Code objective.

## Reference Documents (available to the ERA upon request)

| No | Document | Date | DM Number |
|---|---|---|---|
| 1 | Study proposal | 7 April 2005 | 2244748 |
| 2 | Request for system studies for various options | 16 June 2005 | 2413772 |
| 3 | Cost estimates for 132 kV and 220 kV options | 2 Aug 2005 | 2488458 |
| 4 | GHD scoping document for corridor selection and stakeholder engagement | Sept 2006 | 8493260 |
| 5 | Summary of options considered | Oct 2007 | 4149229 |

# Appendix A

***Grange Resources Ltd – Southdown Project – Power Supply Options Study Southdown Minesite, December 2006 (DM 8486042)***

# GRANGE RESOURCES LTD

# SOUTHDOWN PROJECT

## Power Supply Options Study

## Southdown Minesite

## December 2006

## ACKNOWLEDGMENT AND DISCLAIMER

This report aims to review available information on the subject mineral deposit and or exploration area which is available from earlier studies and to give recommendations for future work where it is believed appropriate.

The term “ore” is used in this Report in a descriptive manner only to indicate rocks carrying higher grades of mineralisation and is not intended to be a description of material or confused with the definition of “ore” as used in the Joint Ore Reporting Committee (JORC) Code.

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Director

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# 1 INTRODUCTION

Grange Resources Limited ("Grange") is developing the Southdown Project, comprising a magnetite mine and concentrator at Southdown, WA, a slurry pipeline to the Port of Albany, concentrate storage and shiploading facilities at Albany, and a pellet plant at Kemaman in Malaysia.

A feasibility study was undertaken by various parties to examine the mineral resource, mine planning, and processing and engineering alternatives.

The study estimated a total power demand of approximately 75 MW at the minesite, with up to an additional 10 MW at Albany port.

The current intention is that the power supply to the Southdown minesite will be met through a connection to the South-West Integrated System (SWIS) operated by Western Power. The connection will be via a 220 kV power line running from Muja to Southdown site, a distance of between 250 to 300 km depending upon the route taken. This line would have sufficient capacity to supply the minesite together with wider regional demand.

Once connected to the grid, the Project will then possess a high degree of flexibility to source its energy requirements on a competitive basis from a number of power generators.

With regards to the 10 MW demand at Albany port, this will be supplied through an upgrade of the power distribution system currently feeding the port area. It is understood that an upgrade of the regional supply to Albany may be required to meet the demands of the project and overall demand growth in the Albany area.

As part of the ongoing review of the Project, Grange has requested Project Development and Management Systems Pty Ltd ("PDMS") to review the power supply alternatives for the minesite and port areas.

In undertaking this study PDMS has reviewed the likely demand at Southdown, and assessed the potential for supply from the following sources of power, together with a summary discussion of the connection to the SWIS:

- Diesel generation;
- Liquefied petroleum gas (LPG) or liquefied natural gas (LNG) generation;
- Natural gas;
- Solar power;
- Wind power; and
- Biomass power.

## 2 FORECAST DEMAND PROFILE

It has been estimated that the demand for power at Southdown, represented by connected load, is approximately 75MW, with a further 10MW at Albany.

The principal requirement for power at the minesite is for the processing of the magnetite ore through to magnetite concentrate, and its pumping in slurry form to Albany. Major users of electricity will include the crushing circuits, the high pressure grinding rolls and the ball mills, and the slurry pumps.

At Albany, power will be required for the filtration of the slurry to produce the concentrate in solid form, and for material handling equipment including conveyors, reclaimers and shiploaders, and pumping of reclaimed water back to the minesite for re-use in the process.

It is intended that the processing plant, pumping and filtering operations will take place on an full-time basis, that is, 24 hours a day seven days a week, 365 days per year. The plant will operate at all times except when it is on maintenance. However, as the plant is modular, when the plant is on maintenance only individual modules will be taken out of service during maintenance, while the rest continue in operation. This means that there is always some level of demand for power.

As such the plant represents a classic base load demand.

Using total hours per year of 8,760, and taking into account the following likely maintenance shutdown scenarios, allows a typical demand profile to be established for the Project:

- One major shutdown per year of 3 to 5 days for the main operating equipment, with power demand falling to approximately 8 to 9 MW;
- Two major shutdowns per year of 3 to 5 days each of individual parts of the plant, with a continuing demand of approximately 47 MW;
- Minor shutdowns of 12 hours every 6 weeks, with a continuing demand of 60 MW; and
- Full production with demand at 75 MW for the remainder of the time.

This can be re-stated as follows.

| Description | Time (hours per year) | Demand (MW) |
|---|---|---|
| Full Production | 8,344 | 75 |
| Minor Shutdown | 104 | 60 |
| Module Shutdowns | 192 | 47 |
| Major Shutdown | 120 | 8 |

An understanding of the demand profile for Southdown is critical to the ability of a particular source of power to meet the project's needs.

From a review of the above table it is obvious that the Project requires full power of 75 MW to be available essentially 100% of the time.

## 3 SUMMARY OF SUPPLY FROM THE SOUTH WEST INTEGRATED SYSTEM

Western Power operates the SWIS, which transmits power from the various electricity generators with the local power distribution system.

It has been proposed that the power demand at Southdown and at Albany be meet through the construction of a new 220 kV power line running from the SWIS' Muja substation to a new substation to be constructed on the Southdown site. Several alternative routes have been proposed, all running to the north of the Stirling Ranges, and, then past the eastern end of the Stirlings, southwards to the minesite.

An alternative is for a powerline to Albany township with a shorter 132 kV line constructed from Albany to Southdown.

A 220 kV line would have a capacity in excess of 100 MW, and would provide a significant improvement in the power supply to the entire region.

It is understood that the Project will be required to make a capital contribution to the cost of the line construction. As the final route has not been selected it is difficult to estimate the quantum of this contribution. Also as the line will supply power to the wider region only part of the capital cost accrues to the Project, with the rest being allocated to regional demand.

Additionally, it is further understood that, as the line will be part of the SWIS and owned by Western Power, the capital contribution will be recovered over some contract period, say 15 years. As such it will be incorporated into the electricity supply cost for the Project, and there will be no up-front capital contribution from the Project to the cost of the line.

As the Project will be a contestable load, it will have the ability to go out for competitive tender to select the party which will actually generate the power it will take from the SWIS. At present no final energy supply prices are available, however it would be generally expected that in the South West of WA the energy generation price for a relatively large, base load application such as that represented by the Project will be approximately A$0.06 per kWh or less. After providing for transmission charges (including ongoing line maintenance) and the capital contribution, the likely power supply cost for the Project will be up to A$0.10 per kWh.

## 4 DIESEL POWER GENERATION

Diesel is a potential power supply alternative for Southdown with severe limitations. The advantages for diesel generators are:

- They are extremely reliable and may operate for up to 30,000 hours before requiring significant maintenance work;
- Apart from the cost of fuel, diesel generators have relatively low operating costs, estimated at approximately A$0.02 per kWh;
- Their capital cost is highly attractive at approximately A$0.75 million per MW;
- They have reliable quick-start and load acceptance performance, allowing them to cold start and accept full load in one step;
- Their high reliability makes them ideal for supplying continuous power.

However, diesel generators suffer from some significant drawbacks:

- A typical reciprocating diesel generator has a modest capacity of 1 to 2 MW, with units available up to 6 MW. For a 75 MW installation approximately 14 such units would be necessary giving a total installed capacity of about 84 MW. This includes spare capacity to ensure continuous supply.;
- As they use diesel their fuel costs are totally related to the prevailing cost of oil. At current prices the effective cost per kWh will be between A$0.25 to 0.30 per kWh, principally all fuel based;
- A large installation such as the above would require very significant onsite fuel storages and regular supplies. Given Southdown's location, diesel would require trucking in and it is estimated that up to 16 B-doubles may be required per day.

Therefore while diesel's positive features make them ideal for such an installation, the large numbers required for the duty and the exposure to oil prices and hence high operating cost structure makes them unattractive compared to alternatives such as supply from the SWIS.

## 5 NATURAL GAS POWER GENERATION

The Dampier to Bunbury Natural Gas Pipeline (DBNGP) extends from Dampier to Capel with a lateral to Busselton. The southeast areas of Western Australia are not serviced with natural gas, including the town of Albany.

Provision of natural gas for power generation at Southdown would require the construction of a natural gas pipeline to site, and the construction of a gas-fired power station.

The following comments can be made regarding this:

- Significant time delays to the Project can be expected due to the time required to obtain approvals for and then to construct a natural gas pipeline.

- The DBNGP is currently operating at capacity. An expansion of the capacity of this pipeline will be necessary before further significant gas supplies can be delivered south;

- There is little uncommitted natural gas available in WA. Further supplies of natural gas would require the construction of new natural gas projects. This will lead to a significantly increased cost of natural gas for new large scale industrial consumers;

- A natural gas fired power station using gas turbines will cost in excess of A$1 million per MW of capacity. In order to guarantee full power supply is always available one spare gas turbine would be required to be installed. Assuming the use of five 20 MW turbines the approximate capital cost of a gas turbine installation will exceed A$100 million, plus the cost of the gas pipeline – this will be a significant cost in its own right;

- Operating costs for gas turbines includes the delivered cost of gas, maintenance and repairs on the turbines together with minor labour requirements. As no gas is available in the Albany region it is impossible to estimate the operating cost. Costs available from previous studies do not reflect the current high demand for natural gas which is driving prices upwards. However, generating costs approaching A$0.15 per kWh would be expected;

- The current delivery time for new gas turbines can be up to 12 months.

Fundamentally the lack of gas in the Albany region makes this alternative impossible and the current high prices and demand for gas means that situation is unlikely to change in the future.

## 6 LPG/LNG POWER GENERATION

Liquefied Petroleum Gas (LPG) or Liquefied Natural Gas (LNG) are similar fuels and are treated as identical in this discussion. They can be used in either gas turbines or, in some cases, reciprocating engines similar to those used in diesel generators.

The advantage of a gas turbine is that significantly greater capacity per generating unit is available. Given the demands of the project for continuous supply and the need for back-up power, the suggested installation for Southdown would comprise 5 20 MW units. At an installed capital cost of US$1 million per MW, this installation would cost approximately US$100 million.

Alinta Gas currently supplies liquefied petroleum gas (LPG) via a reticulated system for domestic use in the Albany townsite only. The reticulated system will be extended as demand justifies, but major industrial customers cannot be supplied due to limited capacity of the LPG plant. At the moment there is no natural gas pipeline in the region though extensive studies have been carried out. Supplies of LPG or LNG would therefore require trucking to the minesite from Perth. A LPG/LNG plant capable of supplying 75 MW on a continuous basis is estimated to use approximately 25,000 GJ/day. This is equivalent to approximately 16 B-doubles per day into the Souhdown site.

The delivered cost of LPG/LNG would exceed that for natural gas, and an effective operating cost of between A$0.20 to 0.25 per kWh should be expected.

# 7 SOLAR POWER GENERATION

## 7.1 Photovoltaic Solar Power

The Federal and Victorian Governments under the Federal Government's Low Emissions Technology Demonstration Fund are jointly funding a large scale solar photovoltaic ("PV") power station in Victoria which will have a rated capacity of 154 MW and be connected to the national grid.

It is claimed that this will be the largest and most efficient solar photovoltaic power station in the world.

The technology will use an array of high performance close-packed PV cells that will be located in a solar receiver suspended at the focal point of a dish concentrator. The dish will have a series of curved reflecting mirrors mounted on steel frames which will track the sun throughout the day. The combination of mirror profile, mounting framework and solar receiver will be designed to deliver concentrated solar energy to each PV module mounted at the focal point. The tracking mechanism will allow electricity to be produced whenever the sun is more than 5° above the horizon.

The receivers will produce direct current (DC) electricity that will be passed through an electronic inverter to give grid-quality alternating current (AC). Transformers will then step up the voltage to meet the requirements of the transmission network.

A control system will be used to keep each dish pointed at the sun, to monitor performance and adjust current and voltage to maximise electricity production.

The expected capital cost of this plant is forecast by PDMS to exceed A$400 million. As the plant will only generate power during daylight hours (assume an average of 12 hours per day) the effective capital cost is expected to exceed A$5 million per MW.

Expected operating costs are not known but should be low, largely related to maintenance and repair costs and labour

## 7.2 Thermal Solar Power

Solar thermal electricity has been successfully demonstrated on a large scale in California over the last 15 years. Essentially this technology uses conventional steam turbines but substitutes a solar boiler for a conventionally fuelled one. This has the advantage of a lower capital cost when compared to photovoltaics but the capital and operating costs are still too high to allow its widespread adoption.

The sun's heat can be collected in a variety of different ways:

- Solar parabolic troughs consist of curved mirrors which form troughs that focus the sun's energy on a pipe. A fluid, typically oil, is circulated through the pipes and is used to drive a conventional generator to create electricity;

- Solar parabolic dish systems consist of a parabolic-shaped concentrator similar in shape to a satellite dish that reflects solar radiation onto a receiver mounted at the focal point at the centre. The collected heat is utilized directly by a heat engine mounted on the receiver which generates electricity;

- Solar central receivers or "Power Towers" consist of a tower surrounded by a large array of heliostats. These are mirrors that track the sun and reflect its rays onto the receiver. This absorbs the heat energy that is then utilized in driving a turbine electric generator.

### 7.3 Summary

Southdown appears to be at a suitable latitude to enable the construction of either a solar PV or a solar thermal generation plant.

However, the following points must be recognised:

- Solar power is still in early stages of development. Use of solar power would place a significant technical risk upon the project;

- The capital cost of both forms of Solar power generation remains high;

- The restricted operational hours and the lack of storage capacity inherent in this technology gives a very high effective cost per unit of electricity;

- Sufficient solar power will only be available at times of suitable clear days and during daylight hours;

- Supplementary power supplies will be necessary to augment solar power. Fundamentally this will have to be from another technology suitable for onsite power generation, or through a connection to the SWIS grid;

- The supply from solar generation is proportional to the intensity of the available sunlight. Significant excess capacity will be required to ensure that a solar plant can meet the project demand profile even during daylight hours,

- A large area of land is required, the estimated area required for the solar PV array in north west Victoria is 800 ha. The purchase cost of this additional land needs to be taken into account.

Based on the above, it would appear that, while solar power supply at the scale necessary may be technically possible in the future, the inability of a solar plant to supply power on a 24 hours basis renders it in impractical as an independent power supply for Southdown without a supplementary power supply of the same capacity or a connection to the SWIS grid system. This is obviously an illogical solution as either the installation of a supplementary onsite generation system of the same capacity or a connection to the Grid effectively negates the need for a solar power generation system in the first place.

While the operating cost for solar power is low significant maintenance costs would be incurred for the installed equipment and any transmission lines necessary. As this is a new technology maintenance costs may be high.

# 8 WIND POWER GENERATION

Wind power generation is currently in use in the South West and Geraldton regions of WA. Verve Energy operates a combined wind/diesel system at Bremer Bay and Hopetoun and at Esperance a combined wind/gas plant.

There may be suitable sites for wind generation along the coast line adjacent to the Southdown site. Two new wind farms rated above the Southdown project demand were recently constructed in WA, however average generation capacity tends to be in the order of 25 to 30% of the rated capacity. It should be appreciated that this is an average over a period of time. The relative volatility of wind power makes it extremely unsuitable as a match against the constant power demand profile of the project.

## 8.1 Walkaway Wind Farm

The largest wind farm in WA is Alinta's Walkaway wind farm 25 km south-east of Geraldton. This consists of 54 1,650 kW wind turbines with a total capacity of 90 MW. The capital cost was approximately A$210 million. Each turbine has a 78 m high tower and 41 m long blades. The region is one of Australia's windiest - wind speeds average around 20 to 25 km per hour during the cooler months. From October to March wind speeds reach an average of 25 to 35 km per hour as a result of the strong seasonal sea breeze, coupled with a consistent easterly breeze in the morning. The wind farm is located in open farming country.

The turbines are fitted with systems that monitor the wind's direction and speed. Electricity production begins at winds above 14 km/h. The amount of electricity produced continues to increase until the turbines reach their maximum or 'rated' capacity at winds around 36 km/h. Stronger winds do not make the blades turn faster. The blades rotate at a regular 14.4 revolutions per minute and operate at their capacity until the wind speed reaches 65 km/h. At capacity the blade tip travels at more than 220 km/h.

The turbines will automatically shut down and turn out of the wind to avoid potential damage when the wind speed goes beyond 65 km/h.

The electricity generated at the wind farm is fed directly into the state electricity grid via an onsite substation.

## 8.2 Emu Downs Wind Farm

Emu Downs Wind Farm is located 30 kilometres east of Cervantes on Bibby Road, Badgingarra. The site is approximately 200 kilometres north of Perth. The project was formally approved in July 2005 and construction commenced in November 2005.

The reported capital cost was A$180 million.

The project comprises 48 turbines (each with 1.65 MW generating capacity), a substation, interconnection to the main 132 kV grid, administration and stores buildings and a network of access roads.

## 8.3 Esperance Wind-Gas System

In 2004 a new gas-fired power station, gas pipeline and wind farm were constructed at Esperance to boost the town's electricity supply, together with an upgrade of the electricity transmission network.

The power station has high-efficiency, low-emission gas turbine generators with gas supplied from the Kalgoorlie gas pipeline. The new wind farm consisting of six 600 kW turbines was built at Nine Mile Beach.

## 8.4 Summary

Similarly to solar power, it would appear that, while wind power at the scale necessary is technically possible now, its inability to supply power on a 24 hours basis renders it in impractical as an independent power supply for Southdown. Again it would require a supplementary power supply of the same capacity or a connection to the SWIS grid system, and, as for solar power, this is an illogical solution as either the installation of a supplementary onsite generation system of the same capacity or a connection to the Grid effectively negates the need for a solar power generation system in the first place.

A wind power supply would also require the construction of a transmission line to the Project of at least 132 kV in capacity,. This would add substantially to the capital cost of this supply alternative and require additional time for approvals and construction.

While the operating cost for wind power will be low, costs will be incurred for the maintenance of the wind farm, and for the transmission of the power to the site. Additionally there will be transmission losses in the line adding to the cost structure.

## 9 BIOMASS POWER GENERATION

Biomass is organic matter available on a renewable basis from sources such as forest and mill residues, agricultural crops and wastes, wood and wood wastes and dedicated energy crops. Australia produces about 50 million tonnes of biomass residue annually. Much of it is either burned in the field and factory sites, stockpiled or placed in landfill.

The natural breakdown of biomass releases previously stored carbon as part of the carbon cycle. When placed in a landfill the biomass can decay anaerobically and produce methane. Methane is a potent greenhouse gas estimated to be 21 times more damaging than carbon dioxide (CO2). By co-firing with fuel diverted from landfill the greenhouse benefits are even more significant.

Electricity is potentially greenhouse neutral if produced from biomass such as plantation fuelwood. Like electricity generated from coal, it should be generated close to the fuel source, in order to minimise fuel transport costs, which are relatively much greater than the cost of transmitting the equivalent amount of electricity for the same distance.

Various parties in Australia have used biomass as a fuel for power generation. These have generally been existing power plants where biomass has been partially substituted for coal in as a fuel.

There is a proposal from Beacons Consulting International to build two Biomass power generation plants in the Albany region. In the area around Albany is located some 150,000 hectares of blue gum plantation which have been estimated will produce 2.5 to 3 million tonnes of wood chips per year by 2010. Approximately 700 to 800 thousand tonnes of biomass will be produced as waste from this harvest and as processing residue. Two generation plants of 46 MW are proposed which are claimed to be sustainable using this woodchip waste material.

A biomass power supply would require the construction of a transmission line to the Project of at least 132 kV in capacity. Operating cost for a biomass plant will be related to the cost of fuel, maintenance of the plant, and for the transmission of the power to the site. Additionally there will be transmission losses in the line adding to the cost structure.

Beacons' biomass project has not yet obtained approval or financial closure and until such a time it cannot be considered to represent a guaranteed power solution.

## 10 CONCLUSIONS

The following table presents a comparison of the various power supply alternatives for Southdown, including supply via the SWIS.

| | Installed Capacity (MW) | Supply Output (%) | Total Capital Cost (A$ million) | Unit Capital per Installed MW (A$million/MW) | Unit Capital per Effective MW (A$million/MW) | Operating Cost (A$ per kWh) |
|---|---|---|---|---|---|---|
| **Project Requirements** | **75** | **100%** | | | | |
| Transmission Line | >100 | 100% | 0 | 0.00 | 0.00 | <0.10 |
| Diesel Generator | 84 | 100% | 63 | 0.75 | 0.75 | >0.25 |
| LNG/LPG Generator | 100 | 100% | 100 | 1.00 | 1.33 | >0.25 |
| Gas Power | 100 | 100% | 100 | 1.00 | 1.33 | >0.15 |
| Solar Power | 140 | 45% | 400 | 2.86 | 6.32 | <0.05 |
| Wind Power | 90 | 30% | 210 | 2.33 | 7.78 | <0.05 |
| Biomass | | | | | | |

Note: The capital cost for the gas power alternative does not include the capital cost required for the construction of the gas pipeline from Bunbury.

Based on this table and the discussion of the various alternatives, the following conclusions can be made:

- The project will operate around the clock and therefore requires a full supply of 75 MW of power on a continuous basis;

- Only the following can supply power on a continuous basis:

  - Connection to the South-West Integrated System;
  - Onsite diesel generation;
  - Onsite LNG or LPG generation;
  - Natural gas power generation.

- Connection to the SWIS appears to provide the lowest cost power supply for the Project. It also has significant community benefits through dramatically improving the overall regional power supply;

- Diesel power generation has extremely high operating costs in the current environment directly related to high oil costs. The cost for LNG/LPG is not much less for the same reason;

- Both diesel and LPG/LNG will require a large number of truck movements to supply the required amount of fuel. This is estimated at 16 truck movements per day;

- Gas power generation is not an option as no natural gas is available within the region and there are currently no plans to construct a gas pipeline to Albany. Furthermore, high demand for natural gas has reduced available gas supplies and has forced up its purchase cost;

- The other supply options, including solar power, wind power and biomass are not capable of supplying power on a continuous basis and would require the installation of onsite back-up power (ie diesel or LPG/LNG) or the proposed connection to the SWIS. Additionally the wind or biomass alternatives would require a transmission line of at least 132 kV capacity to be able to deliver the power to the Project. This would be a de-facto connection to the SWIS;

- Solar power stations that could meet the level of power demand are proposed. These are yet to be technically proven at a commercial scale and will require a high capital cost. Apart from the technical and financial risks inherent in this they only generate power during daylight hours and therefore fundamentally cannot meet the continuous supply requirement of the project. It is unlikely that solar power will be a viable supply alternative for Southdown in the medium term;

- Wind farms that could meet the level of power demand are in operation. They require a relatively high capital cost per MW installed. and only generate power when it is windy. As a general indication the average power produced is about 30% of the installed power. Fundamentally they cannot meet the continuous supply requirement of the project. Wind power would also require the construction of a 132 kV transmission line to the Project;

- Biomass power stations of the capacity to meet the projects demand are proposed. These are yet to be commercially proven at the scale necessary. Back-up power of at least 45 MW would be required to ensure continuous supply. Biomass power would require the construction of a 132 kV transmission line to the Project.

- The most sensible way in which wind, solar or biomass power can be exploited is for any such power generation projects to be connected to the SWIS grid as an independent power provider. They would then be able to supply power to any large power consumer or retailer independent of the Project. They could also participate in the Project's competitive tender for energy supply if they were in a position to actually deliver power to the SWIS.

# SUMMARY OF COMMUNITY CONSULTATIONS FOR LINE 81 ROUTE SOUTHDOWN PROJECT

August 2011

## Summary of Key Points

1. Community engagement on the change to the proposed major augmentation to incorporate the use of the line 81 route between Muja and Kojonup followed procedures within Western Power's Community Engagement Manual. This was consistent with consultations undertaken previously in relation to the original line route, the majority of which is being retained through the single circuit line between Kojonup and Southdown.
2. Building along the line 81 route as part of the proposed major augmentation satisfies Western Power's long term requirement to upgrade the line as well as Southdown Joint Venture's supply needs for the Southdown Mine.
3. Western Power has reached agreement with almost all landowners for the line route between Muja and Southdown.
4. Extensive consultation has informed and been an integral part of the proposed major augmentation to supply the Southdown Mine, both as originally proposed and as currently proposed.
5. All key stakeholders including landowners have been consulted over the proposed line 81 route. Members of the broader community have also been invited to information sessions and to provide input into the project.
6. All significant issues have been addressed to alleviate as much as possible any landowners' concerns.
7. Western Power maintains an open line of communication for all stakeholders and the broader community to provide feedback in relation to the major augmentation works co-operatively with them, as it does, for all of its projects.
8. Western Power acknowledges that further community consultation will be undertaken as part of statutory approval processes and during the implementation of the project.

# 1 Purpose

Western Power has submitted a regulatory test waiver application for a major augmentation to the network to supply power to the Southdown Mine to the ERA. The ERA has requested further information in relation to the community consultation processes undertaken in relation to the portion of the proposed major augmentation which involves the replacement of the Line 81 Route from Muja to Kojonup.

This report demonstrates that Western Power has taken due regard of the community and any affected landowners' concerns in the selection of the line route between Muja and Kojonup. This report is supplementary to other material provided as part of the original application to the ERA in relation to consultation processes undertaken with respect to the original line route selection process, the majority of which is being retained in the proposed major augmentation through the single circuit line between Kojonup and Southdown.

# 2 Line 81 Route

The reasons for and process undertaken to change the first part of the line route from the original indirect route to the line 81 route are detailed in the original submission and subsequent supplementary submissions. Based on this decision, Western Power commissioned a number of technical and biological studies along the proposed alignment and then recommenced consultation with State and Federal environmental regulators, impacted landowners and local government authorities, and the community regarding this strategic network option. Investigations and community engagement sessions commenced in August 2010.

# 3 Approach to Consultation

The approach to consultation for the Line 81 Route selection process has followed procedures within Western Power's Community Engagement Manual (hard copy supplied). The manual is based on the International Association for Public Participation (IAP2) Participation Spectrum and principles.

As set out below the line 81 route engagement has been undertaken through a series of activities with stakeholders since the project's recommencement. In summary, consultations undertaken with key stakeholders included the following:

- Consultations were undertaken with landowners potentially impacted by the Line 81 Route. This included:
    - visits by Western Power's field officers or contact by telephone in relation to the proposed replacement of the Line 81 Route and to discuss the project generally. In particular, field officers discussed with landowners along the existing Line 81 route the potential to rebuild the line from wood poles to towers. Each interaction has been recorded using field notes and landowner consultation is ongoing;
    - a Notice of Entry issued to 125 landowners impacted by the final line route to access their properties for technical and biological studies; and
    - four public community information sessions held in April 2011.
- Referral documents were provided to and consultations undertaken with the Department of Environment & Conservation and the Conservation Commission. No concerns were raised in relation to the major augmentation proposed or the documents provided.
- Consultations were undertaken with the Environmental Protection Authority and the Department of Sustainability, Environment, Water, Population and Communities. Referral documents are currently being prepared for the Environmental Protection Authority and a referral to the Department of Sustainability, Environment, Water, Population and Communities has been submitted in July 2011 (refer to Section 5 of Western Power Muja to Wellstead Transmission Line Project EP pdf for more details – electronic copy supplied).
- Consultations were undertaken with all local government authorities affected by the Line 81 Route (Shires of Collie, West Arthur, Kojonup, Gnowangerup, Broomehill-Tambellup and the City of Albany) and relevant local members of Parliament. The Shire of West Arthur noted its support for replacing the existing Line 81 Route rather than building the northern indirect route as it would reduce

the number of transmission line corridors which ultimately pass through their shire.

- Consultations continue with field officers who are in regular contact with landowners. Field notes are taken and key outcomes are discussed with other Western Power staff.
- Western Power has maintained a permanent email and phone contact for enquiries concerning the proposed major augmentation and has information available on its website for the community to review.

In summary, all landowners along the line 81 route have been consulted and informed in relation to the replacement of the line 81 route as part of the proposed major augmentation to supply the Southdown Mine since September 2010 either directly by field officers or via information sessions and project update sheets. In general, they are supportive of the line route 81 option. Furthermore, landowners, the general community and key stakeholders were invited to the April 2011 information sessions to discuss the proposed line route options and Western Power will, through the implementation and further approvals processes, continue to engage with and take into account community concerns in the delivery of the project as far as possible. The steps taken to date by Western Power to address any community concerns are detailed below.

# 4 Addressing Landowner Concerns and Further Engagement

Two landowners have expressed concerns about the proximity of the proposed line to their residences. In response, Western Power is investigating a minor realignment to this section of the transmission line to avoid undue impacts and will continue to liaise with these landowners in the implementation of the major augmentation.

Two landowners have expressed concerns regarding bio-security and contamination. Their properties are organic farms and their concerns relate to the protection of their organic certification. In response, Western Power has advised landowners of the strict controls and procedures for bio-security and the steps that will be taken minimise the potential to spread dieback and other contaminants. All contractors are advised and trained in these controls and procedures and any non-compliance is promptly acted upon by Western Power. Western Power's field officers also advised landowners that the steel towers would have less of an impact than the current wood poles as they would require less maintenance, not involve the use of chemicals and present a reduced risk of fire. Furthermore, field officers have worked closely with these landowners throughout the development of the line route and will continue to do so to alleviate any concerns during the construction phase.

A final concern raised by landowners concerns the adequacy of compensation for easement acquisition. Western Power has advised that it is bound to comply with applicable State legislation relating to compensation, and has established processes which ensure compliance with the legislation as well as a consistent approach in applying it to each easement acquisition. Further community information sessions will be held by Western Power in August 2011 to discuss compensation and easement acquisition in more detail.

# 5 Conclusion

1. With respect to the original line route established in 2007, Western Power in conjunction with the SDJV undertook a thorough consultation process involving the community, landowners and relevant government agencies. That process resulted in a line route approved by the Environmental Protection Authority (not assessed) from Muja to Southdown. The portion of that line route between Kojonup and Southdown is being maintained as part of the proposed major augmentation.
2. Once the project restarted in 2010, Western Power undertook further consultation with all stakeholders to advise of the likelihood of the major augmentation proceeding and the potential replacement of the line 81 route as part of the major augmentation.
3. Consultation with respect to the replacement of the line 81 route has been undertaken in accordance with Western Power's standard community engagement practices, similar to that which was undertaken for the Mid-West Energy Project, which recently received regulatory approval. Further approvals are required in relation to the proposed major augmentation line route, particularly environmental approvals, which will involve additional public consultation.
4. Western Power maintains an open process for members of the community to raise any issues with a view to resolving concerns.
5. Western Power has demonstrated the use of feedback and information obtained in consultations to refine the major augmentation proposal.
6. Any concerns raised have been addressed or can be addressed in the implementation of the major augmentation conducted in line with Western Power's community engagement framework.
7. Western Power has secured general support for the proposed major augmentation including the replacement of the existing line 81 route, including from the community, key stakeholders and local governments. This is due, in part, to material benefits achieved by using the line 81 route which reduces the total line route corridors in the region and the associated environmental impacts, as well as delivering upon an upgrade to the line 81 route which would have occurred in any event due to the asset life of the current wood pole line.
8. Based on the extensive consultations undertaken to date, Western Power does not consider that further consultation is likely to raise any significant new issues or result in material changes to the proposed major augmentation.