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3 October 2011

Independent Market Operator
Attn: Manager Market Development & System Capacity
PO Box 7096
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By email: market.development@imowa.com.au

Dear Sirs

Wholesale Electricity Market – Submission to Procedure Change Proposal PC_2011_06
Five Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price

In accordance with clause 2.10.7 of the Wholesale Electricity Market Amending Rules, Merredin Energy hereby submits the attached response to Procedure Change Proposal PC_2011_06 "Five Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price" dated 6 September 2011.

We would welcome the opportunity to discuss the issues raised in our submission.

Yours sincerely

Shane Jones
Director

Julian Widdup
Director

WHOLESALE ELECTRICITY MARKET – SUBMISSION TO PROCEDURE CHANGE PROPOSAL PC_2011_06

Five Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price (MRCP)

Respondent details:

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Date submitted:	3 October 2011

1. Executive Summary

Merredin Energy is a new participant in the SWIS and owner of the 82MW peaking generation plant being constructed near the town of Merredin WA. We welcome the opportunity to submit this response in relation to the IMO's *Five Yearly Review of the Methodology and Process for Determining the Maximum Reserve Capacity Price*.

Merredin Energy's power station is similar in concept to the notional power station used to develop the MRCP. It comprises two heavy industrial open cycle gas turbine generators each of which is fitted with air inlet cooling. The plant has an on-site water treatment plant, diesel fuel tanks and fuel handling system, high voltage switchyard and connection to the Western Power grid.

The plant is smaller than the notional 160 MW plant used to develop the MRCP and this may lead to some increases in unit costs. However, Merredin Energy secured very good prices for its gas turbines prior to the earthquake induced tsunamis that devastated Japan's east coast that subsequently placed upward pressure on the prices of popular gas turbines around the world. In addition, the transmission connection is being made at 132 kV, rather than 330 kV, with very limited deep connection costs, the result of the project having applied for network access since 2005, well before the onset of significant rises in transmission deep connection costs in more recent years.

Despite such legacy advantages, the overall cost of developing the Merredin power station is very close to the capital costs used within the January 2011 MRCP Review for the 2013/14 Reserve Capacity Year. We consider that the substantial reductions now proposed are unrealistic and do not reflect the actual costs which developers currently face. This submission considers the various MRCP components and identifies where, in our opinion, the proposed costs require review.

2. Is the MRCP too high?

Merredin Energy is an avid supporter of the capacity payment regime in the Wholesale Electricity Market. In particular we note that the policy objectives of the MRCP are:

- to provide fair compensation for new peaking generators; and
- not intended to be an investment signal and is not affected by demand/supply balance.

We recommend that these broad policy settings remain in place.

However, Merredin Energy would like to express concern that the proposed MRCP revisions may be a response to a preconceived view that the current reserve capacity price was too high.

For example, we note the IMO presentation *Overview on the Market Evolution Program (MEP)* by Messrs Birnie, Black and Parrotte dated 20 July 2011 stated:

> "the IMO Board commissioned a review of the Capacity Mechanism; identifying an alarming increase in the credits being procured from the IMO (around 50% of the total now) indicating that the price might be too high"

The relationship between (i) the volume of credits procured through the IMO and (ii) the reasonableness of the capacity price is unclear to us. We would have thought those factors were independent.

We note that the IMO does not have an objective to limit capacity credits procured via the IMO. We would recommend against such an objective being introduced and would hope the IMO remains indifferent as to the volume of capacity credits procured through it.

We also note that the IMO does not have a lever to limit the short term over supply of generation. We assume that market participants and policy makers are not particularly concerned with excess capacity, given that any excess of capacity leads to a corresponding reduction in the Reserve Capacity Price. Excess capacity actually increases the overall system reliability at no increased cost to retailers or end customers.

3. Auction Mechanism

We note that to date there has been no auction in the WEM and it is our opinion that an auction is most unlikely under the current arrangements.

To be able to participate in an auction, a project must have secured certification which, in turn, requires it to have secured a network access offer, arranged finance, secured a site, secured firm plant supply offers and advanced environmental approvals. It is unlikely a proponent would take a significant project to this stage of development unless it intended to secure capacity credits through the bilateral trade arrangement.

However, in the event that an auction were to take place, we see that there is a significant risk that it could be gamed by a proponent to push prices to the maximum permitted level or that the price could collapse due to generators bidding at zero, or close to zero.

Merredin Energy recommends that the IMO significantly alters the auction rules to address these risks by:

- removing the auction mechanism completely; or
- Introducing an auction floor at the pre-determined (non-auction) capacity price

4. Capacity Price Stability

The IMO may wish to consider the benefits of making a policy decision to stabilise MRCP.

The flaw with the current policy position is that there is significant volatility in the reserve capacity price (evident by the 45% increase in the MRCP in 2012 and the proposed 24% fall in 2013-14) but no allowance is made in the equity market risk premium or WACC calculations for the high level of regulatory price risk.

A volatile capacity price creates serious funding issues for generators. Merredin Energy recently raised equity and bank debt to fund the construction of its 82MW plant. The cost of funding was higher than assumed in the proposed WACC calculations. This was due, in part, to the high bank margins arising directly from the perceived risks with the reserve capacity determination process (i.e. regulatory risk) and in part due to the lack of competition from banks, with several banks refusing to loan funds to development projects. Stabilising capacity prices may assist in improving bank's willingness to loan to generators.

The proposed 24% decline in the MRCP will make it even more difficult to raise finance for future projects. In response to such a dramatic fall, we expect lenders to take the following actions:

- Limiting debt tenors to coincide with the next IMO five yearly review; and/or
- Require repayment triggers in the loan agreements so that loans are repaid, resized or margins increased in the event of future downward capacity price determinations.

These debt terms, if introduced, would significantly increase the refinancing risk for projects and should translate into a higher WACC and higher capacity prices. Higher capacity prices would assist generation facilities to remain solvent in the event of a negative short term price determination. However, higher capacity prices are ultimately borne by end consumers, which runs contrary to wholesale market objective (d).

Smoothing capacity credits changes over time could help to achieve the market objective of lowering long term supply costs via a lower WACC. Sharing aggregate capacity costs across end consumers over longer periods, should not necessarily result in an overall increase in aggregate capacity payments and therefore should not lead to inefficient economic outcomes.

5. Financial Effect on Merredin Energy

The proposed 24% reduction in the capacity price would put significant financial stress on Merredin Energy.

Merredin Energy's project costs were funded by raising equity from institutional investors (primarily Australian superannuation funds) and raising ten-year bank debt. The commitment by long term superannuation investors to build essential infrastructure in WA should be seen as a very positive development. Merredin Energy has aspirations to develop a further two new open cycle generator units to

increase its total capacity to 160MWs and had already commenced discussions with our investors in that regard.

A 24% reduction in the capacity prices would result in a significant reduction in investor returns and make it virtually impossible for Merredin Energy to raise additional equity in future. We expect this situation would also apply to other generators.

The current amount of bank debt raised by Merredin Energy was based on debt service cover ratio (DSCR)[1] projections of 1.8x. This is a relatively modest gearing level, with operational earnings generally expected to exceed debt payments by a factor of 1.8 times. A 24% reduction in capacity prices would reduce Merredin Energy's average DSCR to 1.39x, which is only marginally above the lock-up threshold of 1.30x and significantly increases the risk of the company breaching its debt covenants. Such a revenue shock would also significantly reduce the enterprise value (EV) of the business, pushing the Debt to EV ratio to uncomfortably high levels. This would making future refinancing almost impossible and would severely restrict our ability to undertake future capital/maintenance expenditure.

6. Application of 85% Discount

There does not appear to be any published information explaining why the MRCP is discounted in the event that the auction is cancelled. The recent review has been silent on whether the 85% discount factor is necessary or appropriate.

We would question whether it is still relevant and would welcome some clear justification for its retention.

7. Technological Improvements

We note SKM advised the IMO on the impact of inlet cooling on the MRCP. Merredin Energy is also aware of recent work conducted by SKM where it estimated future capacity prices by assuming an annual 1% efficiency gain from technological improvements.

Given water cooling is not a particularly new technology, it is surprising that this improvement should give rise to an immediate 11% fall in capacity prices. This is well above an average long term technological improvement factor of 1% sourced from SKM.

The large change in MRCP from the water cooling improvement suggests that the input parameters are difficult to estimate accurately and that either (i) the 2013 capital costs were significantly overestimated or (ii) the revised costs are significantly underestimated. This highlights a potential flaw with the current procedures. Perhaps small annual adjustments for technological improvements could be applied to achieve a lower real capital cost over time rather than making significant one-off adjustments.

The total project costs for Merredin Energy (including EPC, connection costs, development fees, etc) amount to $96.7 million. Of that amount $67.5 million (equivalent to $823,658/MW) related to the power

[1] Debt Service Cover Ratio is calculated as the ratio of (i) cashflows earnings after all operating and capital expenses to (ii) sum of interest and principal payment obligations during a period. The DSCR ratios are calculated using the base case financial model forecasts excluding STEM energy sales.

station capital costs for the open cycle gas turbine plant with water cooling. These costs are similar to the total capital cost used to develop the 2013/14 MRCP (see IMO January 2011 report and Table 1 below) even though Merredin Energy was able to secure a low-priced connection point to the SWIS.

The construction costs are significantly higher than the parameters used to calculate the revised capacity price. We recognise that Merredin Energy's 82MW OCGT facility is smaller than the notional 160MW OCGT and therefore it may not benefit from the same economies/efficiencies of a larger plant. However, we remain concerned that the estimated plant costs derived by SKM do not align with actual costs.

Table 1: Merredin Energy Costs relative to the final MRCP for 2013/14

	Merredin Energy $/MW	Final Report MRCP for 2013/14[1] $/MW	Difference
Power Station Capital Costs PC[2011]	823,658	790,634	4.2%
Other[2]	355,610	473,563	-24.9%
Sub-total	**1,179,268**	**1,264,197**	-6.7%
Gross-up factor[3]	1.1805	1.1805	
CAPCOST[2011]	**1,392,105**	**1,492,363**	-6.7%

1. Source: Independent Market Operator Final Report: Maximum Reserve Capacity Price Review for the 2013/14 Reserve Capacity Year (dated January 2011)
2. Includes margin, transmission, fuel and land costs
3. Calculated as $(1+ \text{WACC})^2$, using the WACC of 8.65%

8. WACC period

The IMO is proposing to reduce the WACC period from 24 months to 6 months.

This change is inappropriate. An equity sponsor has a financial exposure from the time it commits to the project, generally two years prior to the completion date. An equity risk premium (i.e. WACC less the cash rate) should apply from the equity commitment date.

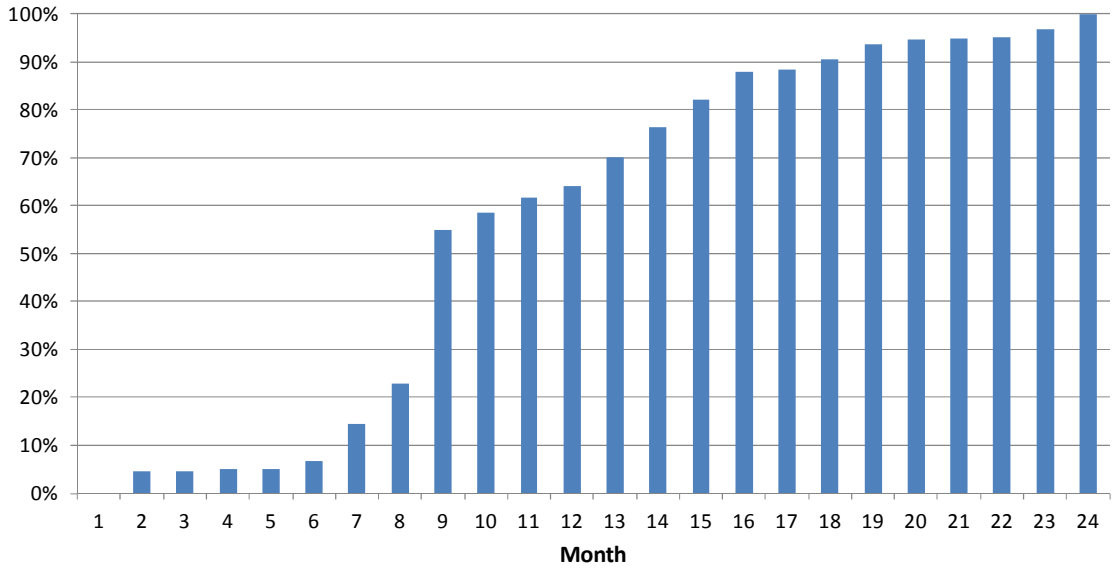
While finance theory might suggest the full WACC should be earned over the final six months reflecting the full cost of funding the project, we consider a six month period to be very short. In deriving a six month period, PwC assumed a 12 month construction spend period, with construction completed the same day that capacity revenues commence. Prudent planning and construction timetables include buffers for testing periods and appropriate delay contingencies. Our view is that the six month period should be increased to nine months, at a minimum.

Accounting for a total 24 month commitment period, including a nine month construction funding mid-point, the gross-up factor would be:

$$(1 + \text{WACC})^{9/12} \times (1 + \text{WACC} - \text{risk free})^{15/12}$$

Merredin Energy's view is that even a nine month mid-point spend is overly aggressive. The S-curve for the total project costs involved in commissioning our 82MW open cycle peaking generator is set out in Graph 1 below.

Graph 1: Merredin Energy – Open Cycle Gas Turbine S-curve



Significant costs under the Interconnection Works contract with Western Power were incurred in month 8 and in month 13. By the end of month 8, almost one-quarter of total project costs had been incurred. Around 30% of total project costs were incurred in month 9 due to significant instalment payments to General Electric for turbine units and to the EPC contractor for the balance of plant works.

The average S-curve value over the full 24 month period is 57.2%. This would suggest a gross-up factor of 14 months at the full WACC rate, and ten months at the reduced risk-premium rate:

$$(1 + \text{WACC})^{14/12} \times (1 + \text{WACC} - \text{risk free})^{10/12}$$

9. Insurance and fuel

Merredin Energy agrees with the proposed changes in respect of insurance and fuel, although the cost of insurance is lower than expected.

In addition to property insurance, Merredin Energy has (i) public and products liability and (ii) business interruption insurance. Once construction is completed we anticipate extending the insurance cover to incorporate pollution liability. These forms of insurances are necessary regardless of the hours operated and should be included in the fixed annual O&M provision.

In particular, business interruption insurance is necessary for generators funded by debt, as capacity penalty refunds could easily cause an event of default under the bank financing agreements in the absence of such cover. The pollution liability insurance provides cover for claims and remediation costs arising from the release or seepage of a contaminant or pollutant into land surface water or groundwater. We consider the cost of such cover to be a fixed cost rather than a marginal operating cost. Such cover is cover prudent

even if the plant is not operating because there is a risk of contamination arising from the on site storage of fuel.

The practical reality is that the insurance costs are largely independent of the hours of operation and should not be treated as marginal costs. We have disclosed the insurance estimates in Table 2 below.

Table 2: Annual insurance costs

Insurance	Annual premium	Cost / MW
Property Insurance	$115,000	$1,400
Industrial Special Risks (incl Public and Products liability, business interruption, pollution liability)	$385,000	$4,700
Total	**$500,000**	**$6,100**

10. Debt issuance costs

Included in the development costs is a 0.125% allowance for up-front debt issuance costs. This estimate appears to be well below current market rates. Merredin Energy's recent experience in raising debt through a facility with a 'big four' bank involved an upfront loan establishment fee of 1.6%.

Merredin Energy's construction facility agreement also includes a line fee of 1.5% of the undrawn commitment. The current debt issuance costs do not include an allowance for the line fee.

Arguably, there may be some economies of scale with larger 160MW plants incurring smaller percentage costs. However, we expect the rates applying to Merredin Energy would not deviate significantly for a 160MW facility funded with 35% debt.

11. Transmission connection costs

Merredin Energy notes the options identified by SKM in determining connection costs. We disagree a backward looking approach such as Option 2 is sensible (refer to SKM's report *IMO Deep Connection Cost Calculation -Methodology Review)*.

We have not been convinced of the short comings with the current process and recommend no change in methodology at this point.

Should the IMO be concerned about connection efficiencies, consideration could be given to the importance of network reinforcement and whether the existing regime provides appropriate economic incentives to upgrade or build around network constraints. For example:

- Should capacity price adjustments be applied to plants that fund deep connection costs?

- Could generators be assigned a 'regulated asset base' for the deep network connection costs they fund, thereby removing deep connection costs from the capacity credit calculation?
- Should premia/discounts apply to plants constructed in certain areas that add to/detract from network stability?

12. Summary

Merredin Energy considers that the MRCP for 2013/14 is based on costs that are generally representative of the actual costs of building a new open cycle gas turbine power station. We consider that the proposed substantial MRCP reductions are unrealistic and do not reflect the actual costs which developers currently face. In addition, we consider that financiers will be alarmed by the volatility of price changes and this will, in turn, increase the cost of funding. We suggest that any reductions be substantially reduced or, as a minimum, be smoothed over a period of several years.

Merredin Energy is happy to provide more detailed figures to the IMO for its confidential review but cannot provide these into the public domain. We would be happy to discuss any of the matters raised here directly with the IMO.
