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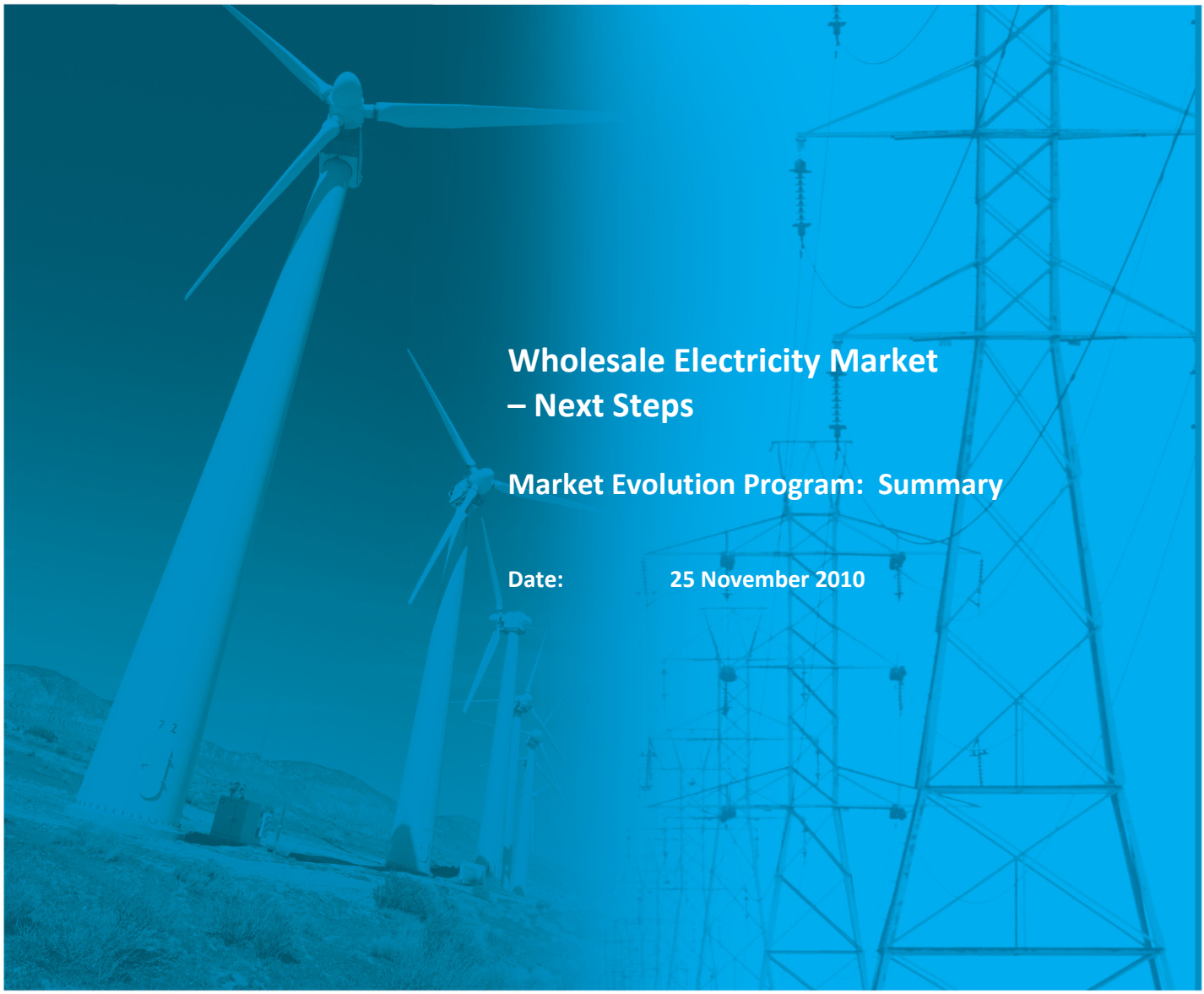

Wholesale Electricity Market – Next Steps

Market Evolution Program: Summary

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Executive Summary

The Wholesale Electricity Market (WEM) has been in operation for four years. In this time, it has achieved a significant reduction in the average wholesale electricity price traded and resulted in increased private investment in generation capacity. However, the continuing strong growth in demand in Western Australia followed by the global financial downturn has clearly impacted on the electricity sector and operation of the WEM, and has focussed attention on some key aspects of the WEM.

The Market Rules Evolution Plan, endorsed by Market Participants on the Market Advisory Committee (MAC) earlier this year, highlighted and prioritised a number of areas for market improvement. The Verve Energy Review - commissioned by Government to assess why Verve Energy was in a loss-making position - critiqued the market similarly. Both identified issues around the lack of competition in aspects of the WEM caused by the current market design.

For example, private Market Participants have no real opportunity to participate in balancing provision, whereas the current provider of balancing services has raised concerns around current balancing pricing. Yet there is a clear need for a wider range of cost effective balancing options given the growth in intermittent generation and the default balancer's falling energy market share. More competition in the balancing market and in the provision of Ancillary Services will result in a more efficient and sustainable market.

An industry working group – the Rules Development and Implementation Working Group (RDIWG), lead by the IMO, is currently developing options to resolve these market design issues as far as possible based on the retention of the current market design. The IMO needs capital funding for this design work and the related changes to its IT systems. The final design changes will require IMO Board approval, subject to satisfying the Board that the objectives of the WEM will be enhanced.

The Market Evolution Program (MEP) has a provisional budget of $7.98 million for the period up until 30 June 2012, assuming the work is based on the current market design. Some of the MEP work will, however, bring forward or replace investment (worth $1.6 million) planned for the IT systems supporting the WEM that already had approved financing over 2010-2013. This means the IMO only needs up to the net amount of $6.3 million in extra loan financing to cover the MEP. Over 50% of these monies are provisionally forecast to be used for IT-related spending on upgrading the current systems to extend their life. The remaining monies are for program management and support and appropriate consultancy assistance given the need to ensure the IMO staff remain focussed on core service delivery functions. All consultants working on the program have had experience working in other wholesale electricity markets.

Separate to the above, there is a provisional $1.01 million set aside for an assessment of more fundamental re-design options. This will only be used should this be recommended by the MAC and/or required by the IMO Board.

This work program will provide Market Participants with a more efficient and competitive WEM. Key changes will include:

- more cost reflective balancing pricing and opportunities to provide competition for balancing services
- a greater ability to use more accurate information in the operation of the Short Term Energy Market (STEM);
- a more "real time" targeted reserve capacity refund system;
- more opportunities for competition in the provision of Ancillary Services; and
- a more adaptable IT system supporting the current WEM.

Decisions around all expenditure will be subject to IMO's approval processes, including IMO Board approval where required. The actual amounts will be capitalised and recovered from Market Fees over subsequent years.

The current MEP plan and budget has been based on assumptions around key decisions emerging from the RDIWG from December 2010 to February 2011. This should then enable actual changes in the design to be rolled out from the end of 2011 and into 2012, following rule change and operational and system changes.

Market Participants will be involved in the entire process and communications around the MEP will be critical for ensuring success. Regular briefings will be provided and updated information will be available on the IMO website.

1. Background

Following the initial success of the Market, an assessment of a number of issues apparent with the market design lead the IMO to develop a work plan on potential areas for improvement. Market Participants voted on the priorities in this workplan. The result was the IMO's Market Rules Evolution Plan that outlined five priority areas for work over the next three years. These areas comprise reviews of:

- the current Balancing Mechanism;
- certain aspects of the Reserve Capacity Mechanism;
- potential areas of improvement in the operation of the STEM aimed at increasing trade volumes, price relevance and STEM predictability;
- the window between electricity positions and gas nominations; and
- the procurement of Ancillary Services.

The Verve Energy Review also identified the need for the review of key parts of the WEM design. It recommended a series of changes to the WEM to enable it to better support reliability, efficiency and competition. These include increasing the certainty of attracting new capacity, increasing the reliability signals in the market itself, drawing all generators into providing balancing services and, where applicable, Ancillary Services.

As a consequence, the Verve Review Implementation Oversight Group set up a Market Rules Working Group to undertake a review of the current market design. The IMO was asked to assist with the Government-led exercise. In March 2010 a draft concept paper was presented to the MAC outlining four options to improve the coordination of resources within day-ahead timeframes:

- *Option A1: Enhanced Hybrid*

  Retain Verve Energy as default / primary balancer; opportunity for wider participation through balancing support contracts (BSC) supported by appropriate incentives (including pricing and cost allocation).

- *Option A2: Enhanced Hybrid + Re-nomination*

  As for option A1 plus the ability to re-declare contract position and adjust resource plan accordingly.

- *Option B: Net Dispatch*

  Net dispatch for Independent Power Producers and Verve Energy with both eligible to provide balancing support through increment/decrement offers (or possibly BSCs).

- *Option C: Gross Dispatch*

  IPPs and Verve Energy compete to provide balancing support (on same terms) through offers for gross dispatch.

The background papers on all these issues can be found at www.imowa.com.au/design_review.

After some discussion over several meetings, the MAC recommended in August 2010 that:

- initial development work should assume the retention of the current hybrid Market design, evolving this design as far as practicable, prior to considering exploration of further market design options;
- at the 11 August 2010 MAC meeting it would determine and prioritise an action plan drawn from the issues identified during the market design review project, the Verve Energy Review, the Market Rules Evolution Plan and raised by the MAC; and
- the IMO will need to deliver reliable and stable IT solutions within the current market system framework.

The MAC set up the RDIWG to recommend changes and oversee their implementation. The IMO Board agreed with the MAC's recommendations but the IMO Board noted that should this work not identify sustainable solutions to these problems then it would ask for an assessment of more fundamental Market re-design options.

The IMO has set up a program team to service the RDIWG and ensure the timely and cost effective implementation of Market Rule and related changes that will ultimately arise from its work. The IMO has also set about improving the IT systems which support the operation of the WEM to deal with some of the current significant constraints and enable it to roll out changes in the design of the market.

2. RDIWG, Program Governance, Roles and Responsibilities

The Minister for Energy and the IMO Board are the ultimate decision makers for changes in the design of the WEM and related Market Rules. But they are advised by the MAC, representing experts across industry. For this program, the MAC has set up the RDIWG to assess the current design issues and identify solutions. The RDIWG has been meeting since late August 2010.

The members of the RDIWG include:

Allan Dawson	Chair
John Rhodes	Market Customer (Synergy)
Corey Dykstra	Market Customer
Steve Gould	Market Customer
Patrick Peake	Market Customer
Andrew Everett	Market Generator (Verve Energy)
Shane Cremin	Market Generator
Andrew Sutherland	Market Generator
Phil Kelloway	System Management
Chris Brown	Economic Regulation Authority

Paul Hynch	Office of Energy

The terms of reference for the RDIWG and all its papers can be found at www.imowa.com.au/RDIWG.

The IMO has set up a program with several work streams to support the RDIWG and roll out related IT/operational changes. Key IMO contacts and roles for the program are as follows:

Program Sponsor	Allan Dawson
Program Steering Group	IMO Senior Management Team plus advisors
Program Manager	Douglas Birnie
Market Design	Troy Forward
Market Rules	Barbara Sole
Business Requirements	Matt Pember
Market Operations	William Street
Market Systems	Mark Brodziak
Communications	Justine Oxley
Finance	Murray Cribb/Malcolm Burnaby

There are, in effect, three components to the program:

(i) supporting the confirmation of new market arrangements at a high-level design level;

(ii) updating the IMO's systems so it can more readily adapt to future change; and then

(iii) implementing the newly agreed market arrangements via Market Rules, operational and system changes.

3. Problem Definition

The WEM has been in operation for four years and has achieved a significant reduction in STEM and balancing prices and increased private investment in generation capacity. However, the unprecedented economic growth in Western Australia followed by the global financial downturn have clearly impacted on the electricity sector and focussed attention on some key aspects of the WEM.

For example, private Market Participants have no real opportunity to participate in balancing provision, whereas the current provider of balancing services has raised concerns around current balancing pricing. Yet there is a clear need for a wider range of cost effective balancing options given the large daily variations in energy demand and the default balancer's rapidly falling energy market share.

Last year under the Market Rules Evolution Plan, Market Participants assessed some of the issues now affecting the WEM and identified the following as needing the most immediate attention:

- *Improving the current balancing mechanism* – allowing privately owned Market Participants the opportunity to provide balancing and improving the mechanism to handle unexpected events between the timing of the STEM and real time;

- *Review of the reserve capacity system* – reviewing a number of aspects of the scheme;
- *Improvements to the STEM* – reviewing the STEM with a view to identifying improvements that assist in increasing trade volume, price relevance and STEM predictability;
- *Aligning gas and electricity nominations* – reviewing and assessing whether these should be more closely aligned; and
- *Introducing markets in Ancillary Services*– reviewing the current procurement and assessing whether the provision of Ancillary Services should be opened up to competition for spinning reserve, frequency control and blackstart.

The IT and related systems operated by the IMO to support the WEM are also now a constraint. Current IT systems have a multitude of different software applications based on old code that is difficult to modify. Hence in 2009, the IMO Board approved a series of IT initiatives lasting over four years to "smarten" these systems so as to allow them to be more adaptable to further incremental changes in the WEM and thereby extend their life.

3.1 Detailed issues

In light of the MAC recommendations, the RDIWG has agreed to seek solutions to ten specific problems as follows:

1. There is very limited opportunity for Participants other than Verve Energy to participate in providing balancing service and this inevitably means the cost of balancing is higher than it needs to be.
2. Provision for Balancing Support Contracts has not been effective to date.
3. The calculation of MCAP and the role of UDAP and DDAP mean that balancing prices are not cost reflective and this leads to ineffective incentives for decisions about provision and participation and inequitable financial transfers between Market Participants that compromise the integrity of the market.
4. At different times the capacity refund arrangements under and over price the value of capacity leading to inefficient decisions by Market Participants about the timing, maintenance and presentation of capacity.
5. The timing of operation and single pass design of STEM may be limiting the ability of the market to achieve efficient operation and cost reflective prices and accordingly creates a barrier for participation by all parties.
6. The requirement for resource plans to match STEM outcomes may be limiting participation in STEM and/or forcing inefficient dispatch of IPPs and Verve Energy (as balancer), as IPPs attempt to comply with resultant resource plans.
7. Poorly aligned gas and electricity mechanisms inhibit flexibility to respond to changing circumstances and produces suboptimal outcomes in the WEM.
8. Lack of transparency inhibits the ability of Market Participants to optimise interaction in the daily market.

9. Provision of net bilateral submissions compromises transparency and the accuracy of future price forecasts and may lead to sub-optimal decisions about participation by other Market Participants.
10. Pay as bid pricing for dispatch of IPP plant for balancing (outside a balancing support contract) is incompatible with efficient wider participation in balancing and potentially over compensates IPPs, which bid at price caps due to uncertainty of dispatch outcomes.

It has also noted that there is very limited opportunity for Market Participants other than Verve Energy to participate in providing Ancillary Services. This is due to the lack of certainty surrounding the pricing mechanism and the requirement to provide the service at a discount to Verve Energy. System Management will look to develop a day-ahead procurement mechanism and present the outcomes of its analysis at the RDIWG.

Separate, but related to this, is the state of the key IT systems operated by the IMO that support the WEM. The systems put in place at the commencement of the WEM used a multitude of software applications with outdated language. The IT systems were not suited to implementing change and supporting further development, as could be expected with an evolving market.

The problems identified above led to the inception of the Market Evolution Program.

4. What will success look like?

Ultimately the MEP's goal is to achieve a more efficient market than would otherwise be achieved, in a manner consistent with the Market Objectives. Consumers should ultimately benefit from a reliable electricity system that is more cost efficient.

Potential outputs that should arise from the MEP include:

1. More cost reflective pricing;
2. Greater opportunities for all Market Participants to participate, including in the provision of balancing and Ancillary Services;
3. The greater ability to use more accurate information in market bidding/submissions;
4. The reserve capacity refund system achieving more efficient outcomes; and
5. The rolling out of a more adaptable and flexible "IT base" upon which future changes to the market design can be accommodated and then implementing these changes – all on time and on budget.

The exact nature of these outputs will only be determined as the program progresses and will likely depend on which combination of specific measures achieves the best outcomes from an economic efficiency point of view.

The following seem appropriate measures for which data should be collected in order to assess the impact of the program over time:

1) STEM and balancing prices;
2) Balancing volumes and number of organisations providing balancing services;
3) The costs of reserve capacity refunds and actual forced outage data; and
4) Ancillary service prices and number of organisations providing Ancillary Services.

The IMO will continue to measure and report on these – and the trends evident in them - to assess the impact of the MEP before during and after its implementation.

5. Assessment Criteria

The MEP must seek and implement solutions that are consistent with the Wholesale Market Objectives set out in the Market Rules. These are:

a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;

b) to encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;

c) to avoid discrimination in that Market against particular energy options and technologies, including sustainable energy options and technologies such as those that make use of renewable resources or that reduce overall greenhouse gas emissions;

d) to minimise the long-term cost of electricity supplied to customers from the South West interconnected system; and

e) to encourage the taking of measures to manage the amount of electricity used and when it is used.

6. Budget and Financial Management

The MEP has a provisional budget of $7.98 million for the period up until 30 June 2012 assuming the work from above can be based on the current hybrid design.

Over 50% of these monies are for IT-related spending on upgrading the current systems. The remaining monies are for program management and support and expert consultancy assistance given the need to ensure IMO staff remain focussed on delivering core services. All consultants working on the program have had experience working in other wholesale electricity markets, are directly accountable to relevant

IMO managers and are on fixed monthly expenditure caps that can only be varied by separate agreement.

Some of the MEP work will, however, bring forward/replace investment worth $1.62 million planned in the IMO's IT systems that already had approved financing over 2010-2013. Consequently, the IMO will be seeking the right to draw down up to $6.38 million in extra loans to support the entire program. The actual amounts will be recovered from Market Fees over subsequent years. The capital impacts of the MEP are demonstrated in the following table:

	Currently approved capital budget for IMO	MEP budget (under current hybrid design)	MEP additional budget (for B-C evaluation)	Work to be done under the MEP previously covered by current capital spend	IMO new total capital budget	*Change from current approved capital budget*
	$m	$m	$m	$m	$m	$m
2010/11	1.785	4.628	0.000	-0.491	5.922	*4.137*
2011/12	1.620	3.355	1.007	-0.589	5.393	*3.773*
2012/13	1.645	0.000	0.000	-0.540	1.105	*-0.540*
	5.050	**7.983**	**1.007**	**-1.620**	**12.420**	***7.370***

Key cost components of this budget include:

- the dedication of resource i.e. separate office facilities, external program manager and program support and communications;
- the utilisation of external expertise in the market concept design;
- legal drafting and external expertise for Market Rules development; and
- the utilisation of external expertise plus some new hardware for systems design.

For 2010/11, $0.67 million was included in the IMO's budget for 2010/11 to fund preparatory costs for the MEP. A further $1 million has been set aside to cover the potential costs arising from a more fundamental review of market design options should the IMO Board seek this.

The funding sought for the current program does not meet the thresholds required for a Declared Market Project, hence Economic Regulation Authority approval is not required. This was primarily the result of the depreciation expenditures only commencing part way through the IMO's three year revenue period. This outcome is considered perverse and the IMO has provided the Economic Regulation Authority with a full copy of the budget and supporting information and is seeking feedback and will separately progress a rule change to make sure this does not happen again. Approval is being sought from Cabinet to seek additional loan financing necessary to cover the capital costs of the Program.

Based on current estimates *as of today,* Market Fees could be expected to change as follows in order to recover the additional depreciation and related costs from the MEP:

2010/11 - $0.32 per MWh (current IMO fee)
2011/12 - $0.34
2012/13 - $0.36
2013/14 - $0.35
2014/15 - $0.33
2015/16 - $0.30

The actual fee changes will be dependent on energy volumes traded, the actual capital used and rates of depreciation and the timing of the commencement of such depreciation etc. These figures do not include the impact of the $1 million set aside for an assessment of more fundamental re-design options as it is not yet clear if, and when, this might be needed.

7. Components, Key Risks and Timelines

As signalled earlier, there are, in effect, three components to the program:

(i) supporting the confirmation of new market arrangements at a high level design level;

(ii) updating the IMO's systems so it can more readily adapt to future change; and then

(iii) implementing the newly agreed market arrangements via Market Rules, operational and system changes.

The first component is the most significant – all others are dependent upon it – and yet it is not clear how long it is going to take. The longer it takes to get agreement on the changes desired, the greater the time that will be required to implement them and the greater the overall cost. Work, however, does need to take place on (iii) simultaneously – so that the systems in place are better able to cope with and provide the functionality required from changes arising from (i).

The table below summarises the essence of the current MEP planning timeframes:

Indicative Timetable for changes

Design area	*Oct- Dec 2010*	*Jan-June 2011*	*June-Dec 2011*	*Jan-June 2012*
Balancing pricing and provision				
Concept work	Refining options underway	Sign off of options in Jan/Feb		
Rules development		Commences in March	Rules consultation and drafting	Rules finalised December
Operations and IT work	Baseline IT work underway	New IT system design would commence in March	New IT system designed and developed and tested	Implementation
Possible STEM changes and a move to gross nominations				
Concept work	Option refined and signed off November/December			
Rules development	Commences in December	Rules consultation and drafting	Rules finalised August	
Operations and IT work	Baseline IT work underway	IT and op system revisions designed and tested	October/November start date	
Reserve capacity refund revisions				
Concept work	Option refined and signed off December			
Rules development	Commences in January	Rules consultation and drafting	Rules finalised August	
Operations and IT work	Baseline IT work underway	IT and op system revisions designed and tested	October/November start date	

In summary, if agreement can be reached on changes to the current market design in the areas of balancing provision and pricing, STEM operations and reserve capacity refunds by the end of January 2010, then the actual changes could be ready to be rolled out from the end of 2011.