Market Advisory Committee

Agenda

Meeting No.	SPECIAL MEETING No.3
Location:	IMO Board Room Level 3, Governor Stirling Tower, 197 St Georges Terrace, Perth
Date:	Monday 19 July 2010
Time:	9.00am – 12.00pm

Item	Subject	Responsible	Time
1.	**WELCOME**	**Chair**	10 min
2.	**MEETING APOLOGIES / ATTENDANCE**	**Chair**	
3.	**PATHWAY DISCUSSION AND DECISION**	**IMO**	170 min
4.	**NEXT MEETING: 11 August 2010 (2.00 – 5.00pm)**		

Market Rules Design Review: Pathway Discussion and Decision

1. INTRODUCTION

The IMO's Market Rules Evolution Plan (MREP) and recommendations of the Verve Energy Review (Verve Review) both identified the need for review of the Wholesale Electricity Market (WEM) Rules (Market Rules) for a number of aspects of the WEM. As a consequence of these two foundational pieces of work the Market Rules Design Team was established to undertake a review of the current WEM design.

The Market Rules Design Team identified four conceptual design options. For reference purposes the high level features of the basic market design options are summarised in table 1.

Table 1: High level features of the basic market design option

<table>
<tr><th>A1 enhanced hybrid</th><th>A2 – enhanced hybrid +</th><th>B – net dispatch</th><th>C – gross dispatch</th></tr>
<tr><td colspan="2">– Verve remains the default/ primary balancer</td><td colspan="2">– Verve and IPPs participate in balancing on same basis</td></tr>
<tr><td colspan="2">– IPPs submit resource plans (=net contract positions)
– IPPs operate to resource plans subject to net dispatch for security purposes and Balancing Support Contract (BSC) opportunities</td><td>– Verve and IPPs prepare resource plans
– All submit inc/dec offers above/below plans for balancing support</td><td>– Verve and IPPs offer capacity on gross basis, managing around net contract positions</td></tr>
<tr><td colspan="2">– Verve scheduled and dispatched by SM to balance the system (gross dispatch)</td><td>– SM dispatches inc/dec offers so as to balance the system while minimising the overall cost of deviations from resource plans</td><td>– SM dispatches gross offers so as to meet demand at least cost</td></tr>
<tr><td>– STEM/ nomination/gate closure delayed to better align gas and electricity nomination timeframes and reduce forecasting uncertainty</td><td>– As for A1 plus ability to re-nominate supported by price forecasts</td><td colspan="2">– Rolling gate closure/ opportunities for re-nominations</td></tr>
<tr><td colspan="4">– Cost reflective pricing for contributions to balancing and settlement of contract imbalances</td></tr>
</table>

A summary assessing each of the design options against the MREP and the Verve Review is contained below.

Table 2: Comparison of design options against MREP and Verve Review

MREP	Verve Review		A1	A2	B	C
		Level Playing Field	X	X	√	√
√	√	Improved Balancing	√ ?	√ ?	√	√
√	√	STEM	√ ?	√ ?	√	√
√	√	Market Ancillary Services	√ ?	√ ?	√	√
√		Alignment of Gas/Elec Markets	√	√	√	√
	√	Amended Balancing Prices	√	√	√	√
√	√	Amended Capacity Refunds	√	√	√	√
		Supports Constrained Grid	X	X	√	√

2. BACKGROUND

This paper has been prepared to support the MAC in its decision process in selecting the preferred Market Design Review pathway.

This paper has been developed to aid MAC's consideration of the potential benefits under the market development pathways discussed in the market design concept papers and at MAC workshops. Essentially the pathways involve choices between:

- Enhancements to the current hybrid market design to push it as far as practical (Pathway 1);
- Transitional enhancements to the current market design while an evaluation is conducted on the costs and benefits of adopting a fully contestable gross or net dispatch market design is implemented (Pathway 2); or
- Moving to a fully contestable market design as soon as practicable (Pathway 3).

The pathway decisions are of strategic importance to the future direction of the WEM. Each pathway decision has potential benefits and associated risks.

Recent discussions held during the June MAC meeting highlighted an area of concern with regard to the selection of Pathway 2 or 3 and the implications for choosing either a fully

contestable gross or net dispatch market design. It should be noted that Pathway 2 represents a choice to embark on a detailed evaluation of moving to a fully contestable gross or net dispatch market design including the development of a detailed cost benefit study. Any decision to implement Options B or C would be subject to benefits exceeding costs as well as the approval of the IMO Board, various regulators and (ERA and ACCC) and government.

The remainder of this paper assumes familiarity with market design options and material presented at the MAC market design workshop in June[1].

3. APPROACH

Advancement of any market design proposal will ultimately be subject to a test of whether expected economic benefits exceed costs. In this context, 'economic benefits' are expected savings to the economy through more efficient deployment of resources (fuel, labour, capital etc). Note that this excludes wealth transfers. 'Costs' are the overall costs the economy bears in order to achieve these benefits. i.e. the cost of developing and operating a market design, including costs borne by the market operator, System Management and participants.

Costs can generally be estimated with reasonable accuracy. However, potential economic benefits are inherently more difficult to assess. More qualitative judgements are often required, even if detailed design work has been carried out. Nevertheless, the selection of a preferred market development pathway requires consideration of likely short term (operational) and longer term (dynamic) economic efficiency benefits relative to overall implementation and operating costs.

In light of the above, this paper considers:

- The nature of expected benefits from the core design alternatives (A1/2 vs B/C) including where possible some context regarding potential scale; and
- The level and plausibility of annual economic benefits required to cover the cost of robust and durable A1/2 options compared to B/C options (i.e. "what does one need to believe about economic benefits?").

Note that this paper primarily focuses on the choice of preferred market design (A options versus B/C options) rather than pathways 1, 2 and 3 per se. Once a preferred core market design solution has been decided, an important question will then be to determine what should be done in the interim, and how, to address any immediate market design issues.

Assumptions about developments and operating costs are also presented in this paper. While the primary focus of the discussion about economic benefits is on the differences between A1/2 and B/C options, the A option costs under pathways 1 (enduring solution) and 2 (transitional) will differ. Assumptions about costs are therefore presented for each pathway.

Finally, while not relevant to considering economic benefits, estimates of market fee impacts will be of interest to participants and are therefore also presented in this paper.

4. ASSUMPTIONS REGARDING A OPTIONS

For evaluation purposes, the following design features are assumed for A1 and A2 market design options[2]:

[1] "Market Design Review, MAC Workshop, 15 June 2010".

Table 3: Assumed fixes/enhancements to current market design

Feature	A1	A2	Summary	Depends on
Clean BS price	✓	✓	Limit balancing price (MCAP) formation to resources performing on the day balancing and set DDAP and UDAP to 1	Effective surveillance/ enforcement regime regarding resource plan compliance (given removal of DDAP/UDAP)
Balancing support contracts (BSCs)	✓	✓	Facilitate basic BSCs (top and bottom of merit order) by leveraging off existing provisions in rules	Clean balancing price and price forecasts (to signal balancing costs & enable cost reflective trade-offs between Verve resources and BSC options)
Capacity refunds	✓	✓	Amend refund rates to better reflect prevailing margins/actual value of capacity	Clean balancing price (to remove other distortions)
Gross nominations	✓	✓	Require gentailers[3] to submit gross nominations for generation & load	Clean balancing price (to remove other distortions)
Delayed gate closure	✓		Delay timing of submissions/STEM process	
Re-nominations		✓	Ability to re-nominate, supported by market price forecasts, plus later gate closure /final submissions	Balancing price forecasts

Note that modifications to the capacity refunds regime would be independent of the pathway decision i.e. it would be applicable to both A1/2 or B/C market design options.

5. A THEORETICAL YARDSTICK

In considering the relative merits of the core market design choices it is perhaps helpful to bear in mind that in an ideal world:

a) Balancing support would be a fully contestable service with all participants able to participate and be dispatched on the same terms;

b) Contributions to balancing support would be appropriately valued and rewarded;

c) Those contributing to the need for balancing support would face the actual costs they impose; and

d) Investors would have confidence in the regulatory regime and market arrangements.

[2] See 15 June MAC Workshop presentation for further information.
[3] Generators supplying own load. A de-minimus size would need to be established to avoid small participants incurring compliance costs in excess of market benefits.

Meeting the above criteria would ensure that balancing support costs are minimised in the short term (through contestability and efficient dispatch) and over the longer term (through investment and technology choices reflecting the value/ cost of balancing support).

A fundamental pathway consideration, taking development and operating costs into account, is thus whether to pursue these ideals by moving to a more conventional contestable design (along the lines of B or C options) or retain the current market design and push it as far as practicable towards these ideals (along the lines of A1 or A2 options).

6. EXTENT OF ISSUES ADDRESSED BY CORE DESIGN OPTIONS

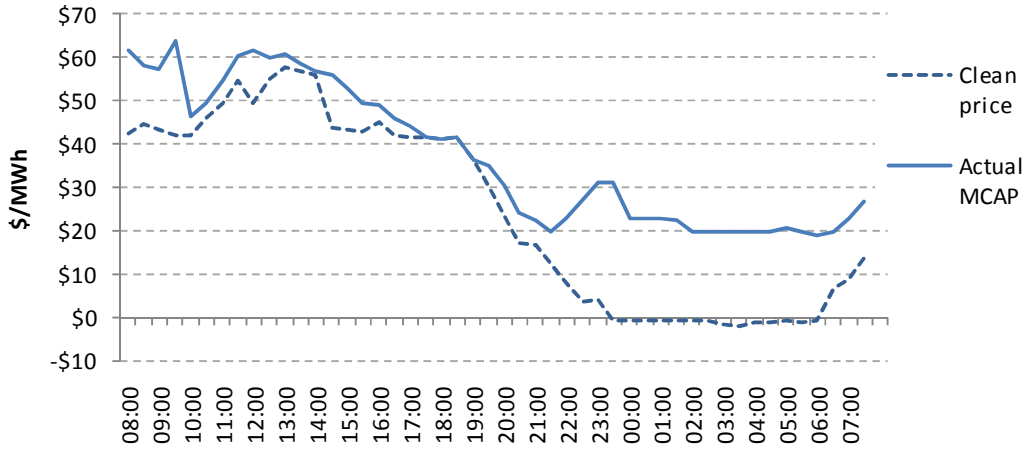
The most notable differences between the A1/2 and B/C options are (a) the level of contestability and (d) investor perspectives regarding regulatory and market risk. In this regard, and others, the following discussion highlights some important limitations of the current market design and considers the extent to which these are likely to be addressed by the core design options.

6.1 Balancing price distortions

At present the balancing price (MCAP) curve is contaminated by the STEM bids of participants not involved in on the day balancing. This means that frequently the balancing price does not reflect the cost of Verve balancing the system. For example, see Figure 1 below.

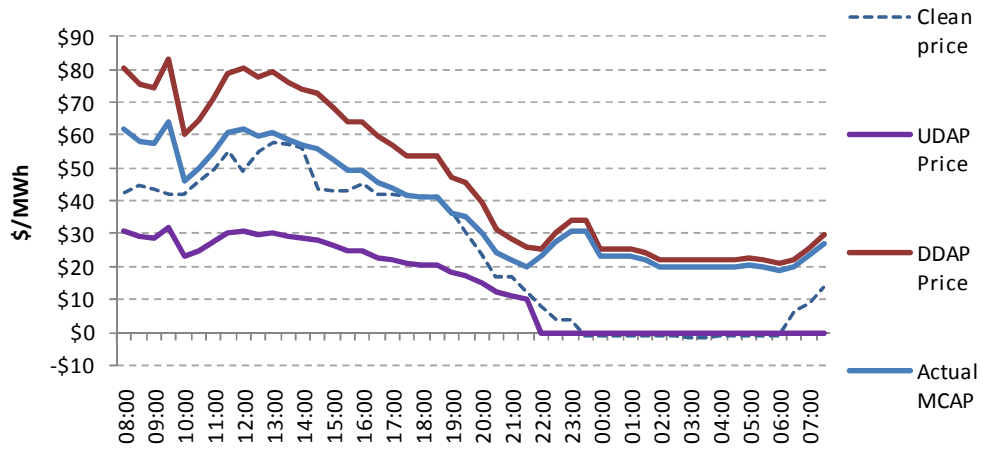
Overnight, during low demand periods, MCAP was significantly higher than the proposed clean balancing price. The balancing price seen by the market was therefore not reflective of actual balancing costs. While less pronounced in this example, there were also distortions at other times of the day with the market facing a higher price (MCAP) than the actual cost of balancing.

Figure 1: Actual MCAP vs cleaned price 12 February 2010



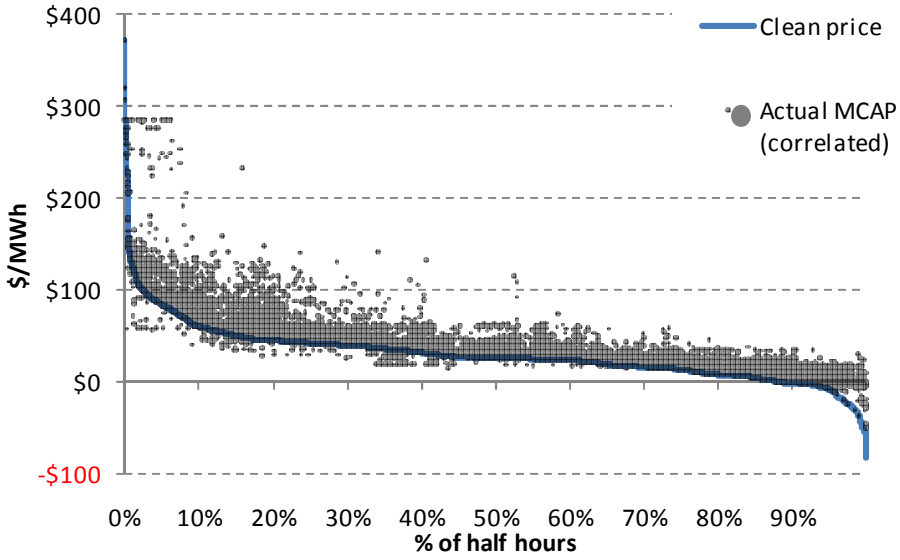
Over time, these distortions send inaccurate signals about the value and cost of balancing. As illustrated in Figure 2 below, DDAP and UDAP further distort the balancing prices participants face for resource plan/ NCP deviations. In other words, participants do not see actual system cost impacts.

Figure 2: DDAP, UDAP, MCAP and clean prices, 12 February 2010



It is difficult to quantify the economic impact of these distortions but there will be short term and long term efficiency implications. Figure 3 shows discrepancies between MCAP and 'cleaned' balancing prices during the year ending 31 March 2010. Cleaned prices have been plotted as a price duration curve alongside the corresponding MCAP values for each half hour. In addition to day to day inefficiencies, this highlights that there will be implications for investment decisions, including technology choices and plant mix, if the value of flexibility, or costs of inflexibility, are suppressed. For example, the right hand end of the curve highlights suppression of overnight/ low load flexibility costs/ requirement. As the level of intermittent generation grows, this distortion is likely to become more pronounced.

Figure 3: MCAP vs clean price duration curves 12 February 2010



Over the year it is interesting to observe that whereas the average clean balancing price was approximately $30 per MWh, participants contributing to balancing requirements faced average prices of approximately $15 per MWh (upwards deviations) and $48 per MWh (downwards deviations).

A clean balancing price under the current market design would therefore be more efficient, although lacking contestability benefits relative to ideal market arrangements. In this regard, full contestability under the B/C market designs should lead to more efficient pricing.

6.2 Participation in balancing

An important distinction between A and B/C market design options is the level of contestability to provide balancing support. The on-the-day balancing support role is currently undertaken by Verve[4]. In principle, there are opportunities for other participants to enter BSC's with Verve or System Management but to date it is understood that no BSCs have been agreed.

The possibility of basic market facilitated BSCs at each end of the merit order has been proposed. It is unclear what flexibility might become available through this proposal and if so what the potential savings might be. However, aspects of the analysis of historical balancing price curves and payments presented previously[5] perhaps provide some insights. For example, had it been possible to dispatch 100 MW of alternative non Verve STEM bids in periods when Verve generation was below the 1st percentile, analysis indicates that potential cost savings of around $230k over the year would have resulted. Of course that assumes that the alternative STEM bids were in fact available to be dispatched and were cost reflective. Similar analysis of intervals above the 99th percentile of Verve generation periods gives a figure of around $170k per annum. Extending the analysis to the periods less than the 2nd percentile and above the 98Th percentile gives figures of around $420k and $320k per annum respectively.

Clean balancing prices should better signal the value and system cost impacts of balancing, and help to facilitate basic BSCs. While enabling only limited participation in balancing, an ability for simple BSCs to respond to and influence prices at either end of the merit order should send better longer term signals about the value of flexibility (refer earlier discussion on Figure 3 balancing price distortions).

However, a fully contestable balancing market as for B/C market designs would clearly deliver greater operating efficiencies than under the facilitated BSC proposal, albeit at greater cost. i.e. it is reasonable to assume greater benefits because the full merit order would be contestable. Extending the analysis in section 0 above to all STEM bids, as a proxy for a full balancing curve, indicates apparent cost savings of around $10m would have been possible for the year ending 31 March 2010. It is unlikely that all non Verve STEM bids would have in fact been available for dispatch given the possibility of strategic bidding to influence MCAP formation rather than necessarily indicating willingness to be dispatched. However, had alternatives been available just 10% of the time, potential savings of around $1m pa would have been indicated.

Looking forward, it is understood that cheaper gas supply contracts will be expiring. It is therefore reasonable to assume the costs of balancing will tend to rise, more so if gas contracts are inflexible, and place higher burdens on Verve if it is to remain the sole balancer. There is also the prospect of increasing levels of intermittent wind generation, potentially increasing balancing and load following requirements.

6.3 Other operating efficiencies

At present participants submit nominations approximately 24 to 48 hours before the relevant trading period, and before gas positions are known. While difficult to quantify, this will lead to conservatism and inaccuracy in submissions.

[4] Except for non-distillate alternatives to Verve distillate being dispatched and for SM dispatching IPPs off resource plans for security related reasons (called dispatch criteria under the rules).
[5] For the year ending 31 March 2010 (see "Market Design Review, MAC Workshop, 15 June 2010").

Option A1 would delay submissions/ STEM timing to create better alignment between gas and electricity nomination timeframes and reduce overall forecasting and scheduling uncertainties. That should enable more flexibility/ certainty in managing gas supplies and more accurate nominations. To the extent this occurs, overall balancing requirements would reduce (all else being equal) and more accurate scheduling/ commitment decisions should be possible (including in relation to Verve plant). While difficult to quantify, potential benefits include reduced balancing requirements and costs.

Option A2 would go further and allow renominations, supported by balancing price forecasts, with final submissions later in the scheduling day. In principle, this should further reduce uncertainty and provide increased opportunities for participants to respond to market conditions, potentially reducing on the day balancing requirements. This would also have potential efficiency benefits in relation to plant scheduling and commitment decisions helping to reduce overall operating costs.

In this regard, there are two important distinctions between the A1/2 options and the B/C options. Firstly, in addition to renominations, B/C options could include rolling forecasts and rolling gate closure into the day of dispatch. Secondly, Verve would assume direct responsibility for managing its facilities and fuel requirements. On both counts, greater operational efficiency gains should be expected under the B/C options.

While very difficult to quantify, very small efficiency improvements can lead to significant savings across market portfolios. For example, a 1% improvement across 17,000[6] GWh of thermal generation with an average fuel cost of in the range $30 to $50 per MWh would equate to annual savings of around $5.1 to $8.5m. It is reasonable to assume that B/C options would realise greater savings than under the A options (although difficult to confirm the extent). The value of a 1% saving would increase given increasing gas prices and increasing generation requirements. For example, the upper figure ($8.5m) above would rise to around $10m in 2013/14.

6.4 Comments about investor confidence/ risk perceptions

The B/C options are likely to lead to improved investor confidence and risk perceptions compared to the A options. In particular, the B/C options are likely to be viewed as:

- More conventional, mature market designs;
- Providing greater regulatory certainty and stability;
- A level playing field with respect to all participants; and
- Providing greater transparency regarding Verve's operation and associated clarity regarding System Management's role.

The incremental benefits that would flow from this are obviously very hard to quantify and no doubt participants (and potential participants) will have their own insights. A point of reference can perhaps be obtained from the Oates review which estimated that around $10b of generation investments will be needed in the SWIS between 2014 and 2028. Achieving the right amount and the right mix of investments will clearly be important. The SWIS capacity regime is intended to secure sufficient generating capacity. However, the extent of private capital committed is likely to be affected by investor perceptions of the SWIS energy market

[6] 2010 SOO estimate of total supply for 2010/11 is 17,400 GWh.

relative to other markets and it is important that energy market arrangements are able to effectively signal and deliver the right mix of plant.

6.5 Summary of nature of benefits

In addition to the above discussion Table 4 provides a qualitative summary of the nature of potential benefits under the core market design options.

Table 4: Summary of potential benefits

Option	Design feature	Nature of potential economic benefits	
		Operational Efficiency	Dynamic Efficiency
A1/2	Clean BS price	Those contributing to or requiring balancing support face cost reflective price – Participants factor actual costs of balancing system into their day to day decisions – More cost reflective day ahead scheduling decisions	Investors factor accurate system cost impacts into decisions affecting reliability/ flexibility (plant design and electricity and fuel contracting) Creates incentives for more efficient technology choices to match supply and demand
	Basic market facilitated BSCs	Allow lower cost alternatives to de-commitment of Verve coal plant or dispatch of GTs – Reduce balancing support costs	Investors see stronger signals regarding the value of flexibility and technology choice
	Gross nominations	More accurate price forecasts and scheduling decisions	Indirectly through more accurate balancing prices
A1	Delayed gate closure	To enhance management of gas positions and/or to reduce scheduling/ commitment/ balancing uncertainties – Less conservative nominations (better forecasts, gas nominations) – Better scheduling decisions (including balancer) – Lower on the day balancing requirements	Investors see value in enhanced flexibility/ day to day plant/ fuel risk management opportunities
A2	Multi-nominations	Less uncertainty and greater flexibility to respond to market conditions – Increased day ahead ability to influence balancing / more informed scheduling decisions – Lower on the day balancing requirements	Investors see value in enhanced flexibility/ day to day plant/ fuel risk management opportunities

Option	Design feature	Nature of potential economic benefits	
		Operational Efficiency	Dynamic Efficiency
B or C	Net or gross market designs	Minimise balancing costs – Open/ fully contestable balancing market – Ability to signal/ respond to market conditions Verve more directly involved in managing its resources (scheduling/ commitment and fuel decisions)	Improved investor confidence/ risk perceptions – Mature market design – Regulatory certainty/ stability – Level playing field – Transparency Optimise plant mix – Investors factor appropriate costs/ rewards into decision making about plant/ fuel flexibility and reliability
All	Capacity refunds	Participants can more accurately factor potential system impacts into their maintenance and operational decisions – Better maintenance and outage decisions (e.g. timing of maintenance of duplicate ancillary plant that reduces reliability at full output) – Better commitment/ scheduling decisions (reduces perverse incentives)	

7. OVERALL BENEFITS

Attempting a full quantification of benefits is problematic at this stage but it is perhaps informative to assess economic benefits that would need to be realised to offset the costs associated with the market development options. That is, what would need to be believed about the likely level of economic benefits over a defined timeframe for each of the core market development options (A1, A2 or B/C options).

This concept is illustrated in the following example. Note that this example is purely hypothetical and for illustrative purposes only. The example indicates that economic benefits of at least $2.4m per annum would be required to break even7 (cover the costs of implementing, in years 1 and 2, and then operating the proposal). i.e. one would need to believe that economic benefits of at least $2.4 per annum over years 3 to 10 would be realised.

[7] Assuming 10% discount rate.

Table 5: Hypothetical example for illustrative purposes

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Costs ($12.9m NPV)	$3m	$7m	$1m	$1m	$1m	$1m	$1m	$1m	$1m	$1m
Breakeven benefits pa			$2.9m	$2.9m	$2.9m	$2.9m	$2.9m	$2.9m	$2.9m	$2.9m

Considering whether a certain level of benefits is plausible is a more tractable prospect than trying to estimate absolute benefits.

Applying the above approach, the following table shows estimates of what would need to be believed about benefits for the core market design options (in effect pathways 1 and 3).

Table 6: Summary of analysis

Option	Benefits pa			NPV costs		
A1	$1.1m	-	$1.5m	$5.0m	-	$6.7m
A2	$2.7m	-	$3.9m	$11.8m	-	$17.3m
B/C	$7.7m	-	$8.8m	$28.2m	-	$32.2m

The analysis is based on IMO estimates of implementation costs (detailed design, rule changes, systems) and ongoing support costs, System Management estimates for A1/2 options and placeholders for regarding participant costs. Note that cost ranges, rather than point estimates, have been estimated for System Management and participant costs. Further information about cost estimates is included in section 8.

The analysis provides some insights into the relative benefits that would need to be assured before proceeding with each of the options as a longer term solution.

With reference to earlier discussions regarding the nature of benefits, it seems plausible that while B/C options would cost significantly more to implement, they are likely to return materially higher economic efficiency benefits. To put market development costs into perspective, operating/ dispatch efficiency improvements of 0.9% to 1.3% per annum in 2013/2014 (and less in subsequent years as supply requirements grow) would cover the estimated costs of implementing and operating a B/C market design[8]. Economic benefits associated with investor confidence/ market risk perceptions and plant/ technology mix would also contribute (in effect reducing what would need to be believed regarding dispatch/ operating efficiency improvements.

This analysis has been presented to assist in considering the relative merits of the basic design options and should be viewed as indicative only at this stage for the purpose. A decision to embark on a preferred pathway will ultimately be subject to rule change requirements, detailed design, confirmation of benefits relative to costs and funding approvals.

8. COST ASSUMPTIONS

Estimates of costs have been developed in the following categories for the pathway options:

[8] Assuming 20,000 GWh pa and average fuel cost within the range $30 to $50 per MWh

Table 7: Cost Estimates Developed by Pathway

	Market System Costs (including Dispatch)	IMO Operational Costs	IMO Capital Costs	SM Operational and Capital costs
Pathway 1	✓	✓	✓	✓
Pathway 2	✓	✓	✓	partial
Pathway 3	✓	✓	✓	-

For more details on the IMO cost estimates, for all three pathways, please see Appendix 1. System Management cost estimates for A1 and A2 options are included in Appendix 2.

9. INDICATIVE MARKET FEE RATES

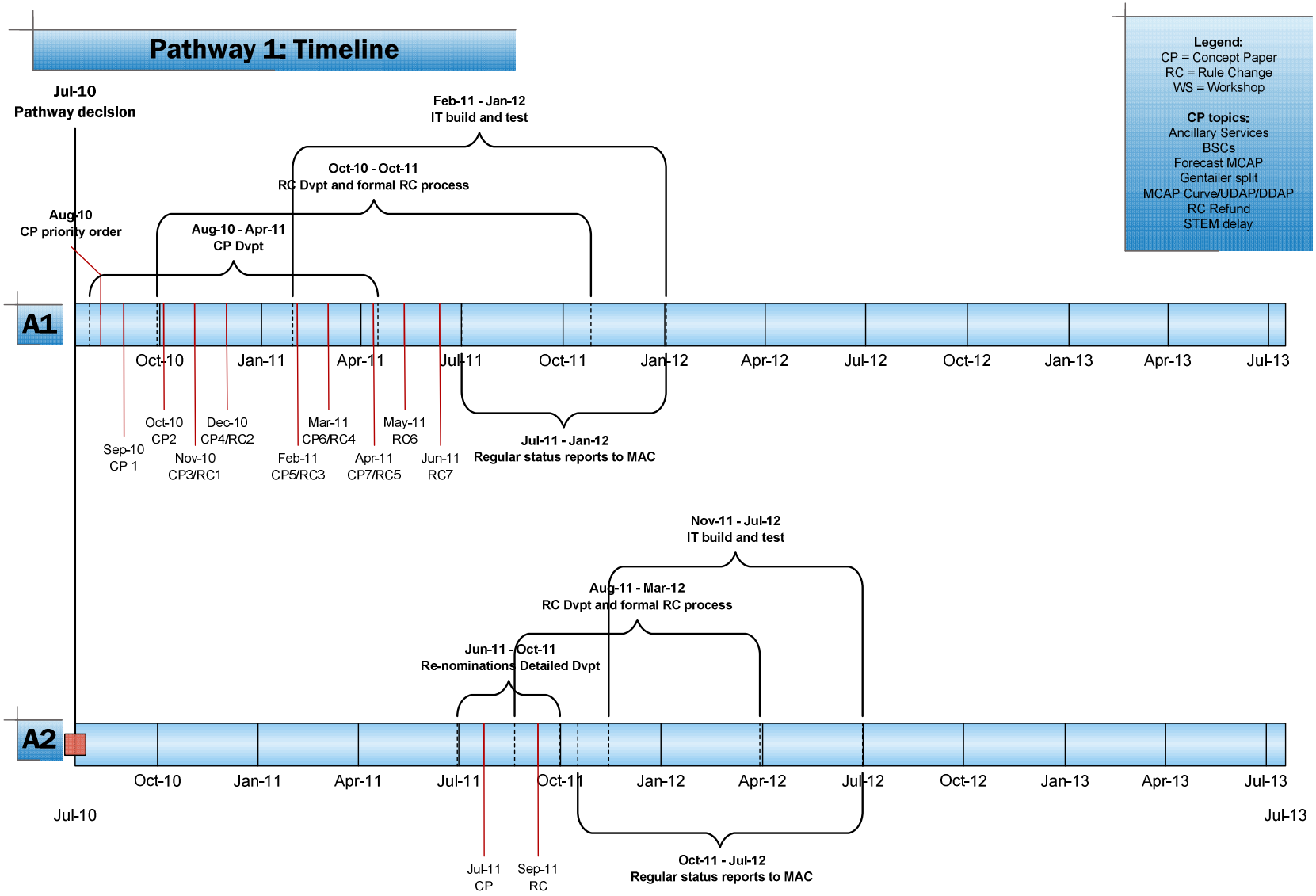
Table 8 shows the relative market fee rates of the IMO under each pathway. The fee rates are estimates only, based on IMO assumptions about costs and energy consumption projections from the 2010 Statement of Opportunities.

Table 8: Estimated market fee rates for pathway options

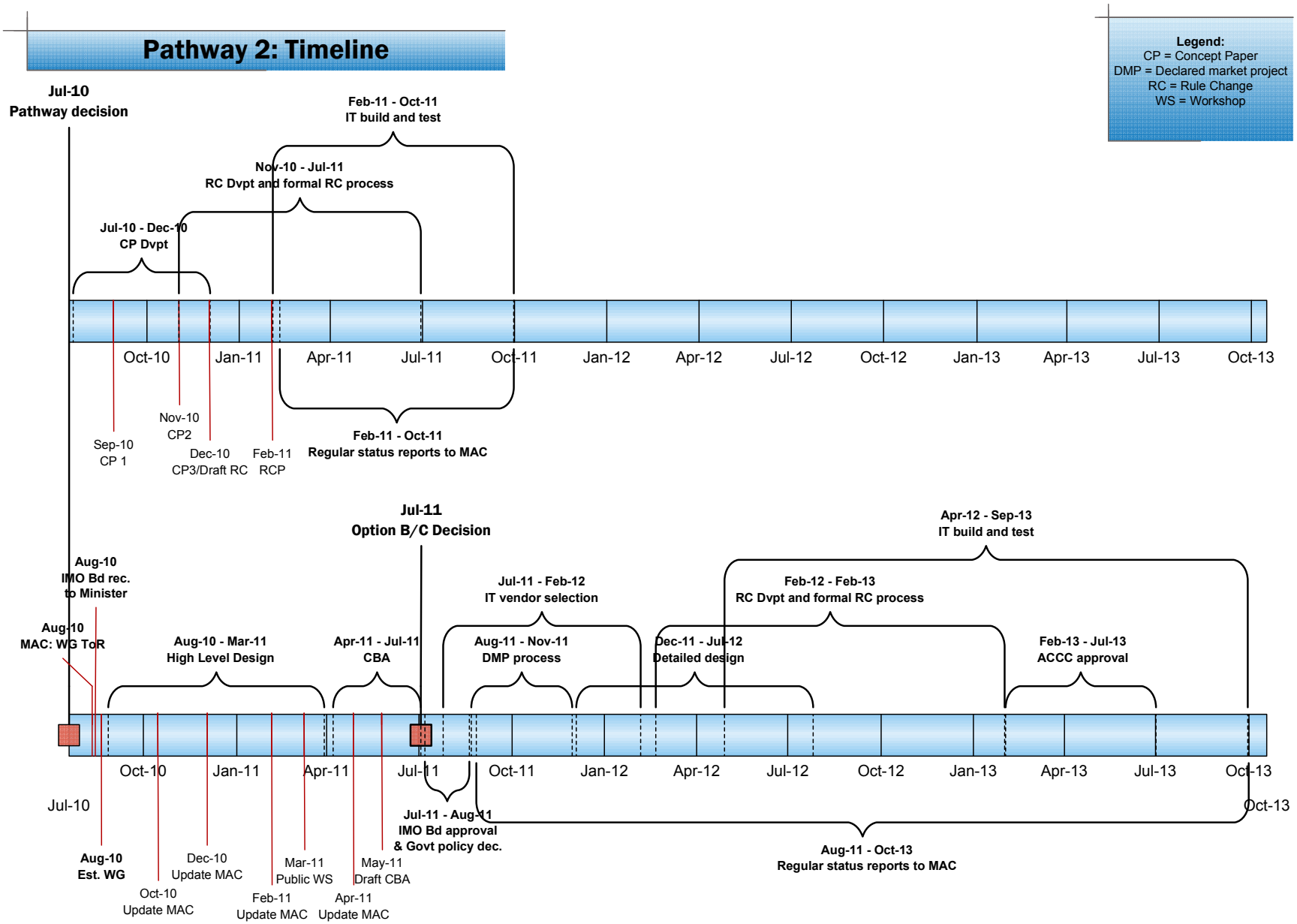
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Pathway 1	$0.284 / MWh	$0.355 / MWh	$0.378 / MWh	$0.357 / MWh	$0.323 / MWh	$0.303 / MWh
Pathway 2	$0.311 / MWh	$0.352 / MWh	$0.401 / MWh	$0.443 / MWh	$0.418 / MWh	$0.425 / MWh
Pathway 3	$0.303 / MWh	$0.319 / MWh	$0.390/ MWh	$0.440 / MWh	$0.428 / MWh	$0.426 / MWh

10. INDICATIVE TIMELINES

The indicative timelines for each of the Pathways is included below.

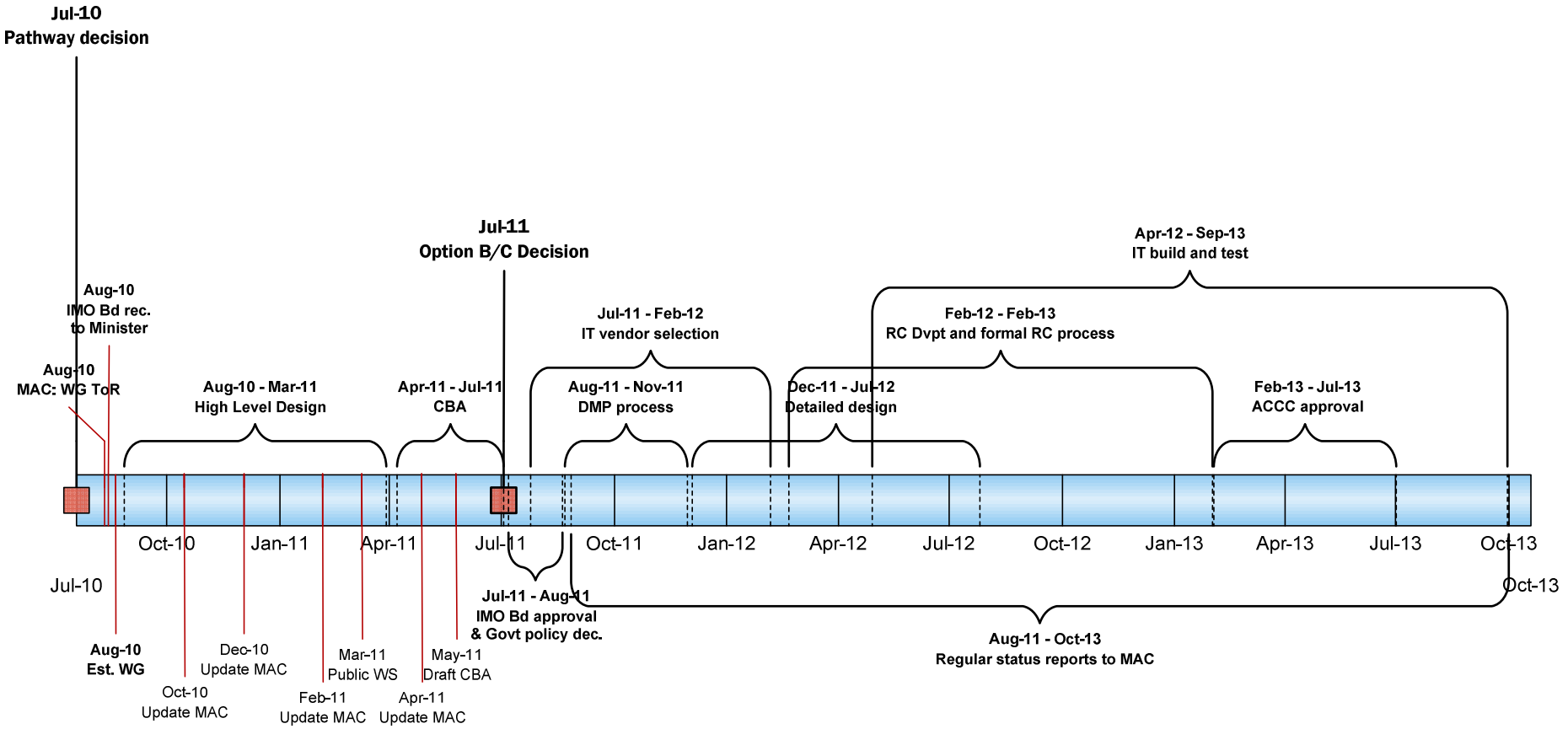

Pathway 1: Timeline
Jul-10
Pathway decision
Feb-11 - Jan-12
IT build and test
Oct-10 - Oct-11
RC Dvpt and formal RC process
Aug-10
CP priority order
Aug-10 - Apr-11
CP Dvpt
Legend:
CP = Concept Paper
RC = Rule Change
WS = Workshop
CP topics:
Ancillary Services
BSCs
Forecast MCAP
Gentailer split
MCAP Curve/UDAP/DDAP
RC Refund
STEM delay
A1
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Sep-10
CP 1
Oct-10
CP2
Nov-10
CP3/RC1
Dec-10
CP4/RC2
Feb-11
CP5/RC3
Mar-11
CP6/RC4
Apr-11
CP7/RC5
May-11
RC6
Jun-11
RC7
Jul-11 - Jan-12
Regular status reports to MAC
Nov-11 - Jul-12
IT build and test
Aug-11 - Mar-12
RC Dvpt and formal RC process
Jun-11 - Oct-11
Re-nominations Detailed Dvpt
A2
Oct-10
Jan-11
Apr-11
Jul-11
Oct-11
Jan-12
Apr-12
Jul-12
Oct-12
Jan-13
Apr-13
Jul-13
Jul-10
Jul-13
Jul-11
CP
Sep-11
RC
Oct-11 - Jul-12
Regular status reports to MAC

Pathway 2: Timeline



Pathway 3: Timeline

Legend:
CP = Concept Paper
DMP = Declared market project
RC = Rule Change
WS = Workshop



APPENDIX 1: IMO COST ESTIMATES

The IMO cost estimates for Pathways 1, 2 and 3 are contained in the tables over the page. For each pathway the IMO cost estimates include:

- a comparative summary;
- estimate of operating costs (ongoing);
- estimates of Capex and depreciation calculations.

COMPARATIVE SUMMARY
PATHWAY 1 (A1 + A2)

	CURRENT TRIENNIUM			NEXT TRIENNIUM		
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
CAPITAL COSTS						
Approved ERA Capital Expenditure [1]	1,785	1,620	1,645	1,645	1,645	1,645
Pathway 1 Costs (A1) and (A2)	730	7,302	16	-	-	-
Pathway 1 Savings [2]	(330)	(790)	(480)	-	-	-
Total Capital Costs	2,185	8,132	1,181	1,645	1,645	1,645
OPERATING COSTS						
Expenditure [3]	14	690	1,295	1,176	1,106	1,053
Depreciation	81	1,239	2,235	2,076	935	- 62
Asset Write-off						
Savings from Oates review	(669)					
Net Operating Costs	(574)	1,929	3,530	3,252	2,041	991
FEE RATE						
Original ERA Approved Fee Rate [4]	0.300	0.304	0.287	0.280	0.277	0.281
Adjustment to the Fee Rate	(0.016)	0.051	0.091	0.077	0.046	0.022
Total Adjusted Fee Rate:	0.284	0.355	0.378	0.357	0.323	0.303

Notes:

1. Approved ERA capital expenditure applies to current triennium only. Expenditure beyond this point based on a continuation of start.

2. Savings relate to current planned capital activities provided for in the approved ERA submission, which would no longer need to proceed if this option is chosen.

3. Corporate costs relating to the A1 model commence 1/1/2012, and are replaced by ongoing corporate costs relating to the A2 model from 1/7/2012. Depreciation based on capital expenditure evenly spread through 2011/12, and depreciated over three years (in line with existing treatment).

4. Approved ERA Fee Rates apply to current triennium only. Rates beyond this point are based on a combination of:

- **Energy consumption forecasts sourced from the IMO's Statement of Opportunities, published July 2010;**
- **Expenditure incrementing as per attached schedules (e.g. Department of Treasury and Finance general indexation factor of 2.75% for accommodation, and supplies and services).**

Corporate Costs - Ongoing
PATHWAY 1 (A1 + A2)

	Description	CURRENT FULL YEAR COSTS (5 FTE)	2011-2013 Triennium			2014-2016 Triennium			NOTES ON COSTS
			2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	
Salaries and Wages									SALARY COMMENCEMENT POINT 1/1/2012 FOR A1 (2 FTE), & 1/7/2012 FOR A2 (5FTE). A1 PROVIDES FOR ONE EXTRA OPERATOR AND ANALYST.
	Salaries	513,700		83,318	566,354	605,999	636,299	668,114	A2 SALARY PROVIDES FOR ONE EXTRA MARKET OPERATOR, ANALYST, TWO IT STAFF, LEGAL/SURVEILLANCE OFFICER (5 FTE)
	Superannuation	46,233	0	7,499	50,972	54,540	57,267	60,130	SUPERANNUATION AT 9% OF SALARY
	Total Salaries, Wages and other entitlements	**559,933**	**0**	**90,816**	**617,326**	**660,539**	**693,566**	**728,244**	ANNUAL SALARY INCREASES OF 5% IN 2011/12 AND 2012/13, AND 7% IN 2013/14 PER APPROVED ERA SUBMISSION. ANNUAL INCREASES OF 5% THEREAFTER.
Other Staffing Costs									
	Payroll Taxation	30,796	0	4,995	33,953	36,330	38,146	40,053	5.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Staff training	13,998	0	2,270	15,433	16,513	17,339	18,206	2.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Recruitment Costs	7,279	0	1,181	8,025	8,587	9,016	9,467	1.3% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Total Other Staffing Costs	**52,074**	**0**	**8,446**	**57,411**	**61,430**	**64,502**	**67,727**	
Office Accommodation									
	Rental and Other Costs (Electricity etc)	69,440			69,440	71,350	73,312	75,328	BASED ON COST PER FTE OF $13,888 FOR 2012/13 (PER APPROVED ERA SUBMISSION)
	Total Office Accommodation	**69,440**	**0**	**0**	**69,440**	**71,350**	**73,312**	**75,328**	
Supplies and Services									
	Admin Costs (Phones, Stationary, Printing, Photocopying, etc)	39,483		15,794	41,684	42,830	44,008	45,219	BASED ON $7,897 PER FTE (PER APPROVED ERA SUBMISSION)
	Minor Equipment (Mobiles, Laptops etc)	6,000		2,400	6,335	6,509	6,688	6,872	BASED ON $1,200 PER PERSON PER YEAR
	Extra Rack & Communications	108,000		110,970	114,022	117,157	120,379	123,690	BASED ON ADVICE FROM IT MANAGER
	Extra System Support Costs (PSC)			10,395	10,681	10,975	11,276	11,586	BASED ON CURRENT SUPPORT OF $69,300 PER MONTH
	Savings		(669,000)						SAVINGS FROM APPROVED BUDGET IN OPERATIONAL PLAN FOR OATES IMPLEMENTATION
	Total Supplies and Services		**(669,000)**	**139,559**	**172,721**	**177,471**	**182,352**	**187,366**	
Borrowing Costs	**Borrowing Costs**								
	Borrowing Costs (Interest Charge)		14,000	451,173	377,627	205,520	92,213	(5,413)	
	Total Costs Before Depreciation		**(655,000)**	**689,994**	**1,294,525**	**1,176,310**	**1,105,944**	**1,053,252**	
Depreciation	**Depreciation/Amortisation**								
	Depreciation - Computer Hardware		80,833	1,238,533	2,217,400	2,057,567	916,867	(80,000)	
	Depreciation - Plant and Equipment								
	Depreciation - Software at Cost								
	Depreciation - accommodation				18,000	18,000	18,000	18,000	EXTRA FITOUT FOR 5 FTE, ON RATES INCLUDED IN ERA SUBMISSION: $1200 X 5 FTE X 15 M X 20%=$27,360 PA
	Total Depreciation		**80,833**	**1,238,533**	**2,235,400**	**2,075,567**	**934,867**	**(62,000)**	
	Total Costs		**(574,167)**	**1,928,528**	**3,529,925**	**3,251,876**	**2,040,811**	**991,252**	

NOTES:
1. INDEXATION ACROSS OUT-YEARS FOR OFFICE ACCOMMODATION, AND SUPPLIES AND SERVICES APPLIED AT RATE OF 2.75% IN LINE WITH DEPARTMENT OF TREASURY AND FINANCE ADVICE
2. DEPRECIATION SOURCED FROM SEPARATE CAPITAL COST SCHEDULE ATTACHED

Capital Expenditure
PATHWAY 1 (A1 + A2)

CAPITAL COSTS											
Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium			
					2010/2011	2011/2012	2012/2013	2013/14	2014/2015	2015/16	
A1 Items											
Fix Balancing Prices	a) Replace legacy FORTRAN Balancing Price engine			0							
	b) Migrate existing MCAP calculations to new engine	275		275		275					
	c) Write new Balancing Rules	50		50	50						
	d) create database fix			0							
STEM re-alignment with Gas	a) Create new WEMS Business Rules engine			0		935					
	b) Migrate existing business rules validations and calculations	935		935							
	c) adjust existing market windows			0							
Modification of capacity Refunds	a) adjust existing Settlement Algorithms and import processes	650		650		650					
				0		0					
Removal of UDAP / DDAP	a) replace existing MCAP deviation prices with penalties (change rate to 1)	55		55	55						
	b) additional surveillance tools	450		450		450					
Develop BSC functionality	a) adjustment to Settlements algorithms	60		60		60					
	b) develop BSC Offer, validation and Dispatch functionality	500		500		500					
Gentailer split	a) changes to submission process's, reports, reserve capacity functions and Settlements	200		200		200					
	b) Automation of Settlement and metering validation	150		150		150					
	c) Amendments to registration	300		300		300					
project costs (A1)	a) training	50		50		50					
	b) Market Rule development	744		744	608	136					
	c) Certification	100		100		100					
	d) Contingency 20%	904		904		904					
	e) Accomodation	67		67	17	34	16				
	Savings against roadmap		(925)	(925)	(330)	(115)	(480)				
A1 Totals		**5,489**	**(925)**	**4,564**	**400**	**4,629**	**(464)**	**0**	**0**	**0**	
A2 Items											
STEM renominations	Adjustments to STEM submission validations, reporting and trading functionality	1500		1,500		1500					
				0		0					
MCAP forecast		150		150		150					
				0		0					
project costs (A2)	a) training	50		50		50					
	b) Market Rule development	332		332		332					
	c) System certification	100		100		100					
	d) Contingency 20%	426		426		426					
	Savings against roadmap		(675)	(675)		(675)					
A2 Totals		**2,559**	**(675)**	**1,884**	**0**	**1,883**	**0**	**0**	**0**	**0**	
Total Pathway 1		**8,048**	**(1,600)**	**6,448**	**400**	**6,512**	**(464)**	**0**	**0**	**0**	

Loan									
Interest rate assumed fixed at	**7%**								
Repayment of interest		**14**	**451**	**378**	**206**	**92**	**-5**		
Repayment of principal		67	1,219	2,227	2,083	931	- 77		
Total Repayment		67	1,285	3,512	5,595	6,525	6,448		
Closing Loan Balance		**333**	**5,627**	**2,936**	**853**	**-77**	**0**		

Depreciation
PATHWAY 1 (A1 + A2)

DEPRECIATION CALCULATION											
Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium			
					2010/2011	2011/2012	2012/2013	2013/14	2014/2015	2015/16	
A1 Items											
Fix Balancing Prices	a) Replace legacy FORTRAN Balancing Price engine										
	b) Migrate existing MCAP calculations to new engine	275		275							
					0	46	92	92	46		
	c) Write new Balancing Rules	50		50	8	17	17	8			
	d) create database fix				0	0	0	0	0		
STEM re-alignment with Gas	a) Create new WEMS Business Rules engine			935	0	156	312	312	156		
	b) Migrate existing business rules validations and calculations	935			0	0	0	0	0		
	c) adjust existing market windows				0	0	0	0	0		
Modification of capacity Refunds	a) adjust existing Settlement Algorithms and import processes	650		650							
					0	108	217	217	108		
				0	0	0	0	0	0		
Removal of UDAP / DDAP	a) replace existing MCAP deviation prices with penalties (change rate to 1)	55		55							
					9	18	18	9	0		
	b) additional surveillance tools	450		450	0	75	150	150	75		
Develop BSC functionality	a) adjustment to Settlements algorithms	60		60	0	10	20	20	10		
	b) develop BSC Offer, validation and Dispatch functionality	500		500							
					0	83	167	167	83		
Gentailer split	a) changes to submission process's, reports, reserve capacity functions and Settlements	200		200							
					0	33	67	67	33		
	b) Automation of Settlement and metering validation	150		150	0	25	50	50	25		
	c) Amendments to registration	300		300	0	50	100	100	50		
project costs (A1)	a) training	50		50	0	8	17	17	8		
	b) Market Rule development	744		744	101	225	248	147	23		
	c) Certification	100		100	0	17	33	33	17		
	c) Contingency 20%	904		904	0	151	301	301	151		
	d) Accomodation	67		67	17	34	16				
	Savings against roadmap - Replace FORTRAN code MPI Phase 4 Market Rules Evolution		(925)	(925)	(55)	(129)	(228)	(253)	(179)	(80)	
A1 Totals		**5,489**	**(925)**	**4,565**	**81**	**928**	**1,595**	**1,436**	**606**	**(80)**	

A2 Items										
STEM renominations	Adjustments to STEM submission validations, reporting and trading functionality	1,500		1,500						
						250	500	500	250	
				0		0	0	0	0	
MCAP forecast		150		150		25	50	50	25	
				0		0	0	0	0	
project costs (A2)	a) training	50		50		8	17	17	8	
	b) Market Rule development	332		332		55	111	111	55	
	c) Certification	100		100	0	17	33	33	17	
	d) Contingency 20%	426		409		68	136	136	68	
	Savings against roadmap - Market Rules Evolution MPI Phase 5		(675)	(675)		(113)	(225)	(225)	(113)	
A2 Totals		**2,559**	**(675)**	**1,866**	**0**	**311**	**622**	**622**	**311**	**0**
Total Pathway 1		**8,048**	**(1,600)**	**6,431**	**81**	**1,239**	**2,217**	**2,058**	**917**	**(80)**

Note:
1. Depreciation is over 3 years straight line.
2. 1st year Depn is for 6months as a mid point for purchase of capital items. Following years are depreciated on a full year basis.

COMPARATIVE SUMMARY
PATHWAY 2 (A1 TRANSITIONING TO B/C)

	CURRENT TRIENNIUM			NEXT TRIENNIUM		
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
CAPITAL COSTS						
Approved ERA Capital Expenditure [1]	1,785	1,620	1,645	2,000	2,000	2,000
Pathway 2 Costs	5,210	7,462	16,838	-	-	-
Pathway 2 Savings [2]		(1,000)	(840)			
Total Capital Costs	6,995	8,082	17,643	2,000	2,000	2,000
OPERATING COSTS						
Expenditure	471	851	1,756	2,956	2,756	2,539
Depreciation	579	991	802	3,858	3,258	3,620
Asset Write-off			1,885			
Savings from Oates review	(669)					
Net Operating Costs	381	1,842	4,443	6,814	6,014	6,159
FEE RATE						
Original ERA Approved Fee Rate:	0.300	0.304	0.287	0.282	0.282	0.288
Adjustment to Fee Rate	0.011	0.048	0.114	0.161	0.136	0.136
Total Adjusted Fee Rate:	0.311	0.352	0.401	0.443	0.418	0.425

Notes:

1. Approved ERA capital expenditure applies to current triennium only. Expenditure beyond this point based on estimate CAPEX required to keep the market systems current

2. Savings relate to current planned capital activities provided for in the approved ERA submission, which would no longer need to proceed if this option is chosen. Please note these savings will be crystallse if the market proceeedswith A B or C option.

3. Corporate costs relating to the A1 model commence 1/10/2010, and are subsequently replaced by ongoing corporate costs relating to B/C model from 1/7/2013.

4. Capital expenditure on existing system continues to be depreciated on a straight line basis over three years until new system is commissioned 30/6/2013, at which point the value of the old system ($1.9M) is written off.

5. New system is planned to be commissioned on 30/6/2013, and at which point the capitalised expenditure on the system of will start to be depreciated over six years in line with expected system useful life.

6. Approved ERA Fee Rates apply to current triennium only. Rates beyond this point are based on a combination of:

- **Energy consumption forecasts sourced from the IMO's Statement of Opportunites, published July 2010;**
- **Expenditure incrementing as per attached schedules (e.g. Department of Treasury and Finance general indexation factor of 2.75% for accommodation, and supplies and services).**

Corporate Costs - Ongoing
PATHWAY 2 (A1): APPLIES FROM OCT 2010 UNTIL JUL 2013, THEN SUBSTITUTED BY B/C

	Description	CURRENT FULL YEAR COSTS (2 FTE) 2010/11	2011-2013 Triennium 2010/2011	2011/2012	2012/2013	2014-2016 Triennium 2013/2014	2014/2015	2015/2016	NOTES ON COSTS
Salaries and Wages									
	Salaries	158,700	119,025	166,635	174,967				SALARY COMMENCEMENT POINT 1/10/2010 PROVIDES FOR ONE EXTRA OPERATOR AND ANALYST (2FTE).
	Superannuation - Contributory	14,283	10,712	14,997	15,747				SUPERANNUATION AT 9% OF SALARY
	Total Salaries, Wages and other entitlements	**172,983**	**129,737**	**181,632**	**190,714**	**0**	**0**	**0**	ANNUAL SALARY INCREASES OF 5% IN 2011/12 AND 2012/13.
Other Staffing Costs									
	Payroll Taxation	9,514	7,136	9,990	10,489	0	0	0	5.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Staff training	4,325	3,243	4,541	4,768	0	0	0	2.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Recuitment Costs	2,249	1,687	2,361	2,479	0	0	0	1.3% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Total Other Staffing Costs	**16,087**	**12,066**	**16,892**	**17,736**	**0**	**0**	**0**	
Office Accomodation									
	Rental and Other Costs (Electricity etc)	27,776			27,776				BASED ON COST PER FTE OF $13,888 FOR 2012/13 (PER APPROVED ERA SUBMISSION). CONVERT EXISTING OFFICES INTO OPEN PLAN - FOR NEXT TWO YEARS TO "FIND" SPACE
	Total Office Accomodation	**27,776**		**0**	**27,776**	**0**	**0**	**0**	
Supplies and Services									
	Admin Costs (Phones, Stationary, Printing, Photocopying, etc)	15,794	11,846	16,228	16,675				BASED ON $7,897 PER FTE (PER APPROVED ERA SUBMISSION)
	Minor Equipment (Mobiles, Laptops etc)	2,400	2,400	2,466	2,534				BASED ON $1,200 PER PERSON PER YEAR
			(669,000)						SAVINGS FROM APPROVED BUDGET IN OPERATIONAL PLAN FOR OATES IMPLEMENTATION
	Total Supplies and Services	**18,194**	**(654,755)**	**18,694**	**19,208**	**0**	**0**	**0**	
Borrowing Costs	**Borrowing Costs**								
	Borrowing Costs (Interest Charge)		314,540	634,236	1,500,711	1,198,364	924,833	630,839	
	Total Costs Before Depreciation	**235,040**	**(198,412)**	**851,454**	**1,756,145**	**1,198,364**	**924,833**	**630,839**	
Depreciation	**Depreciation/Amortisation**								
	Depreciation - Computer Hardware		564,000	975,667	801,667	3,823,327	3,223,327	3,585,660	
	Depreciation - Plant and Equipment								
	Depreciation - Software at Cost								
	Depreciation - Accommodation		15,000	15,000					EXTRA FITOUT FOR 5 FTE , ON RATES INCLUDED IN ERA SUBMISSION: $1200 X 5 FTE X 15 M X 20%=$27,360 PA [CONVERT EXISTING OFFICES INTO OPEN PLAN]
	Total Depreciation		**579,000**	**990,667**	**801,667**	**3,823,327**	**3,223,327**	**3,585,660**	
	Total Costs	**235,040**	**380,588**	**1,842,121**	**2,557,812**	**5,021,691**	**4,148,160**	**4,216,500**	

NOTES:
1. INDEXATION ACROSS OUT-YEARS FOR OFFICE ACCOMMODATION, AND SUPPLIES AND SERVICES APPLIED AT RATE OF 2.75% IN LINE WITH DEPARTMENT OF TREASURY AND FINANCE ADVICE
2. DEPRECIATION SOURCED FROM SEPARATE CAPITAL COST SCHEDULE ATTACHED

Corporate Costs - Ongoing
PATHWAY 2 (B/C) - COMMENCING JULY 2013

	Description	CURRENT FULL YEAR COSTS (9.6 FTE)	2011-2013 Trienium			2014-2016 Trienium			NOTES ON COSTS
			2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	
Salaries and Wages									
	Salaries	951,700				1,122,697	1,178,832	1,237,773	SALARY COMMENCEMENT POINT 1/7/2013. SALARY PROVIDES FOR TWO EXTRA OPERATORS, AN ANALYST, FIVE IT STAFF, LEGAL/SURVELLIENCE OFFICER, AND 0.6 ADMIN SUPPORT (9.6 FTE)
	Superannuation - Contributory	85,653				101,043	106,095	111,400	SUPERANNUATION AT 9% OF SALARY
	Total Salaries, Wages and other entitlements	**1,037,353**	**0**	**0**	**0**	**1,223,739**	**1,284,926**	**1,349,173**	ANNUAL SALARY INCREASES OF 5% IN 2011/12 AND 2012/13, AND 7% IN 2013/14 PER APPROVED ERA SUBMISSION. ANNUAL INCREASES OF 5% THEREAFTER.
Other Staffing Costs									
	Payroll Taxation	57,054	0	0	0	67,306	70,671	74,204	5.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Staff training	25,934	0	0	0	30,593	32,123	33,729	2.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Recuitment Costs	13,486	0	0	0	15,909	16,704	17,539	1.3% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Total Other Staffing Costs	**96,474**	**0**	**0**	**0**	**113,808**	**119,498**	**125,473**	
Office Accomodation									
	Rental and Other Costs (Electricity etc)	133,325			0	136,991	140,758	144,629	BASED ON COST PER FTE OF $13,888 FOR 2012/13 (PER APPROVED ERA SUBMISSION)
	Total Office Accomodation	**133,325**	**0**	**0**	**0**	**136,991**	**140,758**	**144,629**	
Supplies and Services									
	Admin Costs (Phones, Stationary, Printing, Photocopying, etc)	75,811				82,239	84,501	86,825	BASED ON $7,897 PER FTE (PER APPROVED ERA SUBMISSION)
	Minor Equipment (Mobiles, Laptops etc)	11,520				12,497	12,840	13,194	BASED ON $1,200 PER PERSON PER YEAR
	System Maintenance					188,679	188,679	188,679	BASED ON 20%OF SOFTWARE LICENCE COST
	Total Supplies and Services	**87,331**	**0**	**0**	**0**	**283,415**	**286,020**	**288,697**	
Borrowing Costs	**Borrowing Costs**								
	Borrowing Costs (Interest Charge)								
	Total Costs Before Depreciation	**1,354,483**	**0**	**0**	**0**	**1,757,954**	**1,831,203**	**1,907,972**	
Depreciation	**Depreciation/Amortisation**								
	Depreciation - Computer Hardware							0	
	Depreciation - Plant and Equipment								
	Depreciation - Software at Cost								
	Depreciation - Accommodation					34,560	34,560	34,560	EXTRA FITOUT FOR 9.6 FTE, ON RATES INCLUDED IN ERA SUBMISSION: $1200 X 9.6 FTE X 15 M X 20%=$34,560 PA
	Asset Write - Off Costs				1,885,333				
	Total Depreciation		**0**	**0**	**1,885,333**	**34,560**	**34,560**	**34,560**	
	Total Costs	**1,354,483**	**0**	**0**	**1,885,333**	**1,792,514**	**1,865,763**	**1,942,532**	

Additional Notes
CPI on out years of 2.75% in line with dtf advice (non employee costs)

Capital Expenditure
PATHWAY 2 (A1 TRANSITIONING TO B/C)

CAPITAL COSTS											
Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium			
					2010/2011	2011/2012	2012/2013	2010/2011	2011/2012	2012/13	
Option A1											
Fix Balancing Prices	a) Write new Balancing Rules	50		50	50						
	b) Create database fix	200		200	200						
STEM re-alignment with Gas	a) adjust existing market windows	50		50	50						
Modification of capacity Refunds	a) adjust existing Settlement Algorithms and import processes	650		650	650						
Removal of UDAP / DDAP	a) replace existing MCAP deviation prices with penalties (change rate to 1)	55		55	55						
	b) additional surveillance tools	250		250	250						
Develop BSC functionality	a) adjustment to Settlements algorithms	60		60	60						
	b) develop BSC Offer, validation and Dispatch functionality	500		500	500						
Gentailer split	a) changes to submission process's, reports, reserve capacity functions and Settlements	200		200	200						
	c) Amendments to registration	200		200	200						
project costs (A1)	a) training	50		50	50						
	b) Market Rule development	627		627	541	86					
	c) Contingency 20%	578		578	578						
Roadmap re-alignment	Replace FORTRAN Code (remove)		(275)	(275)		(275)					
	MPI Phase 2 (reduce)		(200)	(200)		(200)					
	MPI Phase 4 (reduce)		(275)	(275)		(275)					
	MPI Phase 5 & 6 (remove)		(420)	(420)			(420)				
	App consolidation (reduce)		(30)	(30)		(30)					
	Web Service Upgrade (remove)		(75)	(75)		(75)					
	Additional Savings Resulting from Transition		(565)	(565)		(145)	(420)				
Total Option A1		**3,470**	**(1,840)**	**1,630**	**3,384**	**(914)**	**(840)**	**0**	**0**	**0**	
Options B and C											
System License Costs		943		943			943				
System customisation		3,656		3,656		914	2,742				
Vendor expertise (PM, design, test)		1,769		1,769		1,769					
Integration, test, cutover		7,075		7,075			7,075				
Settlement system		1,769		1,769			1,769				
Surveillance and monitoring		1,179		1,179			1,179				
Hardware costs		1,887		1,887		1,887					
Contingency @ 20%		3,656		3,656	1,219	1,219	1,219				
Rule Development		2,005		2,005	607	892	506				
Project Costs		1,101		1,101		696	405				
Regulatory Approvals		500		500			500				
Certifications		500		500			500				
Total Options B and C		**26,039**	**0**	**26,039**	**1,826**	**7,376**	**16,838**	**0**	**0**	**0**	
Total Capital					**5,210**	**6,462**	**15,998**	**0**	**0**	**0**	
Progressive Capital Total					**5,210**	**11,671**	**27,669**	**27,669**	**27,669**	**27,669**	

Loan							
Interest rate assumed fixed at	**7%**						
Repayment of interest		**315**	**634**	**1,501**	**1,198**	**925**	**631**
Repayment of principal (A1)		564	976	683	(21)	(432)	(140)
Repayment of principal (B/C)		152	919	2,937	4,340	4,340	4,340
Total Repayment		716	2,611	6,231	10,550	14,458	18,657
Closing Loan Balance		**4,493**	**9,061**	**21,439**	**17,119**	**13,212**	**9,012**

Depreciation
PATHWAY 2 (A1 TRANSITIONING TO B/C)

DEPRECIATION CALCULATION											
Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium			
					2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/16	
Option A1											
Fix Balancing Prices	a) Write new Balancing Rules	50		50	8	17	17	8			
	b) Create database fix	200		200	33	67	67	33			
STEM re-alignment with Gas	a) adjust existing market windows	50		50	8	17	17	8			
Modification of capacity Refunds	a) adjust existing Settlement Algorithms and import processes	650		650	108	217	217	108			
Removal of UDAP / DDAP	a) replace existing MCAP deviation prices with penalties (change rate to 1)	55		55	9	18	18	9			
	b) additional surveillance tools	250		250	42	83	83	42			
Develop BSC functionality	a) adjustment to Settlements algorithms	60		60	10	20	20	10			
	b) develop BSC Offer, validation and Dispatch functionality	500		500	83	167	167	83			
Gentailer split	a) changes to submission process's, reports, reserve capacity functions and Settlements	200		200	33	67	67	33			
	c) Amendments to registration	200		200	33	67	67	33			
project costs (A1)	a) training	50		50	8	17	17	8			
	b) Market Rule development	400		400	90	195	209	119	14		
	c) Contingency 20%	533		533	96	193	193	96			
Roadmap re-alignment	Replace FORTRAN Code (remove)		(275)	(275)	0	(46)	(92)	(92)	(46)		
	MPI Phase 2 (reduce)		(200)	(200)	0	(33)	(67)	(67)	(33)		
	MPI Phase 4 (reduce)		(275)	(275)	0	(46)	(92)	(92)	(46)		
	MPI Phase 5 & 6 (remove)		(420)	(420)	0	0	(70)	(140)	(140)	(70)	
	App consolidation (reduce)		(30)	(30)	0	**(5)**	**(10)**	**(10)**	**(5)**		
	Web Service Upgrade (remove)		(75)	(75)	0	(13)	(25)	(25)	(13)		
	Additional Savings Resulting from Transition		(565)	(565)		(24)	(118)	(188)	(164)	(70)	
Total Pathway 1		**3,198**	**(1,840)**	**1,358**	**564**	**976**	**802**	**168**	**(432)**	**(70)**	
Option B and C											
System License Costs		943		943				157	157	157	
System customisation		3,656		3,656				609	609	609	
Vendor expertise (PM, design, test)		1,769		1,769				295	295	295	
Integration, test, cutover		7,075		7,075				1,179	1,179	1,179	
Settlement system		1,769		1,769				295	295	295	
Surveillance and monitoring		1,179		1,179				197	197	197	
Hardware costs		1,887		1,887				314	314	314	
Contingency @ 20%		3,656		3,656				609	609	609	
Rule Development		1,550		1,550				258	258	258	
Regulatory Approvals		500		500				83	83	83	
Total B and C		**21,934**	**0**	**21,934**	**0**	**0**	**0**	**3,656**	**3,656**	**3,656**	
Total Depn					**564**	**976**	**802**	**3,823**	**3,223**	**3,586**	

NOTES:

1. Depreciation for (A1) calculated on simple straight line over 3 years
2. Depreciation for (B/C) calculated on simple straight-line over 6 Years

COMPARATIVE SUMMARY
PATHWAY 3 (B/C)

	CURRENT TRIENNIUM			NEXT TRIENNIUM		
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
CAPITAL COSTS						
Approved ERA Capital Expenditure [1]	1,785	1,620	1,645	2,000	2,000	2,000
Pathway 2 Costs	1,826	7,376	16,838	-	-	-
Pathway 2 Savings [2]						
Total Capital Costs	3,611	8,996	18,483	2,000	2,000	2,000
OPERATING COSTS						
Expenditure	117	569	1,542	2,996	2,766	2,539
Depreciation	-	-		3,690	3,690	3,690
Asset Write-off			2,478			
Savings from Oates review						
Net Operating Costs	117	569	4,021	6,687	6,456	6,229

FEE RATE						
Original ERA Approved Fee Rate:	0.300	0.304	0.287	0.282	0.282	0.288
Adjustment to Fee Rate	0.003	0.015	0.103	0.158	0.146	0.138
Total Adjusted Fee Rate:	0.303	0.319	0.390	0.440	0.428	0.426

Notes:

1. Approved ERA capital expenditure applies to current triennium only. Expenditure beyond this point based on estimate CAPEX required to keep the market systems current

2. Savings relate to current planned capital activities provided for in the approved ERA submission, which would no longer need to proceed if this option is chosen. Please note these savings

2. Corporate costs relating to the A1 model commence 1/10/2010, and are subsequently replaced by ongoing corporate costs relating to B/C model from 1/7/2013.

3. Capital expenditure on existing system continues to be depreciated on a straight line basis over three years until new system is commissioned 30/6/2013, at which point the value of the old system ($2.5M) is written off.

4. New system is planned to be commissioned on 30/6/2013, and at which point the capitalised expenditure on the system of will start to be depreciated over six years in line with expected system useful life.

5. Approved ERA Fee Rates apply to current triennium only. Rates beyond this point are based on a combination of:

- **Energy consumption forecasts sourced from the IMO's Statement of Opportunites, published July 2010;**
- **Expenditure incrementing as per attached schedules (e.g. Department of Treasury and Finance general indexation factor of 2.75% for accommodation, and supplies and services).**

Corporate Costs - Ongoing
PATHWAY 3 (B/C)

	Description	CURRENT FULL YEAR COSTS (9.6 FTE)	2011-2013 Trienium			2014-2016 Trienium			NOTES ON COSTS
			2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	
Salaries and Wages									
	Salaries	$951,700				$1,122,697	$1,178,832	$1,237,773	SALARY COMMENCEMENT POINT 1/7/2013. SALARY PROVIDES FOR TWO EXTRA OPERATORS, AN ANALYST, FIVE IT STAFF, LEGAL/SURVELLIENCE OFFICER, AND 0.6 ADMIN SUPPORT (9.6 FTE)
	Superannuation - Contributory	$85,653				$101,043	$106,095	$111,400	SUPERANNUATION AT 9% OF SALARY
	Total Salaries, Wages and other entitlements	**$1,037,353**	**$0**	**$0**	**$0**	**$1,223,739**	**$1,284,926**	**$1,349,173**	ANNUAL SALARY INCREASES OF 5% IN 2011/12 AND 2012/13, AND 7% IN 2013/14 PER APPROVED ERA SUBMISSION. ANNUAL INCREASES OF 5% THEREAFTER.
Other Staffing Costs									
	Payroll Taxation	$57,054	$0	$0	$0	$67,306	$70,671	$74,204	5.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Staff training	$25,934	$0	$0	$0	$30,593	$32,123	$33,729	2.5% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Recuitment Costs	$13,486	$0	$0	$0	$15,909	$16,704	$17,539	1.3% ON TOTAL SALARY (PER APPROVED ERA SUBMISSION)
	Total Other Staffing Costs	**$96,474**	**$0**	**$0**	**$0**	**$113,808**	**$119,498**	**$125,473**	
Office Accomodation									
	Rental and Other Costs (Electricity etc)	$133,325			$0	$136,991	$140,758	$144,629	BASED ON COST PER FTE OF $13,888 FOR 2012/13 (PER APPROVED ERA SUBMISSION)
	Total Office Accomodation	**$133,325**	**$0**	**$0**	**$0**	**$136,991**	**$140,758**	**$144,629**	
Supplies and Services									
	Admin Costs (Phones, Stationary, Printing, Photocopying, etc)	$75,811				$82,239	$84,501	$86,825	BASED ON $7,897 PER FTE (PER APPROVED ERA SUBMISSION)
	Minor Equipment (Mobiles, Laptops etc)	$11,520				$12,497	$12,840	$13,194	BASED ON $1,200 PER PERSON PER YEAR
	System Maintenance					$188,679	$188,679	$188,679	BASED ON 20%OF SOFTWARE LICENCE COST
	Total Supplies and Services	**$87,331**	**$0**	**$0**	**$0**	**$283,415**	**$286,020**	**$288,697**	
Borrowing Costs	**Borrowing Costs**								
	Borrowing Costs (Interest Charge)		$117,140	$569,112	$1,542,221	$1,238,427	$934,633	$630,839	
	Total Costs Before Depreciation	**$1,354,483**	**$117,140**	**$569,112**	**$1,542,221**	**$2,996,381**	**$2,765,837**	**$2,538,812**	
Depreciation	**Depreciation/Amortisation**								
	Depreciation - Computer Hardware		$0	$0	$0	$3,655,660	$3,655,660	$3,655,660	
	Depreciation - Plant and Equipment								
	Depreciation - Software at Cost								
	Depreciation - Accommodation					$34,560	$34,560	$34,560	EXTRA FITOUT FOR 9.6 FTE, ON RATES INCLUDED IN ERA SUBMISSION: $1200 X 9.6 FTE X 15 M X 20%=$34,560 PA
	Asset Write - Off Costs				2,478,333				
	Total Depreciation		**$0**	**$0**	**$2,478,333**	**$3,690,220**	**$3,690,220**	**$3,690,220**	
	Total Costs	**$1,354,483**	**$117,140**	**$569,112**	**$4,020,554**	**$6,686,601**	**$6,456,057**	**$6,229,032**	

Additional Notes
CPI on out years of 2.75% in line with dtf advice (non employee costs)

Capital Expenditure and Depreciation
PATHWAY 3 (B/C)

CAPITAL COSTS

Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium		
					2010/2011	2011/2012	2012/2013	2013/14	2014/2015	2015/16
Options B and C										
System License Costs		943		943			943			
System customisation		3,656		3,656		914	2,742			
Vendor expertise (PM, design, test)		1,769		1,769		1,769				
Integration, test, cutover		7,075		7,075			7,075			
Settlement system		1,769		1,769			1,769			
Surveillance and monitoring		1,179		1,179			1,179			
Hardware costs		1,887		1,887		1,887				
Contingency @ 20%		3,656		3,656	1,219	1,219	1,219			
Rule Development		2,005		2,005	607	892	506			
Project Costs		1,101		1,101		696	405			
Regulatory Approvals		500		500			500			
Certifications		500		500			500			
Total B and C		**26,039**	**0**	**26,039**	**1,826**	**7,376**	**16,838**	**0**	**0**	**0**
Total Capital					**1,826**	**7,376**	**16,838**	**0**	**0**	**0**
Progressive Capital Total					**1,826**	**9,201**	**26,039**	**26,039**	**26,039**	**26,039**

Loan									
Interest rate assumed fixed at	**7%**								
Repayment of interest				**117**	**569**	**1,542**	**1,238**	**935**	**631**
Repayment of principal (A1)									
Repayment of principal (B/C)				152	919	2,937	4,340	4,340	4,340
Total Repayment				152	1,071	4,008	8,348	12,688	17,027
Closing Loan Balance				**1,673**	**8,130**	**22,032**	**17,692**	**13,352**	**9,012**

DEPRECIATION CALCULATION

Items	Components	Robust	Overlap / Savings	Adjusted Costs	2011-2013 Triennium			2014-2016 Triennium		
					2010/2011	2011/2012	2012/2013	2013/14	2014/2015	2015/16
Options B and C										
System License Costs		943		943				157	157	157
System customisation		3,656		3,656				609	609	609
Vendor expertise (PM, design, test)		1,769		1,769				295	295	295
Integration, test, cutover		7,075		7,075				1,179	1,179	1,179
Settlement system		1,769		1,769				295	295	295
Surveillance and monitoring		1,179		1,179				197	197	197
Hardware costs		1,887		1,887				314	314	314
Contingency @ 20%		3,656		3,656				609	609	609
Rule Development		1,550		1,550				258	258	258
Regulatory Approvals		500		500				83	83	83
Total B and C		**21,934**	**0**	**21,934**	**0**	**0**	**0**	**3,656**	**3,656**	**3,656**

NOTES:

1. Depreciation for (B/C) calculated on simple straight-line over 6 Years

APPENDIX 2: SYSTEM MANAGEMENT COST ESTIMATES

Note: The following estimates have been supplied by System Management. Note that some estimates for A1 have been provided with and without additional requirements outside normal business hours. These estimates are the basis for the upper and lower cost System Management estimates included in the benefits analysis.

Items (A1 + A2)	System Management Components	System Management Costs	
		Upfront	Ongoing
Fix Balancing Prices: change MCAP curve to Verve only and remove UDAP and DDAP	N/a	Nil	Nil
Gross Nominations – require gentailer to put in generator nominations	N/a	Nil	Nil
Capacity Refunds – modify refund multiplier based on forecast level of Reserve Margin	N/a	Nil	Nil
Balancing Price Forecast – forecast balancing prices based on MCAP curve and forecast balancing quantity	Send additional Operational Load Forecasts at 10 am and 4pm (after new BOM weather forecasts)	$10,000	Nil if business hours the same. $100,000/year if outside business hours
Simple Balancing Support Contract	Monitor approach of need to decommit high merit order Verve plant Monitor approach of need to commit low merit order Verve plant Issue dispatch instructions if generation dispatch is approaching need to decommit Verve plant and IPP turn down offer is better	$100,000	$100,000/year

Items (A1 + A2)	System Management Components	System Management Costs	
		Upfront	Ongoing
	Issue dispatch instructions if generation dispatch is approaching need to commit Verve plant and IPP turn up offer is better		
A1 additions – delay STEM until 2pm and Resource Plans until 3pm	Receive Resource Plans and DMO at 3pm	Nil	Nil if business hours the same. $100,000/year if outside business hours
A2 Additions – allow changes to Net Contract Positions and Resource Plans up to 12 hours before real-time – no changes to commitment/decommitment or prices	Receive Multiple Resource Plans	$500,000	$500,000/year

System Management's view on the forecast costs of option B&C is that its costs are unable to be estimated with any given accuracy until a definition of the role and responsibilities of the dispatch process is established. System Management understands that the ongoing costs may be significant if gate closure is moved closer to real time as the dispatch merit order can change for each trading interval and the generator/DSM facilities need to be dispatched by a market operator rather than by dispatch software. This would require additional shift staff available 24/7 to perform this task.

APPENDIX 3: ANSWERS TO MAC QUESTIONS

Who	Issue area	What	Comment
Alinta	**Alignment with Oates review recommendations**	What is the extent to which the alternative market design options address in whole, or in part, the recommendations of the Oates Review.	Overview contained in slide 28 of the MAC workshop presentation. The slide is attached (slide 1).
	Alignment with MREP	What is the extent to which the alternative market design options address in whole, or in part, the issues that were prioritised by the Market Rules Evolution Plan (MREP).	Pathways 1, 2 and 3 address aspects of each of the top 5 MREP plan issues (to varying degrees). However, additional work on improvements to the Reserve Capacity Mechanism (RCM) is contemplated, as well as the development work System Management is undertaking on an Ancillary Services market. Contained in the main body of this paper.
	Assessment against the Market Objectives	An assessment of each of the alternative market design options against the Market Objectives, including whether or not each better achieves the Market Objectives relative to the current Market Rules, and a ranking of the extent to which each achieves the Market Objectives.	Indicative Market Objective test in slide 32 of the workshop presentation. The slide is attached (slide 2).
	Pathway	For pathways that incorporate a "stepping stone" towards a "mature design", information on the extent to which there are commonalities between the "stepping stone" market model and the "mature design" market model.	Included in workshop presentation (pathway implications- slides 19 – 20). These slides are attached (slides 3 and 4).
	Costs and Benefits (implementation)	Information on the incremental benefits and costs associated with adopting a pathway that incorporates a "stepping stone", rather than moving directly from the current market model to a "mature design" market model.	Contained in the main body of this paper.
Griffin	**Declared Market Project**	Identification of the steps required to enact a Declared Market Project (DMP) which aims to move to a B/C option (either via pathway 2 or 3), including a proposed/preferred structure for a project team, the likely roles of the IMO, the MAC and industry in general, the current Oates Implementation team and any external project manager or specialist resources that might be	The timelines presented at the 19 July 2010 MAC meeting allow for approximately 3 months for formal approval of a DMP by the ERA. The IMO would establish a MAC Working

Who	Issue area	What	Comment
		employed.	Group to evaluate the B & C options, including the preparation of a detailed cost benefit analysis. The MAC will receive regular status reports as well as Concept Papers and Rule Change Proposals (when appropriate) from the Working Group. The IMO intends to continue the level of consultation with the wider industry and stakeholders on this project. The IMO will engage specialist resources (including a project manager) to support the working group and project. The IMO's estimate of these resources is included in the 19 July MAC papers.
	Costs and Benefits/Timelines (implementation)	Information of the expected costs and timelines of implementing one of the B/C options.	Discussed at the 16 June 2010 workshop and information will be presented at the 19 July MAC meeting.
	Costs and Benefits	Request for costs (in a $/MWh form) to be broken down as far as possible (matrix form perhaps) where the MAC can identify discrete packages or cost/benefits over a 10 year timeframe. This may assist in high level analysis on issues such as timing – i.e. if moving to a B/C option, where B may be achieved in 2 years and C in 5 years, there may be compelling cost based evidence to move more quickly or less quickly.	Contained in the main body of this paper.
	Ongoing costs	Request for ongoing costs to the market once a new (B/C) design is in place.	Contained in the main body of this paper.
Synergy	**Pathway**	Cost estimates for each pathway.	Discussed at the 16 June 2010 workshop. Contained in the main body of this paper.
	Alignment of costs with IMO's IT roadmap costs	Request confirmation whether the market evolution costs, resulting from A1, A2, B or C option selection, would be incremental or in addition to the current 3 year budget allocation of $5-6 million allocation for IMO system	Contained in the main body of this paper. The estimated savings from the current IT Roadmap and operational plan are provided in the detailed costings for each of the

Who	Issue area	What	Comment
		improvements.	pathways.
	Ongoing WEMS improvements	Under what circumstances would the current WEMS improvements proceed? e.g if either option B or C were chosen would it make sense to proceed with fixing up the interface of the current system?	Pathway 2 would involve transitional fixes to existing systems.
	Market efficiency improvements being passed through to customers	Concerned about the timeline for, or for that matter whether any of the "savings" from introducing a more efficient balancing mechanism would be passed on to electricity customers. Synergy appreciate that lower balancing costs aid a generator exposed to balancing, but are much less certain of the transmission mechanism by which those savings will subsequently be passed on to retailers to offset the contribution to market change costs funded by retailers.	It is reasonable to assume that any reduction in actual balancing costs would affect balancing prices.
	Hybrid option balancing considerations	How do the A1 or A2 hybrid options (with day-ahead incremental and decremental offers from potential balancing generators - represented as Balancing Support Contracts) differ from the incs/decs submitted by generators in the net dispatch option (Synergy is ignoring the change resulting from adopting the net dispatch model which would require Verve to produce and submit a resource plan to System Management). Synergy considers that the resultant balancing bid stacks revealed to System Management would be the same for the hybrid and net dispatch options which raises the issue of whether there is any material difference in expected balancing price outcomes and therefore whether the net dispatch option would deliver a substantial benefit in this regard over what would be achieved under the hybrid option (especially option A1).	In principle, the net dispatch proposal is not dissimilar to the concept of a hybrid regime with Balancing Support Contracts (BSC) and inc/decs as suggested. In practice, systems would need to be developed for facility based submissions and for System Management to establish half hourly merit orders for dispatch purposes. Such an arrangement would leave Verve exposed to increased scheduling risks/ inefficiencies, having to submit its balancing price curve 24 to 48 hours in advance of dispatch, but with no knowledge of IPP offers or how they might be dispatched. Introducing forecasts/ resubmissions/ layer gate closure could assist but would involve substantial changes to existing systems without the potential transparency/ level playing field/ efficiency of a more conventional competitive market design.
	Settlement and market	Given the IMO's view that the current settlement system is overly complex can it be confirmed whether the current	The current settlement systems are complex, this is largely driven by the

Who	Issue area	What	Comment
	monitoring costs	settlement and monitoring systems would be able to be integrated into the new market systems envisaged for options B and C and if so at what additional cost and if not, what would be the cost of the replacement settlement and monitoring systems?	complexity of the Market Rules. The current settlements system is largely configurable and could be used for each of the Market Design options contemplated, this configurability does come at a cost. The estimates included with pathways 2 and 3 have assumed a new settlement system would be purchased. However if the existing system could be more cost effectively configured this solution would be utilised.
	Cost Benefit Analysis	When will the full and complete high level cost and benefit assessment be available? What is its likely granularity? Will the benefits be expressed in financial values?	Cost estimates have been developed in reasonable detail (see 19 July 2010 MAC paper). Benefits will initially be subjective assessments at this stage although costs estimates will indicate the level of economic benefits needed to achieve net gains.
	Verve Energy/System Management costs	It appears the non-hybrid options will impose substantial transaction costs on Verve and /or System Management in which case will these costs be identified and included in the high level quantitative analysis report and available prior to 19 July?	System Management costs will be included in the information circulated for the 19 July MAC meeting.
	Bilateral contract risk	It is possible that options B or C (in particular the rolling gate closures) may trigger reopening of existing bilateral contracts. How is it proposed to take this risk into account in the overall cost/benefit analysis?	The IMO is not privy to the details of the bilateral contracts executed by participants. This evaluation would need to be undertaken by the participants.
	STEM and Balancing prices	Is it envisaged that pre-dispatch forecasts will be provided for both STEM and Balancing prices or will that not be possible in which case the status quo remains where the STEM price is taken a as proxy of the balancing price.	It is intended that Balancing price forecasts be published under all options.
	Role of STEM in option C	Does STEM still have a role in option C? Is there a sufficiently strong argument to retain the STEM auction in option C or can it be dropped (presumably delivering saving in market system	The working assumption is that STEM will have a role in option C. However this decision would be subject to review once detailed design has been completed for this

Who	Issue area	What	Comment
		costs) if a pre-dispatch balancing price forecast is published?	option.
	Funding Market Development	Whichever pathway is selected for further detailed development, how would this be funded? Would it form part of the IMO's triennial budget process (Allowable Revenue) or because of timing considerations would it be funded via the DMP method? Is Ministerial approval required if the project proceeds as a DMP?	Funding is dependent on pathway chosen. The IMO and System Management development costs will be funded from Market Fees (whether within the existing Allowable Revenue/Operational Plans or via a DMP). A DMP will be called if: • Major changes to IMO or SM functions or major change to software and systems are required to perform functions; and • The Cost estimate to implement exceeds either IMO's or System Management 's Allowable Revenue by 15%
	Draft Concept Paper	When will an updated draft of the Concept Paper be available? It is expected the updated draft will provide a concise summary of the discussions and issues raised to in the workshops to date.	The Concept Paper still represents the broad range of options under discussion, especially when combined with supplementary information made available through the May and June workshops and at the 19 July MAC meeting. This information could be incorporated into a Concept Paper following the July 19 MAC meeting and incorporating meeting outcomes.
Verve	**Network planning**	Is there any consideration by Western Power and/or the ERA over whether the network should be planned on a constrained or unconstrained manner. If this issue has been considered, is there a timeframe for when the planning criteria will change? This issue has been raised in various other forums and Verve Energy believes that it is an important consideration for the future structure of the market. Verve Energy notes that it will be inefficient to head down a certain pathway only to find that the planning criteria changes resulting in further changes required to the market design and	B or C options could be extended to accommodate a constrained grid. Efficient dispatch on an increasingly constrained network would become more problematic under the existing design.

Who	Issue area	What	Comment
		implementation.	
	Current calculation of MCAP Rule Change Proposal	Given the presentation on 15 June 2010 and the impact of the existing method of calculating MCAP, Verve Energy would like to know that if a Rule Change was submitted to change the way MCAP is calculated, whether it would be possible to fast track that Rule Change. Verve Energy views that a Rule Change to ensure that the balancing price is reflective of the balancer's cost would address a number of the issues identified in the 2009 Oates Review. This will alleviate some of the pressures to make quick decisions on pathways and market structures and give participants ample time to consider the various options.	Needs to be considered as a part of an integrated package of measures and solution may depend on which pathway is selected. Some discussion of potential economic implications of a clean balancing price (including DDAP/UDAP issues) is included in the benefits paper distributed for the 19 July MAC meeting. Any Rule Change Proposal would need to be assessed on its merits. However, given the nature of the changes being considered, changes may not meet the fast track criteria outlined in the Market Rules.
	Costs ("low hanging fruit")	Verve Energy would like to know what the costs are to change the market systems with a view to doing quick changes to allow the market to function while longer term solutions are debated, designed and implemented. This was discussed at MAC and it wasn't clear whether these costs would be made available to MAC members.	Contained in the main body of this paper.
LGP	**Declared Market Project**	Further description of the process and timelines for the Declared Market Project mechanism.	See previous comments on the DMP mechanism.
	Verve Energy/System Management costs	An estimate of the cost of separating Verve Energy from System Management, and the consequent operating costs? Including the cost to Verve Energy of having to submit resource plans.	For now an approximate range of costs has been included as a placeholder in the benefits paper for 19 July MAC meeting. Depending on pathway preferences, costs will need to be evaluated more fully during the detailed design and evaluation phase (taking account of experience elsewhere, in conjunction with Verve and System Management).
	Implications on Verve's metering	Comment on whether Verve Energy would have to upgrade metering and if so, the cost (if not, are there any implications that Synergy would have to bear via the Notional Wholesale	The IMO considers that the question of metering vs SCADA is independent of

Who	Issue area	What	Comment
		meter?)	pathway decisions.
	LGP proposed Option A3	How feasible is it to incorporate into the existing system a net dispatch model to facilitate participation by Independent Power Producers (IPPs) in: 1. Spinning Reserve; 2. Load following; and 3. Balancing. along the lines of the recent MAC presentation by System Management?	Would require more detailed consideration.
		What prevents cleansing of the Verve Energy/MCAP cost curve? Would it be better to remove the IPP components of the curve, or to retain them, but actually dispatch the IPPs so that they have to deliver on their parts of the curve?	Cost estimates for cleansing the balancing price curve are included in the 19 July MAC meeting papers. Dispatching IPP offers is the intent of options B or C. See discussion regarding Synergy query.
		Is a complicated Ancillary Service formula (and costs of maintaining it) necessary– could there be an administered (or tendered) availability fee where needed and a cleansed MCAP (or competitive price) for energy?	It would be possible although a desire to improve efficient dispatch and pricing of energy and reserves has lead to co-optimisation methods in mature electricity markets.
		What is the substance underpinning System Management's inability to issue a dispatch instruction to a willing participant to circumvent an equivalent DI to an unwilling participant (Verve Energy)? Is there not an elegant way of remedying this perverse outcome?	Under the rules, System Management can dispatch an IPP instead of Verve Energy for security (i.e. under dispatch criteria and pay as bid pricing). To do this for *economic* reasons would require System Management to have the necessary information including IPP short run costs. The simple BSC concept is an attempt to facilitate economic alternatives to the dispatch of Verve Energy. See also comments under Synergy/ hybrid option balancing considerations.
		Can a real-time MCAP be provided to the market, and if so, would it be feasible to remove UDAP and DDAP?	It may be feasible, subject to System Management security requirements but there would inevitably be efficiency

Who	Issue area	What	Comment
			implications (e.g. Verve Energy submits offer curve up to 48 hours ahead).
		What would be the objections to portfolio Resource Plans if the feasible aspects of the above were to be implemented?	This design aspect would be subject to review. There are some aspects of this market which would need to be considered in more detail. For example, under the RCM capacity is assigned on a facility basis which lends itself to Facility based Resource Plans rather than Portfolio based Resource Plans.
		What would be the metering implications (and costs) for Verve Energy if it was required to lodge Resource Plans at the facility level?	See Synergy/ Implications on Verve's metering.
		Broad comment on the cost and feasibility of upgrading the existing systems to facilitate the feasible aspects of the above, and can they be included in the normal IMO budget?	This has not be considered at this time.
ERM	**Balancing prices: Impact on Verve Energy**	Please confirm how the design team has arrived at Verve Energy's estimated loss of $10M ?	By recalculating balancing prices (MCAP) over the year using actual Verve quantities and excluding non Verve STEM submissions from the MCAP price curve.
		What is the design team's assessment of the vesting contract termination on Verve Energy's balancing position?	Very little detail has been provided with to the Market Review Design Team with regard to the Synergy/Verve Energy vesting contract. No evaluation has been made on the impact the termination of the current vesting contract will have on Verve Energy's balancing position.
	Balancing prices: Impact on other Market Participants	Assuming that the $10M is correct under a proposed "clean" MCAP price determination what proportion of the returns to Verve Energy will be from market efficiency improvements versus wealth transfer?	Very difficult to determine operational efficiency gains but while significant transfers are likely so too are efficiency gains. See discussion in benefits paper for the 19 July MAC meeting.

Who	Issue area	What	Comment
	Different operating scenarios and "clean" MCAP curve	Please provide a sensitivity assessment of the impact on balancing prices under the proposed revised MCAP calculation for the operating scenario of Verve Energy balancing upwards (suggest utilising +150MW and +300MW for various periods of day).	Undertaking the analysis suggested would involve a degree of effort but the results would be somewhat speculative. i.e. rough analysis suggests that Verve Energy may have frequently, but not always, received a higher price. However, that ignores the possibility that Verve Enegy had to systematically balance upwards, instead of downwards, of potential changes in behaviour wrt participants' STEM submissions. See also the discussion in the benefits paper for the 19 July MAC meeting regarding potential implications of price distortions.
	STEM	Has the design team given consideration to methods of addressing the short comings of the STEM and the impact that it has had on the MCAP prices?	In principle yes – see discussion in benefits paper for 19 July MAC meeting.
	Gross nominations	Does the design team have a view on whether some simple market rule changes regarding mandatory gross nominations will have an impact on Verve Energy's balancing position?	Not assessed in detail. It may not affect balancing quantities but could impact scheduling decisions to some extent and affect price forecasts.
	Capacity Refunds	Please confirm whether modifications to Capacity Refunds will be considered.	Yes, although the design of capacity refunds is not strictly dependent on a pathway decision. This change would be included in the package of changes to the existing market under both pathways 1 and 2.
	Conversion of Forced to Planned Outages	In addition to reviewing refund factors, please confirm whether conversion from Forced to Planned Outages will be considered.	Yet to consider.
	Capacity Refund netback	Please confirm that a capacity refund netback has not formed part of Verve Energy's commercial arrangements with Synergy.	Very little detail has been provided with to the Market Review Design Team with regard to the Synergy/Verve vesting contract.

Who	Issue area	What	Comment
			No confirmation can be provided by the Market Design Review Team on this issue.
	Refund and deviation statistics	Can the IMO please provide a summary of market stats relating to total capacity refunds paid and deviation penalties since market start.	Yes – this will either be circulated by e-mail or tabled at the MAC meeting.
	IMO IT Roadmap	Please confirm which phases would be required regardless of the pathway chosen.	Most of the phases would proceed in some form or other regardless of the pathway. The scope of the changes will be reduced if a transitional option is chosen, however there are still some fundamental improvements that need to be made if a B or C option is implemented.
	Option A1: Fixing MCAP calculation	Please confirm that there isn't a simpler short term solution that could for example entail the modification of queries to be for a subset of data including only Verve Energy or other participants participating in balancing. i.e. for a rudimentary fix is there not a simpler solution of modifying the data feeding into the business engine as opposed to rewriting the entire engine itself.	The estimates in the transitional A1 costs reflect a simpler solution involving the creation of subsets of Verve Energy data in the database and a minor alteration to the MCAP calculation engine to point to the new tables. Contained in the main body of this paper.
	Option A1: delayed STEM to realign with Gas	Confirm whether the IMO currently has the ability to delay the STEM window without requiring any further system upgrades.	The estimates in the transitional A1 costs reflect the changing of the STEM windows without major re-writes. This also involves some changes to reporting and rescheduling of existing events. Contained in the main body of this paper.
	Option A1: Gross nominations for Gentailer split	Modifications to submission process: Please confirm why system changes are required when it appears that all the information required is already provided in the existing system.	The system has validation rules built in to allow participants to be multiple classes. The rules would need to be changed and validations built in to the registration screens. Existing Gentailers would also need to be split into separate participants.
		Reporting: Please confirm whether this functionality is for new report info or for the same info but in a more user friendly	Both.

Who	Issue area	What	Comment
		format?	
		Automation of settlement and metering validation: Please expand on requirement for this functionality.	Masterfile (registration) data is currently validated manually in WEMS and metering prior to being used in Settlements.
		Market Participant registration process: Please confirm whether this is required regardless of pathway decision as current system isn't adequate i.e. not only required for Gentailer split.	Certain changes are scheduled to be made to registration regardless of Pathway options. The pathway will determine the scope of the changes.
		Contingency: Has the experience of cost blow outs in Phase 1 been included in the line items cost estimates and if not is the contingency adequate?	Costs for most of the pathway options have been estimated taking previous experience into account. A contingency of 20% would be adequate.
	Option A2	STEM renominations: Cost has been left out so please confirm whether this cost is $2.7M. Provide further detail as to why this isn't as simple as re-running the STEM process. Is the system not capable of running STEM auctions more than once per day?	See papers for 19 July 2010 MAC meeting for costs. The STEM renominations aspect has not been fully scoped. The estimates take into account the possibility of multiple Dispatch Merit Orders, storing of multiple nominations and most of the additional trading functionality in the MPI phase 4 redevelopment. The MPI phase 4 costs have been offset as a saving.
		Reporting and surveillance changes: Please expand on the reporting and surveillance requirements i.e. why is it required when this is nothing more than a process being re-run	1. It is envisaged that there will be additional requirements from the ERA to monitor STEM re-nominations. 2. In order to get the most out of the re-nomination process, participants will require additional reporting of STEM trade volumes and updated estimates of surplus capacity
		Contingency: The A2 implementation cost does not appear to include a contingency. Was this intentional?	No, this has been rectified in papers for 19 July 2010 MAC meeting

Who	Issue area	What	Comment
	Options B/C	Please provide cost estimates for the settlement system and the interfaces required for settlement, metering, SCADA etc.	See papers for 19 July 2010 MAC meeting
		Should a gross dispatch market be selected please comment on WA leveraging off the existing NEM systems.	If option C was chosen, then the economic benefits of leveraging off the NEM systems would be considered as part of the detailed design and development of the cost benefit analysis.

ATTACHMENT 1: SLIDES REFERRED TO IN MAC QUESTIONS/ANSWERS

The slides referred to in the MAC questions/answers are contained over the page.

Oates Review cross-check

- Any amendments to be subject to Market Objective test(s) under market rules as the primary acceptance criteria
- Oates Review recommendations also relevant in practice

ISSUE	PROPOSAL
Capacity accreditation, payment and refund	Capacity refunds and incentives
Participation in balancing	Clean balancing prices (MCAP, UDAP, DDAP), price forecasts
Managing low (overnight) demand conditions	BSCs, Clean balancing prices (MCAP, UDAP, DDAP), price forecasts (indirectly: contract nomination incentives)
Emergency management	(Clear authority definition, capacity refunds, information)

Market objective test (indicative)

Objective	Impact
Economic efficiency	Improved by changes relating to balancing price, balancing participation (improved in all proposals but more so in some), Capacity refunds
Competition	Balancing participation
Technology discrimination	Limited impact in these changes although cost allocation unwinds current discrimination
Long-term cost	Enhanced investment environment , reduced cost . Options B&C offer largest benefits
Demand side	General improvement through timely price forecasts and in Options B&C better incentives for participation

Pathway implications

- Some issues could be addressed under A or B/C options: e.g.
  - Amend capacity refunds
  - Amend balancing price
  - Balancing price forecasts
  - Gross nominations

- Others could only be partially addressed under A options: e.g.
  - Participation in BS and AS
  - Gate closure/ resubmissions

- And some issues could only be addressed by moving to B / C options: e.g.
  - Full participation in balancing
  - (Close to) real time nominations/rebids
  - Independent System Manager (from Verve)
  - Fully contestable AS and balancing support

Pathway implications *(cont'd)*