

Independent Market Operator

Market Advisory Committee

Minutes

Meeting No.	SPECIAL MEETING NO. 2
Location:	IMO Board Room Level 3, Governor Stirling Tower, 197 St Georges Terrace, Perth
Date:	Wednesday 14 April 2010
Time:	Commencing at 1.30- 4.30 pm

Attendees	Class	Comment
Allan Dawson	Chair	
Troy Forward	Compulsory – IMO	
Stephen MacLean	Compulsory – Customer	
Ken Brown	Compulsory – System Management	
Wendy Ng	Compulsory – Generator	
Peter Mattner	Compulsory – Networks	(1.30-2.00pm)
Corey Dykstra	Discretionary – Customer	
Steve Gould	Discretionary – Customer	
Peter Huxtable	Discretionary – Contestable Customer Representative	
Andrew Sutherland	Discretionary – Generator	(1.30-4.00pm)
Shane Cremin	Discretionary – Generator	
Rob Pullella	Observer – ERA	Proxy (1.40–4.30pm)
Tony Perrin	Minister's appointee/ Small Use Customers	(1.40- 4.30pm)
Also in attendance	From	Comment
Greg Thorpe	Oates Implementation Review Team	Presenter (2.00 – 4.30 pm)
Jim Truesdale	Concept Consulting	Presenter (2.00 – 4.30 pm)
Ross Gawler	McLennan Magasanik Associates	Presenter
Peter Hawken	OoE	Presenter
Fiona Edmonds	IMO	Minutes
Jacinda Papps	IMO	Observer
Jenny Laidlaw	IMO	Observer
Greg Ruthven	IMO	Observer
Phil Kelloway	System Management	Observer
Apologies	Class	Comment
Chris Brown	Observer - ERA	

Item	Subject	Action
1.	WELCOME The Chair opened the meeting at 1:30 pm and welcomed members to Special Meeting No.2 of the Market Advisory Committee (MAC). The Chair noted the requests of members to amend the original agenda to discuss both the Network Control Services Issues Paper and the Oates Implementation Review Paper earlier than previously indicated. An updated meeting agenda was tabled. The Chair introduced Jenny Laidlaw (Market Development) and Greg Ruthven (System Capacity) as new IMO staff.	
2.	MEETING APOLOGIES / ATTENDANCE Apologies were received from: • Chris Brown (ERA) The following other attendees were noted: • Peter Hawken (Presenter); • Greg Thorpe (Presenter); • Jim Truesdale (Presenter); • Ross Gawler (Presenter); and • Phil Kelloway (Observer).	
3.	NETWORK CONTROL SERVICES Peter Hawken from the OoE presented the issues paper “Network Control Service as an Alternative to Network Augmentation”. A copy of the presentation is attached as Appendix 1. In addition to the presentation, Mr Hawken noted that, during 2009, the IMO facilitated a number of workshops on Network Control Services (NCS) between System Management, ERA, Western Power and the OoE. The goal of these workshops was to try to facilitate the Network Control Services procurement processes within the current legislative framework. Late in 2009, the policy reasons for the original procurement framework were examined in greater detail. As a result the OoE is now recommending that Western Power tender for and contract with a NCS provider, with ERA to conduct regulatory oversight. Mr Hawken noted that this will give Western Power the ability to manage its own risks. It was noted that in order to facilitate this, Chapter 5 of the Market Rules would need to be amended. Dr Gould noted the proposal for energy costs to be allocated to the network users who benefit and queried whether these users will be consulted prior to any large costs being unexpectedly imposed. Mr Hawken clarified that existing users would not be required to make	

Item	Subject	Action
	any retrospective payments (only new users would be required to cover any incurred costs). Western Power noted that the proposed treatment of energy costs will be similar to the Capital Contributions policy. That is it would only be able to levy costs through regulated network tariffs which satisfy the New Facilities Investment Test, additional energy costs would need to be financed by some other means (i.e. allocated to the network users who benefit). The proposed process would require pre-approval from the ERA prior to undertaking the procurement process. Western Power noted that this would ensure complete transparency. Mr Hawken noted that the current arbitration and appeals processes (through the Electricity Review Board) would still apply. Mr Dykstra queried whether Chapter 5 of the Market Rules could be completely removed. Mr Hawken stated that this needs to be considered by the IMO and System Management but noted that there are some clauses that relate to the operation on Network Control Services which would need to be maintained (i.e. dispatch and settlement). Mr Dykstra queried why any payments to the market should be made for these services. In response, the IMO stated that when System Management dispatches these facilities there is an energy flow which needs to be attributable to an individual and that the associated costs need to be correctly distributed to these individuals. The IMO clarified that any Rule Change Proposal would need to remove any unnecessary clauses while maintaining those operational clauses relating to energy. The ERA noted that this Issues Paper is for information purposes and that going forward the Access Code regime and the related processes will need to be tested to ensure everything operates as necessary. Any residual issues will then be examined. The MAC agreed with the concept that the NCS procurement and contracting functions be shifted to Western Power. The MAC agreed that the IMO should amend Chapter 5 of the Market Rules to reflect this. <i>Action Point: The IMO, in consultation with System Management and Western Power, to prepare a Rule Change Proposal to:</i> <i>remove the requirement for the IMO to conduct an NCS expression of interest and tender process from the Market Rules; and</i> <i>facilitate the operation of an NCS (i.e. dispatch and settlement of energy) within the broader market processes.</i>	IMO
4	MINUTES OF PREVIOUS MEETING The Minutes of MAC Meeting No. 27, held on 10 March 2010, were circulated prior to the meeting. Verve Energy and OoE requested amendments to the description of their class in the list of attendees:	

Item	Subject	Action
	- Verve Energy: “Compulsory – Retailer <u>Generator</u>”; and - OoE: “Observer <u>Small Use Customers/Minister’s Appointee</u>” Mr Dykstra queried whether the minutes should reflect individuals not companies, as members are appointed on an individual basis. The IMO agreed with this suggestion, and noted that future minutes would reflect this. <i>Action Point: The IMO to refer to members appointed on an individual basis rather than companies in future MAC minutes.</i> <u>Page 3: Section 3: Minutes of previous meeting</u> “Alinta suggested that the focus should be on the specific issue for <u>raised by</u> Griffin Energy ...” <u>Page 9: Section 5(e): Treatment of New Small Generators</u> - Clause 4.28B aims to in <u>confer</u> an advantage on non-scheduled generators to enter the market and receive Capacity Credits without the need to enter the market <u>commit capital early and then suffer a delay before returns commence.</u> - LGP noted that the original rules recognised that there is a requirement to protect the system and as such were set at the maximum size at 1 MW of nameplate capacity to avoid substantial adverse impacts on the state of security of the system. LGP noted that since market start there have been no facilities which have entered the market under these rules. LGP noted that The proposal would allow ... <u>Page 15: Section 6(a): Status Updates: Procedure Changes</u> “Alinta did not agree that the Allen Consulting Group report recommended changes to the major components following <u>due to the recent...</u>” <u>Section 8(a): Oates Implementation Review Paper</u> “Water Corp noted that this <u>there</u> was the <u>an</u> informal mandate...” Subject to the agreed amendments, the MAC endorsed the minutes as a true and accurate record of the meeting. <i>Action Point: The IMO to amend the minutes of Meeting No. 27 to reflect the points raised by the MAC and publish on the website as final.</i>	IMO
5	ACTIONS ARISING The actions arising were either complete or on the meeting agenda. The following exceptions were noted:	IMO

Item	Subject	Action
	Item 93 (2009): Synergy concept paper of Market Customer bilateral submissions to be discussed at the May MAC meeting. Items 107 – 111 (2009): System Management's Equipment Test Rule Change Proposal to be discussed at the May MAC meeting. Item 11 (2010): The IMO Procedures Working Group meeting is planned for 22 April 2010. Item 14 (2010): The OoE noted the Metering Code Review has now been initiated and an issues paper is currently being prepared. A public consultation and engagement process will be conducted. It was agreed that this action item was now complete. Item 31 (2010): The IMO noted the issues raised on the letter to the Minister requesting a policy mandate on renewables: • There was uncertainty over the proposed letter's objective; • It was considered that even if the Minister clarifies the policy the only party that would be impacted would be Synergy; • Some members questioned whether it is appropriate for the MAC to send the letter; and • If the letter is sent it should also seek clarification of the intent of Market Objective (c). The Chair clarified the letter's background. During the Colgar wind farm Section 68 review there seemed to be a discrepancy in the views expressed on the purchase of Renewable Energy Certificates (RECs). In particular: • The Department of Treasury and Finance's view that the purchase of lower cost RECs from the eastern states would be acceptable; and • Synergy's view that all RECs should be purchased from within Western Australia. The Chair noted that clarification of the policy mandate around the purchase of RECs would allow interested stakeholders to make efficient investment decisions in Western Australia. The OoE responded that from a policy perspective companies must make their own financial choices around how their obligations to secure RECs will be met. The OoE considered that the current economic parameters already allow commercial decisions to be made. Mr Dykstra noted that Renewable Energy Target (RET) is a national scheme and that a distinction should be drawn between legislation and an adopted policy position for state owned entities. The OoE clarified that the expectation is of competitive neutrality. Members noted that for the purposes of the Renewable Energy Working Group (REGWG) assumptions need to be made around the anticipated construction of renewables in Western Australia, therefore clear policy would be useful.	

Item	Subject	Action
	Mr Cremin and Dr Gould both noted that there is currently no clear position and that the assumption of freedom to purchase RECs at least cost may vary from the actual views held at the policy level. The OoE noted that its current recommendation to the Minister would be that, in the absence of a formal State policy direction, commercial decision making should prevail. The ERA supported this view. Mr Dykstra agreed, but noted that this view could change. Instead of the current letter, Mr Dykstra suggested that it may be appropriate to write to the Minister to note the important work currently being undertaken by the REGWG and state that the assumption is that commercial decision making will prevail. Therefore if deemed economic, organisations won't source RECs from within Western Australia. Dr Gould and the OoE both agreed with this approach. Synergy queried whether there may be other regulatory risks that have not yet been identified. Synergy also expressed a concern that certain policy directions would not be announced to MAC specifically. The Chair clarified that the purpose of the letter would be to express an interest to the Minister regarding renewables policy. <i>Action Point: MAC Chair to re-draft a letter to the Minister and to provide to the MAC for comment. The letter is to note:</i> <i>the important work of the REGWG; and</i> <i>stating the current assumptions for REC procurement will be from a least cost perspective.</i> <i>Action Point: MAC Chair to update the letter to the Minister to reflect MAC comments and send to Minister.</i>	MAC Chair MAC Chair
6	OATES REVIEW IMPLEMENTATION PAPER The Chair noted that this is the second update to the Oates Review Implementation Concept Paper provided to the MAC as part of the series of monthly updates by the Market Rules Design Team (Design Team). The Chair thanked Mr Greg Thorpe and Mr Jim Truesdale for making themselves available to discuss the updated Concept Paper. A copy of the presentation from Mr Thorpe and Mr Truesdale is attached as Appendix 2. Mr Truesdale noted that the objective of this paper was to: - highlight the upcoming key strategic choices (i.e. which reform pathway is chosen); and - seek stakeholder feedback.	

Item	Subject	Action
	The following reform pathways were noted: • Pathway 1: push the current hybrid model as far as it can go (option A1 or A2); • Pathway 2: make the changes contemplated by options A1 or A2, with the knowledge that options B or C will be developed in the future; and • Pathway 3: Move straight to option B or C. It was noted that the decision on an appropriate pathway needs to be balanced against potential costs and also addressing the immediate issues highlighted in the Oates Review. Mr Thorpe noted that there has been a mandate provided for reform and the Design Team has been charged to solve the issues identified through the initial Oates Review process. Mr Thorpe noted the differing priorities in the reform process and stated that to achieve the recommendations of the Oates Review, pathway 2 may be the best strategy to adopt. Mr Dykstra queried what the immediate problems identified by the Oates Review are. Mr Thorpe noted the following issues for resolution: • Verve Energy related issues, i.e. fair and reasonable compensation for the Balancing role; • overnight commitment issues; and • ensuring that the right investment signals are provided to ensure the correct balance of plant on the system. Mr Dykstra noted that an assessment of the options against these issues has not been undertaken and suggested that this analysis may highlight which model might be appropriate. Mr Thorpe noted that, at a high level, all of the identified options are capable of resolving the issues. As such it will be the detail that will determine whether one option will be better than another at resolving the issues. It was noted that an analysis against the Wholesale Market Objectives will be the final test for what option is chosen. Mr Dykstra suggested that the short term solution (pathway 2) may remove any incentives for government owned entities to seek further reforms in the future. In response, the Chair noted that Mr Peter Oates had indicated a preference for changes to be made within the timeframes originally specified, but was comfortable that the market takes the opportunities presented to go further with any reform process if it is in the best interests of the market. It was recognised that options B or C may not be completed within the 15 month timeframe. Mr Thorpe stated that significant future changes will influence any transitional step and require any necessary design features to be included in any potential interim-hybrid model adopted.	

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	Mr Cremin noted that participants are generally wary of interim steps, and that reasonably often interim steps become final. Mr Cremin questioned who will be making the decision regarding which path the market goes down. The Chair confirmed that this would be an industry collective decision. Mr Cremin requested clarification of the process from here and in particular what resources would be available for further reform if this current process stops at either option A1 or A2. The Chair noted that industry will determine the process to take. Mr Dykstra stated that the Rule Change Proposal: Annual Review of Margin Values (RC_2010_01) goes a long way towards addressing the fair and reasonable compensation of Verve and noted that these potential changes had been progressed outside of the process. Mr Dykstra does not consider that options A1 and A2 will address the recommendations of the Oates Review and queried the benefits Market Participants will derive from the outcomes of these options. Synergy identified a fourth reform pathway, namely developing option B (net dispatch) as the interim step with the expectation to move to option C (gross dispatch). The IMO noted that this would have significant implementation costs. The Chair noted that both the net and gross dispatch options would have similar market outcomes via differing routes, however a net dispatch model is a better fit with the current bilateral market structure. Synergy queried the differing frequency of nominations presented in the Concept Paper. Mr Truesdale noted that the nomination timeframes are based around the closure of the gas market. The IMO noted that the potential nomination times are linked to commitment decisions for thermal plant. System Management noted that the implementation of self dispatch would require the development of a pre-dispatch process. Mr Dykstra requested clarification whether both submissions would be binding under option A2. The IMO noted that the second window would provide an option for Market Participants to modify their first bid. However, it was not mandatory to use the second window. Mr Sutherland stated that aspects of the STEM do not currently work well and queried whether ramp rates, MinGen and DDAP would be addressed. Mr Thorpe noted that if there are inefficient arrangements in the pricing mechanisms these will be addressed. However, how they will be addressed is dependent on the option. Mr Sutherland queried how Balancing Support Contracts would work. Mr Thorpe noted that the idea of all Balancing services being provided under contract was being considered as part of option A2, with the proviso that Verve would be the balancer of last resort. Mr Dykstra noted that it would support this direction as it is desirable	

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	to remove Verve Energy as the monopoly provider of Balancing services. Mr Thorpe also noted that increasing the number of submission windows may reduce the amount of Balancing services required. The Chair noted that as option A2 becomes more sophisticated it will become similar to Option B. The main difference is that A2 relies on the System Management/Verve relationship, whereas option B System Management becomes independent to Verve. Mr Dykstra queried whether MCAP formation will be considered. Mr Truesdale confirmed that this would be the case. Mr Cremin noted that the Concept Paper does not include any details on Capacity Cost Refunds. Mr Thorpe clarified that the Design Team has been considering the short term aspects of the market (day ahead and on the day aspects) and stated capacity refunds are a longer term feature of the market. Mr Cremin noted that outcomes of the review of the Vesting Contract will potentially change the basis on which Market Participants compete in the market. Mr Cremin stated that a level playing field i.e. all Market Participants providing a Resource Plan is required. Mr Thorpe noted that shifting to an option where Verve's Resource Plan is not prepared by System Management would constitute a major change. The OoE queried what the likely implementation timeframe for either the net or gross dispatch option. System Management noted that the timeframes would need to allow for staff to be trained to operate any new systems. The OoE queried whether these operational requirements imply a 3-5 year timeframe. The Chair noted that operations of System Management and Verve would require significant changes but that the timeframes would allow sufficient time to implement any of the identified options. In response to a question from Mr Cremin, the IMO noted that implementation of a hybrid option would utilise the existing system but a shift to either a net or gross dispatch model may require a new system. Mr Huxtable queried the impacts of the design options on the costs to consumers. In response, the Chair noted that it has been demonstrated in other markets that both net and gross dispatch models have greater efficiencies which would imply reduced costs. The ERA queried when specific costs and benefits associated with the design options would be assessed. The Chair clarified that once a preferred pathway has been identified this will be undertaken and noted that assessing all of the options would be costly to the market. Mr Sutherland requested another session be held to discuss the options presented. The Chair recommended that a public workshop be held. <i>Action Point: The IMO to organise an industry workshop to discuss</i>	IMO

Item	Subject	Action
	<i>the Oates Review Implementation Concept Paper before 12 May 2010.</i>	
7	REGWG WP1: INTERIM REPORT The MAC agreed to discuss the Interim Report for REGWG Work Package 1 at the next MAC meeting. <i>Action Point: The Interim Report for REGWG Work Package 1 to be added to the Agenda for discussion at MAC Meeting No. 28.</i>	IMO
8	FUEL STUDY RESULTS The IMO noted that at the 11 March 2009 MAC Meeting, there was a common view expressed that the requirement for 14 hours of continuous operation for fuel storage is excessive when applied to all Facilities. The IMO engaged MMA to undertake modelling to evaluate whether a reduction of this requirement could reduce costs to the market without impacting system reliability. Ross Gawler from MMA presented the results of its analysis. A copy of the presentation is attached in Appendix 3. System Management noted that if a Facility uses 14 hours worth of fuel then there could be restrictions on the ability of Market Participants to re-fill the fuel tank for the next day. MMA noted that the model was developed based on the assumption that a Market Participant would be able to procure 14 hours worth of fuel for each day. System Management noted that this assumption is unreasonable and stated that the real issues for the market are around loss of gas supply. MMA clarified that significant contingencies were not considered in this part of the study, only normal operation. The model developed for this part of the study was not designed to assess the worst case scenarios. The IMO noted that given other work currently being undertaken (the establishment of the Gas Bulletin Board and Statement of Opportunities) the first step of the fuel study has been to investigate relaxing the base case requirements for fuel capability from 14 hours to 12 hours. The second step will be to look further at providing a mechanism for incentivising dual fuel firing capability across the market. The intention would be for this to be via a simple mechanism which includes robust monitoring obligations. The second step will also look to increase the clarity over what Market Participants are exactly paying for. The OoE noted that incentives should be around providing the required level of capability to ensure costs are not inflated. System Management disagreed with the recommendation to reduce the number of hours of required fuel. Noting that doing so is a risk given that the analysis has only been undertaken based on standard days of operation and not worst case scenario situations such as Varanus Island. Mr Cremin noted that the capacity market is designed based on standard days and not the worst case scenario. The OoE noted that alignment with the work of the Gas Supply	

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	Steering Committee needs to be ensured and stated that another mechanism to enhance security may be required. System Management expressed its concern that the MAC would be recommending a change which is inconsistent with the outcomes of the investigation into Varanus Island. In particular, System Management noted that the current fuel storage requirements are in place for security reasons. MMA noted the analysis undertaken to date had not considered security aspects and stated that further work will be undertaken to assess impacts under a worst case scenario. MMA also noted that a separate investigation to look at size of tanks will be undertaken. Additionally, the IMO noted that a review of the contingency management solutions will also be undertaken. Synergy noted that the results presented in MMA's report show limited difference between the impacts of having 14 hours versus 12 hours and stated that an economic choice needs to be made. Mr Dykstra questioned the appropriateness of the timing of any decision made to reduce fuel storage. The IMO noted that it will progress the work to incentivise additional capability being installed. Mr Dykstra questioned the ownership of implementing the recommendations of the Gas Supply Steering Committee. The OoE noted a preference to develop a solution through the MAC given the committee's technical knowledge. Mr Dykstra noted that this provides an opportunity to influence government to consider a market based solution rather than an administratively imposed solution. <i>Action Point: The IMO to further investigate options for incentivising additional capability and present back to the MAC for discussion at a later meeting.</i>	IMO
9.	MRCP REVIEW: TERMS OF REFERENCE The IMO requested that MAC members provide out of session comments on the Terms of Reference (ToR) for the Maximum Reserve Capacity Price (MRCP) Working Group. Mr Dykstra noted that there will be a large amount of work involved with the Working Group and that to be able to understand if the ToR is appropriate the list of issues for consideration will need to be taken into account. In response the IMO noted that it will be responsible for completing the majority of the Working Group's recommendations and agreed to make a list of issues available to the MAC to review along with the ToR. <i>Action Point: The IMO to provide to MAC members the draft list of issues relating to the MRCP by 21 April 2010.</i> <i>Action Point: MAC members to provide the IMO with any comments of the draft list of issues and the ToR for the Working Group by 28 April 2010.</i>	IMO MAC
10a	LT PASA DATA REQUEST	

Item	Subject	Action
	The IMO noted that as part of an improvement in South West interconnected system forecasting techniques the IMO sought details of the loads which Market Participants are servicing. Subsequent to this the IMO Board requested an alternative approach to load forecasting. This has lead to the IMO looking to retender the load forecasting role for the future. The IMO noted that the current data request stands under the Market Rules and the National Institute of Economic and Industry Research has been engaged this year to analyse details such as industry class, energy consumption and location. Synergy noted that it does not own the enhanced data that the IMO is seeking and would have to request permission from Western Power to make this data available to the IMO. Any requests to Western Power would need to clearly demonstrate the intended use of the required information. The IMO noted that this would need to be justified under any contract arrangements. <i>Action Point: The IMO to discuss directly with Synergy the LT PASA request and need for additional information.</i>	IMO
10b	OTHER GENERAL BUSINESS There was no other business raised.	
11	NEXT MEETING MAC Meeting 28 will be held 12 May 2010 (2:00-4:00pm)	
CLOSED The Chair declared the meeting closed at 4.30pm		



Government of Western Australia
Office of Energy

Network Control Service - Issues

Presentation to the Market Advisory Committee by
the Office of Energy – Wednesday 14 April 2010

Overview

- Background
- Legislation
- Purchase of NCS
- Cross Subsidisation Issue
- Recommendations



Background

- Network Control Service – generation alternative to constructing network infrastructure – either new or upgrade
- Dispatched by System Management to address network capacity constraints



Legislation

- Network access – *Electricity Network Access Code 2004 (ENAC)* – made by Minister on 30 Nov 2004
- Market Rules – originally made by Minister 1 Oct 2004, then OOE and now IMO (since 15 Dec 2006)
- Little coordination of drafting
- ENAC – Regulatory Test – Chapter 9
- Rules – Chapter 5



Purchase of NCS

- IMO asked by WP, when required by ENAC, to conduct EOI – MR5.21.1
- If suitable person identified, IMO advises WP and conducts a tender process – MR 5.2.7
- IMO contracts an NCS
- Net Monthly Availability Payment paid by WP
- Energy payment passed on to market participants



NCS Tender

- Reasons for IMO to conduct a tender appear to be no longer valid
- More efficient and timely for WP to conduct EOI and tender as part of its Regulatory Test process
- No requirement for IMO to conduct tender and no impediment for WP to conduct it
- No policy reason for IMO to conduct tender, but good reasons for WP to conduct



Cross Subsidisation Issue

- Intent - NCS dispatched rarely
- Eastern Goldfields – high load factor
- High potential energy cost for NCS – all market participants to pay.
- Transfer of costs from network users to market participants



Management of Cross Subsidy

- NCS availability cost paid by WP and can be allocated to network users who benefit.
- If NCS energy costs (above MCAP) are sheeted home to WP, it can also allocate these to network users who benefit.
- Network beneficiaries can be:
 - classes of users
 - individuals users ;or
 - both



Recommendations – NCS Tender

1. WP tender for and contract with an NCS provider. ERA to conduct regulatory oversight.
2. WP allocates the costs of the NCS to the beneficiaries of the service.



Recommendations – Market Processes

3. Review of processes for the efficient dispatch of the NCS, identification of the energy dispatched and the settlement of NCS costs.
 - a) Review to identify impediments to operation of NCS and proposed solutions to those impediments.
4. IMO consider amending Chapter 5 of Market Rules to:
 - a) remove requirement for EOI and tender process for an NCS; and
 - b) facilitate the operation of the NCS process within the broader market processes.



Questions



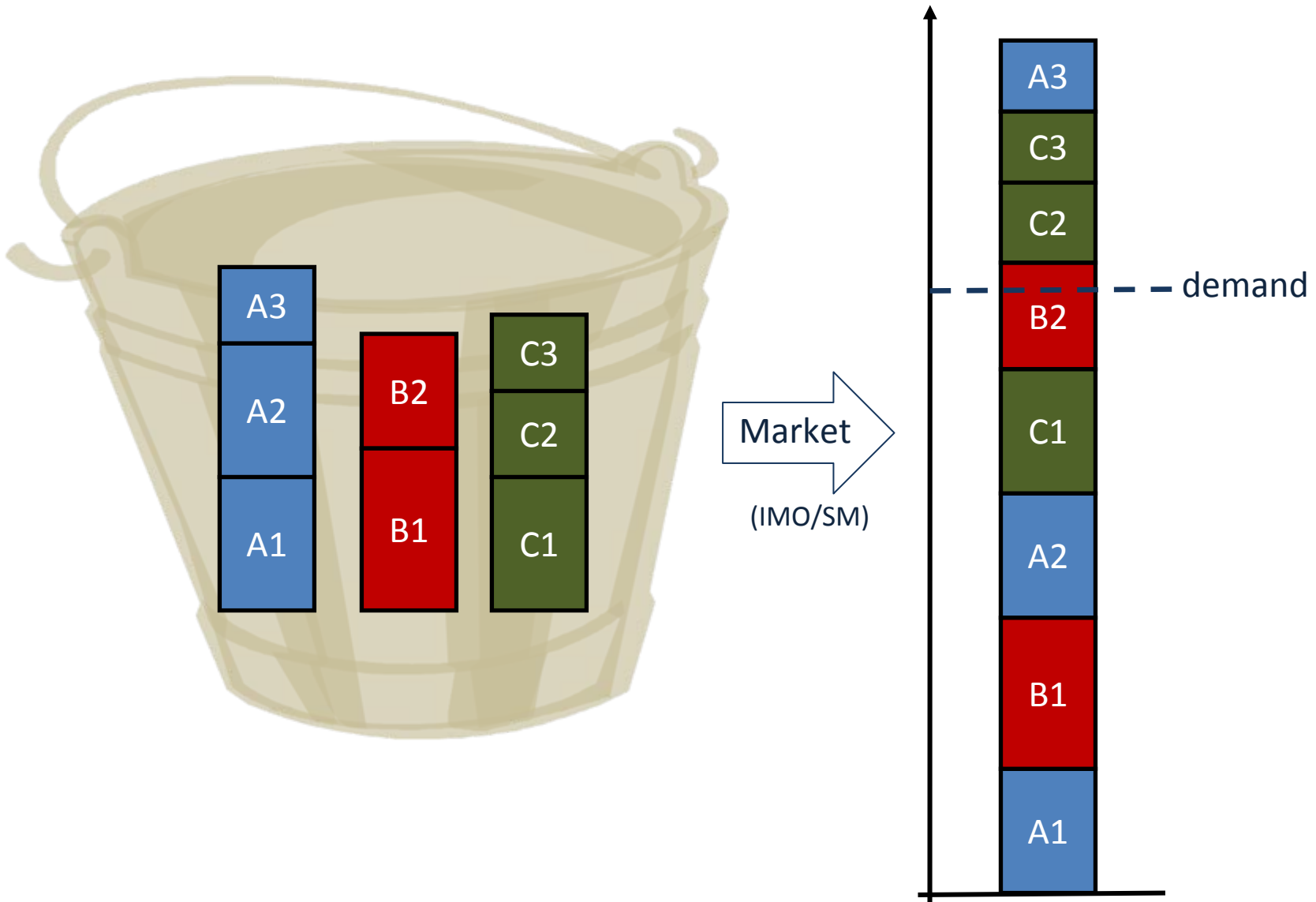
Market Rules Design Team Presentation

14 April 2010

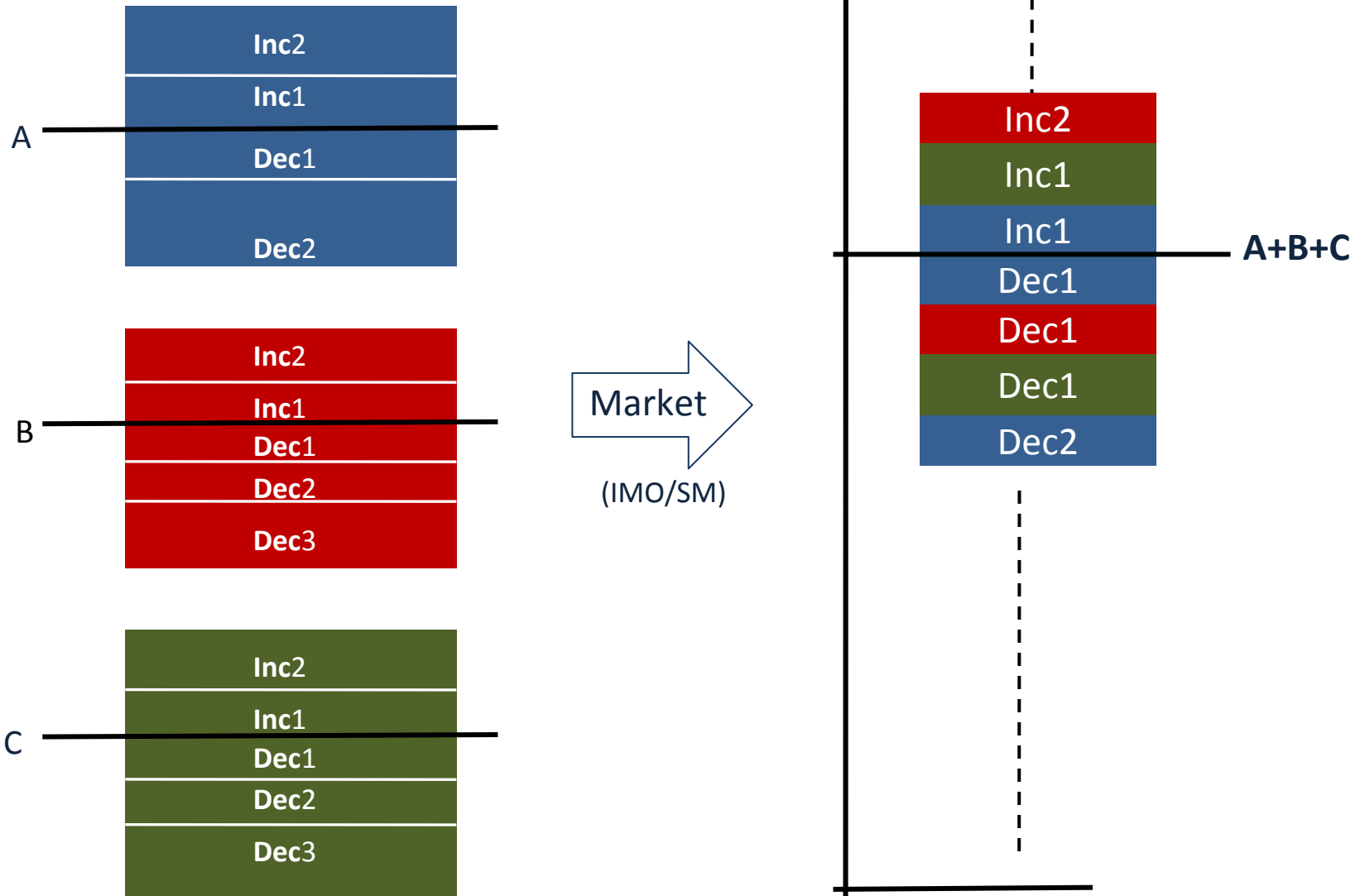
Recap/ Context

- Review objectives
 - Focusing on short term aspects in this stage
 - Oates review => prompted by Verve issues
 - But solutions to be market centric
 - Overlap with IMO market evolution plan and other Oates work streams (e.g. vesting)
 - Driving towards formal rule change proposal
- 2nd iteration of design concepts paper
 - Developed conceptual design options in more detail
 - Preliminary assessment of options
 - Raises key strategic questions about pathway for market development
- Today
 - Highlight key strategic choices
 - Seek stakeholder feedback

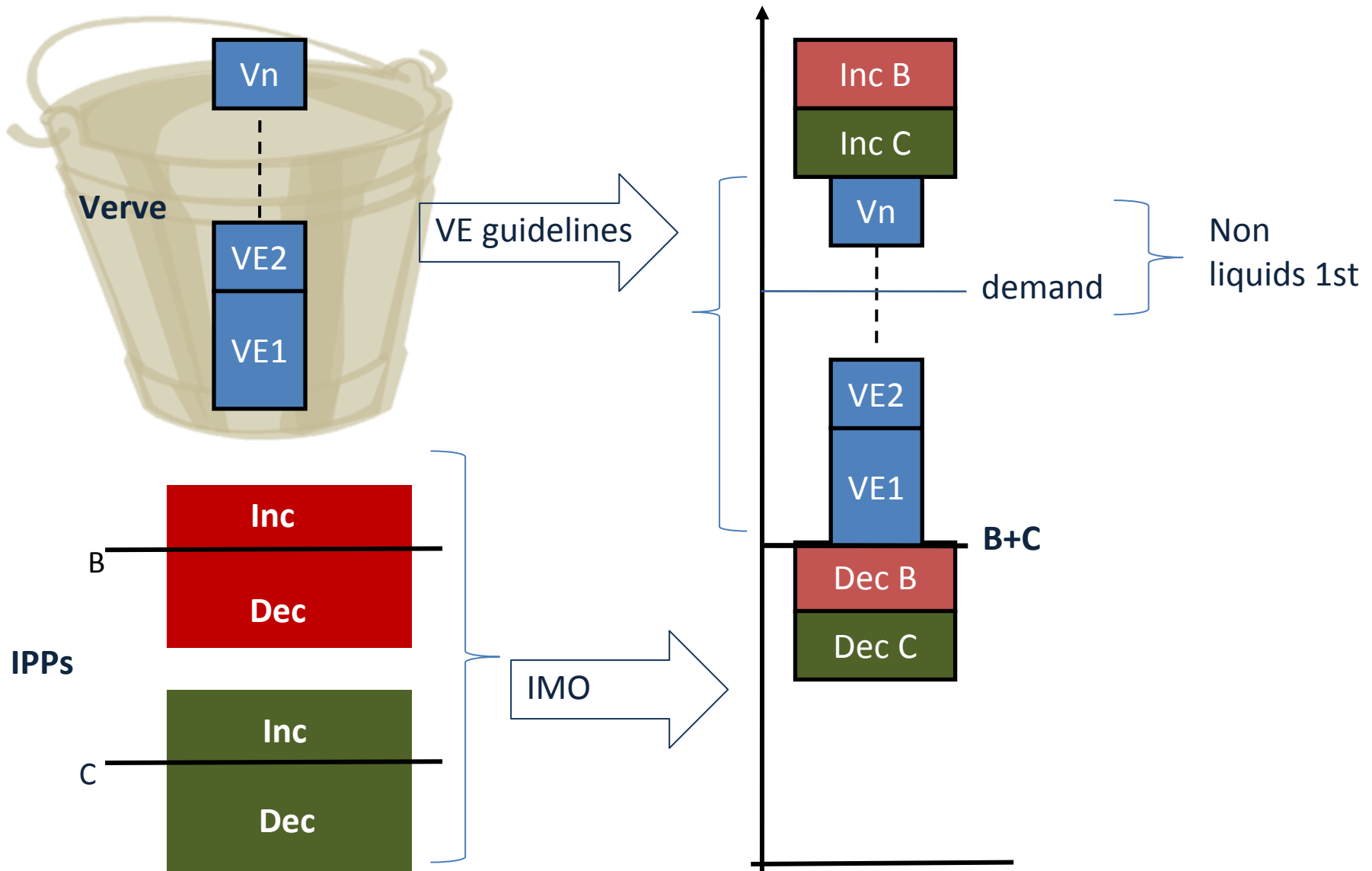
Option C: Gross dispatch



Option B: Net dispatch

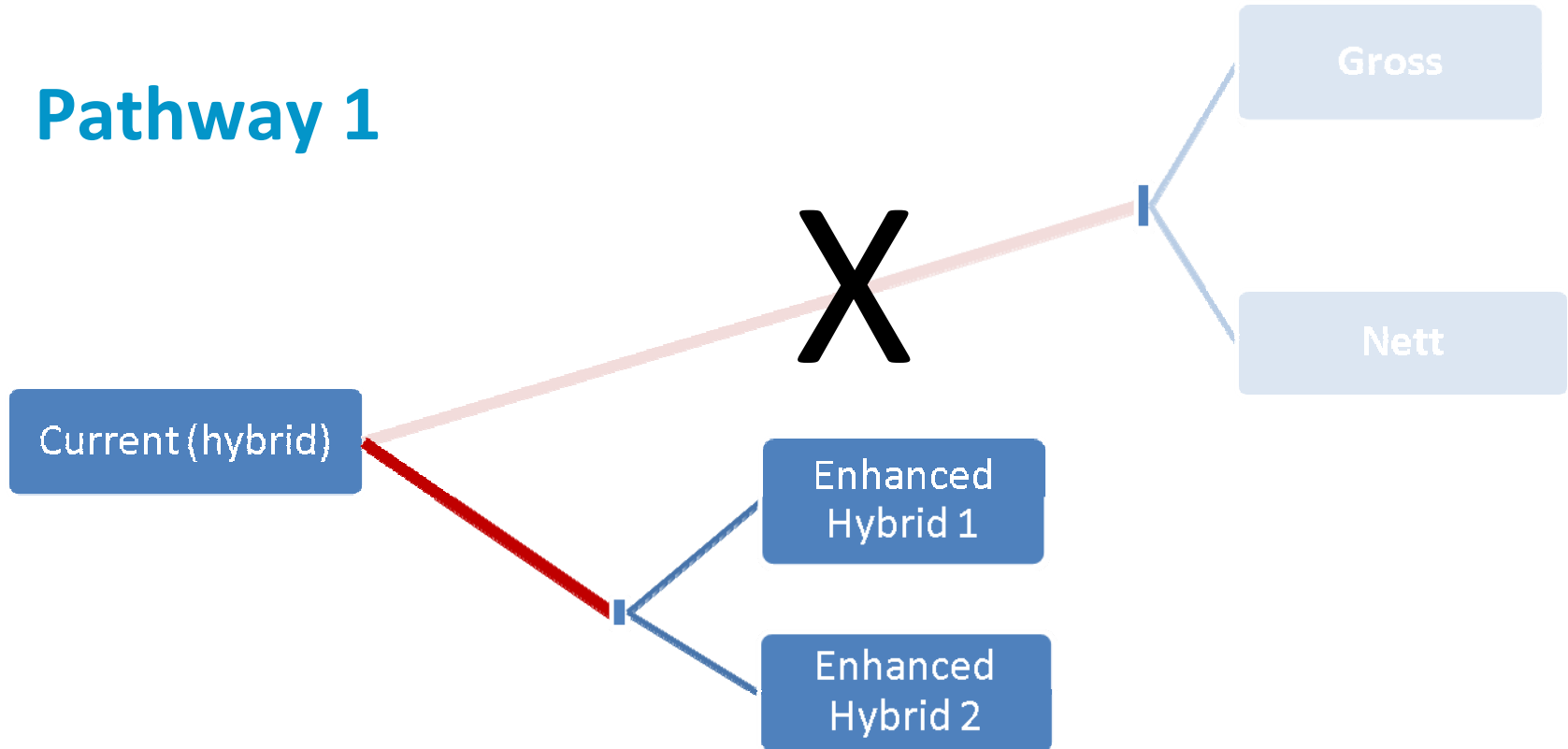


Option A: Enhanced hybrid



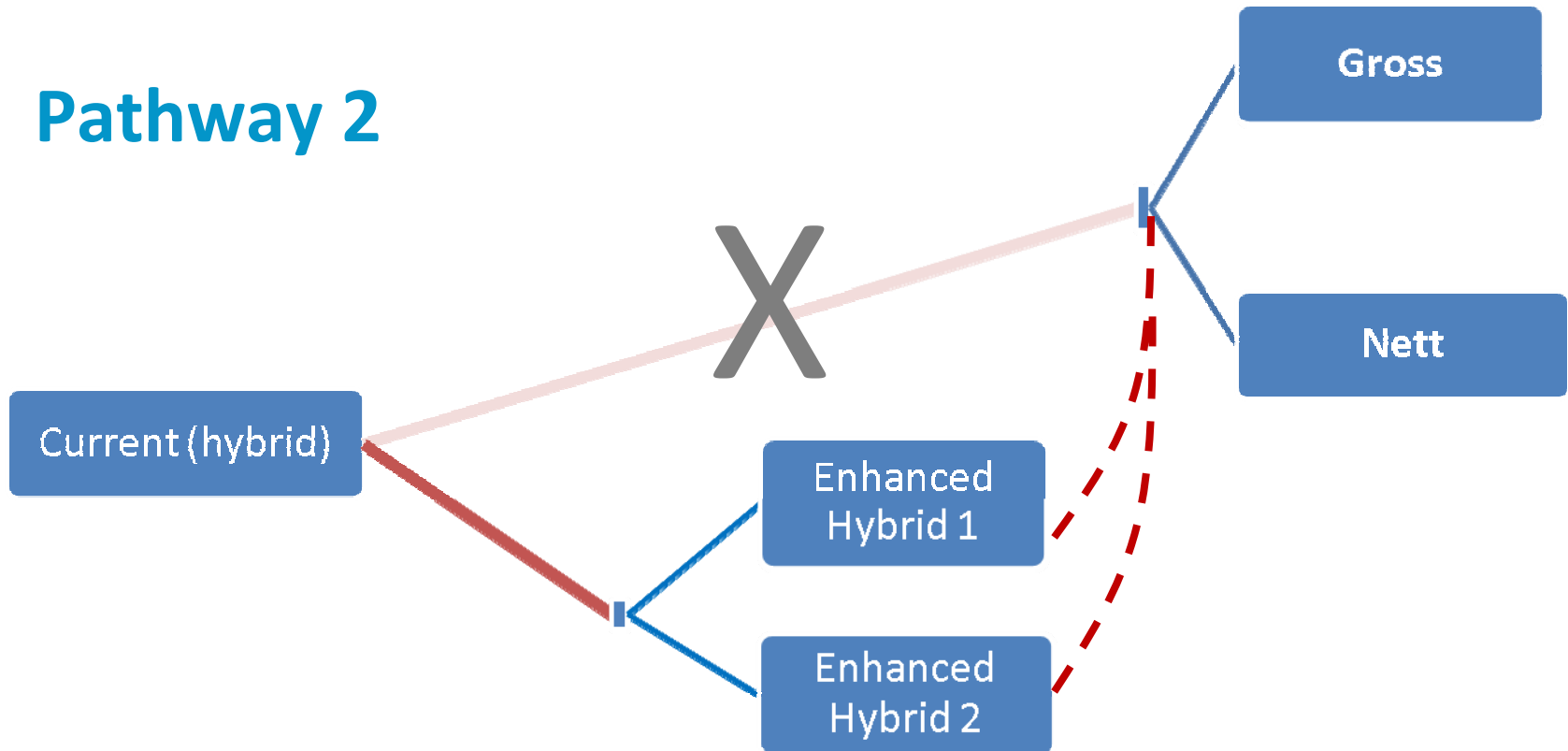
Fork(s) in the road

Pathway 1



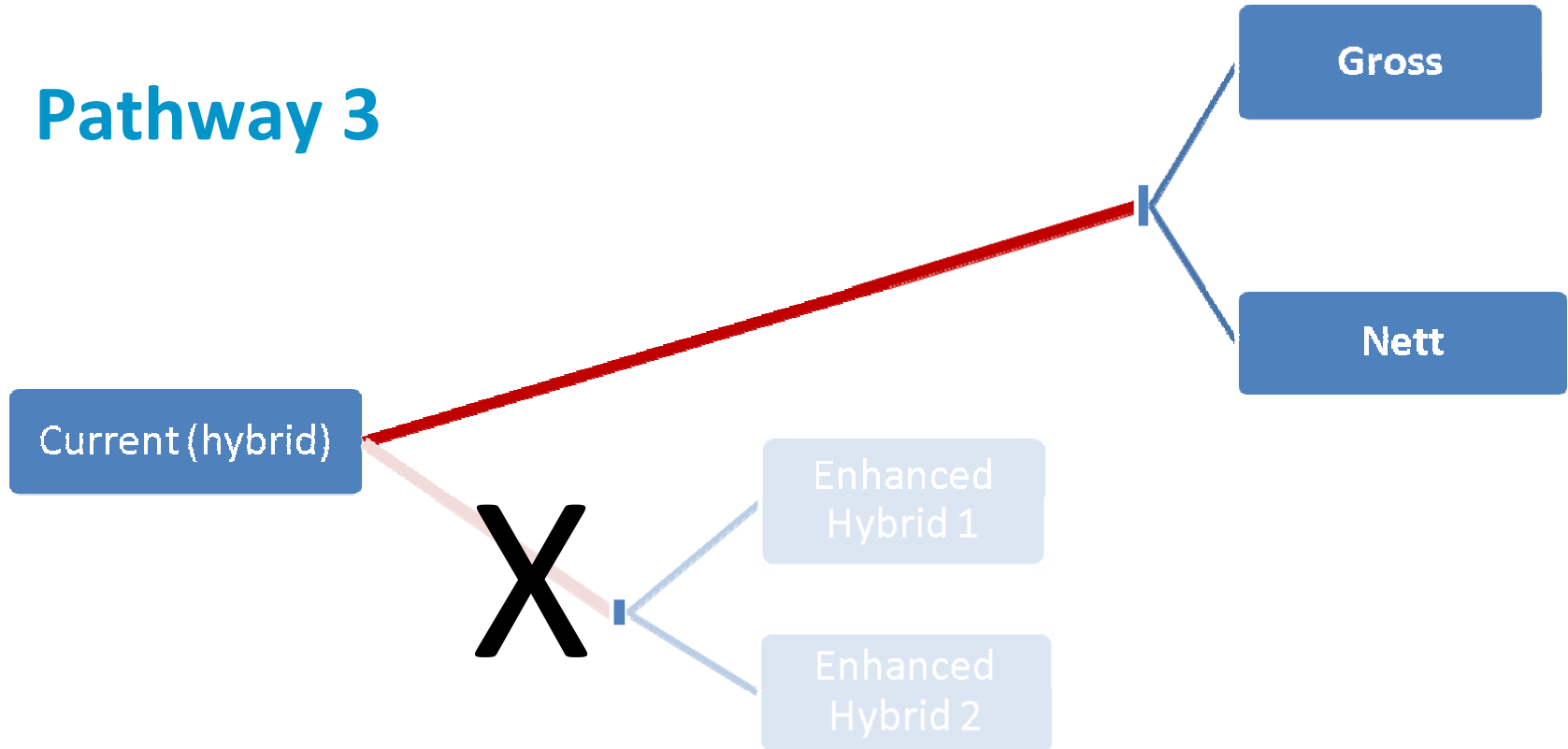
Fork(s) in the road

Pathway 2



Fork(s) in the road

Pathway 3



Fuel Capacity Requirements to Meet System Reliability in the SWIS

Dr Ross Gawler
McLennan Magasanik Associates
14th April 2010

Outline

- Project objectives
- Methodology
- Results
- Recommendations
- Questions for consultation

Project Objectives

- Assess the impact of daily energy supply on system reliability
 - the capacity certification requirements
- Explore potential to reduce or increase the 14 hour limit and maintain system reliability
- Examine the benefits of varying or trading the obligation to hold 14 hours of energy supply
- Investigate the opportunity for incentives for dual fuel capability

Relevant factors are many

- The weather variations and resulting impact on peak demand duration
- Peak demand forecast accuracy as it affects unit commitment
- The reliability of all generators in the system in terms of the frequency and duration of forced outages
- Intermittent generation contribution during hours of peak demand
- The reliability of fuel supply, particularly for base load and intermediate units that do not have secondary or back-up fuel supply
- The pattern of transmission losses as affected by dispatch
- The reliability of interconnecting transmission, particularly where constraints affecting dispatch patterns are frequent
- The quantity and timing of scheduled maintenance

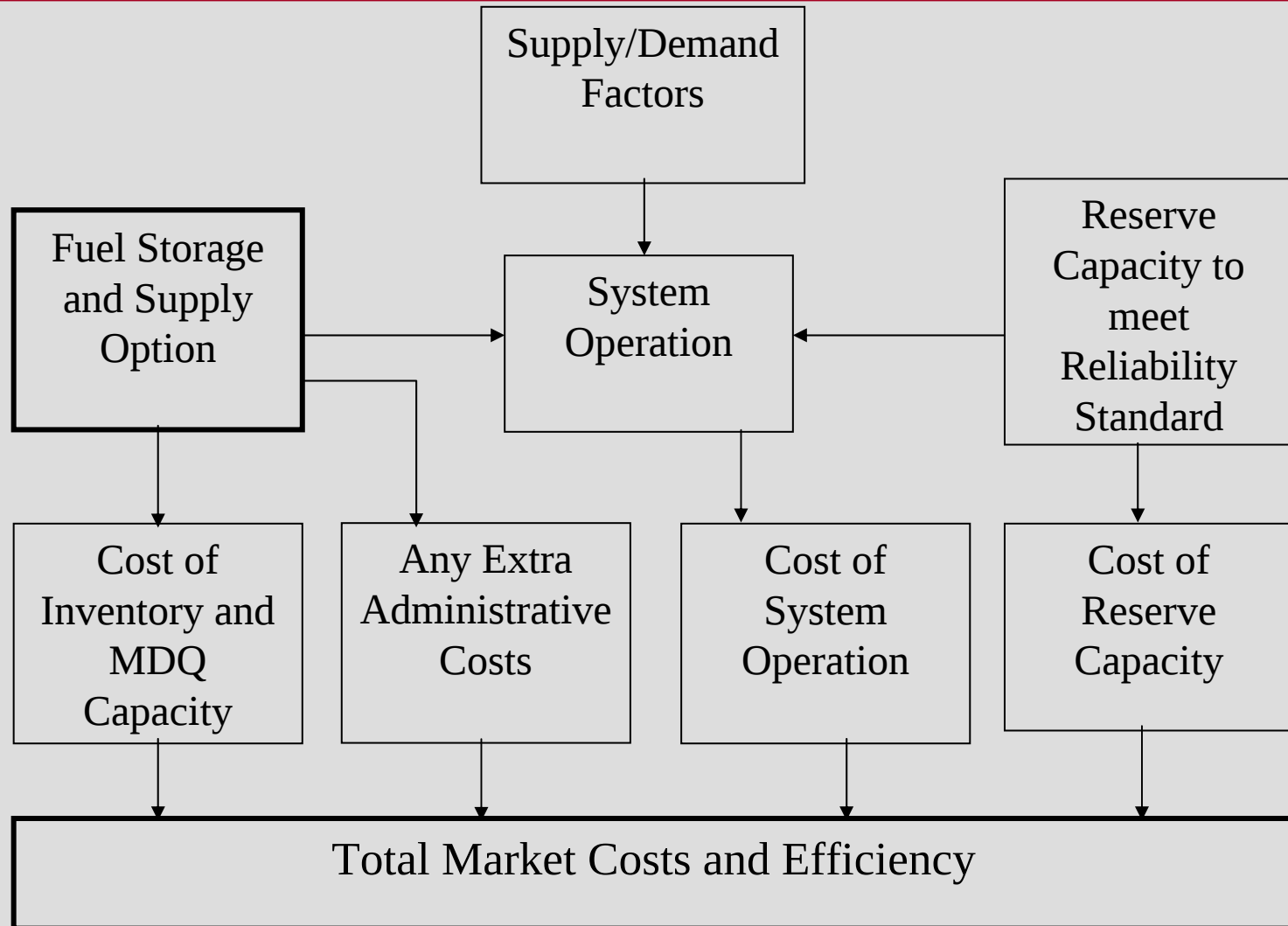
Principle

- **If these factors are monitored then fuel supply constraints could be relaxed when conditions are favourable and tightened as needed, according to**
 - Actual supply/demand balance and projected reliability
 - Planned maintenance program
 - Recent and prevailing plant reliability
 - Retirements and performance of new plant
 - Uncertainty about demand growth, using the high and low economic growth forecasts.
- **If the economic benefits are significant and greater than the costs of management**

Options to improve efficiency

- No change
- Vary a firm supply limit for all peaking generators each year to reflect the prevailing system conditions
- Possible daily limit discount or capacity discount for non-firm fuel supply
- Define aggregate fuel supply limit by classes according to efficient role
 - Trading of fuel supply obligations within an overall requirement either within or between classes
- Develop a long-term requirement for liquid storage capacity and relax obligations when conditions are favourable
 - New energy reserve service

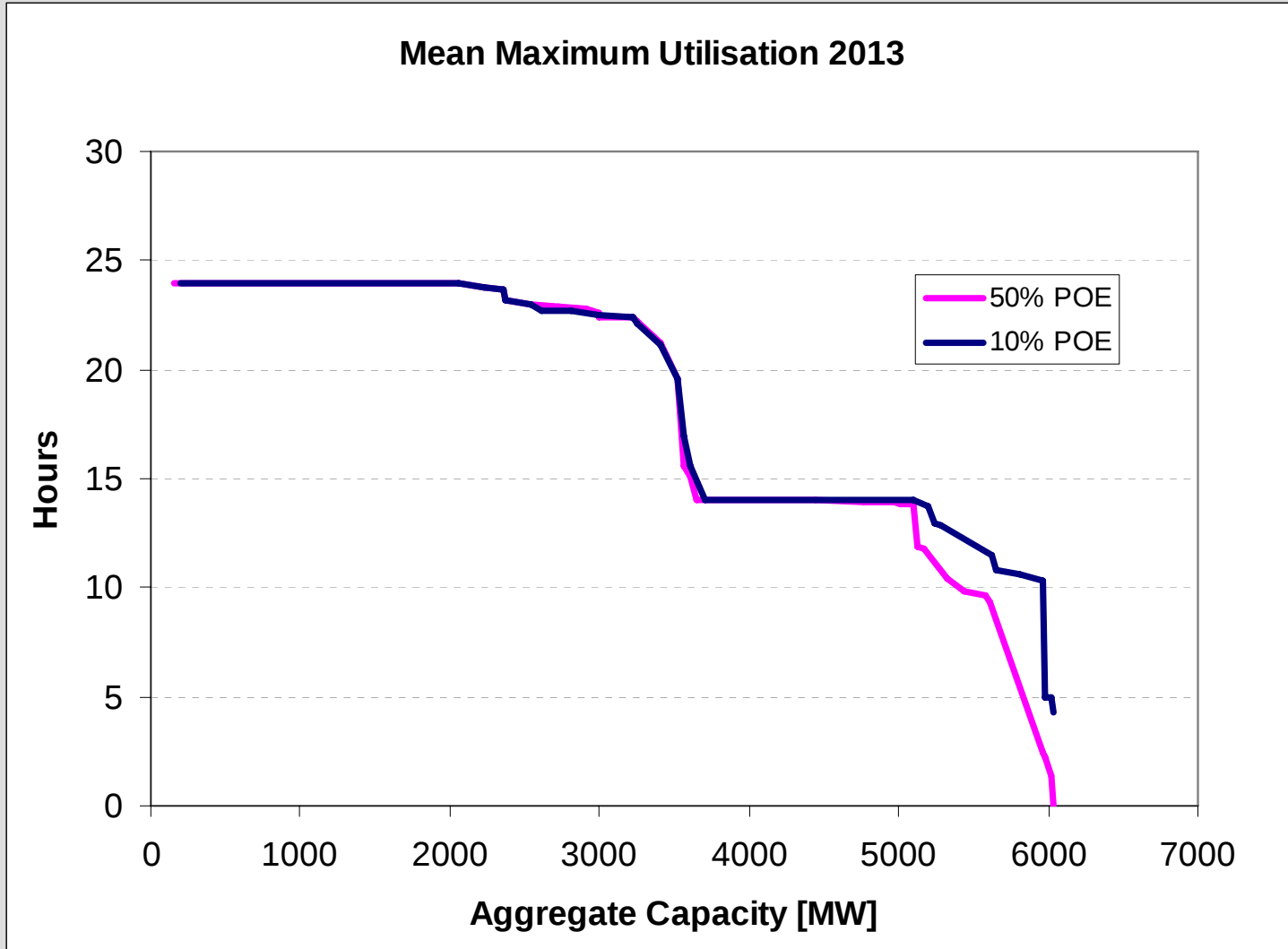
Fuel storage and market efficiency



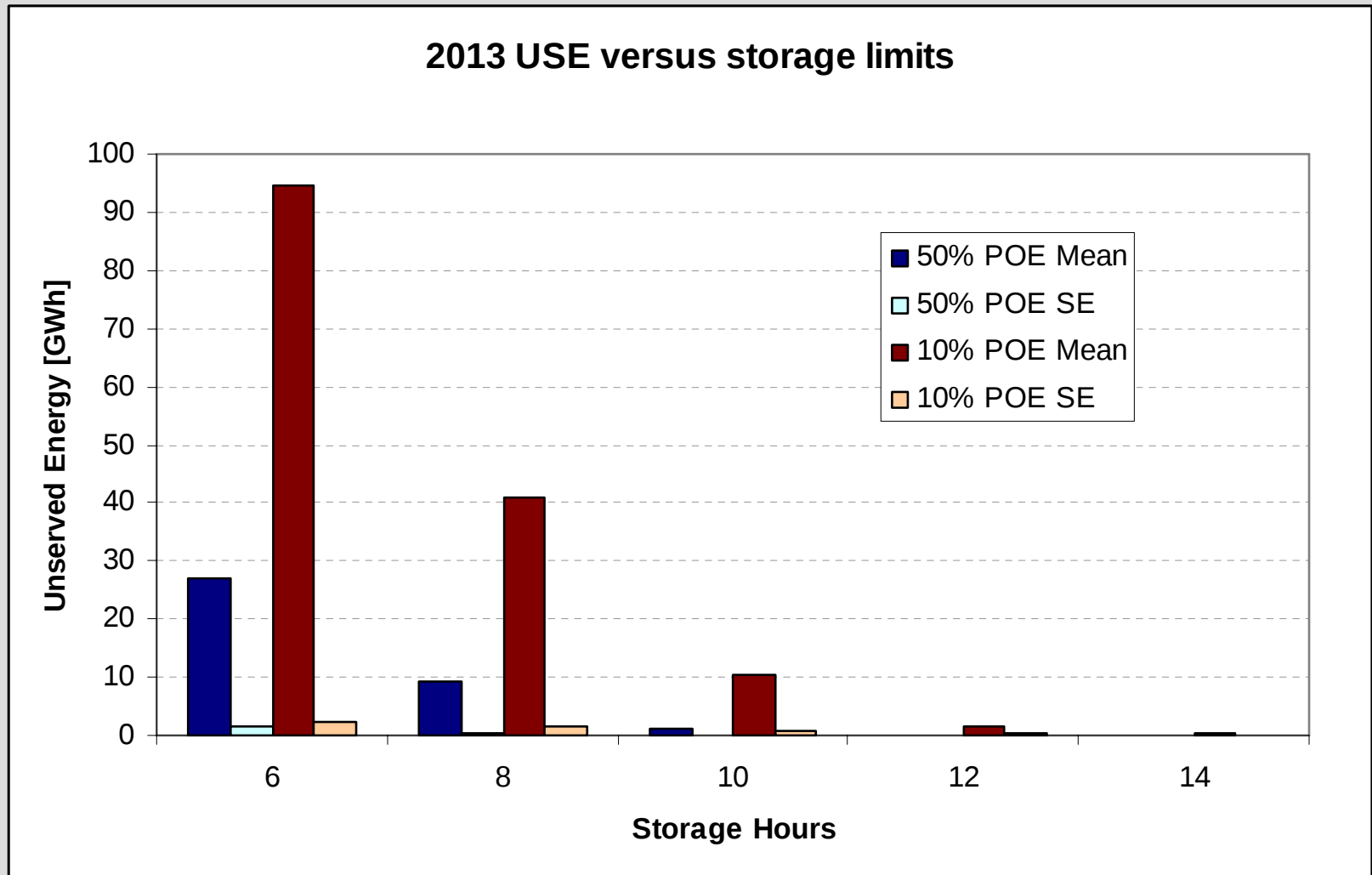
Methodology

- Set up a PLEXOS simulation for 2009/10 to 2014/15
 - 10% and 50% POE cases with logarithmic extrapolation of unserved energy for 90% POE
- Normal conditions with 14 hour limit
- Uniform reduction in limit
- Looked at non-peak season and weekend variations
- Developed a model of USE versus reserve margin factor and fuel hours limit across the 5 years studied

Profile of utilisation with 14 hour limit



Unserved energy versus limit

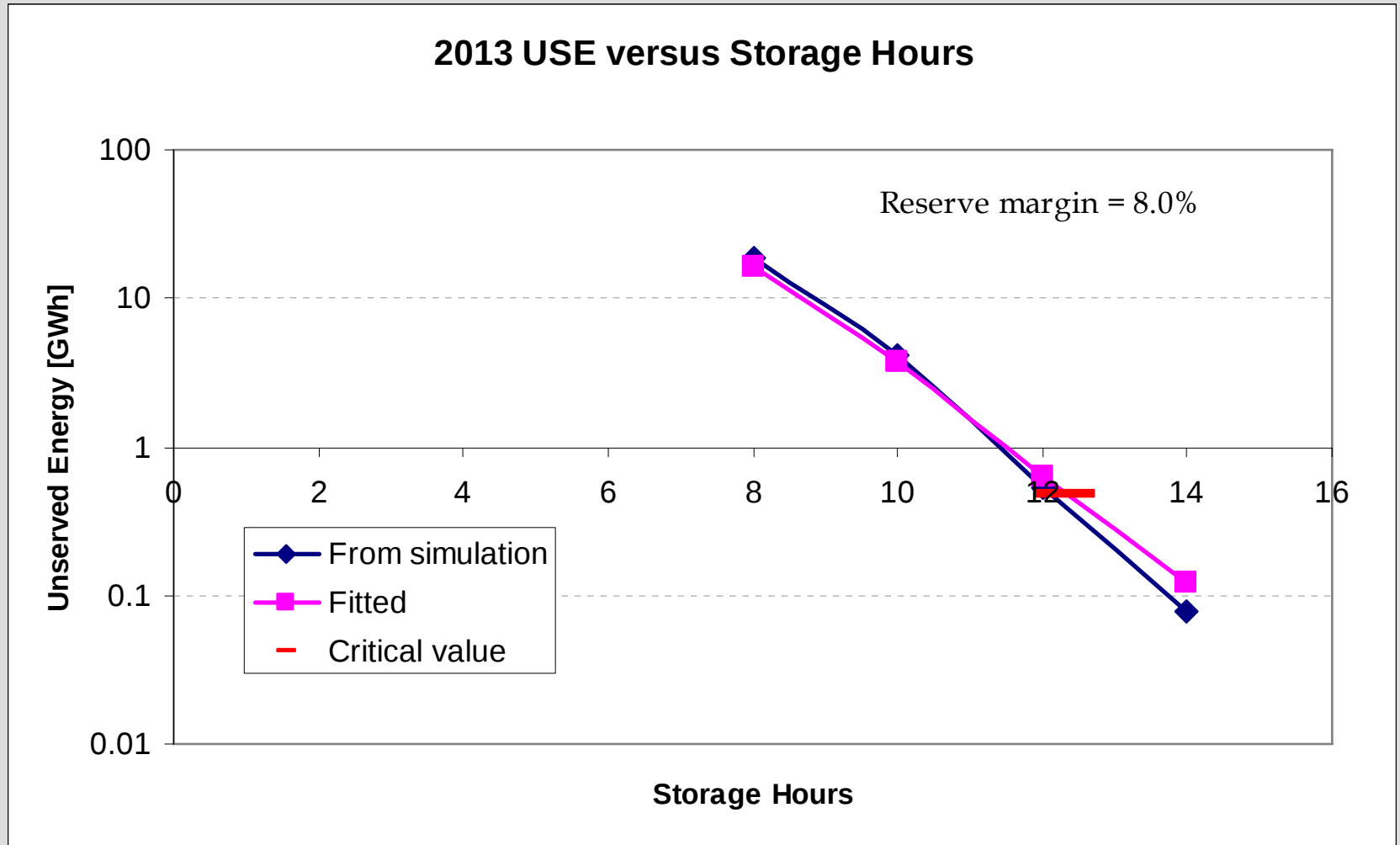


Formulation of unserved energy

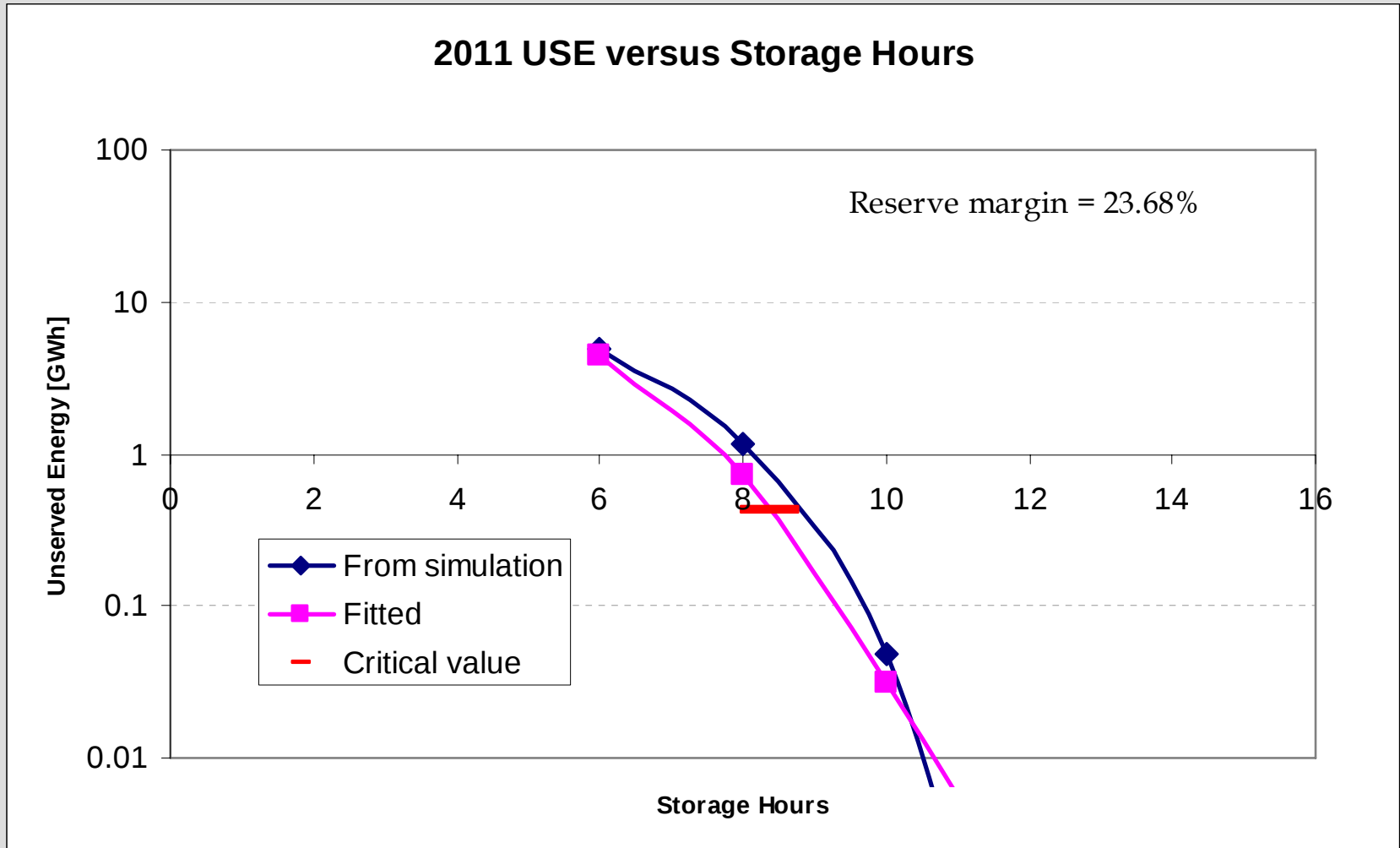
- **USE_Ratio** is the ratio of the unserved energy to the target value
- **R** is the reserve margin factor (standard value 8.2%)
- **a1, b1, a2, b2, c1, d** and **e** are fitted constants
- **x** is the fuel storage limit in hours

$$\ln(USE_Ratio) = d \cdot (R + 1) + e \cdot R \cdot x + \left[(a_1 - b_1 \cdot x) \cdot e^{-c_1 x} \right] + \left[(a_2 - b_2 \cdot x) \cdot (1 - e^{-c_1 x}) \right]$$

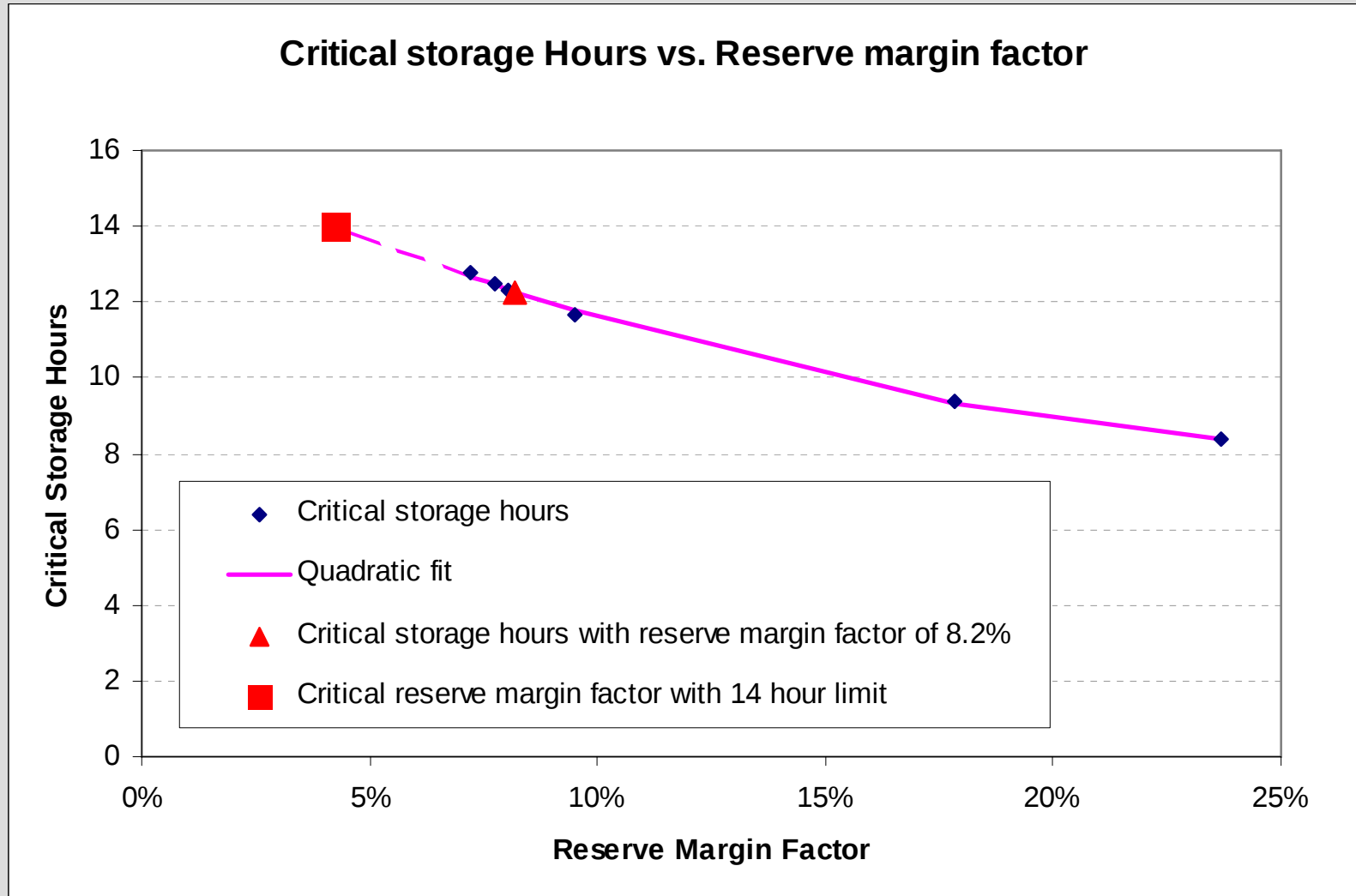
Unserved energy versus storage hours



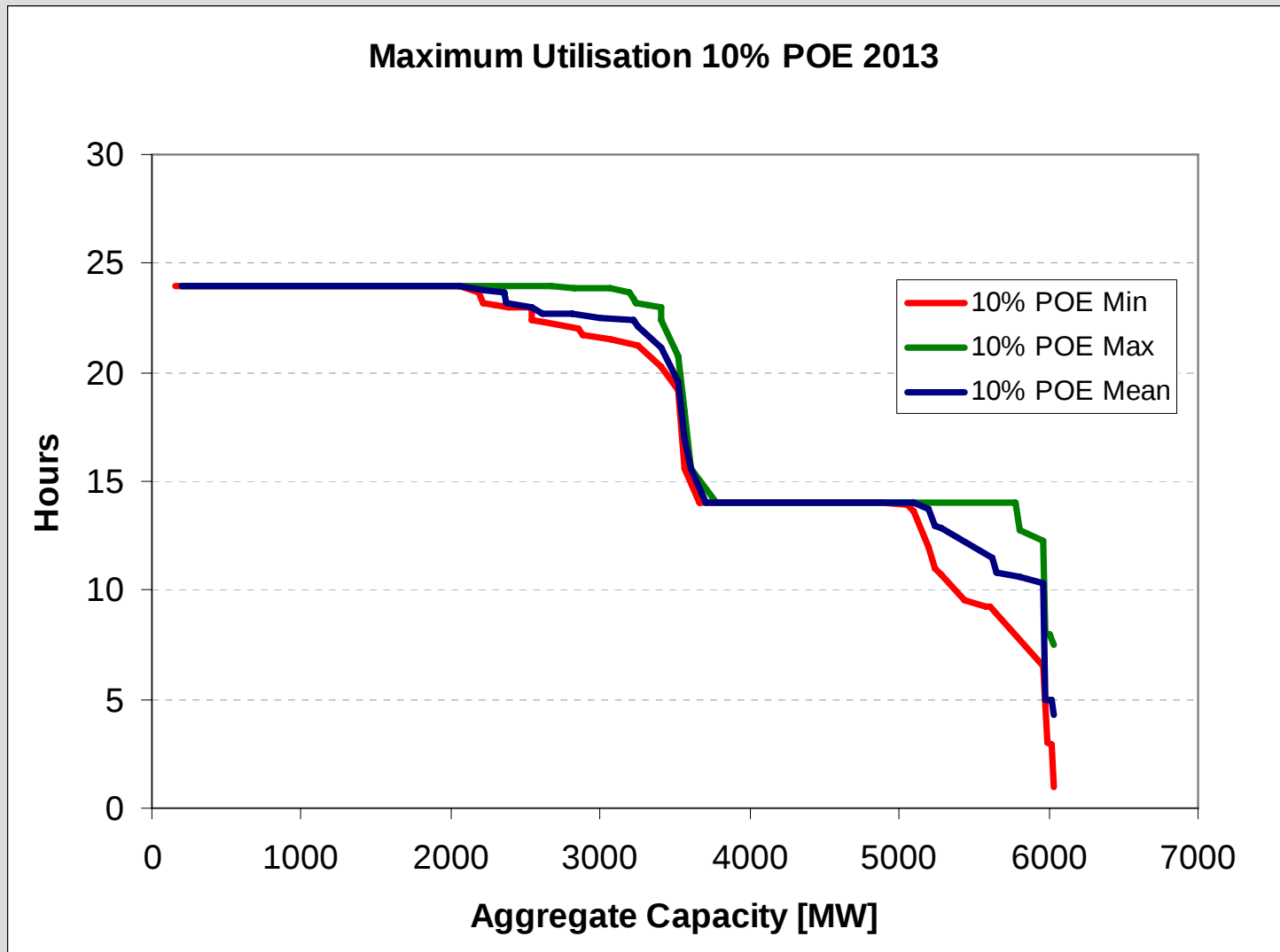
Unserved energy versus storage hours



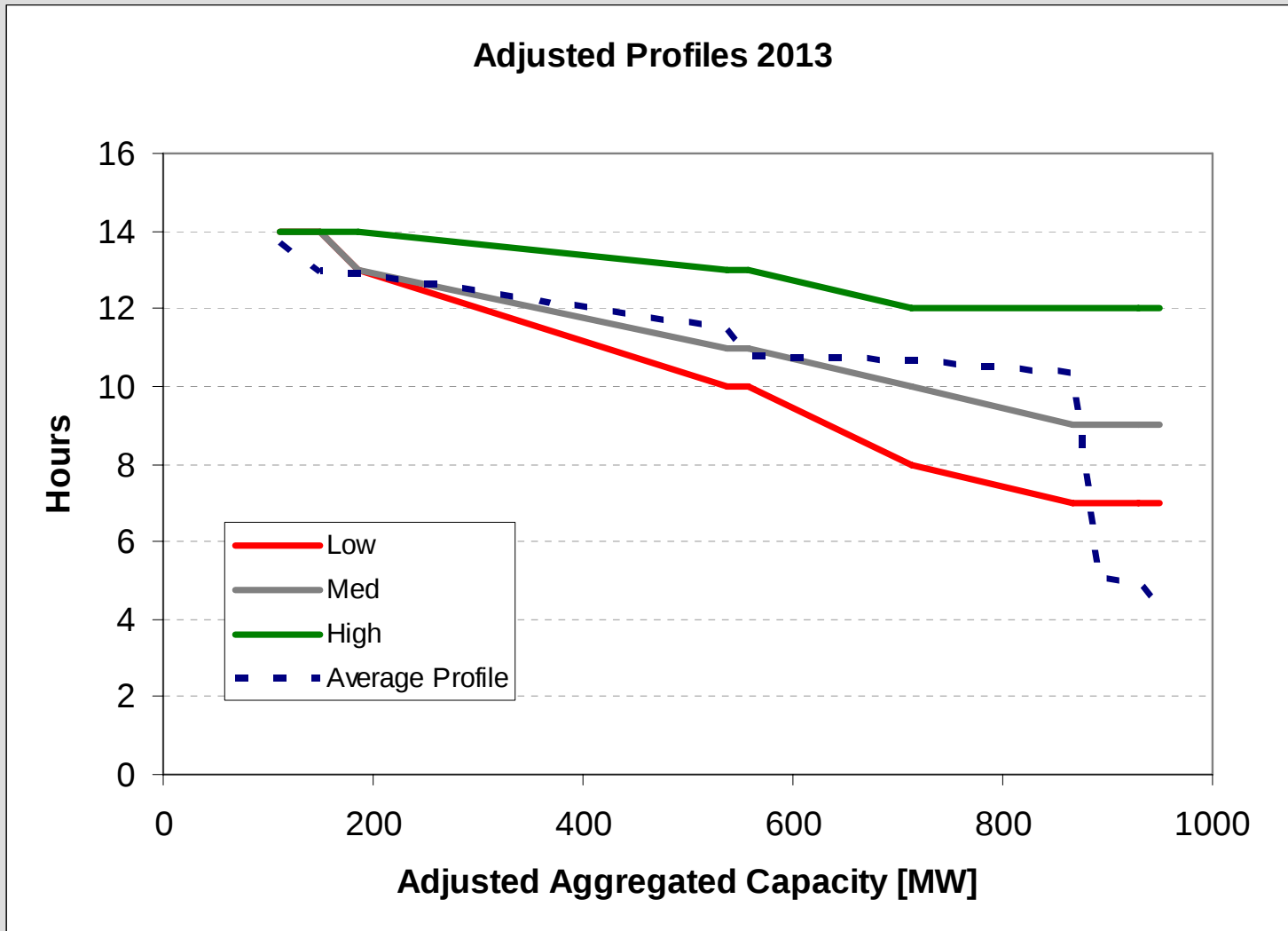
Impact of reserve margin



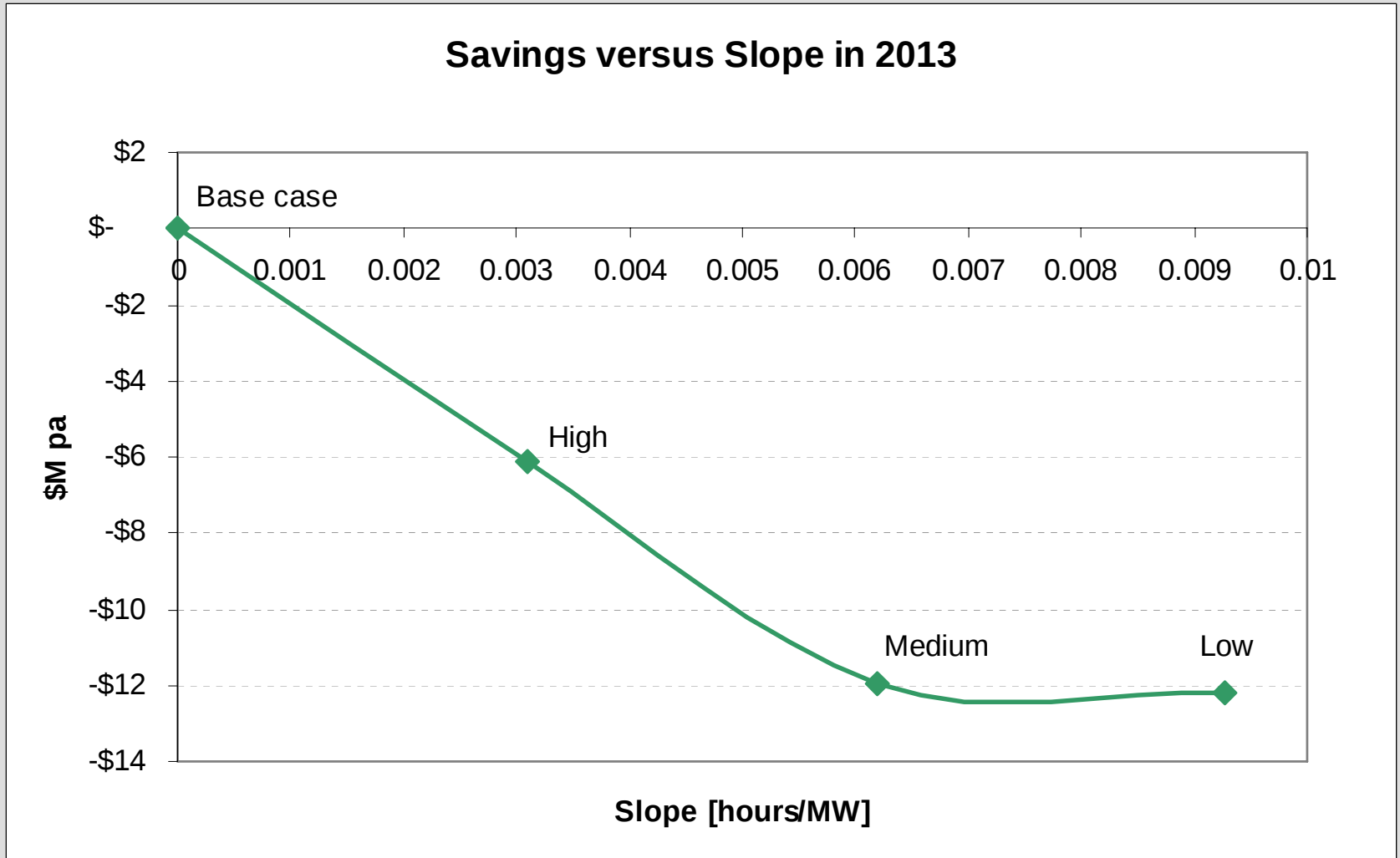
Variation in utilisation



Modelling a sculpted profile



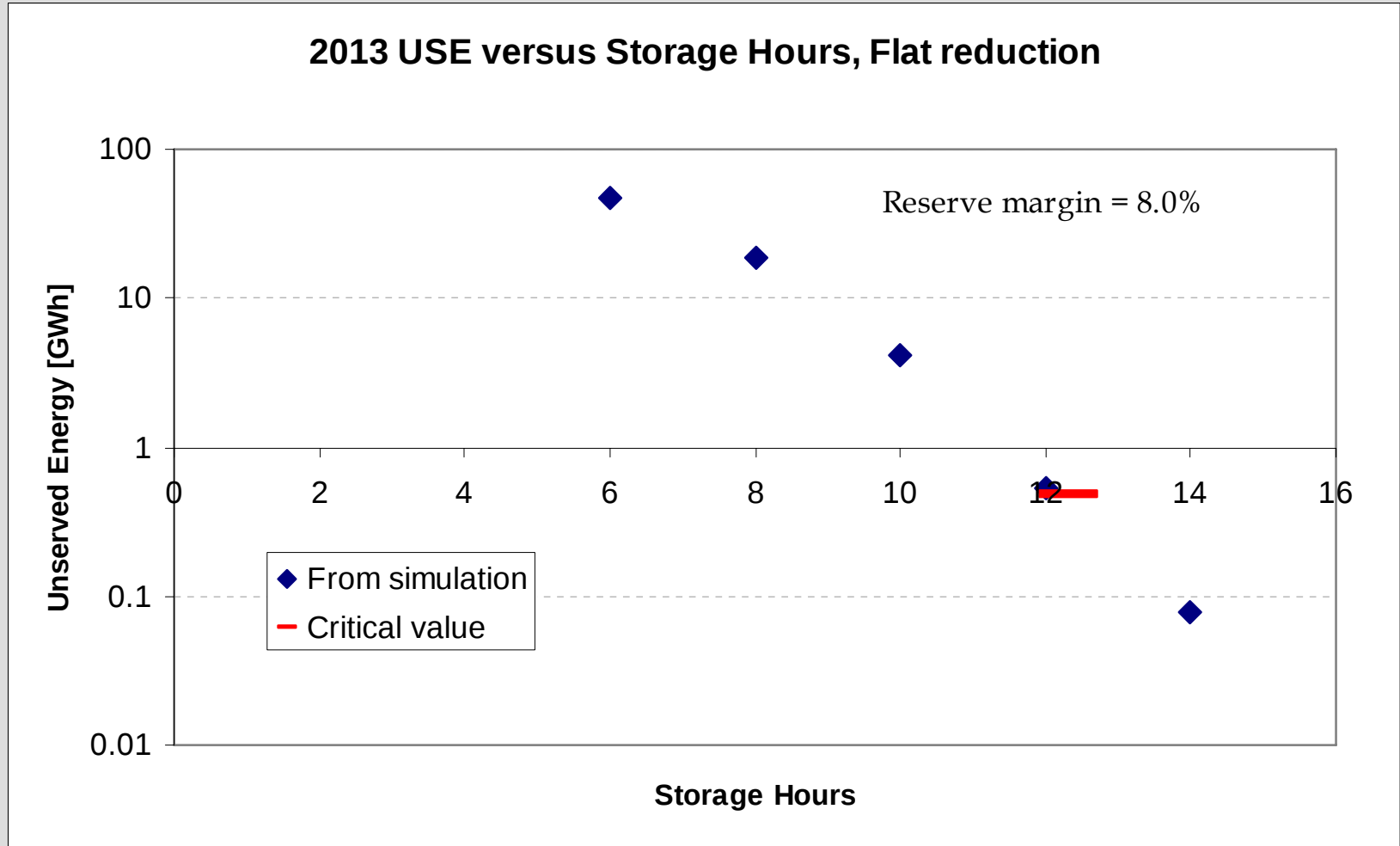
\$12 m pa potential gross benefit



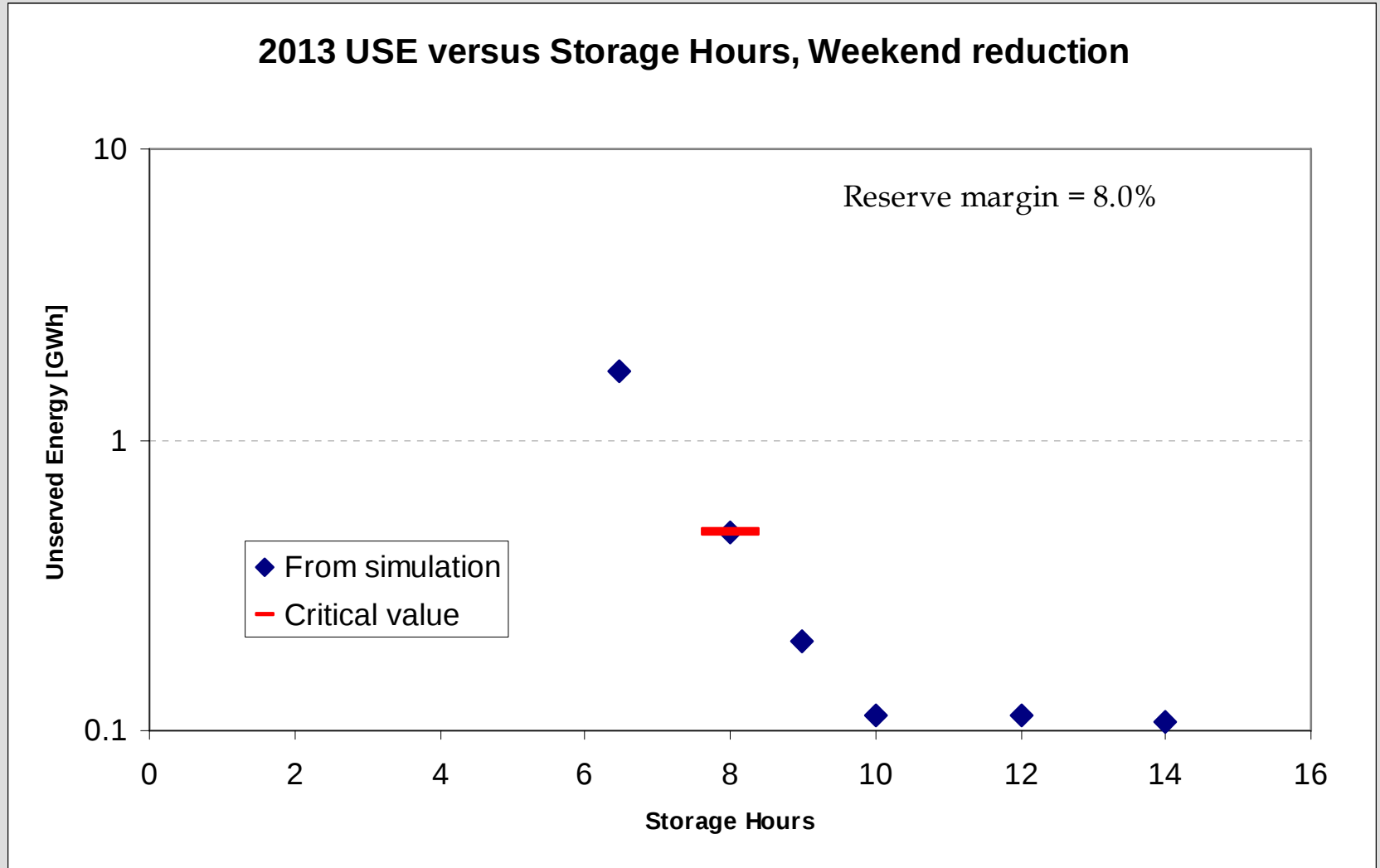
Seasonal and week-end reductions

- **Considered**
 - Reduction in non-peak seasons
 - Reduction on weekends
 - Reductions in non-peak seasons and weekends
- **Optimal value depends on the value savings in releasing the gas transport**

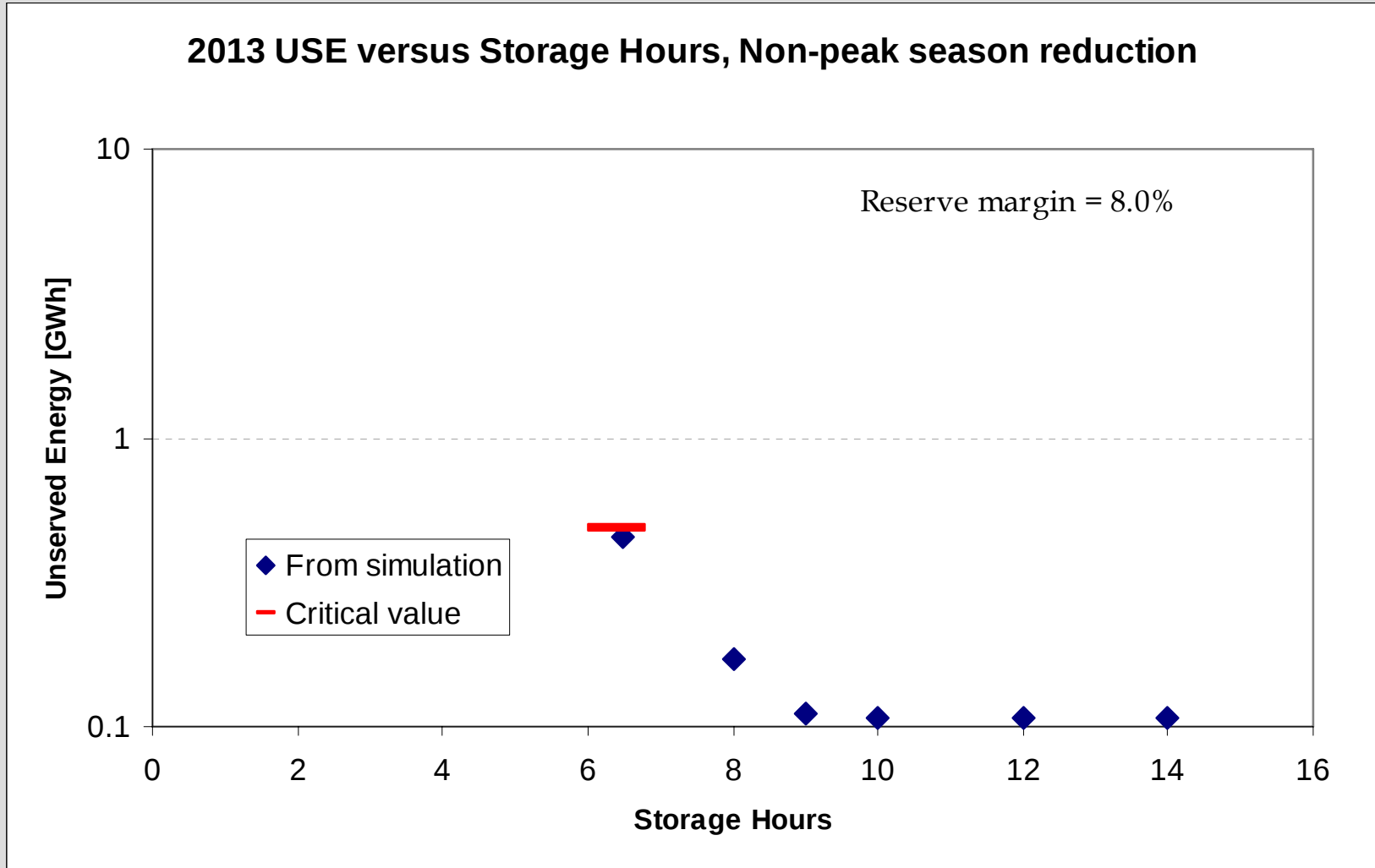
Base case – all hours = 12 hours



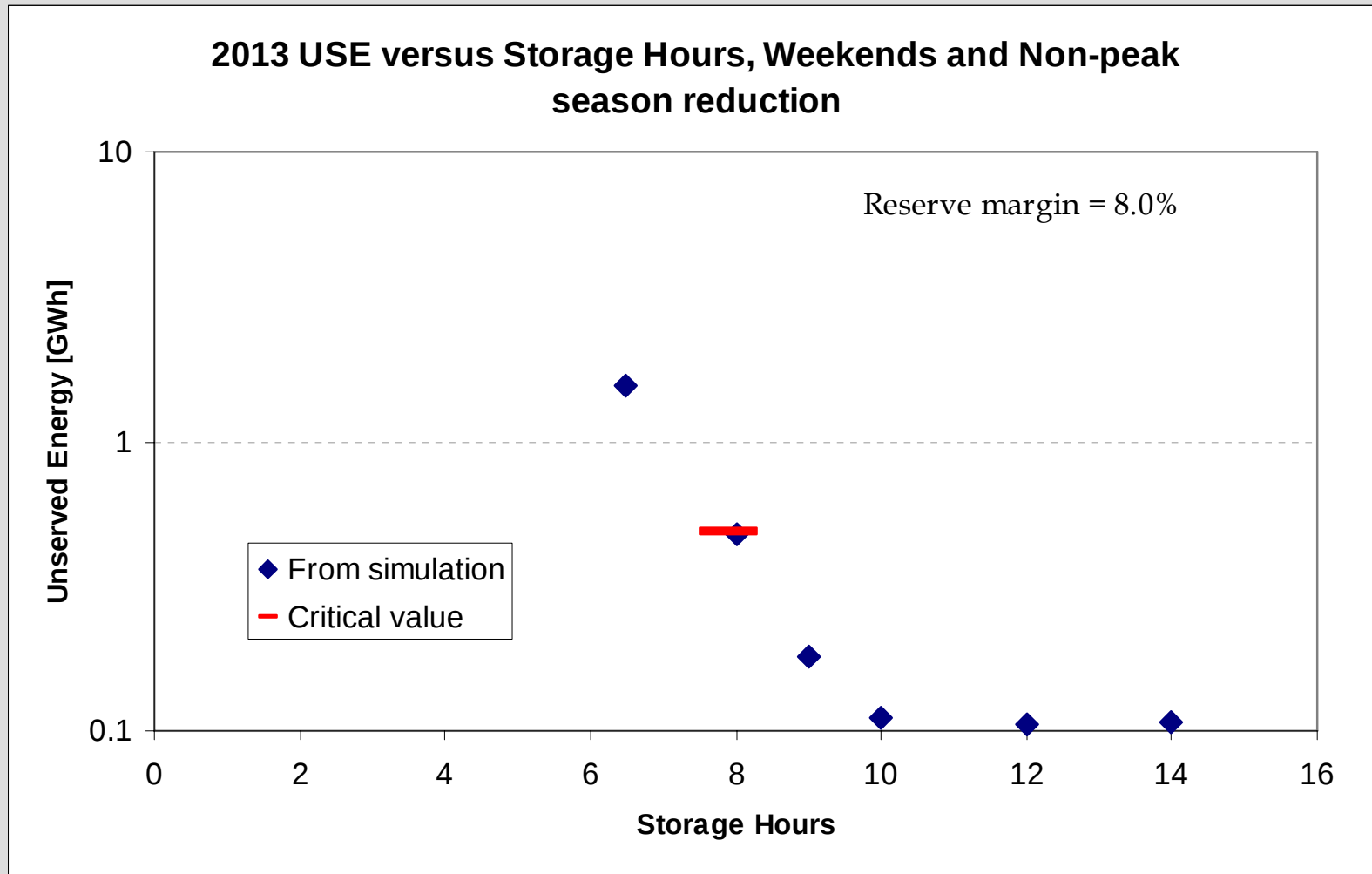
Weekends only = 8 hours (else 14)



Non-peak seasons only = 6.4 hours (else 14)

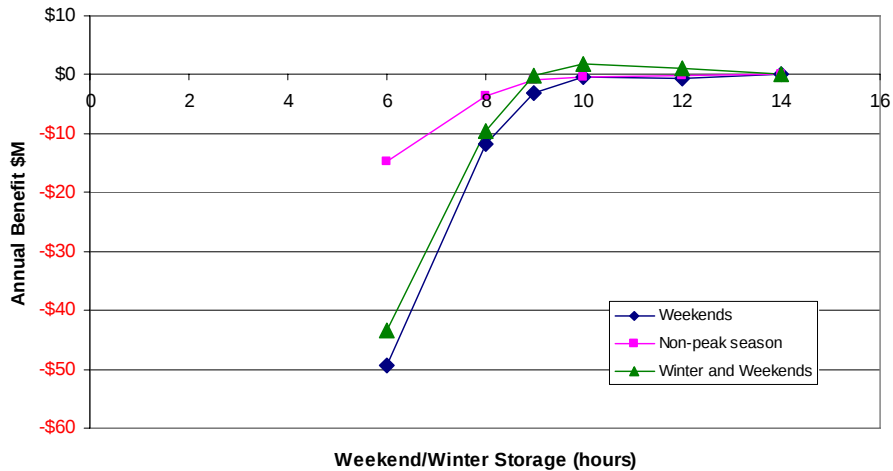


Non-peak seasons and weekends = 8 hours (else 14)

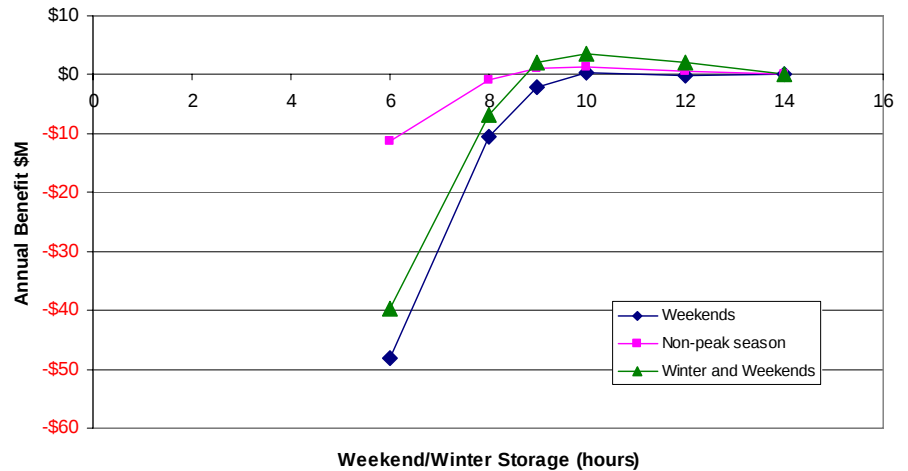


Optimal value – depends on saving

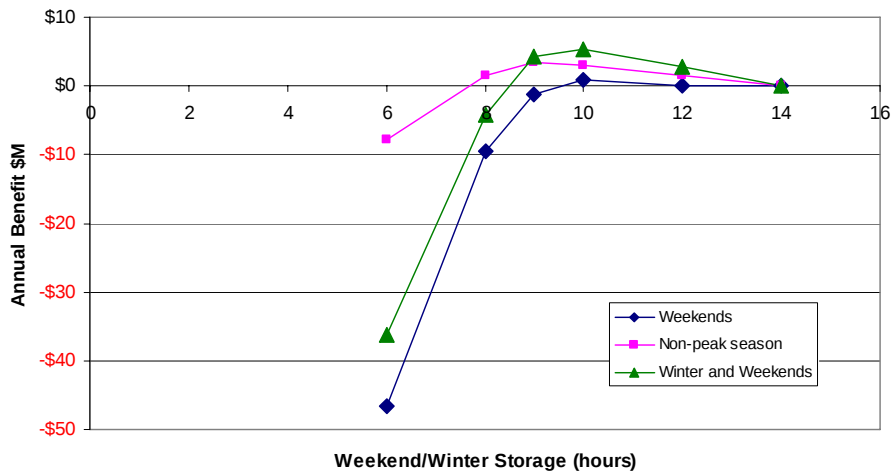
Optimal Off-Peak Storage, 10% value



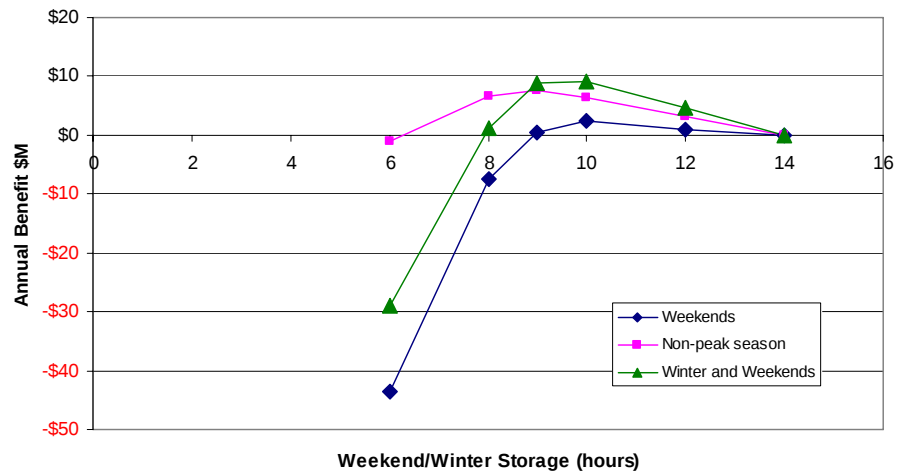
Optimal Off-Peak Storage, 15% value



Optimal Off-Peak Storage, 20% value



Optimal Off-Peak Storage, 30% value



Gas Supply Disruption

Value of dual fuel capability

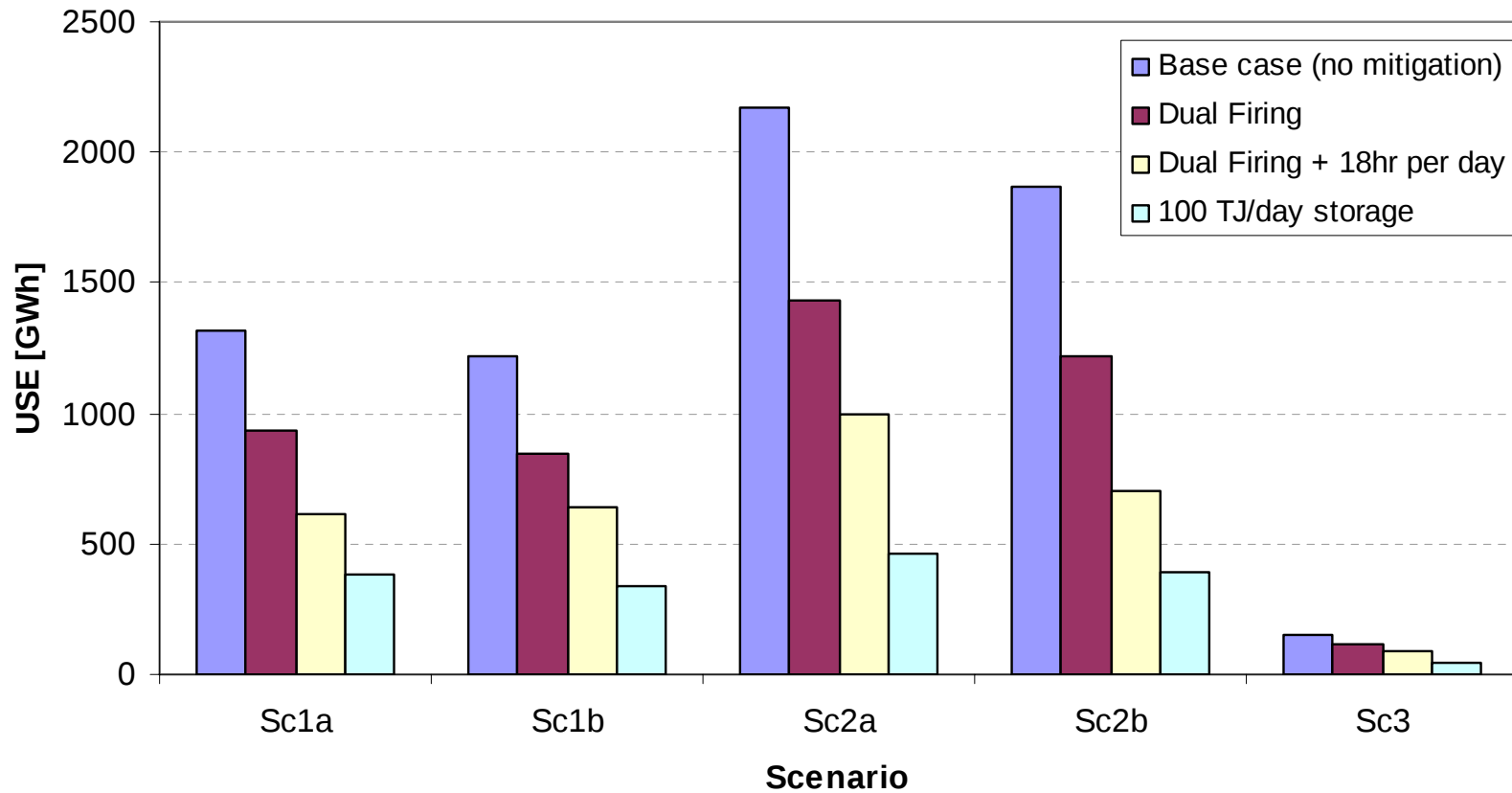
- Evaluated savings in unserved energy under GSEMC scenarios
 - With options for dual fuel capability on base load plants
 - With additional liquid fuelled storage on peaking plants

Gas Supply Disruptions

Scenario Code	Event	Gas still available for electricity generation (Summer)	Gas still available for electricity generation (Winter)	Duration	Start Dates
1a	Loss of Karratha Gas plant	43 TJ/day	7 TJ/day	3 months	1-Jan-2013
1b					1-Feb-2013
2a	Loss of Varanus Island	72 TJ/day	19 TJ/day	6 months	1-Dec-2012
2b					1-Feb-2013
3	DBNGP breach north of Mondarra	35 TJ/day	35 TJ/day	7 days	6-Mar-2013

Savings in unserved energy

Unserved energy for each scenario



Recommendations

- Maximum daily fuel storage could be reduced from 14 to 12 hours for the current plant mix
- In weekends and the off-peak system, fuel supply could be economically reduced if there are other uses for the surplus gas capability
 - If not, don't bother
- Under emergency conditions, additional liquid fuelled capability would improve system reliability and security against major gas supply disruptions

Questions

Questions for consultation

- Willingness to provide information on their fuel storage and fuel supply capabilities in terms of the long-term potential and their capability over the next three years leading up to the next Reserve Capacity Cycle
- Whether fuel storage and supply requirements for the purposes of ensuring system reliability could be relaxed and whether this would lead to significant cost reductions for the Market Participant
- How storage and supply requirements should be defined to reflect operational practices and dispatch patterns
- Whether an initial daily inventory for liquids and a daily gas supply is a sufficient measure of requirement.
 - Should other factors be considered over a longer period such as a working week, particularly for liquid fuelled peaking plants that normally only run a few hours per day and deplete a three day fuel inventory over a week or fortnight;

Questions for consultation

- Whether their bilateral obligations are likely to require more stringent fuel storage and supply requirements than a minimum value required solely for system reliability.
- The potential value of the broad options for change (indicated in Table 2-1) and their advantages and disadvantages that would need to be considered in quantitative analysis
- Whether there is likely to be any significant value in reducing fuel supply and storage obligations in non-peak months and/or weekends
- Whether a separate payment for Energy Reserve Capacity associated with capacity for liquid fuel storage and firm or non-firm gas transport would assist market participants to better manage long-term supply risks whilst at the same time meeting their bilateral supply obligations.

Questions for consultation

- Whether a trading mechanism for adjusting daily fuel supply obligations would be beneficial in reducing generators' costs or increasing profitable revenue.
- What is the feasibility of defining the parameters of a non-firm fuel supply recognising that it is the firmness of when it is called that is important, rather than the availability of the supply over the whole year.
 - This is a particular issue for non-firm gas supply as it depends on gas consumption by other parties and the reliability of gas transport as affected by compression and resulting transport capacity. How can this non-firmness be reasonably estimated and quantified for reliability modelling purposes? Is it a feasible endeavour?
- The evaluation methodology outlined in Chapter 3 and whether the key issues are adequately considered using this approach.

Questions