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RE: ERA REVIEW OF METHODOLOGIES FOR SETTING MRCP AND EPL: CONSULTATION PAPER

Dear Wana,

Thank you for the opportunity to provide comments on the issues raised in the Economic Regulation Authority's (ERA) consultation paper released 24 June 2013.

A short summary of Perth Energy's (PE) key concerns around the methodologies underlying calculation of the Maximum Reserve Capacity Price (MRCP) and Energy Price Limits (EPLs) and resultant impact upon market operations is provided below with a more detailed, wider ranging commentary on market pricing and operation given in the attachment.

General Comments

PE is aware of the ERA's intent to restrict the review to the calculation of MRCP and not the MRCP's role in setting the RCP, as noted below:

For the MRCP, this review is thus limited to the methodology for setting the upper limit for the capacity price; that is, the emphasis is on the **Maximum Reserve Capacity Price**, rather than the MRCP's role in setting the administered capacity price.

However, as an investor in the Wholesale Electricity Market (WEM), PE cannot isolate the methodology used to calculate the MRCP from its intended role in the Reserve Capacity Mechanism (RCM) and in setting the Reserve Capacity Price (RCP).

PE suggests that, in the current operation of the RCM and the resultant conclusion that the outcomes are 'not economically efficient' as identified¹ by the ERA, two issues are being confused. These are (i) the current, potentially transient, issue regarding excess capacity and (ii) the ongoing requirement of the RCM to ensure sufficient capacity is attracted into the WEM to deliver supply security.

PE's views on the drivers for the current level of excess capacity have been expressed to the ERA on previous occasions and are summarised in this submission for consistency and continuity. The perceived 'problem' of excess supply capacity (as opposed to genuine capacity availability) with the resultant market and societal costs, is not a market design or price methodology issue. Instead, excess capacity results from:

- sub-optimal demand forecasts, i.e. failure to align demand forecast with organic growth in South West Interconnected System (SWIS), in particular the decrease in per capita consumption

¹ ERA (2013): [2012 WEM Report](#), p6

facilitated by rapid and sustained growth in rooftop photo-voltaic panels (PV),² and the sustained provision of large, discrete load entries, such as the Mid-West iron ore projects, some of which have not materialised;³

- the existence of ‘quasi-demand’ from demand side management (DSM) that receives full Capacity Credits and payments and yet does not have to bid into the market and so cannot be despatched by System Management; and
- the continued inclusion of Kwinana C in the generation mix, despite its low levels of plant availability (less than 50%) and award of Capacity Credits out to September 2015.

PE suggests that the issue of ‘excess capacity’ in the market will reduce markedly following improvements in demand forecasting accuracy, when DSM is subject to the same operational requirements as generation capacity and when more appropriate incentives are in place to retire inefficient plant.

Of more concern to investors and potential investors in generation for the WEM, is the level of risk present and the allocation of this risk between Market Participants. Obviously private sector investors are no strangers to assessing investment risks. Unfortunately however, the continued changes to the calculations of MRCP and RCP since inception have introduced additional investment risk via ‘missing money’ in the market. In particular, investments have been planned and undertaken on the expectation of anticipated MRCP/RCP formulas, only to have the formulas and hence capacity payments altered. This has impacted upon the ability of investors to recoup the costs of investment and earn a sufficient return to ensure that the WEM remains an attractive place to invest such that future capacity requirements are fully met.

It is PE’s view that continual amendment and adjustment of the MRCP and RCP have significantly eroded investor confidence as evidenced by the lack of interest in further generation investment in the Expression of Interest rounds for capacity development undertaken in January 2012 and January 2013.⁴

Without investor confidence, the willingness of the private sector to provide funding for future capacity expansion is limited. This risks achieving:

- the Minister for Energy’s vision of a ‘major role’ for private sector investment in the WA electricity sector;⁵
- the Market Objective⁶ to ‘encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors’; and
- the original State (Government and Opposition) requirement of a “guarantee” against potential brown-outs or black-outs, a market with less energy price volatility than existed in the NEM and ongoing private sector investment, necessary before it would endorse market reform.⁷

Consequently, if the private sector is not incentivised to invest in WEM capacity, the Government may well find itself having to underwrite future capacity expansion, with the consequent impacts upon State Debt.

PE’s preferred approach is that the current changes afoot in the WEM, namely the potential retirement of Kwinana C and Muja A, alternative treatment of DSM and changes in the Independent Market Operator’s (IMO) demand forecasting methodology should be allowed to bed down. In the meantime, any further proposed changes in the MRCP and RCP pricing methodology should be put on hold given that:

- the current RCP methodology works according to efficient system demand forecast, if forecasts of future demand are accurate then there is unlikely to be any excess payment for reserve capacity; and
- the current excess capacity adjustment factor is fair and logical and provides market condition signals without shocking the capacity market therefore there is no need to amend the mechanism to introduce a steeper excess capacity adjustment curve.

Whilst PE is pleased to participate in the IMO’s working groups and public consultation processes we are concerned that these have not been as effective as they could be. In our experience, our comments in submissions seem to get little traction with IMO. For this review we note the ERA’s approval of the MRCP does not include a review of the individual building block components that make up the MRCP. Furthermore, the ERA does not specifically consider if the IMO has adequately addressed all concerns raised in submissions. We recommend therefore that the ERA conducts a separate review of the effectiveness of the IMO’s rule setting/amendment and market development processes in contributing to

² ERA (2013): [Issues paper](#) on proposed variations to Western Power’s Access Arrangement for 2012/13 to 2016/17, p5

³ Bureau of Resources and Energy Economics (2013): [Resources and Energy Major Projects](#)

⁴ IMO (2013): [Expressions of Interest](#)

⁵ West Australian (2013): [Nahan back gas guzzling firms over prices](#)

⁶ [Wholesale Market Objectives](#) on the ERA website

⁷ Electricity Reform Task Force (2002): [Discussion paper](#) on Reform of the Electricity Supply Industry in WA, Volume 1, Chapter 3, p75

delivering an output that meets the WEM objectives. However, if the ERA considers this may be a little out of its remit with regards its monitoring role in the WEM then we:

- suggest an improvement would be to expand the ERA's review to ensure all submission points are adequately addressed; and/or
- recommend the introduction of an appeals mechanism, whereby if a market participant considers the IMO to have mis-stated a MRCP parameter or acted outside market rules, it can appeal to the ERA (or another entity).

Furthermore, any changes to the MRCP, proposed by the ERA as a result of this review and the alternative RCP formula proposed by the Lantau Group should be further investigated and where possible modelled such that the potential impact of their implementation upon investor confidence and future capacity planning is clearly understood before any further changes are made to the pricing methodology.

MRCP

Movement or volatility in the MRCP is well documented, with reforms to the WEM since its commencement being focused on getting price signals right. Regulators and the industry more broadly have been focused on achieving the ultimate outcome that the cost of generating and supplying power be reflected truly and accurately to Market Participants and consumers. A possible issue here is that the MRCP is being used for two distinct purposes:

- as a signal to investors regarding the building of new capacity; and
- to set the price for Capacity Credits for in-service generators.

With regards the first purpose, the MRCP should exhibit some variability to reflect changing capacity requirements and so send the appropriate price signals to encourage or deter additional capacity expansion. The problem for generators is that this volatility is being carried through to payments for existing capacity the development of which was 'triggered' by a previous MRCP. If the two purposes of the MRCP could be separated in some way, this would ensure MRCP volatility is much less of an issue.

Ideally, there needs to be a separate way of setting the price of Capacity Credits for existing generators that has more certainty than the current mechanism. One option for example, would be to give a new generator a fairly stable capacity price for a predefined period, say five years, such as one based on a five year moving average MRCP. After the five years are up the 'five year moving average MRCP' reverts to the MRCP at the time. This approach would mean that the MRCP is still an investment signal and the generator has some comfort that capacity payment will be stable and at a level that offers a sufficient return on costs. The 'price signal MRCP' can still rise or fall to indicate whether or not new capacity is required but existing generators would be protected, for a while, from this volatility.

PE acknowledges that a key concern with existing MRCP methodology was the potential volatility resulting primarily from the method used by Western Power to provide an estimate of deep connection costs (DCC) as part of overall transmission network access costs. Instead, PE would prefer to see a transmission connection cost methodology that reflects the location (and degree of constraint present) of the connection on the network and the type of load to be supplied. Such a change would see the connection costs charged to those users servicing the market as a whole being 'use of system' charges while those servicing special discrete loads would be charged on more of a user-pays, deeper connection, cost. This would remove much of the volatility from the resultant MRCP calculation.

Another key issue with MRCP is that it is no longer being calculated or applied as originally intended within the broader market design, i.e. the capped maximum possible RCP, aimed at preventing an abuse of power in the capacity market. Instead, it is now more commonly referred to as a 'benchmark reserve capacity price' (BRCP) based on recent changes to the formula inputs, in particular:

- using a Weighted Average Cost of Capital (WACC) commensurate with funding State infrastructure assets which does not reflect the regulatory, policy and market risks faced by investors in the WEM; and
- using historical average network connection costs, by definition, is not a maximum, which leads to the obvious conclusion that the current MRCP is not in fact a maximum price.

In as much as there does not seem to be any logical explanation for why it was implemented, PE recommends the immediate removal of the 15% discount factor that is applied to the MRCP to derive the RCP. Therefore, the BRCP equals the RCP once any excess capacity adjustment has been applied.

Furthermore, the IMO should not be reviewing and changing the BRCP rules. Instead this responsibility should fall to the ERA as IMO does not have the necessary expertise in determining WACC and other

components of BRCP and commercial drivers of capacity investment. This lack of expertise has been acknowledged by IMO itself.⁸

A final point relates to the calculation of fixed operating and maintenance costs as an input to the calculation of MRCP. The costs of running the 160 MW OCGT peaking plant should include the costs of running the power station for the IMO's verification tests, the Department of Environment and Conservation's emissions tests and the Western Power technical compliance tests (which are expected to be required every three years). This is because for a diesel fuelled peaking plant these are very costly tests to run.

EPLs

PE does not consider the EPL methodology to require significant changes. Some areas need refining and the ERA has identified several of these in its consultation paper. It would be useful, as the ERA deliberates on the EPL methodology, to consider the following perspectives:

- An implication from the Hilmer quote in the ERA's paper is the need to look over an extended period in order to conclude that there has been an exercise of market power. However, the price caps will apply to each and every Trading Interval. This is suggesting that it is more appropriate to err on setting the caps higher than lower. The price caps could be seen as some sort of insurance, for example, not to make it too difficult for Market Generators to recover their residual capital cost (shortfall from Capacity Credits) but also not to over expose Market Customers should the supply and demand seriously get out of balance in the market.
- The Minimum Short Term Energy Market (STEM) Price is set at -\$1000 per MWh. Consequently, there is probably no need for an exacting methodology. The market is operating with an implied self-regulation in that no Market Generators could sustain a -\$1000 per MWh price for long. There is probably also no need for an excessive exacting methodology in setting the price caps.

One element in relation to setting the Maximum STEM Price requires consideration. The current practice involves determining the short term gas price, i.e. the price that could be expected to hold for the coming year. Given that the spot gas price has dropped, it could be worthwhile considering the possibility that the short term 1-year price could fall below long term contract gas prices for some Market Generators. The WA gas market, at this stage, does not have the liquidity to enable the gas buyers with long term contracts to easily normalise their prices. The Maximum STEM Price set from a low, short term price could thus be unprofitable for the Market Generator with a higher price long term contract. The use of the short term gas price is not always consistent with the notion of 'maximum'. PE does not have an alternative proposal to table for consideration but suggests that the ERA considers this issue.

While not directly relevant to the EPL methodology review, the Hilmer observation regarding the exercise of market power could also have implication for the short run marginal cost (SRMC) rule requiring a Market Generator to price its generation to reflect its SRMC (clause 6.6.3). While the Open Cycle Gas Turbine (OCGT) plant is theoretically fully recovering its capital cost in Capacity Credits the other generators, leaving aside the diesel gensets, need to recover the residual capital cost from energy price surplus. The SRMC rule then limits these generators to getting an energy price surplus only when the clearing price is set by a higher cost generating unit. This could be the WEM equivalent of the missing money problem in an energy only market despite the WEM having a capacity payment mechanism.

It could be worthwhile for the ERA, before finalising its report for the Minister, to hold a workshop to let the market have a chance to further comment on what the ERA has concluded and recommends from this round of submissions.

PE is pleased to have this submission published on the ERA's website as part of the consultation process and is happy to provide points of clarification on any of the information contained in the submission.

Yours sincerely

Mr Ky Cao
Managing Director

Att:

⁸ [Consultants](#) have been brought in by IMO to review WACC methodologies in MRCP reviews

APPENDIX 1: Additional points on WEM pricing and operation

The comments below are more wide-ranging than just concentrating on MRCP and EPL pricing methodology. This is to illustrate that the perceived problem with excess capacity in the WEM and issues around the responsiveness of the MRCP/RCP to this excess capacity are not related to pricing methodology or market design. Instead the majority of inefficient market outcomes¹ are more closely related to incorrect or mis-application of the Market Rules. Potential examples of this are discussed individually below.

Furthermore, there is a considerable amount of change already underway in the WEM, some of which will, in PE's opinion virtually eliminate the issues around current excess capacity.

In the longer term, it is PE's opinion, as an investor in the WEM, that confidence has been severely eroded through continual changes to the calculation of the MRCP and RCP. It is therefore inadvisable to implement further changes to pricing methodologies that:

- may not be required, once other market inefficiencies have been addressed; and
- risk further damage to investor confidence in the WEM, this is particularly key given the desired and continued role of the private sector in the market as proposed by the Minister and the need to attract new supply capacity as required.

Inefficient market outcomes

PE notes the ERA's comments⁹ on excess capacity in the WEM in its recently published '2012 Report on the Wholesale Electricity Market for the Minister for Energy'. In particular:

"...the ongoing excess (capacity) indicates that the price being paid for capacity has been set too high..."

"...it is noteworthy that there is nothing in the Market Rules that sets a limit on the amount of Capacity Credits that can be issued each year; only a stipulation that sufficient capacity be obtained so as to satisfy the reserve capacity required..."

"...an important outcome of this review (the Reserve Capacity Mechanism Working Group (RCMWG) has been the proposal ... to change the formula for calculating the RCP to make it more responsive to market conditions, such that the price would reduce more rapidly in conditions of excess capacity and increase when a shortage of capacity occurs..."

"The excess capacity represents a significant and unnecessary cost."

"...the Market Rules includes a price adjustment mechanism to reduce the capacity price in proportion to the amount of excess capacity ... However, this mechanism is not completely effective, such that the direct costs of excess capacity to consumers in the 2011/12 year is estimated at approximately \$26 million."

"...the investment in excess capacity could have been better spent elsewhere in the economy; hence there are indirect costs to the economy as well as direct costs to consumers. Whilst the extent of this total cost to the economy has not been quantified, it is clear that it is not an economically efficient outcome and, as such, does not meet the Wholesale Market Objectives."

The ERA then recommends that, given the significance of the issues above, the PUO undertake a 'comprehensive, holistic review of the current market design of the RCM in its entirety, with a view to considering the long term evolution of the market and the realisation of efficient economic outcomes'.

As noted above, PE does not agree that it is the design of the WEM/RCM that needs review, at the moment at least. Rather, inefficiency in the current capacity market results from failures in the application of Market Rules, inaccurate demand forecasting and external factors such as the global financial crisis have driven the existence of excess capacity in the WEM. It is PE's view that, once these issues are resolved, the capacity market will operate as intended. This is likely to negate the need for any major changes being required to pricing methodologies or underlying market design.

In support of this view, PE provides some additional insights into the subject of excess capacity and the operation of the RCM from the perspective of a Market Participant and investor in the WEM. These insights are presented individually below.

Original objectives of the WEM and RCM

When considering the issue of 'excess capacity' in the WEM, it is important to consider the initial intent and objectives in establishing the WEM with a separate capacity market.

⁹ ERA (2013): [2013 WEM Report](#), p6

In 2002-03, when the Electricity Reform Task Force (ERTF) was investigating a market structure for WA, I chaired the Independent Power Advisory Group (IPAG) and spent considerable time discussing reform options with both main political parties. The key cross party concern was security of supply. Without any interconnection to electricity supplies in other States, it was clear that the Government and Opposition required a “guarantee” against potential brown-outs or black-outs, were keen to see a market with less energy price volatility than existed in the NEM and characterised by ongoing private sector investment, before they would endorse market reform.⁷

The RCM is intended to incentivise peaking capacity to enter the market within a two to three year cycle to ensure there is sufficient capacity to meet forecast demand. The Market Rules refer specifically to an OCGT peaking plant of 160 MW in size. From the outset of WEM market design, the RCM has been viewed as a supply-side mechanism with an administered process for setting capacity price.

Non-peaking plant can only enter the market commercially under bilateral contracts with Market Customers and so the RCP signals investment in peaking plant to enter the market and provide supply capacity security over peak demand periods. Peaking plant relies on the RCP as its main, if not only, revenue source. Therefore given the semi-regulated return rate accorded investors in the RCM, a relatively small downward adjustment to the RCP can render an investment case for peaking capacity unviable.

Being an administered process inherently means that the RCP is not as immediately efficient as a market based outcome. However, for reasons stated above it is believed that the loss of some short-term efficiency is a reasonable trade-off for security in a long lead time industry. In addition, there is already an excess capacity adjustment factor in the RCP procedure to provide adequate price signals to investors in situations of under or over supply of capacity.

From the instigation of the WEM, a significant amount of private sector investment has been made in the SWIS, on the premise of existing Government policy and on the understanding that the RCM was an administered process for peaking capacity procurement and that the price for that capacity would be relatively predictable by investors according to the Market Rules.

PE views the current proposals to change the RCP formula, as contained in the Lantau Report, to make the RCP more ‘responsive’ to supply and demand pressures as confirmation of the confusion of views over the purpose of the RCM and, if adopted, would only further undermine investor confidence in the WEM.

This loss of confidence is more acute in light of the proposals being, in essence, a subjective judgement as to what the elasticity of the RCP should be. This is evidenced in the seemingly baseless determination of the ‘price curve’ with the proposed adjustment factor of -3.75 depending upon a determination of ‘surplus capacity’. It is unclear to PE why this band would be preferable to the current proportional change to RCP as illustrated by the current excess capacity adjustment factor.

The WEM and RCM were designed around the government’s required ‘guarantee’ against extensive or sustained electricity outages. In the last seven years of operation, the WEM/RCM has achieved what was asked of it in meeting the government’s objective. The \$26 million identified by the ERA as the ‘cost’ of excess capacity in the 2011/12 Capacity Year is, in PE’s view an acceptable premium for the insurance demanded by Government. This \$26 million ‘insurance premium’ should be considered against the massive cost in economic disruption caused by the Varanus Island gas explosion in 2008.

PE believes there is some confusion in the understanding of what the RCM is meant to be and this has been driving changes in the Rules governing MRCP/RCP that are not supported by suitable analysis or market feedback. Once the confusion around the purpose and design of the RCM is eliminated, then attention can be focussed on other factors that may be driving inefficient market outcomes. Some of these are outlined below.

Conflicting objectives in the Market Rules

It could be argued that there are conflicting objectives in the Market Rules. The requirement to ‘encourage competition among generators and retailers’ whilst avoiding ‘discrimination in that market against particular energy options and technologies, including sustainable energy options’ could be considered as conflicting objectives. The introduction and rapid growth of renewable/intermittent energy has increased the overall cost of supply, mainly through the requirements around load following and balancing. In addition, Western Power’s network charges have increased by around 80% over the 5 years to 2011. As these charges make up 30-50% of total retail price depending on the loads size, they represent as significant driver of electricity costs in the WEM. PE would prefer to see a transmission connection cost methodology that reflects the location (and degree of constraint present) of the connection on the network and the type of load to be supplied. Such a change would see the connection costs charged to those users servicing the market as a whole being ‘use of system’ charges while those servicing special discrete loads would be charged on more of a user-pays, deeper connection, cost. This would remove much of the volatility from the resultant MRCP calculation.

Investor confidence is undermined

The assumption, that one of the reasons for excess generation capacity may be that the RCP has been too high, is not supported by any commercial information from the market, especially in the structure of and quantum of the components in the MRCP formula.

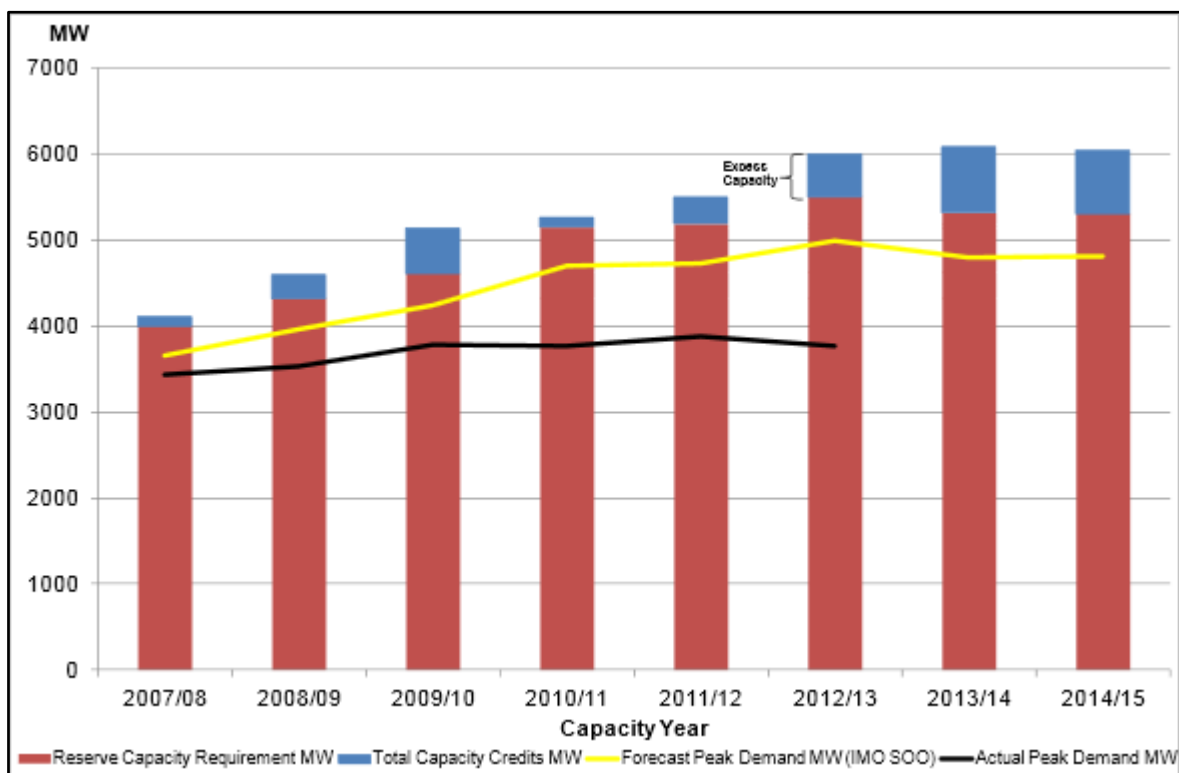
The RCP, at 85% of the MRCP by design, has played little, if any, role in the 'excess' entry of capacity. The MRCP and RCP have been so volatile, since inception, that the availability of low cost project finance has been negatively impacted. This is evidenced by the lack of any expressions of interest to invest in generation in the IMO's January 2013 expression of interest round.

Two key problems that are negatively impacting on investor confidence are:

- continued changes to the formula and volatility in the level of MRCP – future revenue streams are hard to predict and so anticipated returns on investment may not be sufficient to cover costs; and
- the formula relies on WACC levels commensurate with funding State infrastructure assets – this does not reflect the regulatory, policy and market risks faced by investors in the WEM.

Problems with demand forecasting

The ERA's chart of actual and forecast peak demand is reproduced below.



PE suggests that one driver of excess capacity in the WEM is the continued over-forecasting of demand as a result of the WA resources. If actual demand in the SWIS had eventuated as forecast then there would have been little excess capacity. PE considers that the IMO has:

- failed to align demand forecast with organic growth in SWIS, in particular the decrease in per capita consumption facilitated by rapid and sustained growth in rooftop PV;² and
- has provisioned too much and over too many years for large discrete load entries such as the Mid-West iron ore projects, some of which have not materialised.³

This is illustrated if we consider that IMO's demand forecast drives supply investment. Each year, IMO calculates a total sum of money for required Capacity Credits two years in advance and based on its demand forecast. If total Capacity Credits, as approved by IMO, eventuate to be 10% greater than the actual required Capacity Credits, the total sum of money that the market pays to generators does not change. Instead the unit cost of each capacity credit, the RCP, is adjusted down, through the excess capacity mechanism, by 10%.

Even when actual demand falls short of forecast demand, the total sum of money earmarked for all generators does not change. In this case, each customer will pay more for each MW of capacity simply because there are fewer customers. This will occur even if there is no excess capacity above the IMO required capacity level.

Therefore, generators bear much of the risk of inaccurate demand forecasting.

If, at any point in the future demand is under-forecast which results in some capacity shortage then the IMO could call an auction for incremental capacity as currently provisioned. However, this increment will likely be in the form of marginal increases to brownfield plant rather than development of greenfield projects (the reasons for which are outlined in the section below 'Project financing requirements are not aligned with Reserve Capacity Auctions'). Incremental brownfield capacity could and should be a sufficient solution in the short term, with the following year's Expression of Interest triggering greenfield development for the following Capacity Year.

Although the IMO has reviewed its forecast methodology recently it has been too late to prevent excess capacity being introduced to the WEM. Again, this is not a market design flaw, rather the result of a sub-optimal forecasting methodology.

Existence of 'quasi-capacity' in the WEM

PE concurs with the ERA's comments regarding the considerable entry of DSM into the RCM and the extended retention of Kwinana Stage C. PE goes so far as to suggest it is these two factors (in conjunction with inaccurate demand forecasting) that account for the current excess capacity.

Of the 455 to 524 MW of DSM Capacity Credits forecast¹⁰ out to 2014/15, approximately only 100 MW¹¹ could be considered 'reliable' in as much as it is capable of being despatched by System Management.

The remaining DSM is only contracted to be 'turned down' by its commercial aggregator when required. Consequently, this DSM does not have to be bid into the market, as is required of all genuine generation capacity, and so cannot be despatched by System Management. An example from the Californian electricity market in 2000 shows that when the market there faced a supply crisis, half of the 3000 DSM contracts failed to comply with their commercial obligations.¹²

The equal treatment of DSM and true generation capacity can be considered inappropriate application of the Market Rules and not a flaw in market design.

What PE considers particularly market distorting was the retention of Kwinana C plant. This generator is over 35 years old, highly unreliable, fuel inefficient and has caused Verve to be in breach of its 3000 MW supply cap. There was limited justification in the Government keep this plant commissioned once the Varanus incident had passed. Private sector investment in the WEM has been made on the basis of Kwinana C being decommissioned some years ago as per the cap policy. PE recognises that the Government has recently announced the closure of Kwinana C.¹³

Consequently, PE welcomes the Government's decision to decommission Kwinana C and in doing so avoid the artificial excess capacity to blow out further in the 2015/16 Capacity Year. Kwinana C has already been awarded Capacity Credits until September 2015. This is despite the ERA noting that the plant's reliability is sub 50%¹⁴ and is contrary to the Market Rules which state that any plant with below 70% availability should be stripped of Capacity Credits. In the National Electricity Market (NEM) this threshold is higher at >90% availability.

The continued retention of Kwinana C is a combined failure of Government policy and the incorrect application (or non-application) of the Market Rules and not a flaw in market design.

Project financing requirements are not aligned with Reserve Capacity Auctions (RCA)

PE notes the ERA's view that the absence of a RCA as evidence of potentially high RCP. However, real world project financing prevents an auction from ever being called.

The Market Rules allow the IMO to call an auction for more capacity in November of the same year in which application for new capacity supply by investors closes in July. Therefore, if the IMO determined that there were insufficient applications for supply capacity August, it can call a RCA three months later in the November.

¹⁰ ERA (2013): [2013 WEM Report](#), p7 Table A1

¹¹ Most of this 100 MW of 'reliable' DSM is Simcoa's load in Kemerton

¹² Public Policy Institute of California (2003): [The California Electricity Crisis Causes and Policy Options](#)

¹³ Minister Nahan's [media statement](#)

¹⁴ ERA (2013): [2013 WEM Report](#), p42

A generation project takes years (and millions of dollars spent) to reach the stage of satisfying the IMO's requirements for certification including having secured a site, environmental approval, a network access offer and conditional project finance arrangements, or at least substantial progress towards finalising those conditions. It is highly unlikely that a sufficiently progressed generation project would be 'held back' by investors from applying for capacity certification in July, to see if they could bid into an auction months later in November. Missing the July deadline and approval of Capacity Credits in August (for the project to be delivered two years' later) would mean significant losses for investors. Secondly, if the IMO does not approve a particular project for Capacity Credits in August there is limited chance that the same project would be approved three months later in November.

Consequently, the Market Rules governing the auction process need review and modification but this does not constitute a major design flaw and is not related to the level of the RCP.

Increase in liquid fuel peaking capacity

The ERA has also noted the increase in peaking capacity from liquid fuel generation but insufficient mid-merit capacity.

This is an ongoing issue driven by available generation technologies. Back in the 1980s and 1990s Western Power Corporation had identified a relative shortfall in shoulder period capacity (mid-merit) capacity as it was more economically efficient to build base-load or peaking capacity rather than building capacity targeted to supply shoulder periods.

Coal plants, typically used for base-load supply, take time to start up and run down and so cannot be used for mid-merit supply. That leaves either open cycle gas turbines (OCGT) or combined cycle gas turbines (CCGT):

- CCGT is OCGT but incorporating a Heat Recovery System Generator (HRSG) and steam generator to capture the waste heat, hence "re-use" the same fuel, for more power generation. A CCGT costs more to build but has a lower long term cost to supply given high volume energy sales for the same fuel cost. Therefore CCGT is preferred for base-load supply.
- OCGT is cheaper to build but more expensive to run as energy output does benefit from waste heat recovery. OCGT is preferred for low volume peak supply.

Historically, there has been no specific generation technology that suits the in-between, mid-merit supply.

There is a traditional rationale of dynamic generation in that an OCGT plant can be run increasingly over time to supply a transition from low volume peaks to slightly higher volume mid-merit. This is until the mid-merit requirement is sufficiently large to justify conversion of an OCGT to CCGT. The CCGT could then be used to supply any increased demand from mid-merit to semi base-load. This gradual transition from OCGT to CCGT is appealing especially given the limited engineering required to convert OCGT to CCGT (usually 2-3 weeks down time to install the HRSG and steam generator).

In recent years some new machine models have emerged such as the LMS100 that Verve uses for its mid-merit plant in Kwinana. These machines are similar in design but not as fuel efficient as CCGT and are more costly to build than OCGT. However, they do serve the purpose of mid-merit supply with a comparable cost per MWh over the long term to the traditional OCGT to CCGT conversion.

The MRCP is designed to be a price signal to incentivise investment in peaking capacity. This is the correct incentive since it is at the peak that system security is at risk. The system is not at risk of capacity shortage at mid-merit or base-load levels. The risk at these levels relates more to fuel supply and not plant capacity. In the SWIS, any crisis in fuel supply is likely to come from gas shortages rather a shortage in liquid fuels. Therefore, the excess in liquids based peaking capacity can be said to actually improve supply security during a crisis. Furthermore, during 'normal' or non-crisis periods, a liquid fired OCGT can also run on gas and in doing so can supply peak energy at a relatively inexpensive cost.

The ERA may misunderstand this dynamic generation rationale if it considers the current excess peaking capacity is locked in permanently.

Location and size of peaking plant

Other aspects of peaking capacity that may benefit from additional information and explanation are the size and location of peaking plant.

A relatively small system like the SWIS has demand spikes in increments (half-hourly trading intervals) of 20, 50, 80 MW, not in hundreds of MW. Peaking capacity that can be dispatched in increments of 20-80 MW is more efficient than plants that are too large to dispatch in an incremental, modular fashion. It is exactly for this reason that PE chose to build the super-fast Kwinana plant with 30 MW gas turbines (GTs) (totalling 120 MW). The plant can be fired in increments of 30 MW, in a matter of seconds compared to

other peaking plant that takes 20-30 minutes to fire. Smaller GTs are highly efficient in responding to peak demand in the SWIS.

The location of plant is important for network reasons.

There appears to be a misperception around the location and generation fuel selected for the Merredin peaking plant. This smallish plant (2 x 40 MW GTs) is located in Merredin because of:

- the high line losses generated on the 220 kV transmission line between Perth and Kalgoorlie;
- the intermittent generation of Collgar wind farm that causes some instability in the network;
- the location of a nearby BP fuel depot (GTs are diesel fired); and
- the low cost transmission connection to the network.

Line losses are energy losses caused by long distance transmission. The historical line loss along the Perth-Kalgoorlie transmission line was 20% (e.g. a power station in Muja (the SWIS's central node) had to generate 120 MWh in order for a customer in the Goldfields to receive 100 MWh). This ensured wasted energy and undue carbon emission in generating that wasted energy.

In contrast, the more generation capacity located in the Goldfields, the lower the line losses. The location of the Merredin peaking plant benefits the SWIS (and society) in terms of less wasted energy and lower emissions. With Collgar and Merredin located in the Goldfields, transmission line losses are now closer to 10%. In addition:

- the Merredin plant provides a grid stabilising value to the intermittent generation from Collgar Wind Farm;
- lower network access costs - given the constrained nature of the SWIS, it is relatively cheaper to connect at the Merredin entry point on the Grid; and
- there is a diesel fuel depot nearby.

Conclusion

It is over simplistic to conclude that the RCP alone incentivising the entry of excess peaking capacity.

Excess capacity, as opposed to genuine capacity availability, has been caused by Kwinana C, non-despatchable yet fully paid DSM and over-forecasting of demand growth.

Some excessive underwriting of base-load and renewables entry by Synergy has exacerbated the problem. In the face of increasing competition, Synergy has underwritten Bluewaters 2 (200 MW), Newgen CCGT (330 MW), Collgar (200 MW), Emu Downs (80 MW), together with the large peak capacity plant at Neerabup (320 MW) among others. This new capacity is in addition to the 3400 MW it contracts from Verve through the Vesting Contract.

The RCM is essential for the WEM as it, together with the Energy Market (STEM and MCAP), satisfies the key objectives of security of supply and low cost and low volatility energy pricing, as evidenced by a \$500/MWh cap in WEM compared with \$10,000/MWh in the NEM. The IMO website shows the spot energy price trend to be, on average, stable to declining over the last seven years, the exception being the three month market disruption caused by Varanus. Despite gas prices increasing 400-500% over the last seven years, spot energy prices have been stable because the market switched to coal and wind energy. This demonstrates that the WEM 'works'.

Generation costs and the presence of excess peaking capacity alone is not driving retail price increases.

In the WEM, financial hedging against future energy price rises is achieved through the bilateral contract markets. The contracts market dominates approximately 90% of total energy trading with only around 10% traded through the STEM with any residual settlement through Balancing. The reliance on bilateral contracts, with the exception of network costs, delivers cost stability for customers. In the capacity market, base-load and mid-merit capacity are again afforded through bilateral contracts whilst, the RCM was intended to incentivise sufficient in peaking plant to supply peak demand.

The main driver of electricity cost increases in recent years has come not from generation costs (such as excess capacity) but from network charges, which have risen 80-90% since the formation of WEM. As network costs account for 40% of total supply costs, this has put upward pressure on retail tariffs, with the well-publicised issues around affordability for retail customers.

PE suggests that the RCM does not require a 'comprehensive, holistic review of the current market design' as recommended by the ERA, nor does it require, at the moment, a change in the RCP formula to 'fix' the problem of excess capacity. Instead, a cessation of the mis-application of some Market Rules, particularly

around (i) alternative treatment of DSM and (ii) immediate decommissioning of Kwinana C and removal of its Capacity Credits to September 2015 will virtually eliminate the current excess capacity problem. Recent improvements to the IMO's demand forecasting methodology to better align forecast and actual demand will help to restrict the existence of excess capacity going forward.

Leaving the RCP formula unchanged, provides the required incentives to investors to continue to provide peaking capacity as and when it is required and will give confidence that their investment costs can be suitably recompensed.

Still in the short term, the WEM requires improved market governance. PE considers that the IMO has made some errors of judgement in applying the Rules governing the RCM, in particular in pursuing Rule changes that have caused significant concerns amongst investors. PE is of the view that the IMO should be appropriately supervised to improve on its performance in this regard as maintaining the confidence of investors is critical for the every market, including the RCM.

Further out, PE would wish to see the gradual development of forward energy pricing products in line with other jurisdictions such as New Zealand. However, for this development to take place, a commercial, competitively dynamic WEM must be retained. PE is concerned that the sheer size of a remerged Verve-Synergy (VS) could distorted the market and deter investors further – a situation at odds with the continued and increasing 'role for the private sector' anticipated by the Minister for Energy.⁵

Without strict controls on the new VS monopoly, there is the risk that the WEM will distort. Although the ERA has the role to 'monitor the market and clearly identify problems or issues that need to be resolved, and to recommend measures to the Minister' it may still be at a disadvantage in terms of market knowledge given the volume of operational and market information held by VS.