Major Energy Users Inc.

Australian Energy Markets Commission

RELIABILITY PANEL

2014 REVIEW OF RELIABILITY STANDARD AND SETTINGS (MPC)

Comments on ROAM Consulting Analysis and Recommendations

Submission by

The Major Energy Users Inc

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In its report to the Reliability Panel (RP), ROAM comments (page 84)

> "The [new approach to assessing the market price cap (MPC)] outcomes indicate that under Base Case assumptions that the MPC required to incentivise investment in OCGT capacity is below the current MPC of $13,100/MWh. However, the existing MPC setting does fall within the range of sensitivity outcomes. Further analysis supports this outcome in demonstrating that the current reliability settings are sufficient to achieve the reliability standard over a 10 year period.
>
> ROAM has also provided quantitative modelling to inform the panel of the appropriateness of the existing reliability standard and the market floor price setting."

It would appear that ROAM is recommending that the existing Reliability Standard is appropriate and that this standard will be achieved by retaining the existing market settings. In fact the work by ROAM strongly indicates that the Reliability Standard could still be achieved with a significant reduction in the Market Price Cap (MPC).

Whilst the Major Energy Users Inc (MEU) considers that the Reliability Standard could be retained with an unserved energy level (USE) target of 0.002%, it must be recognized that this standard has been only been very infrequently breached on a regional basis (and even then by only a small margin) and never on a national basis over the 15 year life of the NEM. On a 10 year rolling average, the reliability outcomes for every region have been well below the standard and therefore were below the standard on a national basis.

Further, in 2010, the RP decided to increase the MPC to $12,500 indexed annually but also removed from the measurement of the standard industrial action and "Acts of God". Removal of losses of supply from the measure due to impacts other than providing sufficient generation capacity has resulted in easier achievement of the standard but despite this the RP, based on advice from ROAM modeling, recommended increasing the MPC.

These observations, supported by the ROAM modeling, support a view that the current market settings to achieve the standard are probably overstated with the result that these have imposed higher costs on consumers than are efficient. The National Electricity Objective (NEO) requires promotion of "… efficient operation …of electricity services for the long term interests of consumers of electricity…". It is not efficient for consumers to incur unnecessary costs to provide reliability that always exceeds the standard set.

Based on the work by ROAM, retention of the existing market settings would continue the market reliability performance seen since NEM commencement, with

the market consistently outperforming the reliability standard but at some considerable cost to consumers.

ROAM has also attempted to identify where the Reliability Standard should be set to provide the most efficient outcome for consumers. Although the MEU has some concerns with the development of the recommendation, the MEU does not consider there is sufficient reason to move away from the current value for the reliability target of a USE value of 0.002%.

ROAM also has implied that the market floor price (MFP) should be increased. The MEU does not agree and points out that ROAM modeling is based on weekly cycling costs whereas most times when the market price is negative, these negative events do not occur consecutively indicating that the approach used to predict generator cycling costs needs to be assessed over much shorter periods.

Based on the ROAM modeling, the MEU considers that:

- The market price cap should be reduced significantly and there is an argument that a figure of between $5,000 and $6,000 is justifiable based on ROAM modeling

- The Reliability Standard should remain at USE = 0.002%

- The market floor price should remain at its current figure of -$1,000

1. Introduction

1.1 About the MEU

The Major Energy Users Inc (MEU) represents some 20 large energy using companies across the NEM and in Western Australia and the Northern Territory. Member companies are drawn from the following industries:

- Iron and steel
- Cement
- Paper, pulp and cardboard
- Processed minerals
- Fertilizers and mining explosives
- Tourism accommodation
- Mining

MEU members have a major presence in regional centres throughout Australia, e.g. Western Sydney, Newcastle, Gladstone, Port Kembla, Mount Gambier, Westernport, Launceston, Port Pirie, Kwinana and Darwin.

The articles of the MEU require it to focus on the cost, quality, reliability and sustainability of energy supplies essential for the continuing operations of the members who have invested $ billions to establish and maintain their facilities.

The MEU members are very concerned about the costs for their electricity and have provided the MEU with their first hand experiences in operating in the NEM as the costs for electricity continued to increase.

1.2 The MEU view on reliability

The MEU and its members recognise that the reliability settings used in relation to electricity supply (such as the amount of unserved energy to the NEM) are only a small part of the overall reliability of the supply of electricity at its point of use. Consumers of electricity see the impact of the reliability of the electricity system as comprising reliability of the generation supply, the transmission system and the distribution networks. While it is acknowledged that the Reliability Panel (RP) only looks at generation supply reliability, the MEU considers that its decisions on unserved energy (USE) or other reliability measures must be made in relation to the overall reliability of the supply chain., and in particular, taking into account the cost and benefit to consumers including any reliability measures involving generation supply reliability.

The MEU is especially concerned that by focusing on USE and the market settings needed to achieve that level of generation supply reliability in isolation, the RP will be instituting such levels of supply reliability on the basis of costs incurred which, when taken across the entire supply chain, do not deliver value for the costs involved.

As the direct and indirect costs[1] of the market reliability settings for the generation element are carried by consumers, the MEU considers that the RP must examine its reliability settings in the context of the overall reliability of supply at the end of the supply chain, and not at a notional point well up the supply chain.

1.3 The MEU view of the electricity market as a whole

Consumers are already seeing electricity costs rising very quickly, from a range of causes, such as:

- Generator market power (the AER has identified that Torrens Island Power Station in SA has market power when regional demand exceeds 2500 MW and has used this power) and that generators in Queensland have used their market power to "spike" prices in that region. These actions have resulted in higher electricity supply costs to all consumers.
- Steeply rising transmission and distribution network prices. Although this issue has been identified already and some actions taken, these new actions will take time to result in moderating cost increases for consumers
- Implementation of a cost on carbon
- Implementation of the 20% renewable electricity target (SRES and LRET)
- The indirect costs from the RET. To achieve the RET requires network augmentation to meet the renewable energy target

Overall, there is a view that electricity costs are already too high and this is coupled with a general expectation that electricity supply costs will continue to rise, albeit more slowly than in recent years.

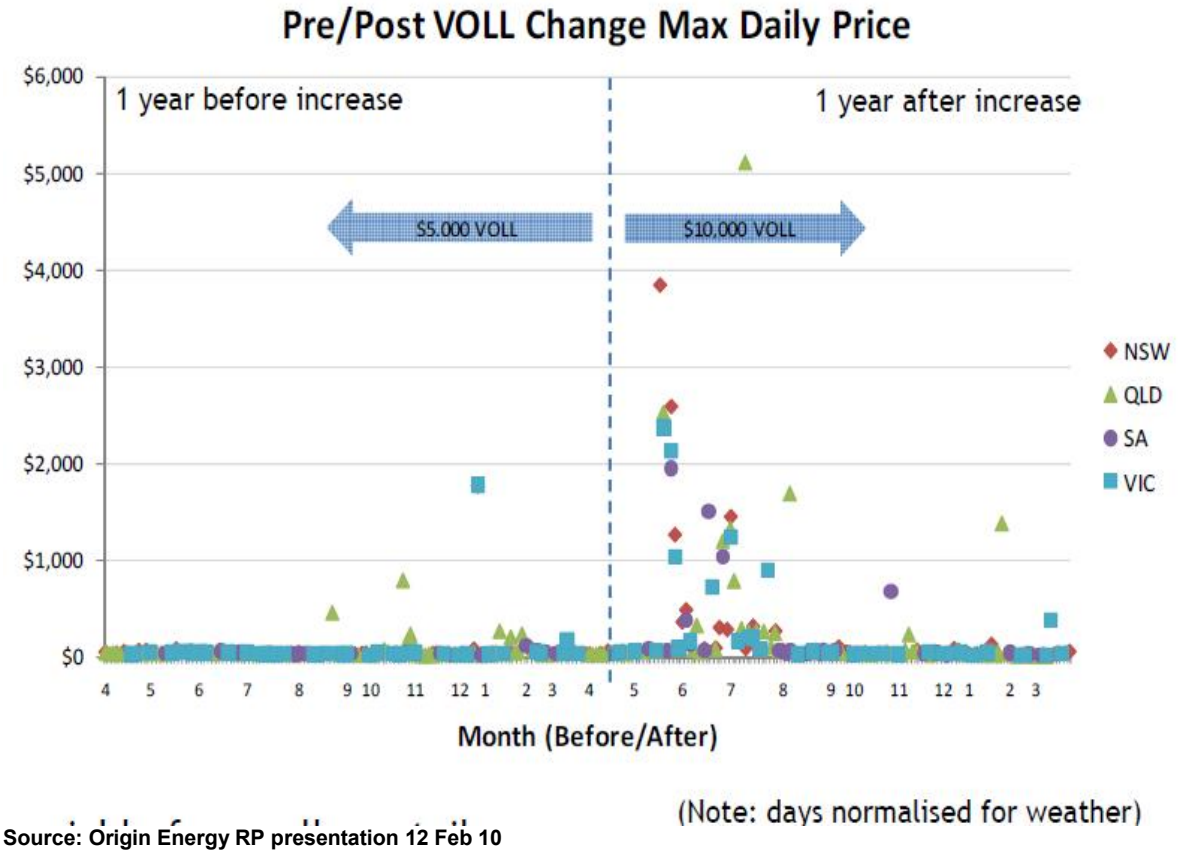
This raises the question as to whether, against a view of already excessively high generation costs and further increases, consumers will remain content to pay for the same reliability at an even higher cost level or would prefer a reduction in price but with less reliability. This is a particularly important issue as the RP is reliant on changes to the Maximum Price Cap (MPC) to meet the Reliability Standard.

A review of the NEM in recent years shows that a significant proportion of the annual spot price in each region is driven by a very few high price events. The magnitude and frequency of these high price events significantly increases the risk of operating in the NEM. The setting of the MPC has a major impact on the degree of risk in the NEM and hence costs paid by consumers.

It is quite clear is that volatility in the NEM has become generally more severe than in the early years of the NEM as the MPC has been increased. This point is reinforced by the observation made by Origin Energy at the RP forum on 12

[1] The indirect costs are those due to increased volatility in the spot market, increased risks across the NEM, increased prudential requirements, and the impact of increased incidence in the exercise of generator market power.

February 2010, who pointed out that market volatility increased significantly after the MPC was increased to $10,000/MWh.



Source: Origin Energy RP presentation 12 Feb 10

There is little doubt that the higher the MPC, the greater the volatility in the market.

1.4 What is the impact of this increased volatility?

With the recent and current levels of volatility and spot prices, consumers have found the resultant contract price increases from retailers do not reflect the average prices seen in the spot market. As a result, more and more large consumers are moving to take spot market exposure and reducing demand when high price events occur as a risk management technique. One outcome of this is that retailers are seeing a reduction in the amount of electricity they can contract with generators.

Retailers have advised MEU members:

- Some (small) retailers have left the NEM entirely and in some regions (eg SA in the recent past) even large retailers are opting out due to the high risks
- It is almost impossible to offer longer term contracts than 2-3 years due to the risk and shortage of stock
- Contract market liquidity reduces with increased volatility

- Higher costs result from higher prudential requirements for being in the NEM and as a result credit is more difficult to obtain
- Increasing prudential limits prevent small retailers entering (or even remain in) the NEM

Generators see greater risks and as a result contract less generation and maintain standby generation as a back up in the case of failure.

Despite concerns that the MPC needed to be increased from $10,000/MWh to ensure continuation of reliability, more than sufficient new generation was provided under the $10,000/MWh price cap. Discussions with those providing new generation have advised that they can only get debt funding if the bulk of the generation is contracted to a "bankable" off taker. This makes sense. Banks see that there must be a certainty that the debt repayments must be secure. This certainty is not provided by assuming the new generator will get the spot price as the spot price could be affected by the new generator coming on line. Whilst the banks only provide debt, those providing the equity have similar requirements – that of a certainty of getting the equity repayments.

Thus new generation will only be built if there is a high certainty of recovering the investment. This certainty can only be provided by contracts with "bankable" counterparties. This then raises the question as to whether changing MPC is the tool that provides the incentive for investment in new generation. The MEU notes that this observation underpins the new approach (Cap Defender) used by ROAM to estimate the MPC needs.

1.5 The Reliability Standard and MPC

The generally accepted approach to reliability for the supply of electricity in the NEM is measured in terms of unserved energy (USE). Currently this is set at 0.002%.

Exceeding this standard in any region has occurred very infrequently since the NEM commenced over 15 years ago, and the amount of exceedance has been minimal; it has never been exceeded on a NEM wide basis.

Over the same 15 year period (and even longer if NEM1 is included), the MPC has been set at $5,000/MWh, then $10,000/MWh and in the last three years, at $12,500/MWh adjusted by inflation. There is no clear empirical correlation between the frequency of the exceedance of the Reliability Standard and the level of MPC, as the few regional exceedances of the reliability standard have occurred under different settings of MPC. Despite this, ROAM has provided a theoretical correlation between an assumed value of customer reliability (VCR) and the reliability standard which minimize economic costs. However, as ROAM notes, the assessment of the VCR is subject to considerable uncertainty and this introduces considerable concern as to the reliability of such an assessment.

In theory, increasing the MPC should lead to a reduction on the amount of unserved energy, yet this is not seen empirically. At the same time, increasing MPC also increases the cost of electricity to consumers.

The question that has been at the core of the issue of setting an MPC that delivers the reliability standard is whether the current levels of MPC are too high. As the approach to setting the MPC in previous years relates to the cost for the marginal generator to deliver the final MWhs of electricity needed in the NEM to achieve the reliability standard does not reflect the actuality of how decisions are made to deliver this final MWh, there has been considerable concern that the approach currently used, is flawed. The fact that the ROAM report posits a different approach supports this view.

The MEU therefore agrees that another approach must be used which reflects the actual outcomes seen in the NEM.

1.6 Summary of the experiences in the NEM

There is only one "lever" available to the RP to attempt to ensure the market reliability meets its reliability setting – that is the MPC. This raises four basic questions:

1. How influential is raising MPC in securing new generation investment?
2. How long should the MPC be held static in order to give sufficient time to see if the settings are achieving their expected outcome?
3. At what point does increasing MPC no longer improve reliability but creates (perverse) incentives to exit the market?
4. Should the MPC be reduced so as to reduce the cost burden on consumers?

Significant new generation occurred under an MPC of $10,000/MWh, yet despite this observation, in 2010 the MPC was increased to $12,500/MWh and indexed by CPI each following year despite there being no clear evidence that the increase was necessary to maintain the reliability standard.

A further increase in MPC could make matters worse for all – consumers, retailers and generators, and yet might not deliver more generation than is already being provided.

At the same time, there is no clear correlation of the actual outcomes seen in the NEM and the settings used for the NEM, to support the historical approach to setting the MPC.

2. Concept development, assumptions and sensitivities

The critical element of the ROAM report is to provide market settings that deliver the Reliability Standard. Of the market settings - market price cap (MPC), market price floor (MPF) and cumulative price threshold (CPT), the most critical to achievement of the reliability standard is the MPC.

This means that MPC is the dominant setting (possibly the only setting) that the Reliability Panel (RP) has to deliver the reliability standard.

In its report, ROAM comments that (page 3):

> "The outcomes of Stage 1 of the assessment are of the most importance to the [Reliability] Panel in developing a recommendation for the appropriate reliability settings, in particular the MPC and CPT, which are required to achieve the reliability standard."

Whilst the MEU agrees that the setting of the MPC is crucial to the achievement of the Reliability Standard, the MEU disagrees that the CPT is essential. In the early years of the NEM, the MPC (or Value of Lost Load - VoLL) only was used to achieve the reliability standard and CPT was only introduced when the MPC was doubled to $10,000/MWh as a tool to manage the increased risk from raising the MPC.

The MEU agrees that the retention of the CPT is a key to risk management; it does not consider that the CPT itself is necessary to achieve the reliability standard. Equally the MEU accepts that the CPT does have an impact on the assessment of the MPC when assessing the likely revenue for the Cap Defender approach.

2.1 An overview of the new ROAM concept for setting MPC

For the first time in any RP review, ROAM has identified that the previous approach to setting the market price cap (MPC) through the costing for the marginal generator has significant limitations and is dependent on some very broad but influential assumptions.

Of these the most important is over how many hours each year would the marginal generator (also called the Extreme Peaker) operate. There is some consistency of views that the marginal generator would have to recover about $100,000 per MW per year to be commercially viable. Assessing the number of hours of operation for this marginal generator each year would actually occur is quite arbitrary, particularly when there have been so very few experiences of the reliability standard being exceeded. For example, if the marginal generator was assumed to operate for just 1 hour each year the implied MPC would be $100,000. If it is assumed to operate for just 10 hours in a year, then the implied MPC would be $10,000/MWh. Yet in practice, no provider would both build and plan to operate the marginal generator purely on the basis that it would operate only as the

marginal generator. In fact, the frequency of its use over the life of the NEM is such that the owner of the marginal generator would have recovered little of its cost!

This means that the concept of the marginal generator is quite flawed and bears no relation to what really occurs. This view is supported by the fact that there has been no shortage of installed capacity to meet the NEM needs - on either a regional basis or a national basis - and none of this capacity relies on operating for such a short period of time that is implied by a marginal generator.

Throughout the life of the NEM, shortage of supply has been so infrequently seen. This is supported by the fact that the level of USE has exceeded the standard so infrequently (and that only on a regional basis) that there is a clear case that the concept of the marginal generator needed to be readdressed.

When the empirical data is combined with the variability of the MPC outcome being based on changing capital costs and an unsupported assumption of the certain number of hours of operation for the marginal generator, ROAM rightly has identified a more pragmatic and what appears to be a more realistic approach based on commerciality; this has been needed to correlate achievement of the reliability standard through the setting of MPC.

ROAM refers to the new concept as the Cap Defender and the old approach as the Extreme Peaker.

As a concept, the MEU considers that the Cap Defender approach is sensible as it reflects commercial reality - that no investor would invest in the Extreme Peaker due to the inherent likelihood that it is not commercially viable. In fact, almost all new OCGT plant in the NEM has been provided by retailers seeking to provide a physical hedge against price spikes in the NEM. Thus, the Cap Defender approach essentially reflects what has been seen in the NEM - a total contrast to the Extreme Peaker approach.

In its report ROAM comments (page 5):

> "It is the intention of the reliability settings to provide an investment signal such that if the market is expected to breach the reliability standard, that a new entrant OCGT could enter the market and operate profitably. Similarly, the reliability settings should ensure that OCGT generation should not be incentivised to enter the market to profit from price volatility at the MPC if the market has more than sufficient capacity to achieve the reliability standard."

The MEU considers that ROAM makes a very salient point and agrees with the contention, especially that the new entrant should not incentivised to enter the market through a desire to profit from variability when there is already adequate generation supplies. This point reflects the reality that the high wholesale prices seen in both SA in 2008-2011 and more recently in Queensland resulted from exercise of market power rather than a shortage of supply.

2.2 An overview of the ROAM approach to setting MFP

Whilst the MEU considers that the general approach used by ROAM to provide a value for the market floor price (MFP) has strong validity, it has a residual concern with the valuation of the cycling costs and the use of week ahead unit commitment (WAUC). Pragmatically, whilst week ahead planning by generators is optimal, with the high influence of wind generation (such as in SA region), firming plans a week ahead for dispatch and cycling when demand reduces does not reflect the reality of a market where the amount of wind generation has such a significant impact. The fact that it is extremely seldom seen that the wholesale price is negative for two consecutive trading periods and this supports the need to assess cycling costs on a much shorter time frame than weekly.

The SA region has seen that the high degree of wind generation in the region is creating problems in the market due to its extreme variability of input. The rate at which wind output falls and rises and the variability of the timing of these changes causes thermal generation dispatch decisions to be made on a daily and even shorter period basis. While thermal generation in SA (except for Northern and Playford stations) probably has the capability once operating to have ramp rates sufficient to meet actual changes in wind generation output, the decision to bring back units previously shut down to provide for wind generation shortfalls will be made more on a daily basis rather than a weekly basis as the forecasting of wind output on a weekly basis is not sufficiently accurate to allow week ahead unit commitment.

This issue will be even more important with regions such as Victoria and NSW where the amount of wind generation is forecast to increase markedly in the next decade in order to meet MRET requirements. In these regions, the thermal base load generation does not have the ability (unlike the gas fired base load generation stations in SA) to quickly respond to changes in wind generation output unless they are actually operating. This means that the forecasts of the costs of cycling could be well understated from those calculated on a week ahead unit commitment (WAUC) basis[2].

The MEU considers that cycling costs need to be calculated on the basis that WAUC will not reflect the actuality of the market with high wind generation as a core element of its generation makeup.

2.3 Modeling assumptions

The MEU has reviewed the assumptions made in the development of the modeling of the Cap Defender and Extreme Peaker approaches and sees that they are

[2] This would be especially important for the Victorian brown coal fired stations where flame stability concerns occur at 60-70% of rated output. While the same concerns of down turn do not apply as greatly in NSW and Queensland, the issue is still important in all three regions due to their very high reliance on coal fired generation.

broadly appropriate, although the MEU does have some reservations about some of the assumptions

- There is no inclusion of the SRES renewable generation by 2020. The MEU considers that this is important as the very high penetration of rooftop solar (both PV and water heating both of which reduce the demand for electricity) has been a key element of the falling demand seen in most regions in recent years. As the generation under the SRES has already exceeded the allowance built into the setting of the LRET at 41 TWh[3], to exclude the impact of the over run of the SRES is an oversight.

  The MEU considers that the Base Case should include the expected level of SRES as well as the LRET as part of the renewable energy allowance in the model.

- The use of the reference years used to provide historical data. The assumption made is that the market reflects true competition. In particular the MEU points out that there is a significant frequency of prices close to MPC in SA region in the calendar years of 2008, 2009 and 2010 that were caused by the exercise of generator market power in the region. While the historical data on demand is not affected by this exercise of market power, the prices certainly were.

  The outcomes for Queensland in the last two years of the reference period also reflect activity of market power driven by inappropriate ramp rates being bid by some generators. This led to a significant and frequent amount of disorderly bidding which drove spot prices to very high levels despite there being sufficient generation available.

- In a similar vein, wind generation in 2008/09 in SA provided some 7.5% of the total energy consumed in the region yet by 2012/13, over 20% of energy consumed was provided by wind. This has had a major effect on the historical data over time as increasing wind came also with increasing volatility in both price and source of generation.

The MEU is concerned that the historical data used might have provided a significant bias to the outcomes for MPC calculated for the SA and Queensland regions.

2.4 Sensitivities

The MEU notes that the various sensitivities tested do provide guidance on what might well occur to the MPC under the Cap Defender model.

[3] Initially the combined MRET target was forecast to be 45 TWh with the LRET providing 41 TWh and the SRES providing 4 TWh. As the SRES is uncapped and with falling costs for rooftop PV and rising network costs along with the other SRES renewables, it is expected that the SRES will at least double its 4 TWh expectation. As ROAM shows in Figure C1, rooftop PV alone is likely to account for the SRES target allowance by 2017/18

However the MEU notes that one set of sensitivities that is absent, is the effect of the MPC on wholesale market price. In its report in 2010, ROAM calculated that an increase in MPC led to higher wholesale prices. Implicitly, a lower MPC should therefore result in lower wholesale prices. While the effect of MPC on wholesale prices does not impact the levels of MPC for each region, it does impact on the final decision on what to do with the variation of MPCs that result from the Cap Defender model.

In contrast, the Extreme Peaker model results in a consistent outcome for the MPC in all regions which varies only marginally over time indicating that its development is primarily affected by the assumptions made in the capital cost assessment.

However, as noted in section 2.1 above, the MPC is extremely sensitive to the notional number of hours the Extreme Peaker is assumed to operate each year and the methodology used to develop these hours.

3. Outcomes

ROAM provides the following outcomes of its analysis

3.1 Market price cap

ROAM provides the following MPC levels for each region using the Cap Defender approach.

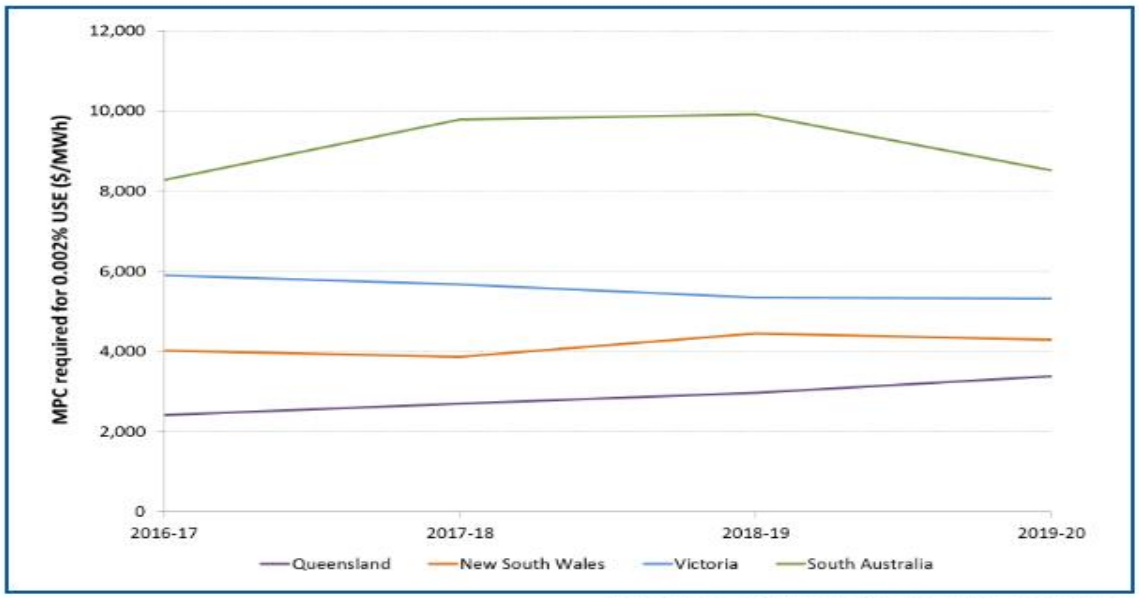


Figure 5.2 – MPC Results – Stage 1 Base Case

In contrast, the MPC levels for each region using the Extreme Peaker approach are as follows

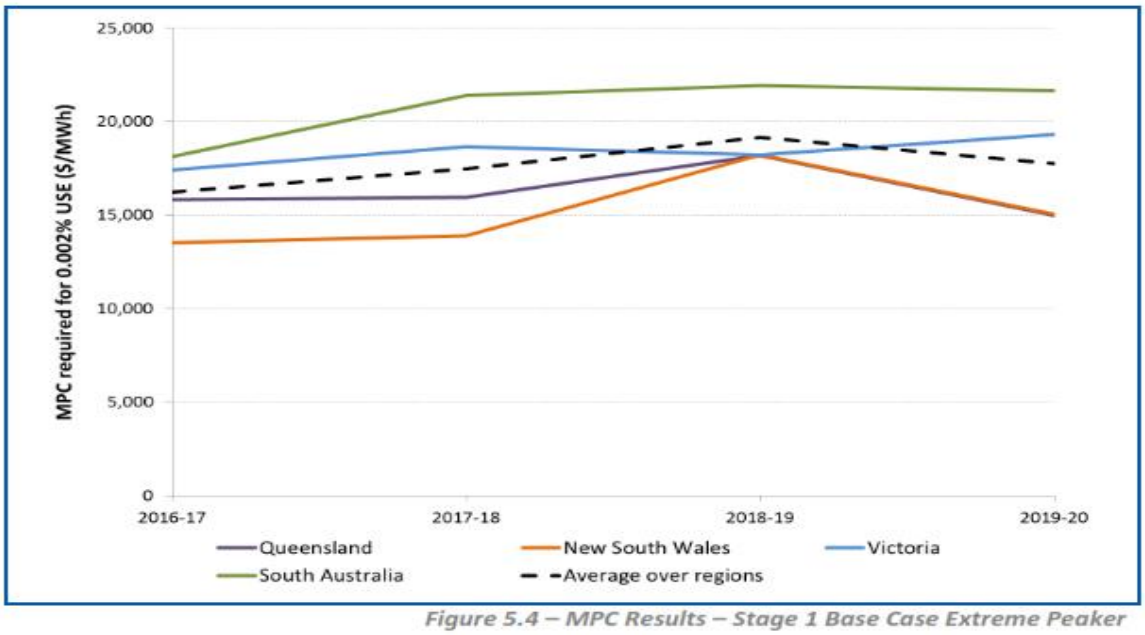


Figure 5.4 – MPC Results – Stage 1 Base Case Extreme Peaker

As might be expected, the Extreme Peaker approach results in higher levels of MPV but with a smaller differential between regions. ROAM has provided an average MPC trace for the Extreme Peaker approach implying that the MPC should rise from the current ~$13,000 to ~$17,000 in 2016/17 rising to ~$19,000 by 2018/19 after which it could fall. This is consistent with the 2010 ROAM report that the MPC should have risen to over $15,000 at the present time.

It is not clear from the report how the different regional traces have been averaged to identify a single price but it appears that the averaging is a simple average of the four traces without any weighting reflecting the relative sizes of the four regional markets.

The Cap Defender MPC traces show a much greater divergence between regions.

3.1.1 The USE is a long term target

In the 2009 Comprehensive Reliability Review (CRR), the RP concluded that the standard would be a target and implicitly this accepts that the target might be exceeded occasionally. The RP also concluded that the historic performance of the standard should be assessed on a rolling 10 year period such that the calculation of the standard over the rolling 10 year period, the average should not exceed the standard.

It was also noted in the 2009 CRR that pragmatically, to achieve a rolling 10 year average (page 26)

> "[t]he most economically justifiable and straightforward method of targeting 0.002% USE in the long term is simply to target 0.002% USE looking forward each financial year both NEM-wide and within each region."

The clear import is that the standard could exceed the target in any region in any year but the long term average of USE should be no more than the target.

Whilst the view is a pragmatic one, applying it in practice means that the actual long term average will be below the Reliability Standard. Effectively, the RP in no longer imposing a Reliability Standard of USE = 0.002% but a value less than this. This means that the RP has elected to impose a cost on consumers to achieve a reliability performance less than the standard it has defined as appropriate and which is used to develop the MPC. This is inconsistent.

In the 2010 RP review, the RP decided that the USE measure was no longer to include the effects of industrial actions or Acts of God - effectively this results in making it easier for the wholesale market to achieve the standard and this should have resulted in a reduction in the market settings, especially the MPC.

The ROAM recommendation appears to be that to achieve the standard, the current market settings should be retained. This would ensure that the standard would not be exceeded in any region or in any year under any of the sensitivities analysed.

The MEU would agree with this contention but also the MEU considers that the ROAM analysis shows that the standard could be met with a lower MPC than the current setting.

3.1.2 The tension between regions, MPC, USE and the NEO

Resulting from the ROAM analysis, it is clear that to have a common standard across the NEM requires differing settings of MPC. Under the Extreme Peaker approach this does not apply to the same extent as shown by the Cap Defender approach.

The National Electricity Objective (NEO) requires the promotion of "… efficient operation …of electricity services for the long term interests of consumers of electricity…". It is not efficient for consumers to incur unnecessary costs to provide reliability that exceeds the standard set.

ROAM also points out (page 75)

> "A lower MPC, all else being held constant, reduces the price of energy for consumers."

This observation reinforces the work ROAM carried out for the RP in 2010 where ROAM identified that raising the MPC from the then level of $12,500 would result in an increase in the wholesale price of electricity. From the data provided by ROAM in 2010, the calculation of the cost increase of this rise in MPC would be a premium about $3/MWh across the NEM. Essentially this identifies that the 30% increase in MPC recommended would cause about a 5% increase[4] in the cost of electricity to all consumers.

The RP has stated previously that it prefers for the Reliability Standard and the market settings to be consistent across the NEM. The MEU agrees with this in principle as a national market should have the same settings for all regions, otherwise the reasons for having a national market are weakened. However, the MEU is also concerned that maintaining the standard and the MPC across the NEM will impose unnecessary costs on consumers in regions where the MPC could be lower and still achieve the standard.

Imposing an unnecessary premium by having an MPC that is higher than that necessary to achieve the standard is contrary to the NEO as this would

[4] The average spot price for power across the NEM was is about $60/MWh in 2012 (but lower in previous years, then $3/MWh results in an increase of 5% although it would be a higher percentage in earlier years

not be efficient for those consumers where a lower MPC would still deliver the sought after reliability.

Essentially, there is incompatibility between a national standard for USE, a single national value for MPC and the NEO.

3.1.3 Accommodating the variable outcomes for MPC.

The ROAM report identifies a number of regional outcomes from both models that are significantly different. This leads to a need to identify how to generate a single value for MPC from either approach. These are:

- using the highest trace calculated from either model,
- a weighted average to be used with weightings such as the relative size of each region or
- using a simple arithmetic average as used by ROAM for the Extreme Peaker approach.

If the highest trace of MPC is used then the USE for SA region is protected but the USE for all other regions is likely to be well below the target USE, and therefore consumers in those regions will be paying an unnecessary premium.

An arithmetic average based value for MPC (as used by ROAM to identify the Extreme Peaker MPC) is used, then the result is a higher than necessary MPC for NSW and Queensland regions, causing consumers in NSW and Queensland to pay an unnecessary premium, but this MPC would probably deliver the standard for Victoria but certainly not SA region as the MPC for SA region is calculated to be considerably higher than for the other regions.

If the MPC is weighted in proportion to demand or consumption in each region, then there is a greater balance, where the outcome is not so heavily weighted to the needs of the smallest mainland region.

On balance the MEU considers that weighting in proportion to demand or consumption is likely to result in the most equitable outcome if a single value for MPC is to be used.

3.1.4 To what are sensitivities to be accommodated?

ROAM has assessed the impacts of the various sensitivities to the assumptions underpinning its analysis.

What this sensitivity analysis shows is that there are diverse outcomes for MPC for each of the regions when using the Cap Defender approach, but generally these do not impact the Extreme Peaker outcomes to the same

extent (see ROAM figure 5.21) although the capex sensitivity for both the Cap Defender and the Extreme Peaker is significant.

What is most important to note is that the current setting of MPC would accommodate every one of the sensitivity ranges for the highest regional value for MPC (that of SA region). In fact under the Cap Defender model, an MPC of $8,000 would accommodate every sensitivity analysed for the three mainland regions other than SA and which comprise over 90% of the NEM demand and consumption.

This raises the question as to how to manage the results from the Cap Defender model and apply a balanced view on MPC levels. In its report ROAM applies analysis as to whether MPC should b $13,100 as currently applies or $9,000 as might be implied from the Cap Defender approach. The outcomes of the analysis by ROAM, whilst noting there might be some negative outcomes of using a lower MPC, (especially a reduction of incomes for Queensland generators) overall there are many positives from the reduction. In particular there are benefits for consumers in lower prices.

One particular negative outcome of reducing MPC noted by ROAM is the potential for increases in measured USE. While this is of concern to consumers providing the reliability on average remains at or below the target level, it must also be noted that the current levels of actual USE are commonly zero and only occasionally have USE levels moved from this. In the past 12 years there have only been three instances where USE exceeded zero in any region of the NEM. The clear import of this record is that the market settings are so high as to result in USE outcomes that belie the reasons for the MPC settings to be so high. At the same time, the high settings of MPC have resulted in considerable harm to consumers. On balance, the performance record for reliability indicates that a lower MPC could well be accommodated without breaching the reliability standard on a long term average basis.

As highlighted in section 1.3 above, there was considerable support in the 2010 RP review that there be no increase from the $10,000 value for MPC then in place.

3.1.5 Market impacts of a lower MPC

In chapter 9, ROAM devotes considerable attention to the likely impacts to market by reducing MPC from current levels to $9,000. As noted above, the biggest impact will be a reduction in costs to consumers from lower pool prices, lower risk of exceeding cap contracts, lower prudential requirements, less negative settlements residue, and less basis risk for inter-regional trading.

ROAM comments that a lower MPC might result in less DSP as the incentive to reduce demand when prices are high will be reduced. ROAM

modelled this outcome yet for the three large mainland regions, sensitivity to halving DSP still did not lead to all three mainland regions needing an MPC higher than $8,000 (figure 5.20). The MEU considers that if 90% of the NEM demand is not negatively impacted by a reduction to $9,000 then this concern of a negative impact on DSP is probably immaterial.

One aspect that ROAM also addresses is the ability of the Cap Defender to recover its costs due to the reduced volatility and lower contracting under a lower MPC as the risk of the market is lower. They note this might have an impact on unserved energy as there might not be investment in generation.

In particular, ROAM points out that the Cap Defender generator might not be able to operate fast enough to "catch the MPC" as the number of subsequent trading periods to an MPC event which delivers high prices are few. The MEU notes that ROAM has concentrated its attention to the outcomes for trading periods. IN fact, each trading period of 30 minutes comprises 6 dispatch intervals of 5 minutes. What frequently happens is that if a dispatch interval of 5 minutes occurs early in the trading period, then DSP and additional generation dispatch will occur in the later dispatch intervals as this allows the DSP provider or the generator to benefit. So even if the actual high price dispatch interval is missed by the Cap Defender, it has the opportunity to benefit by being dispatched in a later dispatch period in the same trading period, even if the price is low in that dispatch period. This is the reverse of the concept posited by ROAM in the section on MFP, where it refers to the "rush to the floor" in later dispatch intervals.

Effectively, when a single dispatch interval is priced at MPC but all other dispatch intervals are at average prices, the trading interval price is $2,250. This impact of MPC pricing is more common than an entire trading period at MPC, especially in more recent years. By dispatching itself within the same trading period when a price spike occurs[5], will still allow the Cap Defender to recover more revenue than might be implied by the ROAM modelling carried out on a trading period assessment.

Overall, the MEU considers that the benefits of a lower MPC far outweigh the detriments from reducing the MPC.

3.1.6 An overview

An overview of the ROAM outcomes implies that MPC should be lower rather than higher; such a view was confirmed during the 2010 review when there was reasonable consensus amongst all stakeholders (eg such as presented by Origin Energy) that having a too high MPC would not result in greater investment in generation but would increase costs to stakeholders,

[5] Of course, if the high priced dispatch interval is the last in a trading period, this will prevent this risk mitigation technique from being used.

over and above the rise in the wholesale price of power identified by ROAM.

When these considerations are taken into account, it would appear that to apply the high level of MPC traced for SA region and apply this to the other regions, is likely to impose costs in the other regions that are not necessary to achieve the reliability standard in those regions. As the SA region (other than Tasmania) has the lowest peak demand and the lowest energy consumption of all mainland regions, it would appear counterproductive to apply settings to all regions just so that the reliability standard for SA is met[6].

To put this view another way, it would be bizarre that to achieve the reliability standard in SA region, consumers in all other regions have to pay more than is necessary for their supplies. Considering that the SA region is less than 10% of the demand and consumption of the mainland NEM regions overall, setting the MPC at the SA level would be a case of "the tail wagging the dog".

The MEU does not consider that a NEM wide MPC should be so heavily influenced by the needs of such a small part of the NEM.

Intriguingly, an MPC weighted in proportion to the NEM demand or consumption would result in an MPC of about $5,000 which is where the NEM MPC was initially set. This would result in the MPC being about 100 times the NEM mean weighted spot price for power. This 100 times multiplier is also very similar to the multiplier used for setting the MPC in the gas short term trading markets.

Further, the recommendation of the RP in 1999 which resulted in the increase of MPC from $5,000 to $10,000 was a direct result of applying the Extreme Peaker methodology. There was disquiet at that time about increasing the MPC and the risks that would eventuate. This disquiet was reflected in the decision to implement the CPT approach which was designed to limit risk. The decision to increase the MPC was made despite the level of USE incurred in the previous five years of performance of NEM and NEM1 being considerably below the USE target level of 0.002% even though the USE at that time included outages from industrial action and Acts of God.

If the Cap Defender model had been used to advise the RP in 1999 as to the appropriate level of MPC, then based on the outcomes of the current ROAM modelling, it is likely that the MPC would not have been increased in 1999, or if it was, then there would have been only a small increase.

[6] The MEU notes that under an MPC of $5,000, SA region levels of USE were not excessive, despite SA region having at that time a tight demand/supply balance

The MEU is of the view that the ROAM modelling clearly indicates a reduction in the value for MPC. The fact that the RP required ROAM to assess the impacts of setting the MPC at $9,000 and that the outcomes of this analysis indicates that a lower cost to consumers would occur but with little negative impact, clearly indicates that the MPC should be reduced from the current levels.

In this regard it is important to note that the sensitivity modelling indicates that a reduction of MPC to $8,000 or lower would achieve the Reliability Standard for the three largest mainland regions (some 90% of the market) with there being some risk that the reliability in SA region might show some reduction. However, there needs to be some assessment made as to whether consumers in the three largest mainland regions should incur a considerable premium so that SA region has certainty that its USE will be below 0.002% any region.

When a decision to reduce the MPC is assessed with a statistical analysis as to what level of annual USE is required to provide a long term USE of 0.002% it is quite clear that even the $9,000 value for MPC that has been assessed by ROAM is probably too high.

3.2 The Reliability Standard

The studies for the achievement of the USE indicate that the Reliability Standard will be achieved in all regions under the base case and current settings. In particular, an annual USE of a quarter of the standard will result for the next 4 years in all regions. Thereafter the USE in SA region only is expected to rise, whilst the USE for the other regions (90% of the market) will remain below 0.0005%.

The sensitivity modelling undertaken by ROAM Indicates that almost all of the sensitivities assessed do not result in the reliability levels exceeding 0.0005% (ie a quarter of the standard) except in the case of the high growth scenario in Queensland.

This outcome is supportive of the need to reduce the MPC as the current MPC is likely to deliver levels of USE considerably below the standard. It is not efficient to maintain such a high level of MPC to achieve a level of reliability so much in excess of the standard.

In this regard, it is important to recognise that a USE of 0.002% delivers a considerably higher reliability than do the distribution networks, by a factor of 10 or more. To impose an MPC that effectively produces even higher reliability in the wholesale market but which will not be seen by most consumers due to lower reliability in the distribution networks, means that any costs incurred in achieving this higher wholesale market reliability will effectively be wasted.

The ROAM modelling seems to indicate that the Reliability Standard of a USE of 0.002% is probably efficient. However, the MEU is concerned that the level of the value of customer reliability (VCR) is a measure made at the point of connection to consumers, so that the VCR estimates are inclusive of the reliability of the wholesale market, the transmission network and the distribution network. The MEU is not convinced that applying the VCRs just to the wholesale market element is necessarily appropriate.

Despite this reservation and recognising that the actual levels of reliability have consistently exceeded the standard (achieving almost perfect reliability in every region) for the past decade, the MEU considers that retention of the Reliability Standard at USE = 0.002% on a long term basis is probably appropriate.

This means that the annual target USE needs to be reconsidered. The MEU considers that perhaps rather than basing the MPC so that every region achieves 0.002% all the time, perhaps the annual target of USE needs to be assessed on a national basis. A review of the historic performance of the NEM and NEM1 shows that even with a national assessment of USE annually, the long term average regional average is likely to be less than the standard.

3.3 Market Floor Price (MFP)

The ROAM report seems to indicate that an increase of the market floor price (MFP) does not need to be as low as -$1,000 and that holding that level would be inefficient. The MEU is not as sanguine as ROAM in this conclusion.

The bulk of the ROAM analysis is focussed on the weekly costs for a generator to cycle (either from hot or warm) but it is the short term costs that a generator incurs when not being dispatched when it offered capacity. In a volatile demand (such as where wind and solar outputs can increase/decrease in a matter of hours) the costs for a fired generator to change its outputs are considerably more than the costs it incurs on a weekly scheduling for changed conditions.

ROAM posits that Yabulu and Pelican Point power stations would be the units that should cycle in the event that that there is an oversupply in the NEM, as they have the lowest cycling costs of the thermal generators. The assumption made is that the coal fired power stations would have shut down for an extended duration prior to this occurring.

There also appears to be a fallacy in other reasoning by ROAM. In its analysis of the drivers to cause cycling, it refers to the "rush to the floor" in pricing which occurs after pool price spikes. ROAM observes that this strategic bidding is not efficient, and the MEU agrees, yet it is the reverse of the strategic bidding that drives the pool price to the MPC when there is available capacity withdrawn from the market. This maximising of prices is also inefficient yet is permitted to occur. Removing the ability to strategically bid low yet retaining the ability to strategically bid high due to inefficiency is inconsistent.

Another fallacy in the ROAM reasoning is the assumption about when the MFP would apply. ROAM seems to have assumed that an oversupply event occurs with significant foreknowledge and that a rational decision on closure would occur. In practice, as ROAM highlights, most of the times of MFP pricing occur when either there is strategic bidding or there is a short term oversupply due to market conditions or a transmission constraint. A review of the market outcomes shows that there are few, if any, periods of pricing where the pool price remains below zero for more than one trading period even if the pricing does not go to MFP. This means that prices at MFP (or even below zero) need to be assessed over the short term, such as one or two trading periods rather than over a week as ROAM has done.

This then means that the costs for cycling need to be assessed over the short term as longer term costs will be assessed by generators on a rational basis.

ROAM provides an indication of cycling costs (table 8.3) for various coals fired thermal generation, but this appears only to reflect costs for black coal fired power stations. Much of the generation in the southern mainland states is brown coal fired which is much more sensitive to increase/decrease requirements, especially when decrease requirements at levels where flame instability occurs - such flame instability levels occur at reasonably high percentages of peak rating.

Therefore, the MEU considers that the one hourly costs for cycling by brown coal fired generation are much more appropriate measures for setting MFP than weekly costs for gas fired generation and much greater emphasis needs to be placed on this measure than ROAM has in its report.

ROAM notes that having a low MFP exacerbates having negative settlement residues yet provides no evidence to indicate whether this results in significant harm to the market.

Overall, the MEU considers that the MFP should remain at -$1,000 as this will reflect better the real costs that occur when a generator is required to cycle off.