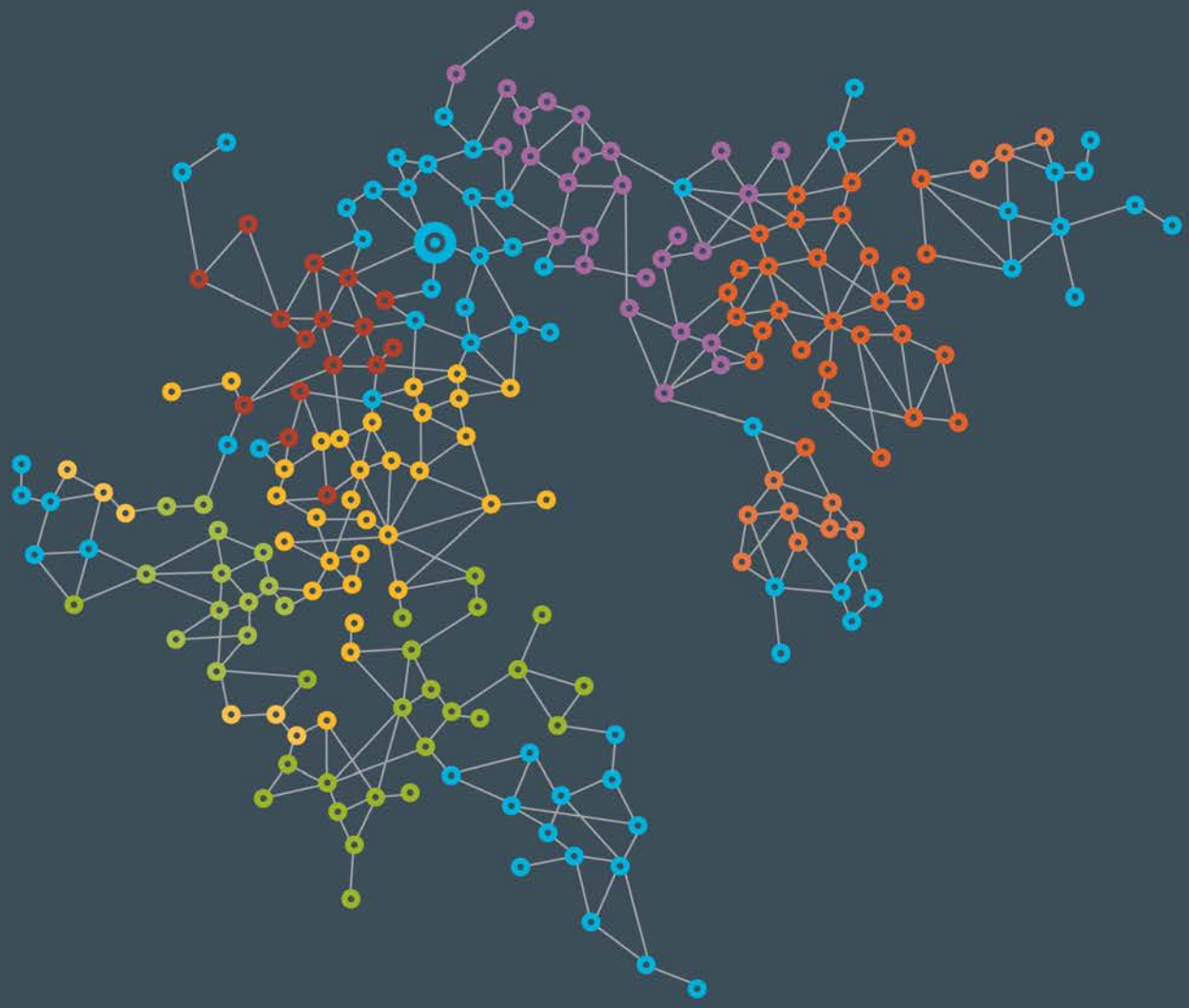
INDEPENDENT MARKET OPERATOR

Concept Paper 2013_06: Changes to the Reserve Capacity Price and the Dynamic Refunds Regime

October 2013



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1. Background

The Reserve Capacity Mechanism (RCM) is a mechanism to support the Wholesale Electricity Market (WEM) in the South West interconnected system (SWIS) in ensuring there is sufficient Reserve Capacity to meet reliability targets. Through the RCM, the IMO procures capacity from supply-side resources (generation facilities) or temporary curtailments in demand, known as Demand Side Management (DSM).

In 2011, the IMO Board engaged The Lantau Group to conduct a comprehensive review of the RCM. The Lantau Group prepared a report concluding that the RCM has promoted capacity development and reliability of supply in the Wholesale Electricity Market (WEM) but refinements were needed to improve alignment with the Wholesale Market Objectives[1]. The report highlighted that excess capacity had consistently increased since the inception of the RCM. It identified the poor responsiveness of the RCM to changing market conditions as a contributor to increasing excess capacity. The report noted that if the RCM attracts or supports more capacity than is required, then it would defeat Market Objective (d). On the other hand, more capacity may be argued, in some instances, to assist the achievement of Market Objective (b) by supporting greater competition. Similarly, a failure of the RCM to attract sufficient capacity would also result in a costly failure of the WEM, compromising virtually all of the Market Objectives, except perhaps (e). Clearly, evaluating a specific change to the RCM (or even its current performance) against the Market Objectives involves balancing a number of countervailing forces. The report recommended that a more dynamic but not overly volatile RCM would have the potential to improve considerably on the existing arrangement, while being consistent with the design of the RCM.

The IMO Board recommended that the Market Advisory Committee (MAC) should consider the recommendations detailed in The Lantau Group's report[2].

At the Market Advisory Committee (MAC) meeting held on 5 October 2011, it was agreed that a working group be convened to assess the issues raised in The Lantau Group's report. In February 2012, the Reserve Capacity Mechanism Working Group (RCMWG) was established for this purpose.

The RCMWG members met ten times over 12 months to discuss issues and develop solutions in

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[1] The Wholesale Market Objectives are:

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

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

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

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

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

[2] http://www.imowa.com.au/f5415,2873688/09._Agenda_Item_8_Lantau_Report.pdf

the following work-streams[3]:

1. *Work-stream 1:* Reserve Capacity Price (RCP) – The RCMWG members discussed the market responsiveness of the price signal which the IMO applies through the administrative adjustment of the RCP formula in clause 4.29.1 of the Market Rules.

2. *Work-stream 2:* Harmonisation of demand and supply-side sources – The RCMWG members discussed the implications of the differential treatment of demand and supply-side sources noting that in principle, the value attached to a Capacity Credit is the same irrespective of its source. The IMO engaged Sapere Research Group to facilitate discussion and propose recommendations on harmonising the treatment of demand and supply-side resources in the market. Subsequently, the IMO progressed the recommendations in this work-stream in August 2013 with the Rule Change Proposal RC_2013_10: Harmonisation of demand and supply side resources[4].

3. *Work-stream 3:* Dynamic refunds regime – The RCMWG members noted that the refunds regime is currently not aligned with time periods of greatest system need. As a result, it does not signal appropriate incentives to capacity providers for presenting capacity to the market when system need is the greatest.

4. *Work-stream 4:* Individual Reserve Capacity Requirements (IRCR) – The RCMWG members noted that the current methodology for determining IRCR does not adequately represent its economic intent which is to represent the reasonable peak demand expectation of a given Load. Additionally, members supported the implementation of the principle that no Load should be able to offer a DSM capacity value that is greater than its IRCR[5]. Sapere Research Group and the IMO conducted analyses on using peak demand Trading Intervals instead of highest demand Trading Intervals and recommended that it was more appropriate and efficient to use the former. The IMO progressed the recommendations in this work-stream in May 2013 with the Rule Change Proposal RC_2013_11: Selection of the 12 peak Trading Intervals used for calculation of IRCR[6].

The IMO considered that work-streams 1 and 3 should be progressed as a comprehensive package because of their interdependencies. The RCM impacts the value of refund exposure through the RCP because the refund exposure is determined by multiplying the applicable refund factor in the Refund Table with the Monthly RCP. At the same time, the refunds regime may impact on the value expected to be recovered by an investor in Reserve Capacity based on an assessment of plant reliability. Together, the RCP and the refunds regime signal the attractiveness of investment in the RCM. In particular, new investment will only be economic if the combination of energy revenues plus Capacity Credit revenues less any lost revenue from the refund regime is at least equal to the long-run marginal cost of new capacity. Therefore, adjustments to the RCP should only be made with supporting changes to the refunds regime to avoid perverse consequences.

To facilitate discussion in the Working Group, the IMO engaged The Lantau Group to address key

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[3] The RCMWG outcomes in each work-stream are detailed on page 13 of the RCMWG meeting 10 papers:
http://www.imowa.com.au/f5415,3566068/Combined_RCMWG_Mtg_10_Papers.pdf

[4] More details on this Rule Change Proposal are available on the Market Web Site: http://www.imowa.com.au/RC_2013_10

[5] The implementation of this principle was developed fully in RC_2013_10

[6] More details on this Rule Change Proposal are available on the Market Web Site: http://www.imowa.com.au/rc_2013_11

issues and develop recommendations for work-streams 1 and 3. Although not unanimously agreed, the RCMWG members decided to progress certain recommendations by developing a Rule Change Proposal. This concept paper summarises the issues and details the recommended solutions as discussed in work-streams 1 and 3.

2. Reserve Capacity Price

Where the number of Capacity Credits to be traded bilaterally (as determined through the Bilateral Trade Declaration process in clause 4.14 of the Market Rules) exceeds the Reserve Capacity Requirement (RCR), the IMO determines their cost by applying the adjusted RCP formula in clause 4.29.1 of the Market Rules. The formula is set at 85% of the Maximum Reserve Capacity price (MRCP)[7] and is further adjusted downward if there is excess capacity. This downward adjustment of the RCP is intended to reduce the value of a Capacity Credit, thereby sending signals to investors to defer new investment in capacity.

2.1. Issue

The RCMWG noted that, despite the downward adjustment of the RCP, excess capacity continued to increase, and now stands at 11% (~564 MW) of the RCR in 2015/16 Capacity Year. Excess capacity can be considered an unnecessary cost to the market in the sense that consumers end up paying more than the efficient economic value of a Capacity Credit.

A number of factors have contributed to the consistent increase in excess capacity[8]. These factors include:

(a) Government policy decisions such as the requirement for Synergy to tender for certain volumes of energy;

(b) Large, lumpy loads not coming online as forecast;

(c) Cessation of demand growth due to increase in solar PV uptake, energy efficiency programs etc.; and

(d) The unresponsiveness of the RCP adjustment to market conditions.

2.2. Proposed solution

In assessing potential improvements to the RCM to address the problem of excess capacity, The RCMWG members deliberated on a number of solutions presented by The Lantau Group to address the persistence of excess capacity. These included[9]:

(a) Limiting the quantity of Certified Reserve Capacity to the level determined by the RCR; and

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[7] The MRCP aims to reflect the marginal cost of providing additional Reserve Capacity in each Capacity Year. It is established by undertaking a technical bottom-up cost evaluation of the entry of a 160MW open cycle gas turbine generation facility entering the WEM in the relevant Capacity Year.

[8] A detailed discussion on various factors contributing to excess capacity is provided on Page 45 in RCMWG Meeting 3 papers:http://www.imowa.com.au/f5415,2873678/Combined_RCMWG_Mtg_3_Papers.pdf

[9] A detailed discussion on various solutions can be accessed on the Market Web Site: http://www.imowa.com.au/f5415,2873740/IMO_RCM_October_WG_to_IMO_Updated.pdf

(b) Ensuring good faith intentions in Bilateral Trade Declarations and withholding payment to capacity that has not been traded bilaterally.

The Lantau Group highlighted that the most feasible solution should seek to address the two key issues of the current RCM:

(a) It is not sufficiently dynamic to respond appropriately to market conditions; and

(b) It creates asymmetrical incentives for capacity providers and capacity users to manage their risk exposure through Bilateral Contracts.

Because of these issues, the RCM is unable to send appropriate signals for investment in or withholding investment from new capacity.

The Lantau Group recommended a solution that would incorporate[10]:

(a) The ability for the RCP to move above the MRCP – recommended to be 110% of the MRCP at 97% of the RCR, such that the price of an uncontracted Capacity Credit would be at 110% of the MRCP when 97% of the RCR has been fulfilled.

The Lantau Group highlighted that the current initial point of RCP (being 85% of the MRCP) distorts the incentive for retailers to hedge their risks of purchasing Capacity Credits through Bilateral Contracts. By setting the initial point of the RCP as 110% of the MRCP, retailers become exposed to the risk of purchasing Capacity Credits at a higher cost from the IMO, as excess capacity declines. This provides for symmetry of risk for retailers and creates an incentive for a retailer to contract for new capacity as the market requires new investment.

The RCMWG members also noted that following the five-yearly review completed in 2011, the MRCP has become more representative of a benchmark price. Consequently, the RCMWG members generally considered it appropriate for the RCP to be allowed to exceed the MRCP. The members also considered that the MRCP should be renamed to a more appropriate term such as the Benchmark RCP reflecting its underlying intent.

(b) A steeper slope function recommended to be -3.75[11] replacing the current -1 slope embedded into the Excess Capacity Adjustment component of the RCP formula.

The Lantau Group highlighted that steepening the slope function creates greater sensitivity to market conditions. The value of a Capacity Credit would decline at a faster rate as excess capacity increases, sending a signal to defer investment that is not required.

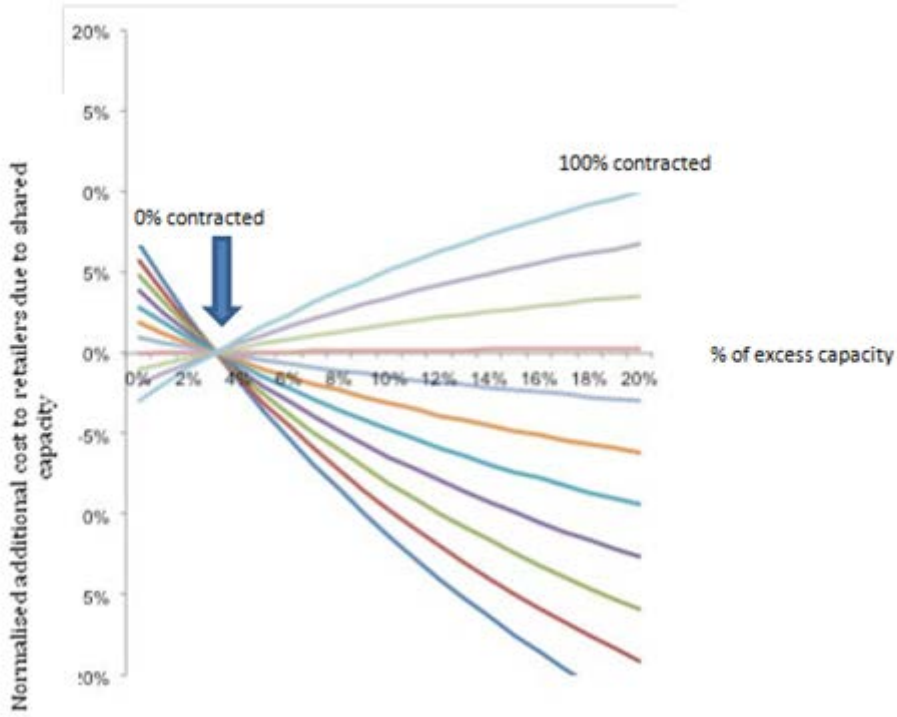
A key feature of the recommended RCP formula is that it provides a retailer with the opportunity to bilaterally contract capacity so as to completely hedge against Shared Reserve Capacity Costs. This is illustrated in Figure 1, which shows that the additional cost of shared capacity for a retailer

[10] Refer to slide no. 12 http://www.imowa.com.au/f5415,2873740/IMO_RCM_October_WG_to_IMO_Updated.pdf

[11] Note that the slope function was earlier recommended to be -3.25, which was subsequently amended to -3.75 when the recycling of Reserve Capacity refunds was taken into account.

remains at approximately zero where it contracts for 70% of its capacity requirement.[12]

Figure 1: SRCC vis-à-vis excess capacity at different levels of contracting- proposed RCP formula



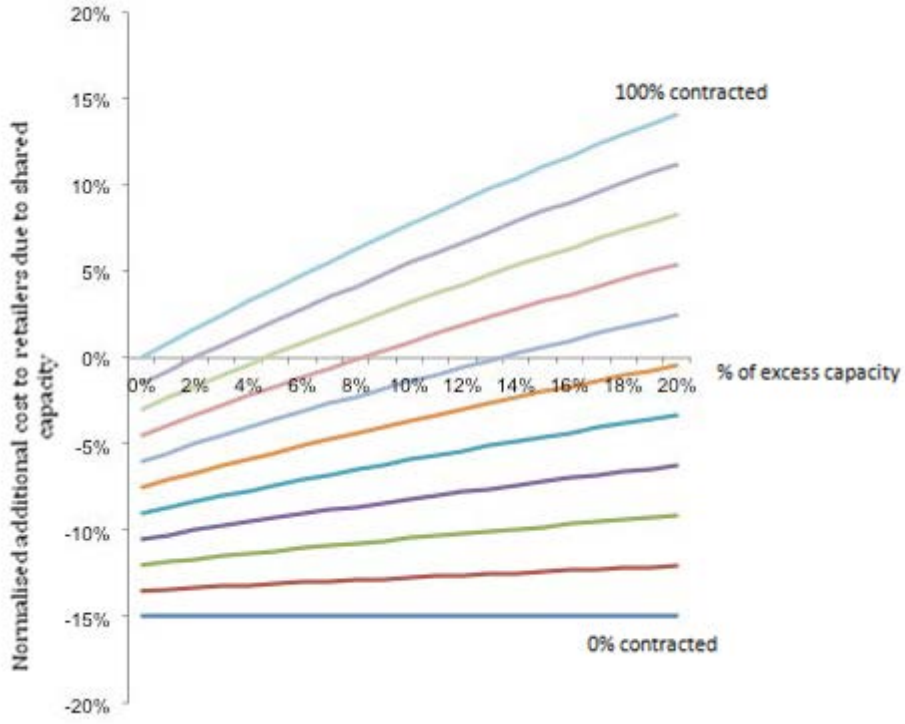
Source: RCM Recommendation- presented by Mike Thomas of The Lantau Group to RCMWG on 11 October 2012

As opposed to Figure-1, Figure 2 below shows the current risk management options available to a retailer. It is worth noting that in the current mechanism, contracting is not a preferred option for a retailer to mitigate the cost of shared capacity.

Figure 3 illustrates the proposed RCP formula *vis-à-vis* the current mechanism.

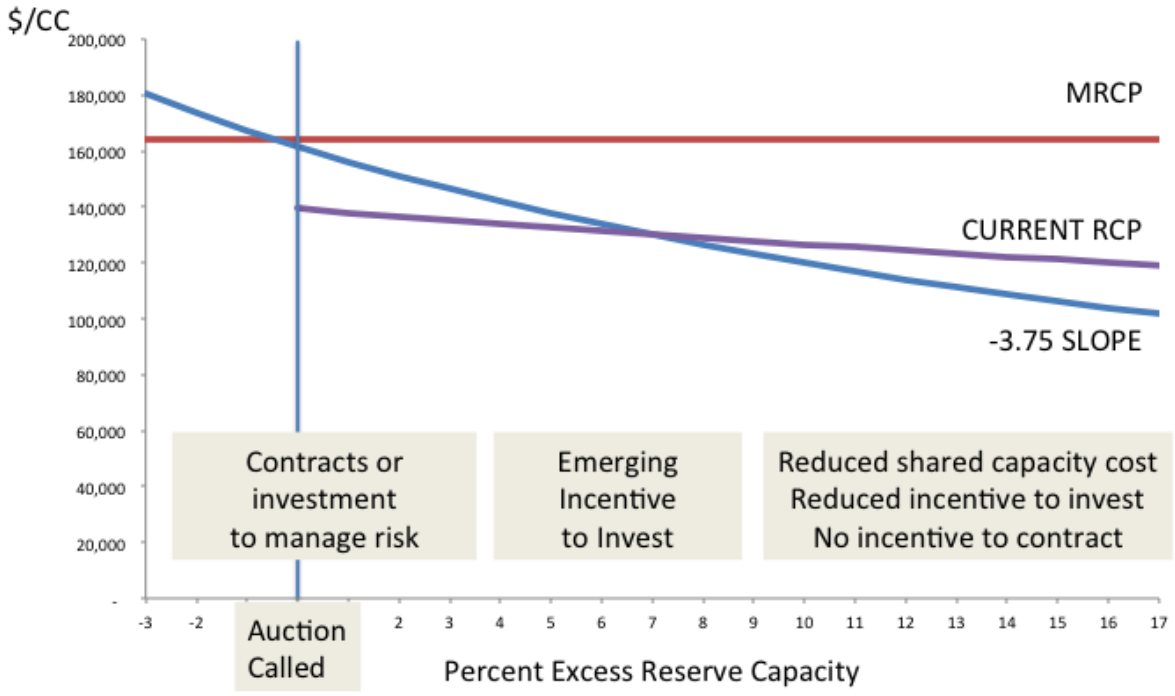
[12] Detailed analyses of various hedging options are provided in The Lantau Group's memo available here: http://www.imowa.com.au/f5415,2978683/Combined_Meeting_9_RCMWG_Papers.pdf

Figure 2: SRCC vis-à-vis excess capacity at different levels of contracting- current RCP formula



Source: RCM Recommendation- presented by Mike Thomas of The Lantau Group to RCMWG on 11 October 2012

Figure 3: Proposed RCP formula vis-à-vis current RCP formula



Source: The Lantau Group's paper presented to the RCMWG on 22 November 2012

Overall, the recommended proposal would achieve a more balanced RCM where the RCP would be lower than under the current formula for levels of excess capacity above approximately seven percent, while enhancing the investment incentives necessary to assure capacity adequacy as the excess capacity level declines. The increased dynamism of the steeper slope and adjusted initial point of RCP would create market-oriented incentives within the RCM that address the RCM's primary deficiencies in terms of economic signalling and commercial and behavioural incentives.

The IMO also notes that the changes proposed to the RCP formula would also affect the maximum price that will apply if a Reserve Capacity Auction is called. Clause 4.18.2 of the Market Rules specifies that the Reserve Capacity Price-Quantity Pairs that are offered in a Reserve Capacity Auction (if called) must not have a price greater than the MRCP. Given that the proposal allows the RCP to reach 110% of the MRCP when 97% of the RCR is met, the IMO proposes to amend the ceiling price set in the auction to 110% of the MRCP.

2.3. Proposed Amendments

1. The IMO proposes to amend clause 4.29.1(b) of the Market Rules which outlines the formula that the IMO must use to determine the Reserve Capacity Price in the event no Reserve Capacity Auction is held.

    a. Clause 4.29.1(b)(ii) specifies 85% of the MRCP as the ceiling from which the downward adjustment to the RCP takes place. The IMO proposes to amend this ceiling to initiate at 110% of the MRCP. This ceiling of 110% will apply when the supply of capacity reaches 97% of the RCR; and

    b. The IMO proposes to amend the Excess Capacity Adjustment in clause 4.29.1(c)(ii) to include the recommended slope of -3.75 which will steepen the rate of downward adjustment as excess capacity increases.

2. Clause 4.16 and all other instances of MRCP in the Market Rules will be amended to replace "Maximum" with "Benchmark".

3. The IMO proposes to amend clause 4.18.2(b) of the Market Rules to specify the ceiling price in a Reserve Capacity Auction to be 110% of the Benchmark RCP.

3. Transitional arrangements for RCP formula

Due to the significance of the changes, the RCMWG members determined that certain transitional arrangements for implementing the new RCP adjustment formula should be developed so as to ensure that the expected cost to a Market Participant for implementing these changes does not materially exceed the benefit to the Wholesale Market Objectives.

When the three-year glide path for the RCP was recommended in February 2013, the IMO used the best estimates available at the time. Subsequently, new information has become available, particularly on the impending retirement of Kwinana C (361 MW). It is now known that this unit will not be available from the 2015/16 Capacity Year. Additionally, the IMO has also updated the RCR values from the 2013 Statement of Opportunities (SOO)[13], the total MW of Capacity Credits assigned in 2015/16 and the MRCP determined for 2015/16.

[13] The 2013 SOO can be accessed on the Market Web Site: http://www.imowa.com.au/soo

Table 1 below shows the updated values. Please note that the projected values are estimates only, and actual outcomes are likely to differ.

Table 1: Parameters used in RCP projections

Capacity Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Notes
Actual/projected RCR	5312	5308	5119	5263	5438	5604	5759	Projected RCRs taken from 2013 SOO
Actual/projected capacity	6086.8	6040.2	5683.3	5708	5733	5758	5783	Projected capacity assumes increase of 25 MW per year.
Surplus (MW)	775	732	564	445	295	154	24	
Surplus (%)	14.6%	13.8%	11.0%	8.5%	5.4%	2.7%	0.4%	
Actual/projected MRCP	$240,600	$163,900	$157,000	$160,900	$164,900	$169,000	$173,200	Actuals through to 15/16; indexed at 2.5% thereafter

Based on Table 1, the RCP estimates for various Capacity Years have been determined in Table 2 using:

(a) the current formula: *MRCP * 85% * RCR / capacity; capped at 85% of MRCP*;

(b) the proposed formula: *MRCP * 110% / (1 - ((Surplus% + (1-97%)) * (-3.75))); capped at 110% of MRCP*; and

(c) a three-year glide path as follows:

i. In 2016/17, sum of two-thirds of the current formula and one-third of the proposed formula;

ii. In 2017/18, sum of one-third of the current formula and two-thirds of the proposed formula; and

iii. 2018/19 onwards, proposed formula applied in full.

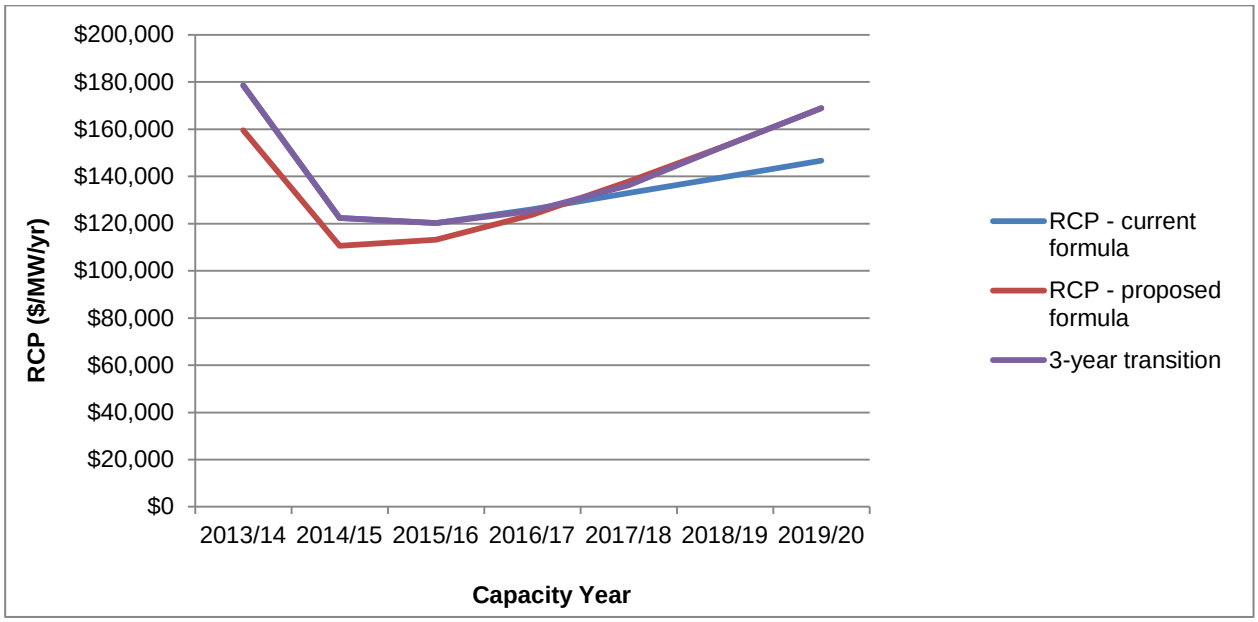
Table 2: RCP projections

Capacity Year	Current formula	Proposed formula without Transition	Transition	Difference between proposed formula and transition
2013/14	$ 178,477	$ 159,483	$ 178,477	
2014/15	$ 122,428	$ 110,624	$ 122,428	
2015/16	$ 120,199	$ 113,179	$ 120,199	
2016/17	$ 126,103	$ 123,806	$ 125,337	-$ 1,531
2017/18	$ 132,953	$ 137,842	$ 136,212	$ 1,630
2018/19	$ 139,808	$ 152,935	$ 152,935	
2019/20	$ 146,609	$ 168,882	$ 168,882	

Values in green are previous or current. Shaded cells indicate the proposed transition years.

Figure 4 displays the projected RCP values graphically.

Figure 4: RCP values



3.1. Proposed amendment

Based on Table 2 and Figure 4, the IMO considers that there is little value in implementing a transition path because the difference between the RCP as determined by the proposed formula and that determined by the transition is within the range of uncertainty of other variables (such as components of the MRCP and the quantity of excess capacity).

Therefore, the IMO proposes to implement the proposed RCP formula in full from the 2016/17 Capacity Year **without any transitional arrangements**.

4. Dynamic refund regime

The objective of the refund mechanism prescribed in clause 4.26 of the Market Rules is to ensure that capacity providers that have been awarded a Capacity Credit present it to the market when required. The intent of the refund mechanism is two-fold:

1. To incentivise capacity providers to manage their long term decision making processes around appropriate maintenance schedules; and

2. To incentivise short-term behaviours to ensure day-to-day operation and maintenance activities are directed to maximising reliability at time of greatest value, generally when actual reserves are lowest.

The current capacity refund mechanism requires Market Generators who have been paid for capacity (through Capacity Credits) to pay refunds if that capacity is not made reliably available to the market. Refund factors are currently set on a time-based schedule specified in the Refund Table in clause 4.26.1 of the Market Rules. Refund factors are weighted to times when high demand is more likely and reserves may be low. They range from a minimum of 0.25 applicable at off-peak times in winter and shoulder seasons to a maximum of 6 applicable at peak times in summer.

In accordance with clause 4.26.4 of the Market Rules, the revenue collected through the refund mechanism is distributed to Market Customers in proportion to their Individual Reserve Capacity Requirements.

4.1. Issues

In April 2011, the IMO put forward a discussion on the weaknesses of the current refunds regime in the paper titled *"Review of Capacity Cost Refunds"*[14] to the Rules Development and Implementation Working Group (RDIWG). The RDIWG concluded that the issues and proposed solutions needed to be considered holistically with corresponding changes to the RCP to avoid unintended consequences such as a substantial reduction in the magnitude of refund at times of excess capacity, which would effectively increase the value of a Capacity Credit when its economic value is in fact lower.

The Lantau Group presented an evaluation of the issues discussed in the IMO's paper to the RCMWG members at meeting no. 5 held on 12 July 2012. The RCMWG members noted the following issues with the current refund mechanism:

(a) Refund factors are not aligned to time periods of greatest system need resulting in inefficient decisions by generators on the scheduling of maintenance and presentation of capacity;

(b) The value of refunds potentially greatly exceeds the economic value of capacity when excess capacity exists in the WEM;

(c) The current refund mechanism is more punitive for generators with high utilisation rates, such as baseload generators as they can be exposed to the risk of refunds in practically every Trading Interval of the year; and

(d) Refunds are distributed to Market Customers, however it is the RCM as a whole, not the performance of individual capacity resources, that is responsible for ensuring adequate capacity. The refund revenue currently received by Market Customers amounts to an uncertain revenue stream with no long-term benefits. The value leakage from generators to retailers would ultimately need to be offset by higher energy costs of higher capacity prices.

4.2. Proposed solutions

Several stakeholders have advocated for the need to consider a dynamic refund regime where capacity is valued according to the prevalent system conditions, with the underlying principle that capacity that fails to deliver at times of greatest system need should be exposed to a higher refund factor.

The IMO proposed a dynamic refund regime in its paper "*Review of Capacity Cost Refunds".* The Lantau Group built the proposed model and presented it to the RCMWG at its 22 November meeting[15]. The solution will work in two ways:

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[14] This paper is available from page 45 in meeting no. 5 papers:
http://www.imowa.com.au/f5415,2873627/Combined_Papers_Mtg_5.pdf
[15] The Lantau Group's presentation can be accessed at:

(a) A dynamic refund regime would be implemented where the refund factor will be determined based on the reserve available in each Trading Interval (rather than from the current time-based schedule). A dynamic regime will appropriately reflect the greater value associated with capacity that is presented when reserve is becoming low. This will focus the incentives for Market Generators to maximise their availability and reduce their risk of exposure to refunds arising from plant failure at times when reserves are running low.

(b) The revenue collected from refunds will be recycled back to Market Generators in the form of rebates based on certain eligibility criteria. The availability of rebates coupled with the avoidance of refunds would strengthen the incentive to generators to ensure that reliable capacity is made available for dispatch.

Each component is discussed in detail below.

(a) Dynamic refund regime

The RCMWG members agreed that a dynamic refund regime should be implemented to improve the alignment of the magnitude of refunds with the prevalent system conditions. However, the members highlighted the need to retain a maximum and a minimum refund factor to reduce volatility in refund exposure.

Maximum refund factor

Although an economic case exists for much higher refund factors as the level of reserve reduces towards zero, financial risk increases as well due in part to the random nature of Outages. The RCMWG members discussed that retaining the maximum refund factor of six as per current refund arrangements would allow certainty around the level of refund exposure in low reserve periods. The maximum refund factor of six will be triggered when the actual reserve in a Trading Interval falls below 750 MW.

Minimum refund factor

Following discussion at the RCMWG, the IMO proposed to apply one (1) as the minimum refund factor that would be triggered when the actual reserve in a Trading Interval exceeds 1500 MW. This minimum refund factor level was based on the principle that a project that has received capacity payments (through the assignment of Capacity Credits) should forfeit all of its payments if it does not present that capacity into the market for the entire Capacity Year. The minimum refund factor of one would ensure that the integrity of the RCM was protected from such an outcome.

Although there was agreement on the principle that a Market Participant should not retain capacity payments when no capacity is provided for a Capacity Year, some RCMWG members considered that the minimum refund factor of one would create perverse consequences for generators with high utilisation factors. In the current regime, generators are exposed to refund factors below one (0.25, 0.50 and 0.75[16]) in off-peak periods. These RCMWG members indicated that increased refund exposure could ultimately be manifested in the form of higher energy prices.

Based on this argument, some members requested that the IMO consider retaining the minimum

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http://www.imowa.com.au/f5415,4028778/Agenda_Item_6._IMO_Refund_Regime_20121122_Final_Read-Only_.pdf

[16] The Refund Table in clause 4.26.1 of the Market Rules lists the refund factors that apply at various time periods.

refund factor of 0.25, with the ability for the minimum to rise to 1 for a project that has received capacity payments but has not provided any capacity during the Capacity Year. The IMO engaged The Lantau Group to explore whether this alternative would supply sufficient incentives without creating perverse consequences for some stakeholders.

Following further consideration of this issue, the IMO has concluded that the minimum refund factor of 0.25 should be adopted to protect generators from punitive refund exposure. However, the IMO proposes that the minimum refund factor should scale up to 1 for generators that were unavailable in the previous 90-day rolling period. In proposing this recommendation, the IMO considered that:

This approach would achieve a balance between implementing the fundamental principle that capacity payments should be forfeited by Market Participants that do not deliver capacity during the Capacity Year, as well as ensuring the protection for generally reliable generators from punitive refund exposure when reserves in the system are relatively high.

(b) Recycling of refund revenue

The RCMWG members generally agreed that recycling of refund revenue to Market Generators strengthens the incentive for generators to make capacity available at times of greatest system need.

During the RCMWG process, the IMO proposed that refunds should be recycled, in the form of rebates, to all Market Generators (other than those on an Outage) that made their capacity available in the affected Trading Interval. This was based on the principle that available resources, irrespective of dispatch, have inherent value. Analyses conducted by The Lantau Group did not indicate a strong correlation between Forced Outages and plant dispatch.

Subsequent to the RCMWG process, the Lantau Group has further analysed the correlation between Forced Outages and plant dispatch and noted that Forced Outages appear to more closely align with periods where there is likely to be more starts, stops or cycling of units. In light of this, pure availability-based rebates would risk creating a value transfer from base-load and mid-merit generators to peaking generators. On the other hand, pure dispatch-based rebates would risk creating a vice-versa value transfer. Clearly, a balance needs to be achieved between risk exposure and the probability of earning reward across the spectrum of generators.

To improve the alignment of the risk (refund) and reward (rebate) exposure, the IMO proposes to introduce an eligibility criterion for generators to qualify for rebates based on dispatch in the previous 30-day rolling period. Those generators that have dispatched for a non-zero MW value in any one Trading Interval in the previous 30 days would qualify for rebates. Rebates for a Trading Interval would be allocated to generators based on their share of available Capacity Credits in that Interval.

The IMO considers that the eligibility criterion would minimise inefficient value transfers by promoting a balance between risk and reward for all generators. It would also promote efficient scheduling of plant maintenance so that capacity is readily available for dispatch when the market needs it the most. Additionally, it would reduce administrative costs of the IMO and System Management with regard to Reserve Capacity Tests for those generators that have already met the eligibility criterion.

Related proposals

The IMO identified the following issues that are related to the recycling of rebates. The IMO proposes certain recommendations on which it solicits feedback:

(a) DSM would be eligible for rebates based on actual dispatch. With the harmonisation of demand and supply side resources underway, the likelihood of dispatch for DSM is relatively greater than before. The IMO considers that it is appropriate to provides rebates to a DSM facility if it has reliably curtailed demand in response to Dispatch Instructions.

(b) Intermittent Generators would not be eligible for rebates because their Reserve Capacity Obligation Quantity is zero. Under clauses 4.26.1 and 4.26.1A of the Market Rules, Intermittent Generators that are in Commercial Operation and have operated at their Required Level are not liable for Capacity Cost Refunds. Given this arrangement, the IMO considers that it is appropriate to exclude them from the eligible rebate pool.

4.3. Proposed Amendments

Based on the above-mentioned recommendations, the IMO proposes the following amendments:

1. The IMO proposes to replace the Refund Table in clause 4.26.1 of the Market Rules with the following formula:

   The Refund Factor for a Facility f in Trading Interval t would be:

   RF(f,t) = Min(6, Max(RF_dynamic(t), RF_floor(f,t))

   Where
   RF_dynamic(t) = 11.75 - 0.00767 * Spare(t), where Spare(t) = Available Capacity – Demand in the Trading Interval
   RF_floor(f,t) = 1 – 0.75 * Availability(f,t), where Availability(f,t)[17] for that Facility is determined for the 90 days prior to that Trading Interval

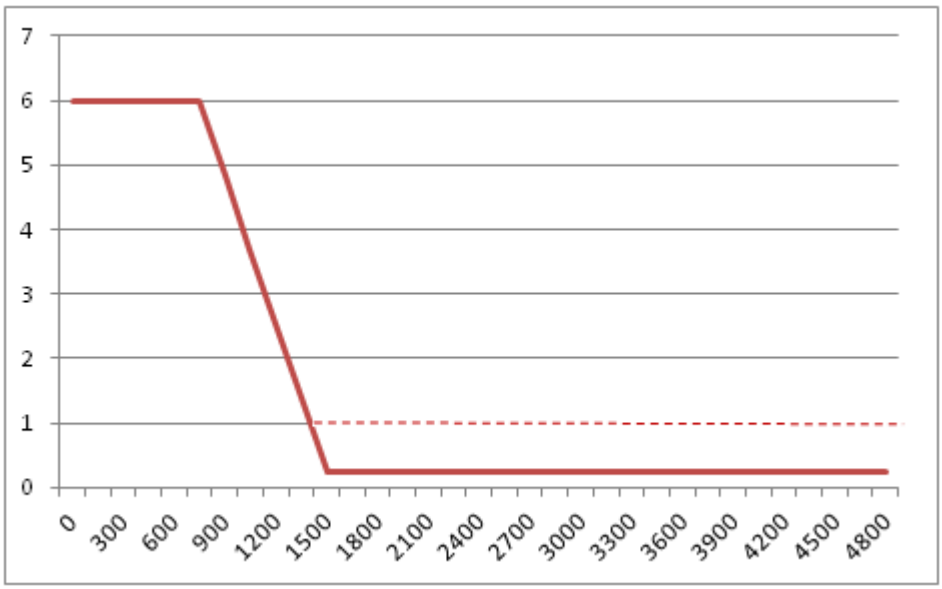
   The formula is illustrated in Figure 4.

2. The IMO proposes to remove clause 4.26.4 of the Market Rules and amend clause 4.28.4 to reflect the application of the rebates to Market Generators.

3. The IMO will propose new clauses to reflect the eligibility criterion and application of rebates.

[17] The IMO is considering the optimal determination of Availability rate and will propose at the Pre-Rule Change Proposal stage

Figure 4: Dynamic refund factors with a floating minimum refund factor



5. Transitional arrangements- recycling of refund revenue

Extending the transitional arrangements recommended for the RCP formula to the dynamic refund regime, the IMO previously considered that the transition of refund revenue from Market Customers to Market Generators would apply as follows:

i. In 2016/17, two-thirds of the refund revenue allocated to Market Customers and one-third to Market Generators;

ii. In 2017/18, one-third of the refund revenue allocated to Market Customers and two-thirds to Market Generators; and

iii. From 2018/19 onwards, full refund revenue allocated to Market Generators.

However, based on the RCP figures provided in Section 3, the IMO notes that the potential revenue loss to Market Customers is expected to be small[18] and would be offset by the adjustments to the RCP formula. Further, based on the proposal to not apply transitional arrangements to the RCP formula, the IMO considers it appropriate to also not apply transitional arrangements to the recycling of refund revenue.

6. Assessment against Wholesale Market Objectives

The IMO considers that the Market Rules as a whole, if amended to reflect the proposed recommendations above, will not only be consistent with the Wholesale Market Objectives but also generally allow the Market Rules to better achieve Wholesale Market Objectives (a), (b), (c) and (d). In Table 3, the IMO presents a high- level assessment of the proposed recommendations against Wholesale Market Objectives.

[18] The estimated magnitude of revenue loss to Market Customers will be presented at the MAC meeting

Table 3: Wholesale Market Objective assessment

Proposal	Benefits	Wholesale Market Objective assessment
Proposed RCP formula	• Improve the market- responsiveness of the RCP thereby promoting economically efficient supply of electricity • Facilitate efficient entry of new competitors by supporting appropriate level of new investment in capacity • Minimise the long-term cost of electricity supply by reducing the cost of excess capacity borne by Market Participants	Better achieves Wholesale Market Objectives (a), (b) and (d)
Dynamic refund factors	• Improve incentives for efficient scheduling of plant maintenance thereby promoting economically efficient and reliable supply of electricity • Avoid discrimination against generation facilities with high utilisation factors by aligning refund factors with prevalent system conditions	Better achieves Wholesale Market Objectives (a) and (c)
Recycling of rebates	• Improve incentives for generators to provide capacity reliably at times of greatest need thereby promoting reliability of supply • Encourage competition between generators by rewarding better availability performance • Improve economic efficiency by allocating the refund revenue to Market Generators instead of Market Customers • Minimise long-term cost of electricity by reducing the administrative costs of the IMO and System Management with regard to Reserve Capacity Testing.	Better achieves Wholesale Market Objectives (a), (b), (c) and (d)

7. Practicality and Cost of Implementation

The IMO does not consider that the proposed recommendations would involve any practicality of implementation issues. However, the IMO considers that Market Participants may decide to build additional functionality into their forecasting models to account for the proposed recommendations. Some Market Participants may also decide to re-negotiate their Bilateral Contract terms.

The IMO considers that it would incur IT costs to build the proposed changes into the Settlement system. Additionally, Market Participants may also incur some costs to incorporate the proposed changes into their business processes.