



Discussion with the RCM Working Group

27 March 2012



RCM discussion with the RCM Working Group

- WHAT CAUSES EXCESS RESERVE CAPACITY
- THE RCM AS AN ADMINISTRATIVE MECHANISM
- EVALUATING CHANGES TO THE RCM AGAINST THE MARKET OBJECTIVES
- THE EXCESS RESERVE CAPACITY PROBLEM
- THE RECENT DOWNWARD REVISION TO THE MRCP
- THE LINKAGE BETWEEN THE MRCP AND AN EFFECTIVE RCM

Options for discussion

- ADJUST THE SENSITIVITY OF THE RCP TO EXCESS RESERVE CAPACITY
- INSTITUTE A QUANTITY-BASED CONTROL MECHANISM
- ENHANCE BILATERAL MARKET SUPPORT

Stepping Back

- What is the purpose of the RCM?
 - Incentivise timely addition of capacity
 - Signal when no further investment is needed
 - Be compatible with the Market Objectives in the broader context of the WEM
- What is the value of reserve capacity?
 - Administrative value vs economic value
 - What happens if these two values are not the same?
- Who provides capacity?
 - What “is” capacity?
- Putting the RCM in context
 - Short-term signals versus longer term value management
 - The RCM as part of the overall WEM context

Why do we have excess reserve capacity?

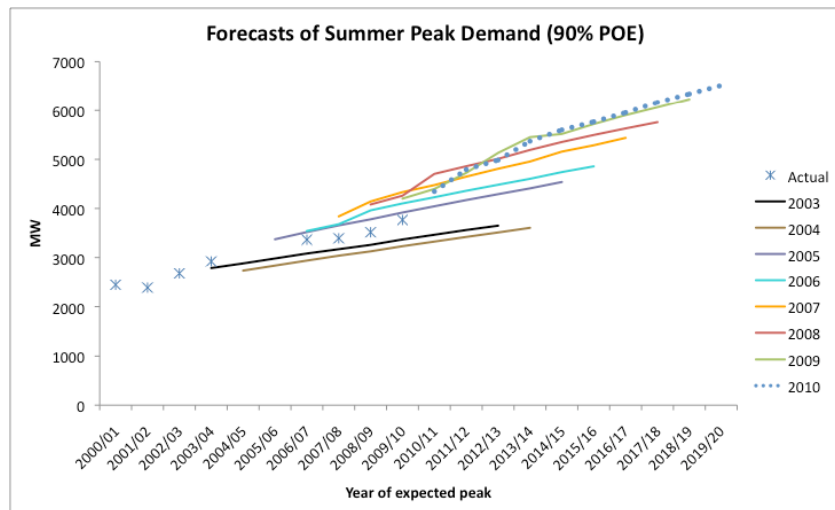
- On the **supply side**, investors continuously adjust their investment plans based on their expectations of future conditions. The amount of excess reserve capacity in the WEM is also the product of legacy conditions (such as the pre-global financial crisis economic boom), as well as historical programmes (no longer in force), such as the Displacement Mechanism in the original Vesting Contract and the earlier Schedule 7 requirements that required Western Power Corporation to tender for new capacity; and
- On the **demand side**, current and projected demand will generally not be the same as the level that was previously expected or projected. Market conditions change all the time. The global financial crisis and subsequent global economic slowdown exemplify disruptive forces that caused demand to be much lower than previously forecast.

Expectations
Legacy programmes
RCM

Changing market conditions
Global Financial Crisis
Shift towards more energy efficiency and distributed generation

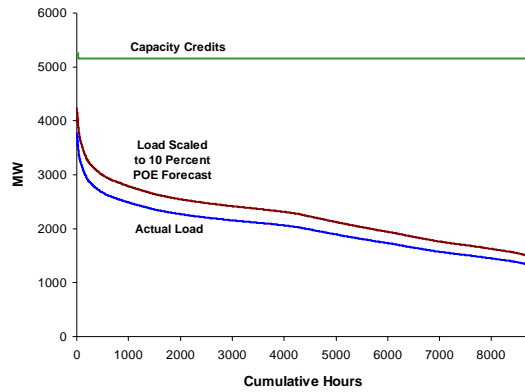
The reasons for excess reserve capacity are complex

The WEM: small, lumpy market – easy to forecast, difficult to get right....



The economic value of incremental reserve capacity in the WEM

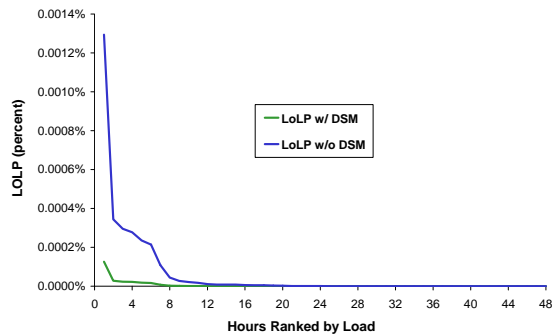
Example from 2009/10 Capacity Year (from appendix to TLG RCMWG paper)



Note:

- Large excess
- Steep LDC

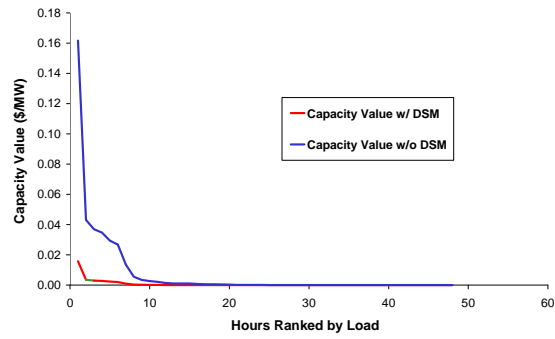
LOLP: Based on 2009/2010 Actual Loads



Note:

- Few relevant hours
- Low LOLP

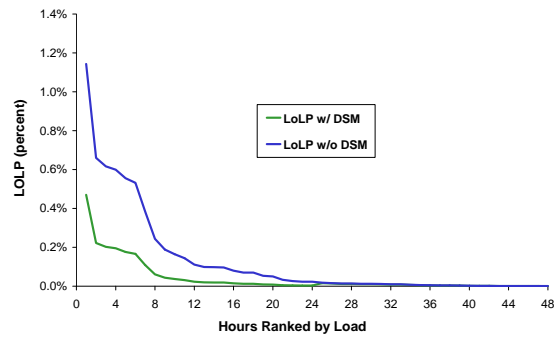
Capacity Value based on Actual 2009/2010 Loads



Note:

- Low value
- Few hours

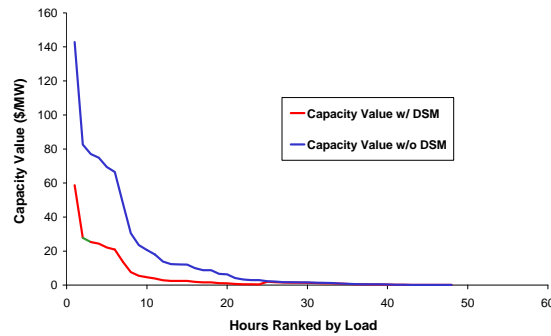
LOLP: Based on the 10 Percent POE forecast for the 2009/10 capacity year



Note:

- Same story

Capacity Value: 10 percent POE forecast for the 2009/10 capacity year



Note:

- Same story
- Fewer than 50 hrs

Observation 1: the RCM over-values incremental reserve capacity relative to its economic value

- “...the value of incremental reserve capacity over the year is AUD 253/MW with DSM or AUD 780/MW without it. These values are still much lower than the actual cost of reserve capacity in the RCM.” (p. 20)
- The difference between the administrative value and the economic value of capacity credits is extremely high, making any transition a cause for potential celebration or alarm – inherently partisan

Observation 2: Demand Resource (MWs) by class

Capacity Year	24-48hr (Class 4)	48-72hr (Class 3)	72-96hr (Class 2)	96-all (Class 1)
2010/11	116.5	20	17	0
2011/12	152.1	108		
2012/13	414.5	40		

As of mid 2011

Note: all of the demand resources are in classes that (currently) align with the number of hours that a resource needs to be available to contribute materially to the provision of valuable reserve capacity

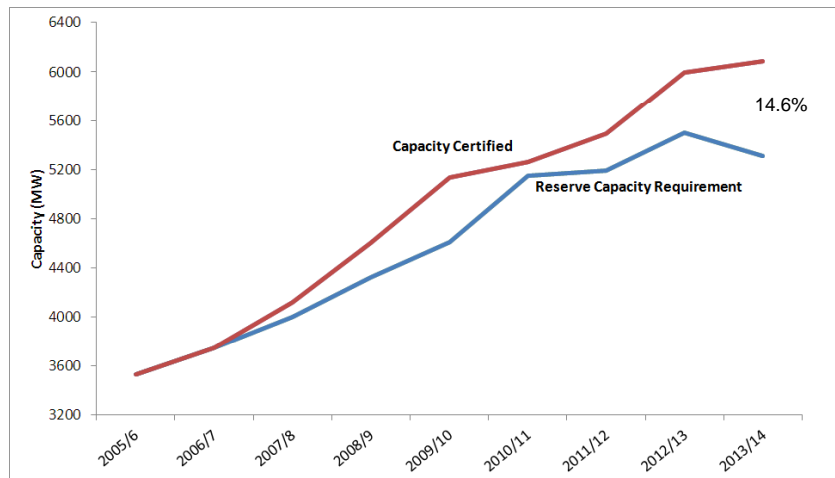
12

The number of capacity credits is not linked to the actual reserve requirement

- Under the RCM, any resource that can establish itself as "committed" and declares itself as intending to trade bilaterally can secure Capacity Credits.
- The RCM does not require facilities that have declared their intent to trade bilaterally to actually do so.
- By stating an intention to trade bilaterally and becoming a committed facility, a new entrant can enter the WEM and earn the administered RCP without ever entering into a bilateral contract, or necessarily intending to operate at all.
- As a result, the number of Capacity Credits can decouple (as it has) from the actual reserve requirement.

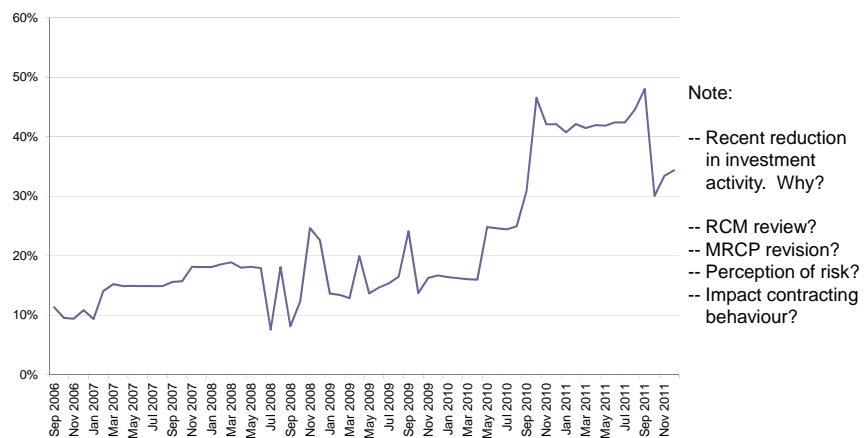
This is not an inherent flaw of capacity markets – investors are supposed to take risks, including the risk that they have entered a market that is prone to oversupply

Trend in excess reserve capacity



The trend is concerning

Trend in "uncontracted" capacity credits



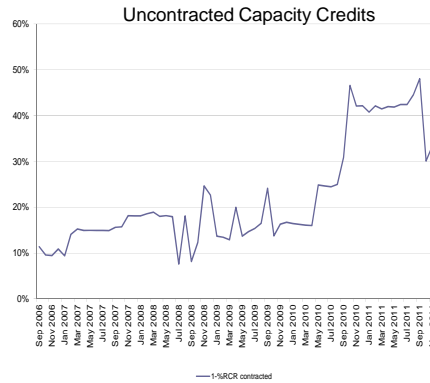
Note:

- Recent reduction in investment activity. Why?
- RCM review?
- MRCP revision?
- Perception of risk?
- Impact contracting behaviour?

Why?

Why the trend in uncontracted capacity credits?

- The upward trend in the uncontracted reserve capacity requirement suggests that
 - generators prefer to contract with the IMO or
 - that retailers prefer not to contract with generators.
- Is it easier to deal with the IMO (e.g., lower transactions costs) or is there a disconnect in the market (e.g., the IMO sets a floor price when the actual economic value of credits is lower)?



This is the most concerning evidence of an administrative cause to the mismatch between supply and demand

MRCP review

- The RCP is a function of the MRCP, which is, in turn, based on the estimated cost of connecting a 160MW gas turbine to the WEM.
- The recent changes to the MRCP included significant methodological and definitional adjustments:
 - The basis for the estimate of transmission connection costs was changed; and
 - The specification of the generation technology was altered to incorporate inlet cooling.
- Together these specific changes reduced the MRCP by over 20%

The significant reduction in the MRCP due to methodological or definitional changes is a crucial factor to consider when evaluating the RCM

Economic implications of the MRCP revision

- The MRCP is a hard cap to the value of a capacity credit in the WEM
 - The value of a capacity credit can be lower than the MRCP, but not higher
- The expected value of a capacity credit is therefore below the MRCP

Is this a problem-in-waiting?

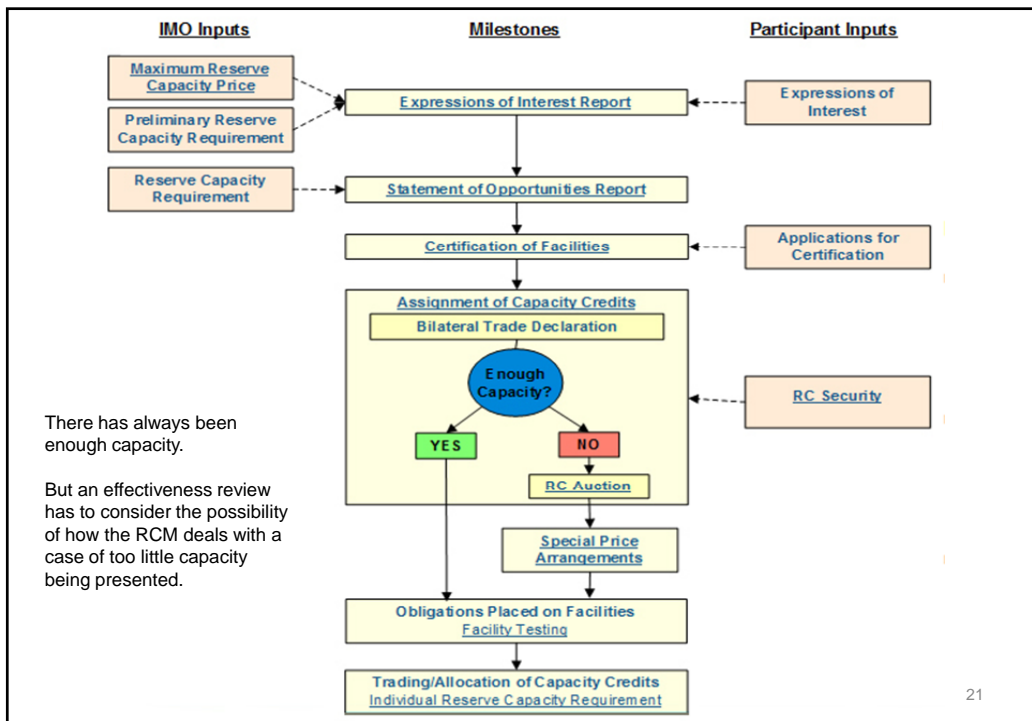
What next?

Market Objectives

- promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system;
- encourage competition among generators and retailers in the South West interconnected system, including by facilitating efficient entry of new competitors;
- 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;
- minimise the long-term cost of electricity supplied to customers from the South West interconnected system; and
- encourage the taking of measures to manage the amount of electricity used and when it is used.

Evaluating a specific change to the RCM (or even its current performance) against the Market Objectives involves balancing a number of countervailing forces.

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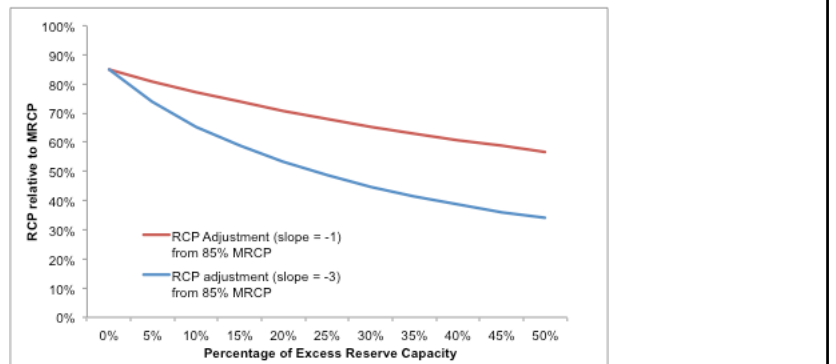


Comparison of the RCM to other “Capacity Markets”

- The RCM is not a capacity market – it is a mechanism
 - There is no reason to expect the RCM to “get it right” necessarily given that it is not a particularly dynamic or market-sensitive mechanism
- The problem with the RCM is that the administered value of capacity credits can depart significantly from the economic value of capacity credits
 - In part this creates a value management (wealth transfer) issue (too much money flows to capacity)
 - In part this creates a possibility of incentives for uneconomic investment in the WEM
 - The MRCP review has highlighted a previously “hidden” aspect of this issue
- The RCM could be replaced with a formal capacity market, or it could be adjusted in ways that make it more consistent with market-based outcomes
 - The former is a significant task, with ample room for error and very significant impacts on value expectations that would likely require transition mechanisms to facilitate
 - The latter enhances the option of evolving towards a market-based mechanism over time

Adjust the Sensitivity of the RCP to Excess Reserve Capacity

Simple approach



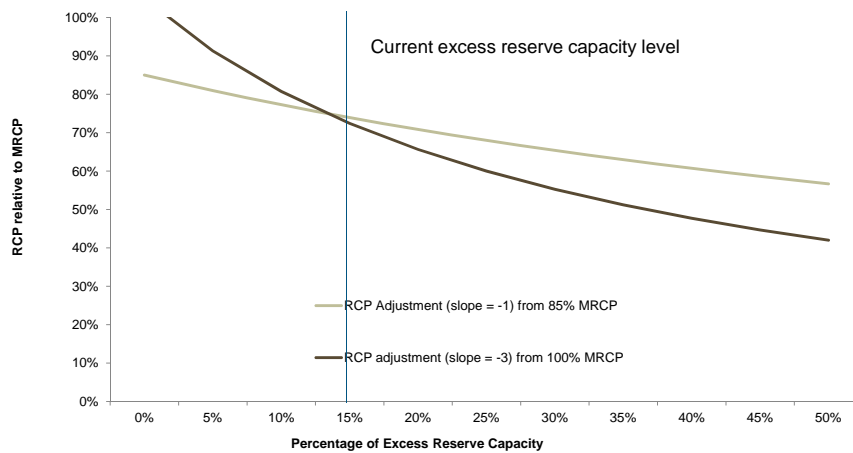
A steeper slope would create a much sharper incentive against excess reserve capacity

Amount of Excess Reserve Capacity	Based on "-1 slope"	Based on "-3 slope"
0%	85.0%	85.0%
5%	81.0%	73.9%
10%	77.3%	65.4%
15% (~current)	73.9%	58.6%
20%	70.8%	53.1%
25%	68.0%	48.6%
30%	65.4%	44.7%
35%	63.0%	41.5%
40%	60.7%	38.6%
45%	58.6%	36.2%
50%	56.7%	34.0%

Would the steeper slope "stop" investors from adding to excess reserve capacity until the market clears? If so, it would achieve a near-equivalent "impact" on behaviour as would a move to an economic capacity price

A floor value could be considered as a stop loss arrangement, but why?

The steeper "incentive" can be maintained but the starting point adjusted (=100% MRCP rather than 85% MRCP)



Evaluating a specific change to the RCM (or even its current performance) against the Market Objectives involves balancing a number of countervailing forces.

Steeper incentive but with MRCP as starting point

Amount of Excess Reserve Capacity	Based on "-1 slope" starting at 85 percent of the MRCP	Based on "-3 slope" starting at 100 percent of the MRCP
0.0%	85.0%	100.0%
5.0%	81.0%	87.0%
10.0%	77.3%	76.9%
15.0% (~current)	73.9%	69.0%
20.0%	70.8%	62.5%
25.0%	68.0%	57.1%
30.0%	65.4%	52.6%
35.0%	63.0%	48.8%
40.0%	60.7%	45.5%
45.0%	58.6%	42.6%
50.0%	56.7%	40.0%

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Possible transition mechanisms

- Initiate the steeper slope immediately, but transition via a "floor" price that starts at just five percent below what the current RCP methodology would produce and then reduce the floor price by five percent each year for three years before dropping the floor altogether; or
- Introducing the steeper slope in a stepwise manner, with the slope moving from -1 to -1.5 in year one; to -2.0 in year two, and to -2.5 in year three and -3.0 in year four; or
- Introduce the refinements as of a projected date such that participants have time to make changes, if appropriate, in anticipation of the future implementation.

Investments that are justifiable primarily on the basis of an administrative mechanism rather than an underlying source of fundamental value invariably bear risk associated with eventual regulatory reform.

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Institute a Quantity-Based Control Mechanism

- Credit certification “gatekeeper” (Spigot Control: do not certify or issue credits if excess exists)
 - What happens as conditions change, as they can quite quickly in the lumpy and relatively small WEM?
 - If there are multiple projects queuing up for certification, perhaps each with varying degrees of bilateral contract commitments, how should the IMO choose?
 - Currently commitment status is partly determined on the basis of irrevocable commitments. Why would facilities enter into irrevocable commitments if becoming “committed” did not assure access to Capacity Credits?
 - Would a facility not be declared committed even if it had negotiated a bilateral contract covering all of its potential Capacity Credits?



IMO?



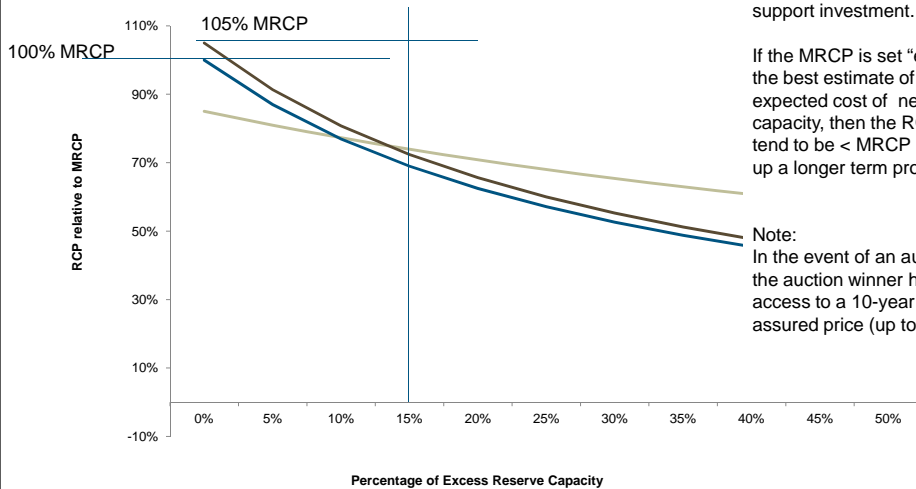
Link quantity mores strongly to loads

- IMO could sell credits to short retailers at a punitively high price while offering to buy from long generators at a very much lower prices

Rely more extensively on auction processes

- Instead of an IMO “buy/sell” price (set by the RCM via the RCP adjustments), an auction is used to determine the value of all uncontracted capacity credits
- Uncontracted retailers would procure from auction rather than from IMO. If credits do not clear, they do not clear (price goes quickly to zero).
- What happens if market “tightens” – can the same process incentives and support new investment in a timely manner?

Should the MRCP *always* be a hard cap?



The expected value of a CC needs to be sufficient to support investment.

If the MRCP is set “exactly” at the best estimate of the expected cost of new capacity, then the RCP will tend to be < MRCP setting up a longer term problem

Note:
In the event of an auction, the auction winner has access to a 10-year assured price (up to MRCP)

Matrix

	Administrative RCM (Value of CC set by formula)	Economic RCM (Value of CC set by market process (eg. Auction))
Active exposure (new capacity does or does not enter WEM due to RCM settings)	May induce/support investment that should not have occurred – depending on settings May not support investment at all, even if needed	Likely to introduce significantly greater value volatility to capacity market, and introduce significant implementation challenge Would require significant changes
Passive exposure (new capacity enters WEM due to policies or programmes)	Potential protection to investors in the event of non-market-based interventions	Drives value of CC down to zero, whether or not stakeholders responded correctly to economic value

Comment

- Currently, the RCP is adjusted downward in proportion to the amount of excess reserve capacity that exists.
- A straightforward change would focus on sharpening the administrative price adjustment mechanism to be more responsive to the amount of excess reserve capacity in the WEM.
- An alternative of “spigot control” would go against market-based provision of capacity by new investors, though it would help protect existing generation investors from further potential reductions in CC value
- Consequently, we favour a price-based adjustment either driven by more use of auctions (complex implementation and more volatile value impacts), or a sharpened RCP price adjustment formula
- The risk to be avoided is one in which the adjustments to the RCP are so sufficiently and consistently downward without any chance of an offsetting upward adjustment that the expected value of a Capacity Credit over the life of a capacity investment is not sufficient to support that investment commercially.