



## Reserve Capacity Mechanism: Recommendation

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# My views

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- The RCM can be improved significantly
  - Valuable incentives are distorted
  - Responsiveness to market conditions is poor
- Primary concern is not quantity of excess reserve capacity per se, but
  - who pays for it;
  - how much do they pay for it and
  - what is it worth
  - For example the RCM results in a residual “shared capacity cost” allocation to retailers across a range of scenarios that cannot be hedged or managed in commercially sensible ways
- In addition to the RCM, concern that the RCM and the refunds regime need to be considered together, for consistency

# How to improve the RCM

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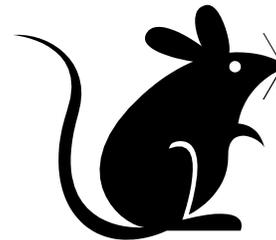
- Basic problems stem from two features of the current RCM
  - Not sufficiently dynamic to respond appropriately to market conditions
  - No symmetrical incentives for capacity providers and capacity users to manage risk through contracts
- A range of options have been considered over the past 18 months, falling into two broad categories:
  - Limit access to credits if there is already enough (QUANTITY)
  - Reduce incentive for capacity providers to develop more capacity if there is already enough (PRICE)
- We consider insights from other markets with working capacity mechanisms
  - What sort of quantity adjustment
  - What kind of price adjustment
  - What sort of risk exposure
- We then apply these concepts and insights to develop a recommendation for the WEM

## Option: Limiting Quantity Certified

- If the underlying technical performance and energy market cost characteristics were exactly the same across all types of capacity (existing and new), then it would be trivial to limit new certification whenever there is excess
  - If “new” is exactly the same as “existing”, then they are completely fungible, and there is no point in certifying “new” when there is plenty of “existing”
- But this is not the situation
  - Innovation and technical performance differences exist
  - Different energy cost performance characteristics are possible
- Conferring “protection” on existing capacity is not consistent with a dynamic market with pressure for improved performance over time

Not Recommended

Stifles innovation  
Protects inefficient capacity  
Creates awkward gate-keeper role  
Does not reward “value”  
Does not reflect market risk  
Inconsistent with energy market



IMO?



## Option: “Truth in Declaration plus Auction”

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- Synergy proposed that the IMO would make no payment to capacity electing a bilateral declaration ensuring a truth to the declaration
  - This could be implemented starting in the 2015/16 capacity year allowing uncontracted capacity three years to negotiate bilateral arrangements.
- Capacity remaining uncontracted for the 2015/16 capacity year may offer itself to the auction, if bilateral declarations are less than required; remain credited and receive no payment from the IMO; or if those alternatives are uneconomic, remove itself from the mechanism.
  - Throughout this process of bilateral contracting and excess capacity either remaining credited or exiting the market, the IMO must ensure that capacity requirements of all Availability Classes are met and initiate an auction where there is shortfall of bilateral trade offers.

### Not Recommended

Appears to solve problem of retailers bearing the cost of excess capacity, but....

By removing / reducing IMO backstop, it increases impact of credit or counterparty risk to the detriment of competition

Auction does not resolve the zero / infinity problem

Main benefit appears to be reduction of shared capacity costs – which can be achieved in other ways

## Option 3A: “Buy / Sell Spread” Version 1

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- Synergy Proposal

- Uncontracted capacity receive payment from the IMO, albeit at a reduced rate. This payment should be set at no more than XX% of the MRCP.
- A retailer not covering its capacity requirement would pay a value that is greater than what the capacity resource receives.

### Not Recommended

Does not dynamically adjust with market condition

Market power issues on credit procurement based on counterparty risk given absence of backstop and exposure to “reduced” price

Could expose retailers to market power given contrived exposure to full MRCP rate – as “full MRCP rate” is not dynamically revised with market conditions

Does not explicitly address issue of excess capacity without additional mechanisms or assumptions

Must resolve disposition of “spread” revenue to avoid unintended incentives

May be inconsistent / incompatible with existing contractual definitions of the RCP

## Option 3B: “Buy / Sell Spread” Version 2

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- As discussed in July WG Session
  - Credits purchased by the IMO would be purchased at a discount to the RCP; credits sold by the IMO would be sold at a premium
  - Suggest adding a “slope” to the buy/sell prices so that they adjust based on the amount of excess reserve capacity

### Not Recommended

Contracting incentive relates more to size of spread than to exposure to excess reserve capacity

Could be structured to address symmetry and expected value problems of Synergy version

Must resolve disposition of “spread” revenue to avoid unintended incentives

May be inconsistent / incompatible with existing contractual definitions of the RCP

# Option: Auction

A workable auction must address the zero / infinity problem, which is not trivial

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1. Introduce additional risk to the retailer so that there is “value” in being over-contracted

Eliminate clear certainty of number of credits required for any given year – make the amount conditional on outcomes plus a margin. Set up the date for the auction sufficiently ahead of time so that the retailer may need to impute value to the risk of being over-contracted – effectively transmitting value to potential “excess” capacity credits

2. Introduce multiple tranches of auctions based on different forward dates

An auction 1 year from the date may imply significant zero/infinity risk, but this can be reduced if other auctions are held two years out, three years out, etc, such that the total exposure to “zero / infinity” risk is reducing (hopefully) as the actual target date approaches.

3. Impose constraints on auction price outcomes so as to avoid the zero / infinity problem

1. Buy / Sell spread
2. Caps or Floors

4. Auction multi-year credits (blend time periods) so that zero value for a single year is blended with rising values in later years

1. Supplementary Reserve Auction reflects this principle to a degree
2. But alternative is to use three or five year “products”

5. Complement the formal auction with short-term trading to allow rebalancing of requirements

Not Recommended

Complexity in a small lumpy market

Volatility / Risk

May reduce competition depending on perceptions of contracting alternatives

Addition of “mitigation” of zero/infinity problem makes auctions look more like a managed solution

# We derive insights from auctions and other market mechanisms

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- Insight 1
  - When excess reduces price go up, and retailers face higher exposure if they are not contracted
  - When excess increases, prices go do, and generators face higher exposure if they are not contracted
- Insight 2
  - The rate of fall off or increase is very steep in economic terms – implying considerable risk to be managed
  - But complex auction processes / designs endeavor to avoid the zero/infinity problem of capacity value
- Insight 3
  - Backstop processes are usually present to either support or promote competition and facilitate timely capacity
- Insight 4
  - The value of avoiding shortage is universally viewed as greater than the cost imposed by some excess

# Recommended Approach

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- Proposal requirements

- Be consistent with market-based approaches
- Mitigate zero / infinity risk
- Be compatible with prudent risk management practices
- Be aligned with sensible long-term market evolution direction
- Be implementable at reasonable costs

- Recommendation Outline

- Increase “85%” parameter to above 100%
- Set the “slope” to be steeper than “-1” to create greater market sensitivity for all stakeholders, more in line with what an auction would yield
- Adjust RCR to mitigate shared capacity cost exposure

- Evaluation criteria

- Sensible symmetry of risks for stakeholders depending on amount of excess reserve capacity
- Limited exposure to cost of shared capacity
- Works sensibly in periods of excess as well as in periods of approaching potential shortage
- Avoids need for transition mechanism/sequence

# Framework

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- Analysis compares the difference between two cases
  - Case 1: No exposure to excess reserve capacity costs (“perfect”)
  - Case 2: Proposed RCM settings for evaluation
  - Difference: How the RCM impacts what is paid for capacity from the IMO and how that translates into shared capacity related costs

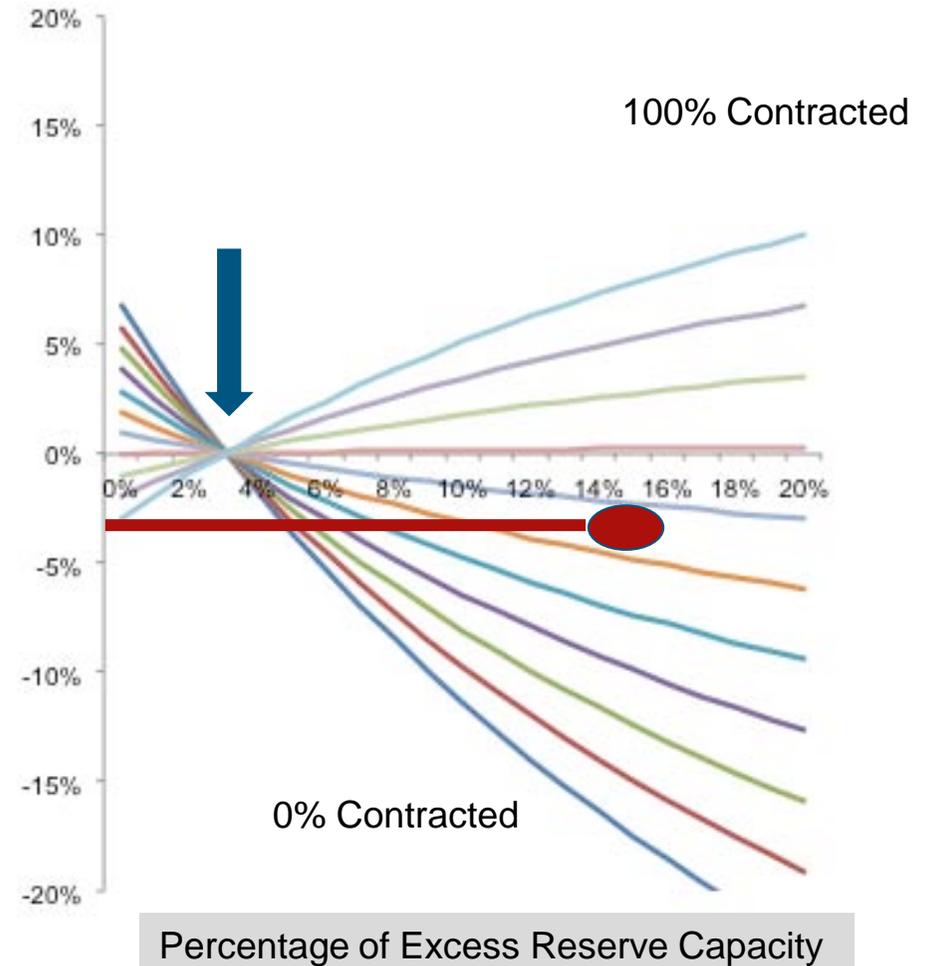
# Example

			Parameters	Excess Capacity	No Excess Case
Excess Capacity [EC%]	%		15	15%	0%
Market Share (SET TO 100)	%		100	100%	100%
Bilateral_Contract Cover	%		50	50%	50%
SLOPE FACTOR (000s)			325	-3.250	-3.250
IMO MRCP SCALING FACTOR (%)	%		110	10%	10%
<b>Reserve Capacity Requirement [RCR]</b>	MW	[Input]		5773	5773
<b>Credited Capacity [CC]</b>	MW	$[RCR]*(1+[EC\%])$		6,639	5,773
<b>Excess Capacity [EC]</b>	MW	$[CC]-[RCR]$		866	0
<b>Retailer_IRCR</b>	MW	$[RCR]*Market\ Share$		5,773	5,773
<b>Bilateral_Contract_Cover</b>	MW	$[RCR]*Bilateral\ Contract\ %$		2,887	2,887
<b>Shortage_of_IRCR Cover MW</b>	MW	$Retailer\_IRCR - Bilateral\ Contract\ Cover$		2,887	2,887
<b>Retailer's Shared_Capacity MW</b>	MW	$[EC]*Market\ Share$		866	0
<b>Maximum Reserve Capacity Price (MRCP)</b>	\$/MW	[Input]		\$ 163,900	\$ 163,900
<b>Reserve Capacity Price (RCP)</b>	\$/MW	Choose(1=Non-Linear; 2=Linear)	1	121,203	163,900
		1 Non-Linear		121,203	163,900
		2 Linear		100,389	163,900
<b>Assumed cost of bilateral capacity</b>	\$/MW			\$ 473,097,350	\$ 473,097,350
<b>Cost of Targeted Capacity from IMO</b>	\$/MW			349,853,503	473,097,350
<b>Cost of Shared Capacity from IMO</b>	\$/MW			104,956,051	0
<b>Total Cost</b>	\$			\$ 927,906,903	\$ 946,194,700
<b>Difference</b>				Additional Cost -\$	18,287,797
					-1.93%

# Recommendation

- 110% Maximum RCP to align incentives more symmetrically for balanced risk management
- -3.25 slope to sharpen focus on market conditions and create more dynamism
- Apply a factor of 97% to the RCR, eliminating the persistent cost of shared capacity
- The intersection point on the x-axis becomes the set-off factor for the RCR, creating expected value consistency with the MRCP, while leaving significant exposure for risk management and competition
- No transition is needed

Normalised Additional Cost to Retailers Due to Cost of Shared Capacity



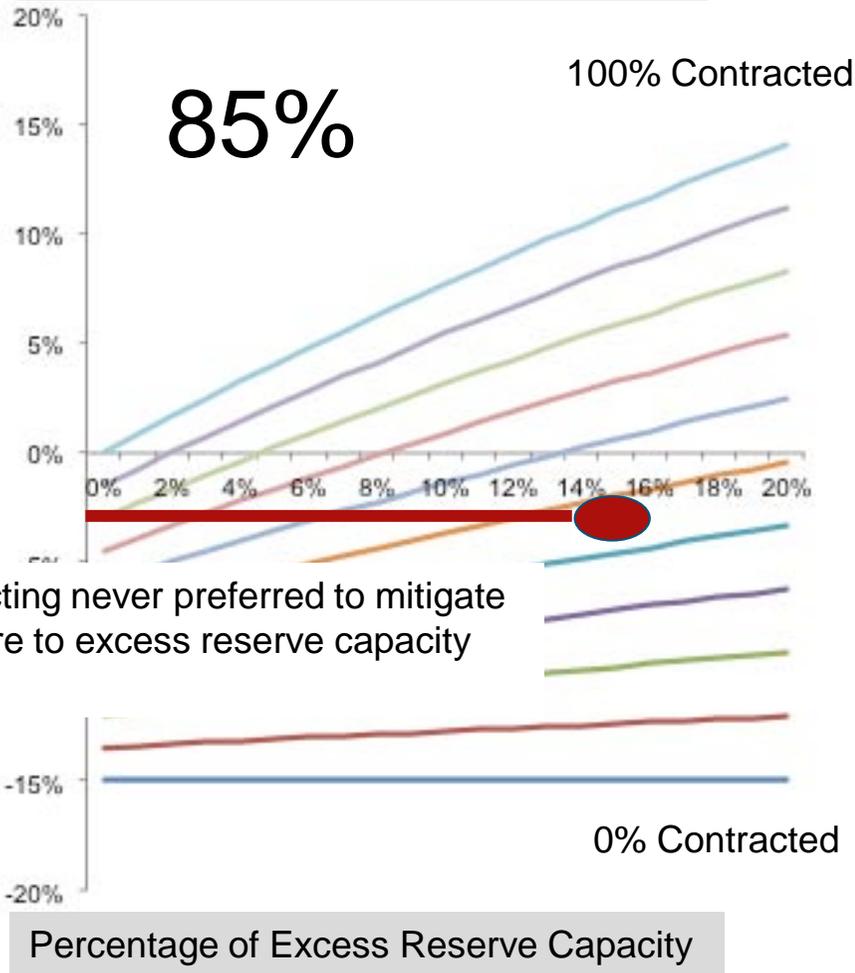
## The next slides build up the recommendation to highlight how each element works together

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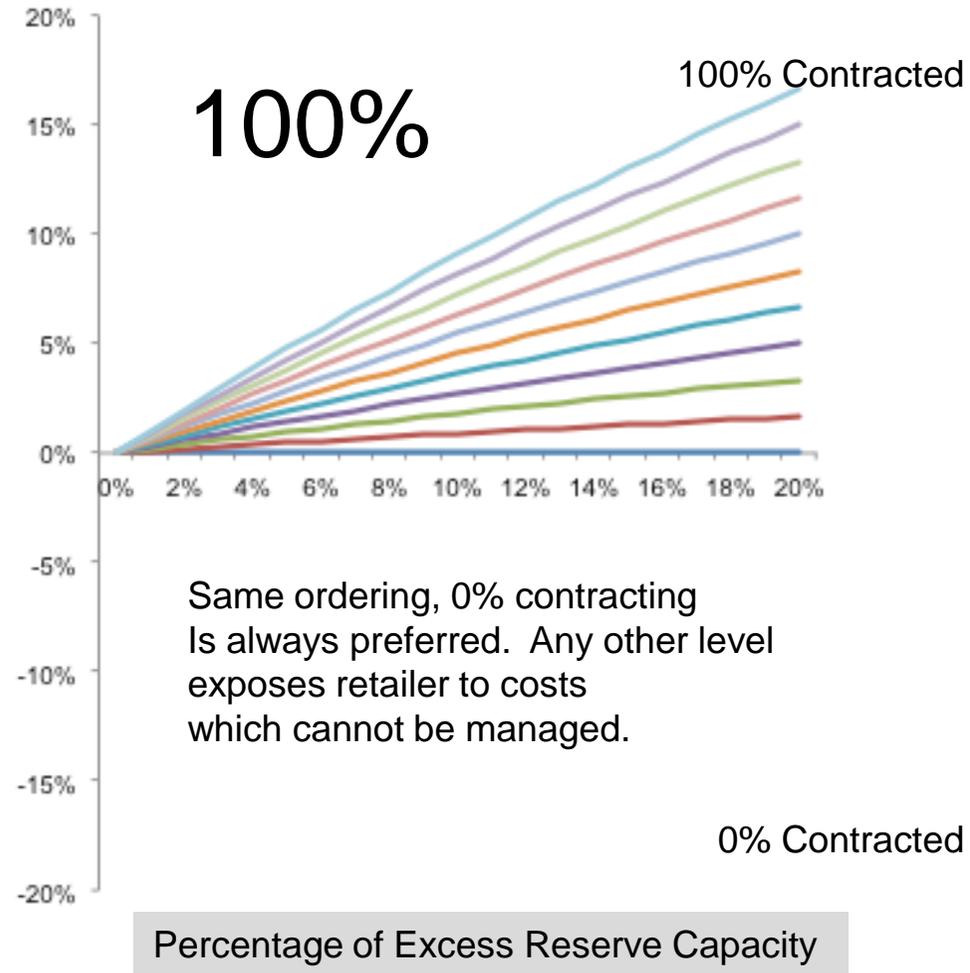
- The elements proposed would have common analogues in full market-based mechanisms
- Step 1: Show how the fixed 85% MRCP adjustment factor (and any factor below 100%) contributes to asymmetrical incentives and undermines risk management options
- Step 2: Show how the choice of steeper slope sharpens incentives and greatly reduces exposure to shared capacity costs to the point of those costs being essentially immaterial
- Step 3: Show how the selection of MRCP uplift improves symmetry and supports risk management options
- Step 4: Adjust RCR to eliminate impact of residual shared capacity cost exposure

# If MRCP adjustment is less than or equal to 100% then retailers bear shared capacity cost risk when they enter into contracts with capacity resources

Normalised Additional Cost to Retailers Due to Cost of Shared Capacity



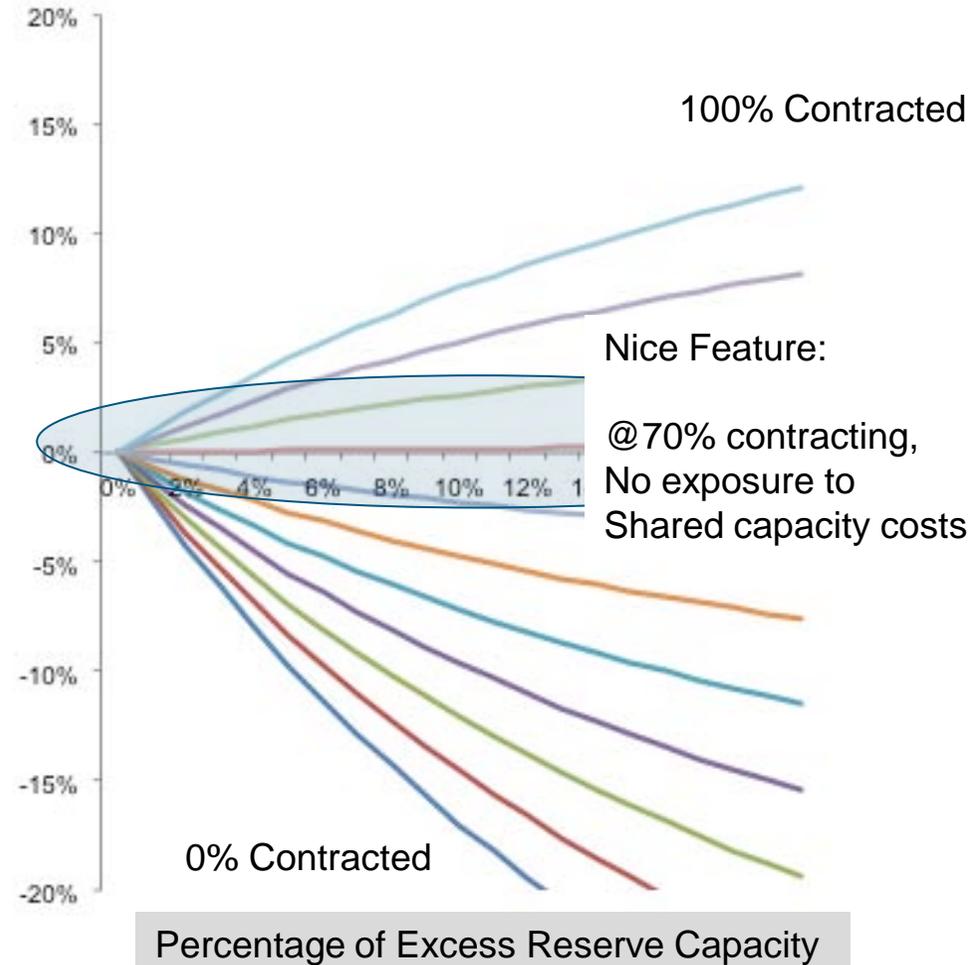
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# Increasing the “slope” from “-1” creates greater sensitivity to market conditions

- Capacity providers see more risk due to greater sensitivity to market conditions
  - Value of a CC falls off more quickly as the amount of excess reserve capacity increases
  - Even so, the fall off is much less “steep” than an auction might support
- Possible to reduce exposure to shared capacity costs down to “zero” through fixed policy of 70% contracting, but.....
- Retailers can always do better by contracting less (or not at all)
- Not stable

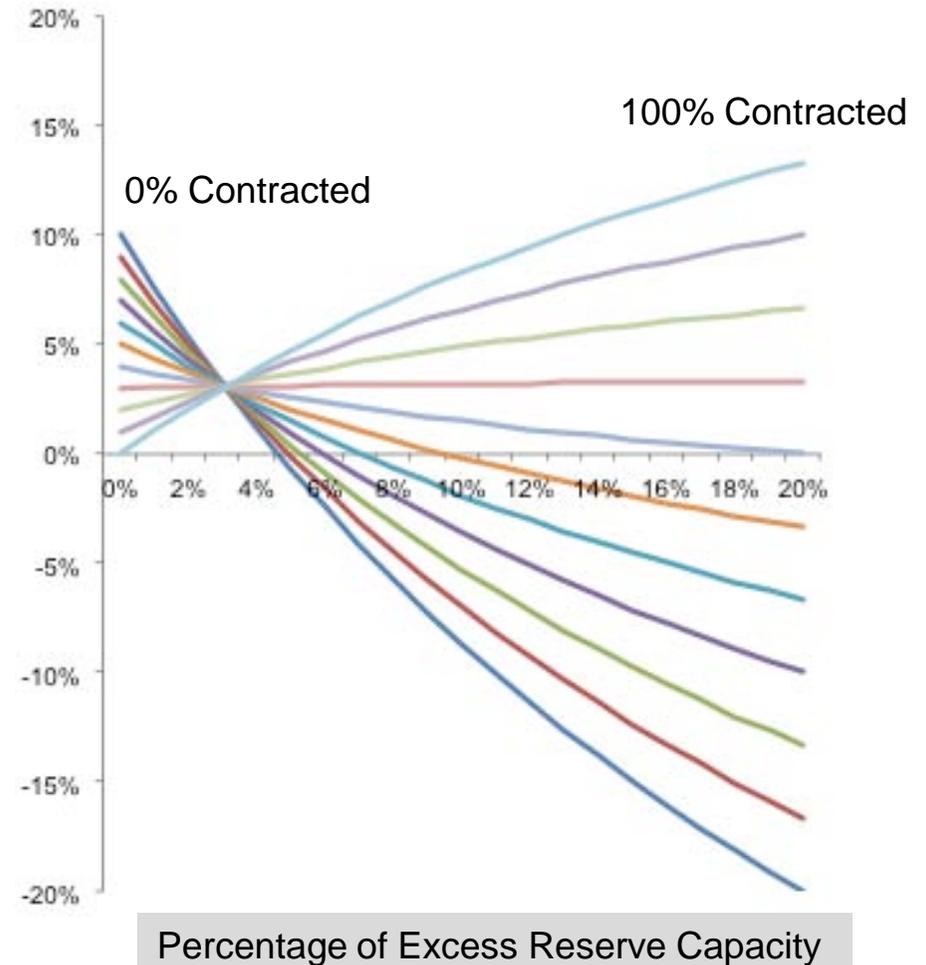
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# Symmetrical risks does not appear unless the maximum retailer exposure exceeds “expected” MRCP value

- By exposing retailers to the risk that, as capacity reserves decline, credits may cost more if purchased from the IMO
  - “Shortage” risk is introduced
  - Contracting to manage exposure is possible
  - Retailers have a more balanced incentive to participate in contracts
- The point is not to “incentivise contracts” but to remove distortions that make contracting a cost-increasing activity
  - Contracting should be a way of mitigating risk, not a way to increase exposure to a risk that cannot be hedged
- Higher values could be used to create appearance of even “more” symmetry, but proposal appears ample given that the RCM should not persistently support as much excess reserve capacity going forward

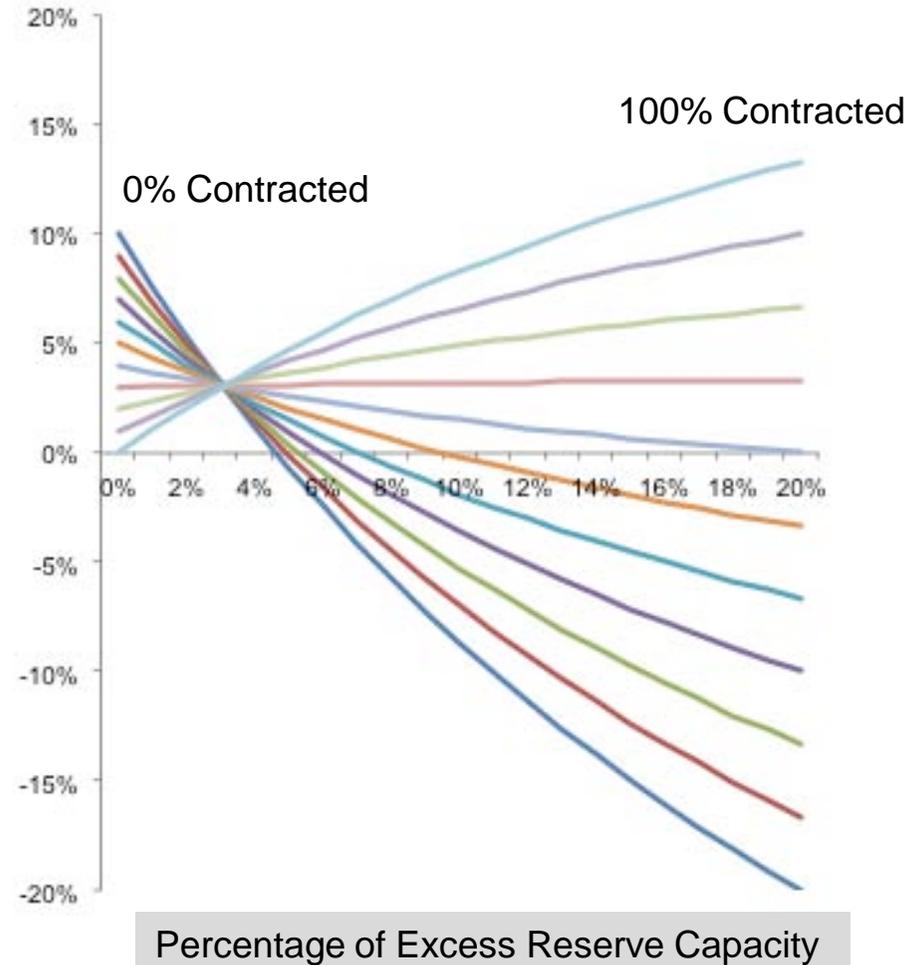
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# At 110% of MRCP and slope -3.25, most exposure can be managed by contracting

- Best *average* contracting strategy: 70%
- Maximum exposure to shared excess reserve capacity:
  - 10.0% at 0% contracting
  - 5.0% at 50% contracting
  - 4.0% at 60% contracting
  - 3.3% at 70% contracting
  - 13.3% at 100% contracting
- Minimum exposure to shared excess reserve capacity:
  - 20.0% at 0% contracting
  - 3.3% at 50% contracting
  - 0% at 60% contracting
  - 3.0% at 70% contracting
- The small persistent excess reserve capacity cost exposure can be further mitigated through a simple adjustment...

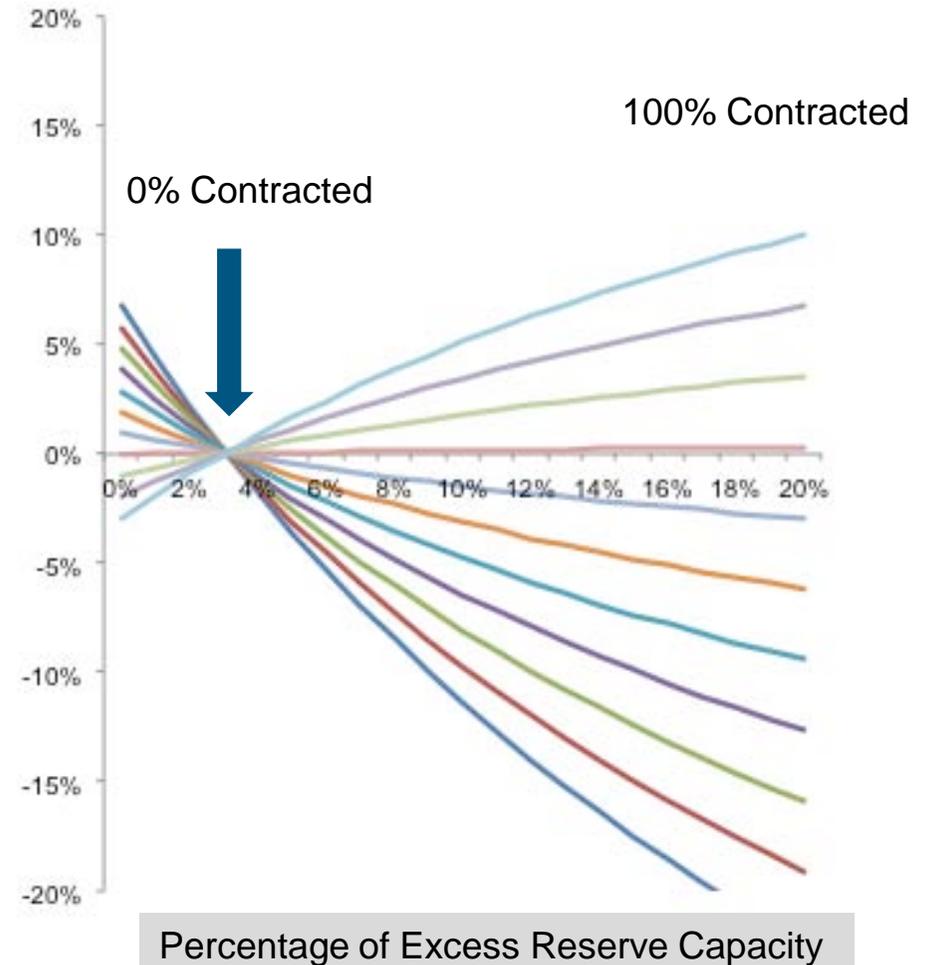
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# Recommendation

- 110% Maximum RCP to align incentives more symmetrically for balanced risk management
- -3.25 slope to sharpen focus on market conditions and create more dynamism
- Apply a factor of 97% to the RCR, eliminating the persistent cost of shared capacity
- The intersection point on the x-axis becomes the set-off factor for the RCR, creating expected value consistency with the MRCP, while leaving significant exposure for risk management and competition
- No transition is needed

Normalised Additional Cost to Retailers Due to Cost of Shared Capacity



# Summary

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- Dynamic adjustment is crucial
- Symmetrical exposure is essential
  - Generators exposed to excess capacity
  - Retailers exposed to shortage capacity
- Risk management mechanisms must exist, with incentives linked to “market” dynamics, not overly contrived arrangements
  - MRCP becomes “SCP” → Sustainable Capacity Price
  - RCP can reach a maximum of 110% of the SCP, depending on market conditions
  - A slope of -3.25 to sharpen sensitivity to market conditions
- Customer exposure to the small remaining cost of shared capacity can be eliminated through a corresponding adjustment to RCR