Government of **Western Australia**
Energy Policy WA

WEM Investment Certainty Review Working Group

Meeting 2024_01_24

24 January 2024

Working together for a **brighter** energy future.

Meeting Protocols

- Please place your microphone on mute, unless you are asking a question or making a comment
- Please keep questions relevant to the agenda item being discussed
- If there is not a break in discussion and you would like to say something, you can ‘raise your hand’ by typing ‘question’ or ‘comment’ in the meeting chat
- Questions and comments can also be emailed to EPWA - Energy Markets energymarkets@dmirs.wa.gov.au after the meeting
- The meeting will be recorded and minutes will be taken (actions and recommendations only)
- Please state your name and organisation when you ask a question
- If you are having connection/bandwidth issues, you may want to disable the incoming and/or outgoing video

Agenda

Item	Item	Responsibility	Type	Duration
1	Welcome and agenda	Chair	Noting	2 min
2	Meeting apologies/attendance	Chair	Noting	2 min
3	Minutes of previous meeting	Chair	Noting	2 min
4	RCP Curve – final proposal	RBP	Discussion	45 min
5	Support for renewable investment – introduction	RBP	Discussion	15 min
6	Support for renewable investment – options	RBP	Discussion	60 min
7	Support for renewable investment – recap	RBP	Discussion	20 min
8	General business	Chair	Discussion	5 min
9	Next steps	Chair	Noting	5 min

4. RCP Curve – Final proposal

Key Reserve Capacity Price Curve Parameters

The RCM will continue to use an administered price curve to set the Reserve Capacity Price (RCP) in each cycle.

WICRWG discussion focused on the parameters and inflection points that make up the curve.

- The price cap as a proportion of the benchmark price
- The proportion of the capacity target at which the price cap is reached
- The price at the Reserve Capacity Target
- The proportion of the capacity target at which the price goes to zero, if at all
- A “deadband” zone around the Reserve Capacity Target in which the price does not change
- Differentiating the Peak Capacity Price and the Flexible Capacity Price.

Parameters: Peak Reserve Capacity Price Cap

In the current RCP curve, the price cap is 130% of the Benchmark Reserve Capacity Price (BRCP).

In the 2022 and 2023 capacity cycles, the price was above the BRCP, but we have not seen significant new entry.

Although most other jurisdictions use net cost of new entry (CONE) to set their reference price, all but Colombia have a price cap between 150% and 160% of the reference price.

EPWA proposes to set the price cap for Peak Capacity at 150% of the BRCP. This will provide a greater signal for investment when there is a capacity shortage, and represents the low end of the international range.

Parameters: Peak Reserve Capacity Price at Target

In the current RCP curve, the price is set at 130% of the BRCP at the Reserve Capacity Target. This means that there is no additional investment signal in times of shortfall.

EPWA proposed to set the price to 100% of BRCP at the Reserve Capacity Target.

Some WICRWG members expressed concern that this would weaken the signal for new capacity at a time when new capacity is keenly needed.

The various price parameters all need to work together. The Benchmark Capacity Providers review (BRCP reference technology review) has identified:

- A change in reference technology to a 4-hour LiON battery electric storage system
- That for a number of years storage facilities are likely to receive some infra-marginal rents in the energy market.
- It is still appropriate to use gross CONE to set the BRCP.

This dynamic means that the WEM can reasonably align with almost all other jurisdictions and set RCP=BRCP when capacity matches the target figure.

EPWA proposes to set the Peak Reserve Capacity Price to 100% of the BRCP at the Peak Reserve Capacity Target.

Parameters: Absolute Zero Point

In the current RCP curve, the price will be zero at 130% of the Reserve Capacity Target. This means that if there is a capacity surplus of 30% of the Reserve Capacity Target, the capacity price will be zero.

Some WICRWG members were concerned that having a zero floor means less certainty for investors. The group discussed alternate options, including a non-zero floor, a cost-of-debt based floor (like the NSW LTESAs) or an arrangement similar to the pre-2019 curve, where consumers always paid the same total amount regardless of the level of surplus. Other members were concerned that, above 130% of target, making any contribution to capacity at all would be the wrong signal.

While oversupply of capacity appears unlikely in the near future, EPWA still considers that it is important to have some protection for consumers in case of oversupply. New generation will be primarily renewables, and the new Relevant Level Method (RLM) means that Capacity Credits allocated to intermittent generators will be a relatively low proportion of nameplate capacity, especially where output is highly correlated with existing facilities.

While a 130% absolute zero point is higher than most (but not all) international comparators, for a relatively small, isolated power system, it is appropriate that the WEM has a higher absolute zero point than larger, interconnected markets.

EPWA proposes to retain an absolute zero point at 130% of the capacity target.

Parameters: Deadband

EPWA's initial proposal had a constant RCP between 100% and 105% of the Reserve Capacity Target. The working group generally supported having a flat priced region near the Reserve Capacity Target, as this would assist investment certainty and reduce year-to-year volatility.

Some members were concerned that the relatively small size of the SWIS means that a few tens of MW can make a material difference to the capacity price, meaning that the price can be changed significantly by a single retirement or new build announcement.

Members also considered that if there were to be a deadband, it should be symmetrical both above and below the capacity target.

EPWA proposes a flat RCP between 95% and 105% of the Reserve Capacity Target.

With a Reserve Capacity Target around 5000 MW, the RCP would remain the same over a band of around 500 MW.

Parameters: Capacity Shortfall at which Price Cap is Met

Almost all international jurisdictions reviewed have their prices hit the cap at between 92% and 98% of the Reserve Capacity Target.

EPWA presented an option with the price cap at 90% of the target.

After discussion settled on a deadband that was symmetric around the capacity target, one member noted that increasing the price by 50% from 95% to 90% would mean very small amounts of capacity would have a large impact on the price.

EPWA proposes to set the price cap at 85% of the Reserve Capacity Target.

This portion of the RCP curve would have a slightly steeper slope than the portion between 105% and 130% of target. The price would move from 100% of BRCP to 150% of BRCP over a capacity reduction of around 500 MW.

One member suggested that given the uncertainty in the target and the BRCP, the cost of underprocurement is greater than the cost of overprocurement. This will be explored in the upcoming modelling.

Differentiating Peak and Flexible Capacity

In the recently commenced RCM reform rules, Peak Capacity and Flexible Capacity have the same curve parameters.

The Benchmark Capacity Providers review has determined the same Benchmark Capacity Provider for both capacity services. This means that the BRCP for each will be the same, and if there is a shortage of Peak Capacity, it is unlikely that there will be a price premium for Flexible Capacity, and thus no investment signal.

The two curves need to be differentiated to provide a signal when there is peak shortage. At the same time, consumer members were concerned that a price cap of 180% (as proposed by EPWA) based on gross CONE would be unreasonable for consumers.

EPWA proposes to:

- **Set the deadband in the Flexible Capacity price curve to between 100% and 105% of the Flexible Capacity Target.** This will provide a sharper signal for investment for Flexible Capacity in case of Peak Capacity shortfall, though the price may be more volatile.
- **Set the price cap for Flexible Capacity at 160% of the BRCP.** This represents the high end of the range internationally.

Proposal Summary: Five Segment Curves with Deadband

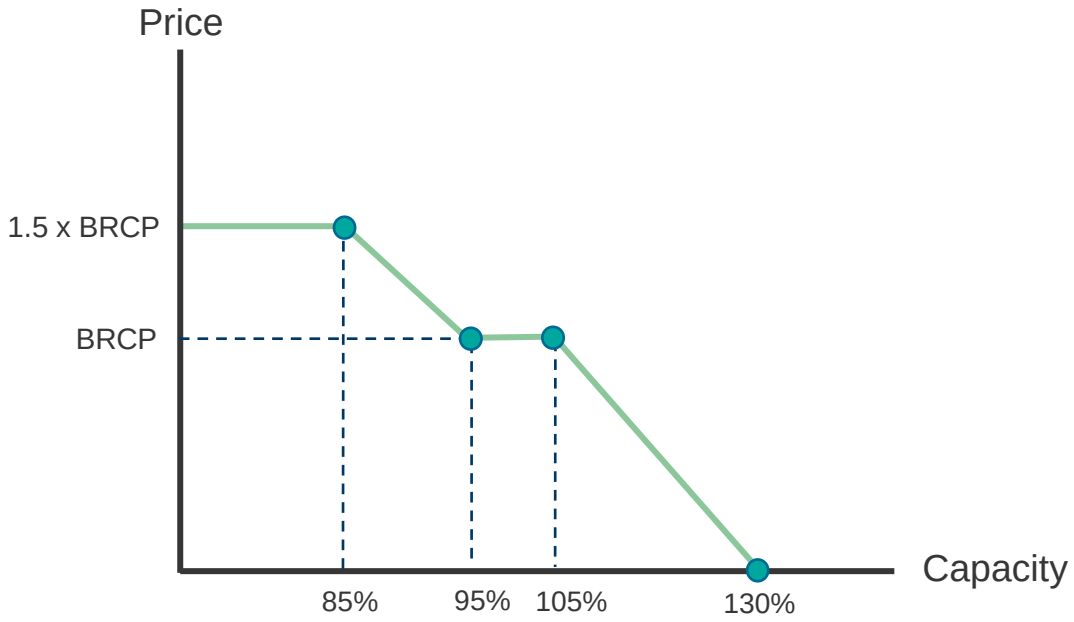
Peak Capacity

Maximum Price: 1.5 * BRCP at 85% of Target Capacity

Price at Capacity Target: BRCP (CONE)

Deadband: BRCP at 95% - 105% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity



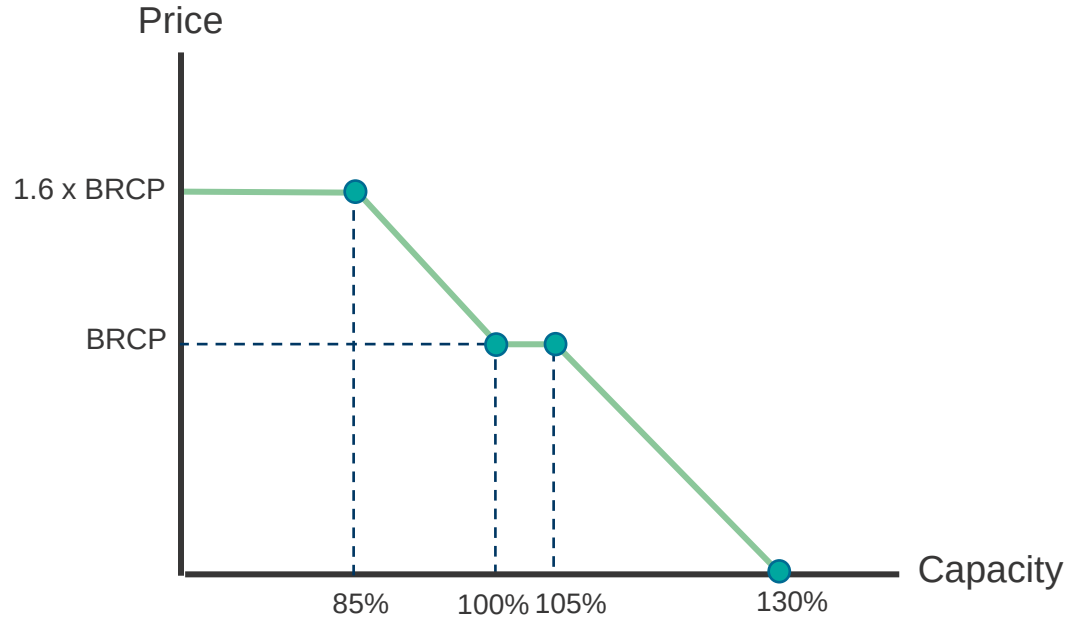
Flexible Capacity

Maximum Price: 1.6 * BRCP at 85% of Target Capacity

Price at Capacity Target: BRCP (CONE)

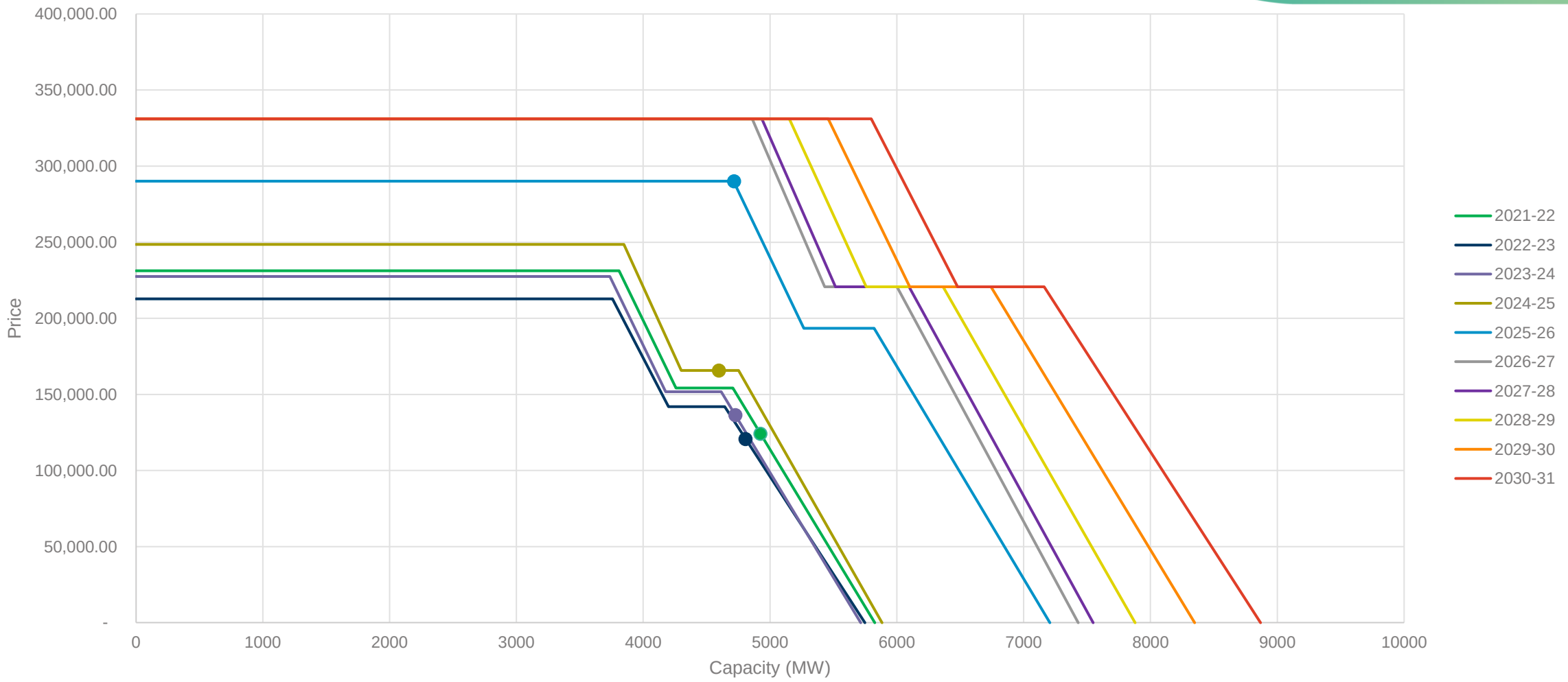
Deadband: BRCP at 100% - 105% of Target Capacity

Minimum Price: 0 at 130% of Target Capacity



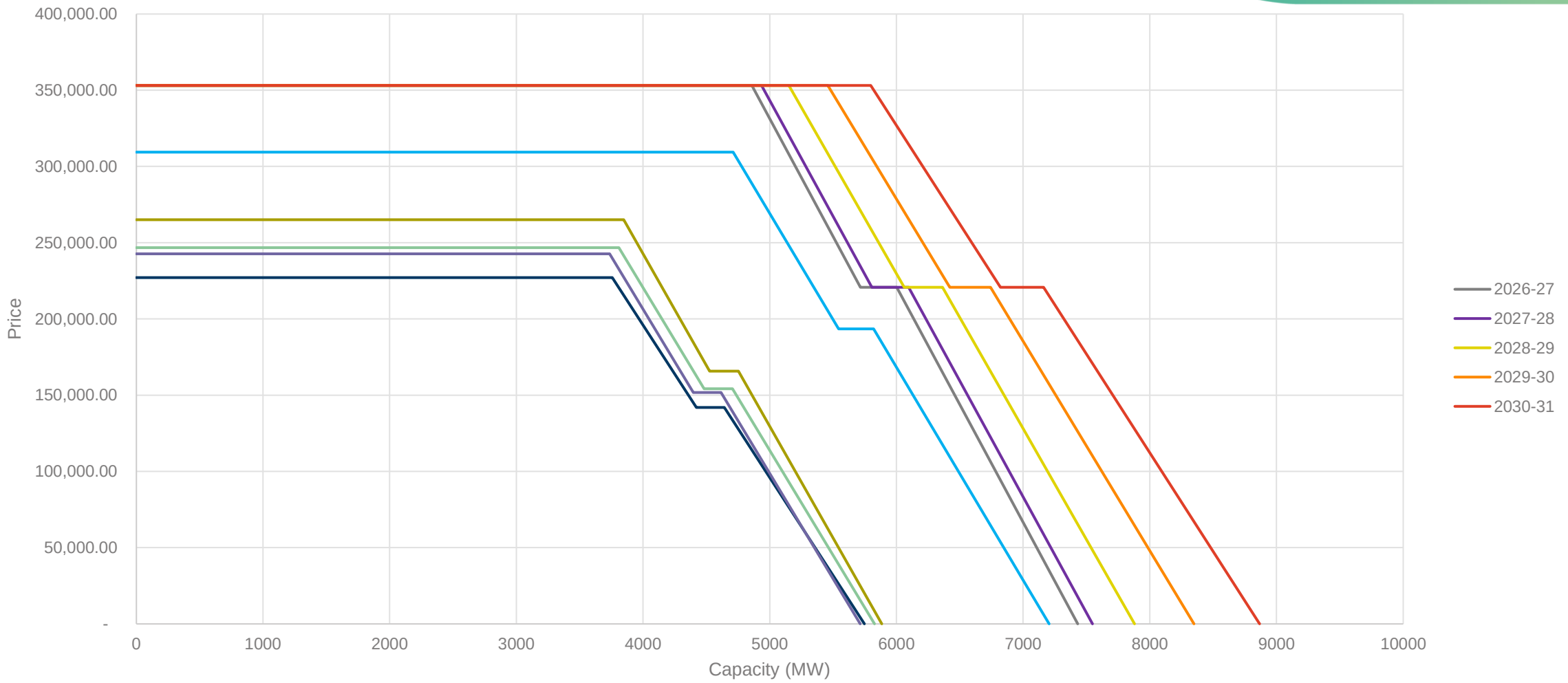
Appendix A provides more information on the price implications of this proposal.

Peak Capacity Price Curve Over Time[1]



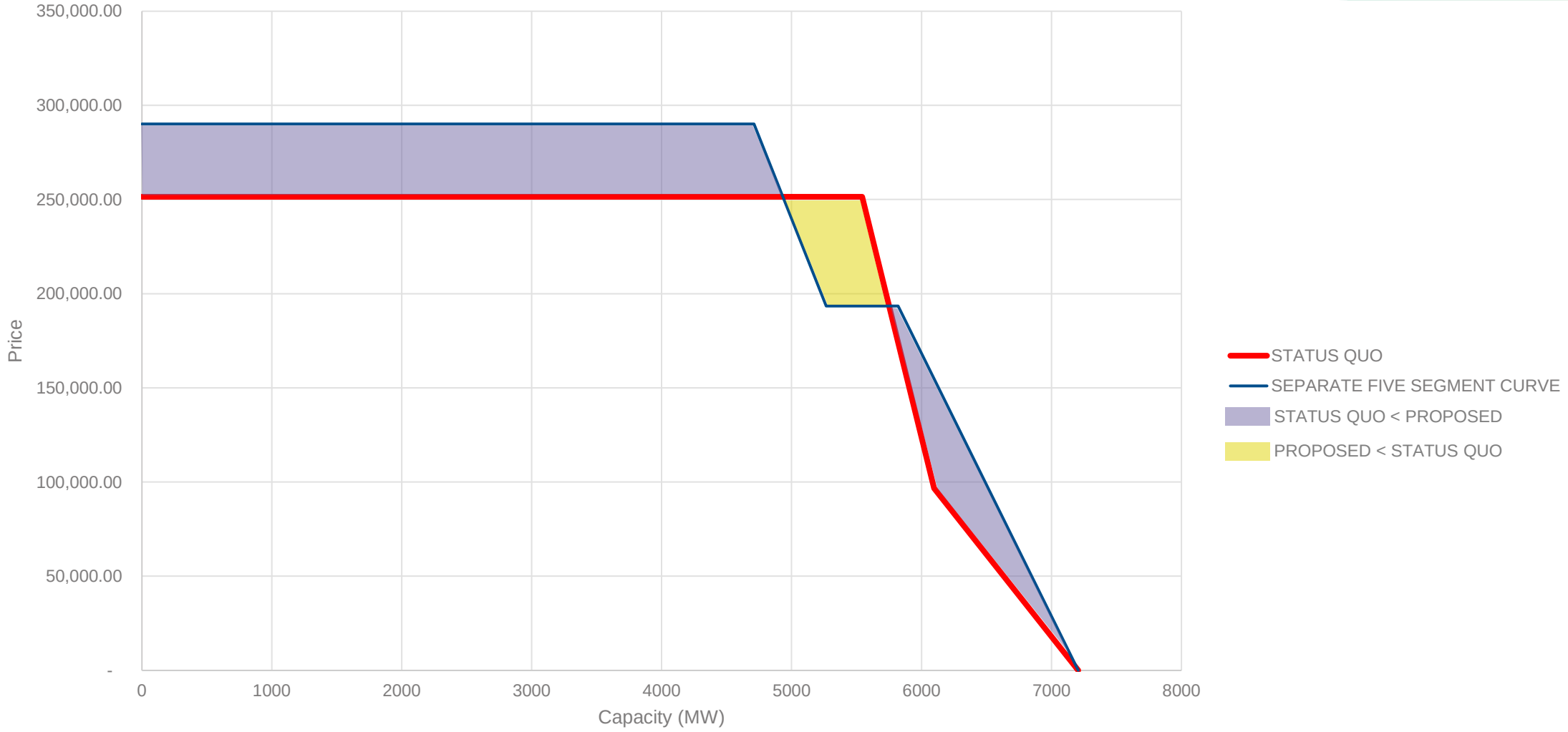
[1] BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP

Flexible Capacity Price Curve Over Time



[1]With the following assumptions: 1) BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP; and 2) Flex Services have the same values of Target Capacity and BRCP as the Peak Services.

Price Increases And Decreases



Other Price Curve Topics

EPWA proposes to:

- Add the Coordinator's review of the price curve to the regular review of the BRCP reference technology.
- Include no special transitional provisions for Facilities commissioned since 2019
- Amend the cap and floor inflation provisions for existing Transitional Facilities (commissioned before 2019) to include a lookback adjustment to account for differences between forecast and actual inflation

These items were discussed at the previous WICRWG, and were generally agreed upon.

5. Support for renewable investment – introduction

Initiative 3 - Scope

The RCM review forecast declining revenues for renewable generators after 2030 when conventional baseload retires:

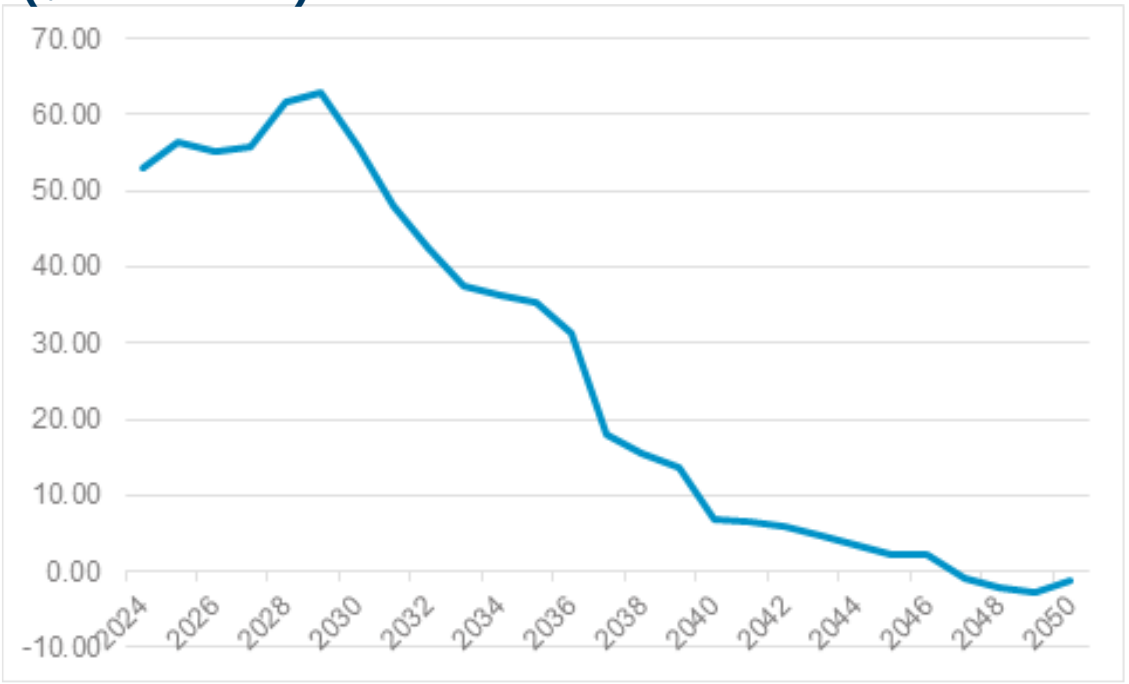
- Meeting the Reserve Capacity Target means building significant volumes of renewable capacity. That means being oversupplied with renewables and storage much of the time.
- Renewable projects need to recover some fixed costs in the energy market as their fixed costs per MW are higher than the technology used to set the BRCP, and they only get Capacity Credits for 15-30% of their nameplate capacity.
- As conventional generation retires, renewable generators with low variable costs will more frequently set the Real-Time Market (RTM) energy price, driving prices to zero or below most of the time. As a result, renewable projects will no longer recover their long run marginal cost through RCM, energy and Frequency Co-optimised Essential System Service (FCESS).

At the same time, Commonwealth programmes are changing:

- The mandatory large-scale generation certificates (LGC) programme will end in 2030, and there is no clear successor mechanism to replace these revenues.
- The Capacity Investment Scheme (CIS) will provide additional revenue for some facilities but not for others.

The objective of Initiative 3 is to consider the need for a “top-up” of WEM revenues for renewable generators to address the risk that the renewables may not recover enough revenue to justify investment.

Average RTM energy prices – RCMR forecast ($AUD/MWh)



Design criteria

An acceptable mechanism should address the three parts of the market objective:

Emissions

- Provide investment certainty for renewable energy producers, without encouraging inefficient oversupply
- Be simple and predictable – avoid adding complexity to an already complex market

Cost

- Maintain competitive pressures on participating facilities by avoiding a regulated price for energy – eligible facilities must not be insulated from energy market signals
- Account for other revenue streams – avoid double dipping
- Not increase end-user energy prices compared to *current* price levels

Security

- Ensure demand can be met at various levels of renewable resource availability by supporting firming of intermittent renewables

Initiative 3 – Key Topics

1. **The overall approach to the scheme**
2. Trigger for scheme commencement and retirement including timing
3. Eligibility criteria for technologies to be considered and the firming requirement
4. **Calculation of the “top-up”**
5. Method of recovery of the “top-up” from the WEM
6. Administration of the scheme
7. Design of the WEM Rules to amend the changes.

Today’s discussion focuses on topics 1 and 4. Other topics are referenced in Appendix C.

6. Support for renewable investment – options

Overall approach

Renewable generators have a variety of existing revenue streams:

- Offtake contracts/ Power purchase agreements (PPAs)
- Real-time energy market (spot sales)
- Real-time Essential System Services (ESS) markets (if eligible)
- Capacity mechanism
- LGCs (until 2030)
- Australian carbon credit units (ACCUs) (possible, but less likely)

The fundamental approach is to add another revenue stream rather than amending these existing mechanisms. Options that place *all* risk on consumers are not appropriate.

Interaction with other schemes

The scheme is intended to provide the “missing money” for facilities that are needed to meet the Reserve Capacity Target, but would not otherwise have sufficient revenue to make investment worthwhile.

The CIS is intended to encourage new investment in clean dispatchable capacity, support reliability, and reduce the risk of price shocks.

These are similar but not the same – the CIS is not directly linked to the capacity target.

LGCs put a per-MWh price on the excess value provided by clean – but not necessarily firmed – energy. The mandatory scheme ends in 2030, and any non-zero price after that point will be a result of voluntary demand.

Similarly, ACCUs put a per-tCO_2e price on the cost of emissions. Renewable generators can be issued ACCUs, but to date LGCs have been more attractive. If LGC prices decline, we may see a switch to ACCUs.

If revenue from these schemes is sufficient to support new firm renewable investment to meet the Reserve Capacity Target, then the guarantee scheme will not be required.

Renewable investment support: Options

EPWA considers that there are three types of scheme that are relevant for discussion:

- Approach A: An energy purchaser obligation (like the Renewable Energy Target [RET])
- Approach B: A capacity-based revenue top up, preferably linked to the CIS
- Approach C: A price guarantee linked to pricing in a trigger year (with a cap and floor)

Appendix B provides an overview of some additional options considered in the UK in a 2022 review.

Approach A: Energy purchaser obligation

The RCM requires consuming participants to procure Capacity Credits to meet their Individual Reserve Capacity Requirement (IRCR).

The RET requires purchasers to procure renewable energy certificates to meet their calculated obligation.

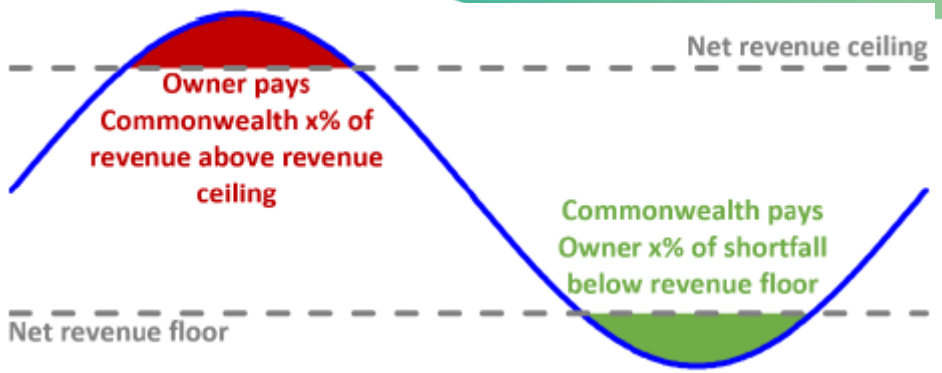
A renewable energy retailer obligation would work like an extension to the RET, but with certificates issued only for *firmed* renewable energy output. A central body would need to:

- Certify facilities as eligible
- Issue certificates for energy output
- Calculate obligations for purchasers
- Log certificate transactions

This approach would increase bankability for renewable projects without explicitly guaranteeing revenues for eligible facilities. It may be possible to adopt or adapt aspects of the existing RCM or the RET scheme rather than creating all new functions.

Approach B: Capacity-based revenue top-up (CIS)

The Commonwealth CIS will guarantee revenue for selected facilities. It functions as a revenue guarantee:



- A series of competitive tenders seeking bids for clean renewable generation and storage projects. Not all capacity will be successful, so market may end up with similar projects with and without this support.
- Eligible tech must have zero scope 1 emissions: dispatchable & sourced from renewable fuels, storage charging from the grid or collocated with renewables (i.e. not fossil fuel generation), demand response. Aggregated BTM VPPs not eligible.
- Rated capacity will be converted to MW of 4-hour storage equivalent using derating factors based on contribution during 1 in 10-year unserved energy events.
- Projects under CIS contracts will have a revenue floor and ceiling for up to 15 years. Under pilot procurement rules, recipients face refunds when availability is less than 97%, and when not producing required energy during LO3 events (load shedding).
- *“It is expected that CIS contracts issued in WA will be adapted to complement the existing Reserve Capacity Mechanism, for example, by supporting the entry of new, zero emissions plant which can participate in the Reserve Capacity Mechanism.”*

Approach B: Capacity based revenue top-up (RCM)

Under the CIS, a central body needs to determine:

- A revenue requirement for each eligible facility, through a competitive auction process.
- Actual revenue for each eligible facility.
- The top-up payment, which could be simply the requirement less actual revenue, or could relate to a range with a cap and a floor.
- Whether a facility had met energy and availability requirements and if not, the adjustment required to the payment (like RCM refunds)

This requires relatively complex administrative activities. An additional WA-specific scheme could avoid this complexity by:

- using CIS results to determine the average $/MW top-up amount paid to CIS facilities
- treating this value as an additional payment to eligible facilities (through the RCM or separately)

Approach C: Price guarantee (1)

A price guarantee would require the WEM Rules or a central body to determine:

- A reference price or price range
- The prevailing RTM price
- The top-up payment for eligible facilities, based on their output and capture price.

The relevant price could be:

- regularly recalculated (like the price caps or the BRCP)
- set once (though with ongoing CPI adjustment) based on prevailing prices in a trigger year:
    - The trigger would likely be linked to cumulative conventional generation retirement
    - The selected year would be from before the price collapse

Approach C: Price guarantee (2)

This approach would:

- Not require detailed revenue information
- Insulate renewables from price risk, but not guarantee revenue adequacy, as they retain volume risk
- Need to account for bilateral contract arrangements in WEM settlement to ensure that a facility was not compensated by both the guarantee mechanism and their contract counterparty
- Need consideration of threshold effects – incentive to drive up prices in the short term to increase the benchmark

7. Support for renewable investment – recap

Recap discussion

Discussion goals:

- Summarise items that seem clear (whether clearly acceptable or clearly unacceptable)
- Note other options for consideration
- Note items that need to be refined or narrowed down
- Note key questions for further investigation

8. Next steps

Upcoming meetings

27 February:

- Renewable support analysis
- Renewable support initial proposal

27 March:

- Price guarantee final proposal.

April – Consultation paper released

June:

- Updates to proposals based on submissions.

June – Information paper released

July:

- Draft amending rules.

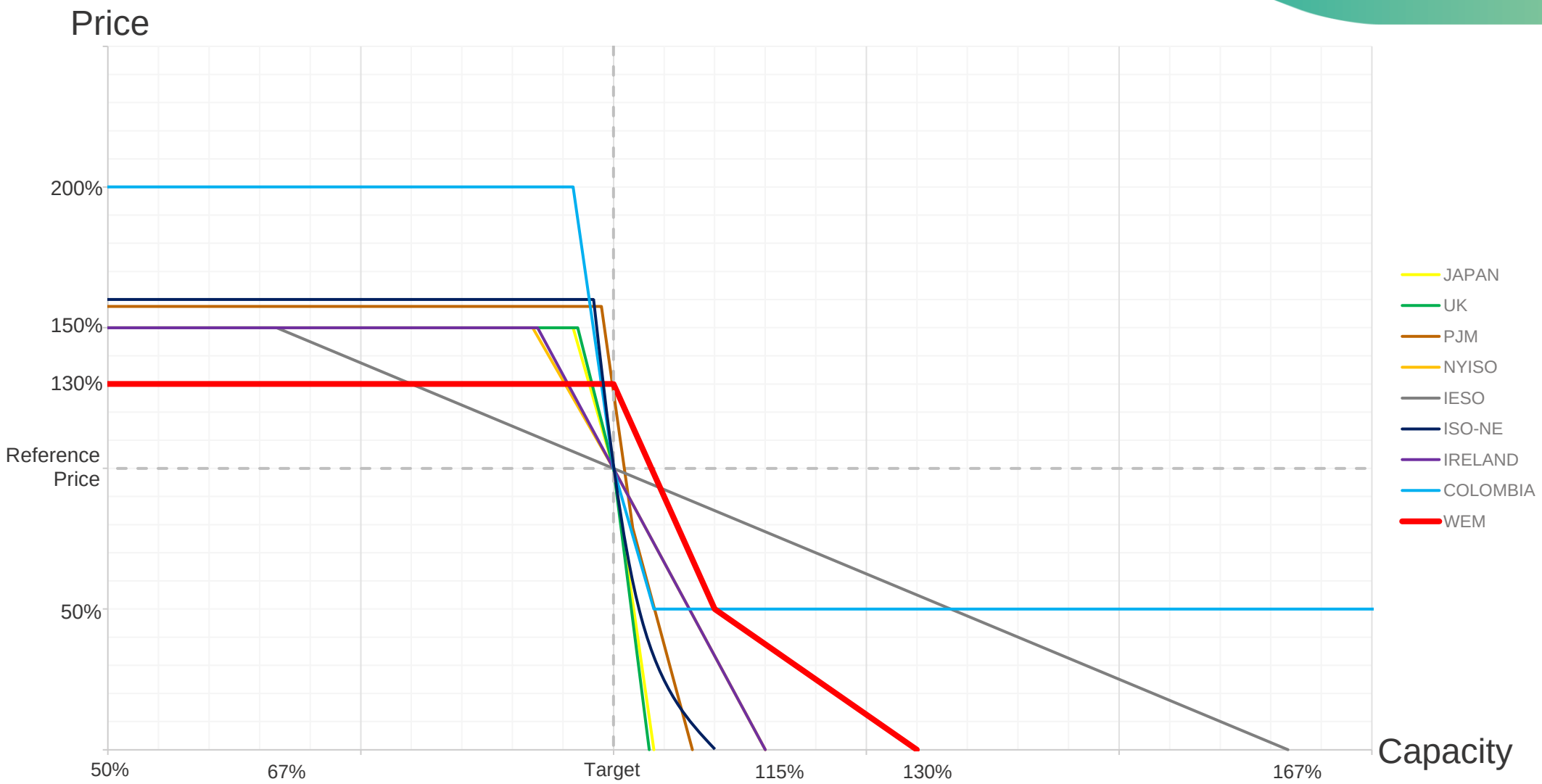
Questions or feedback can be emailed to energymarkets@dmirs.wa.gov.au

9. General Business

We're working for Western Australia.

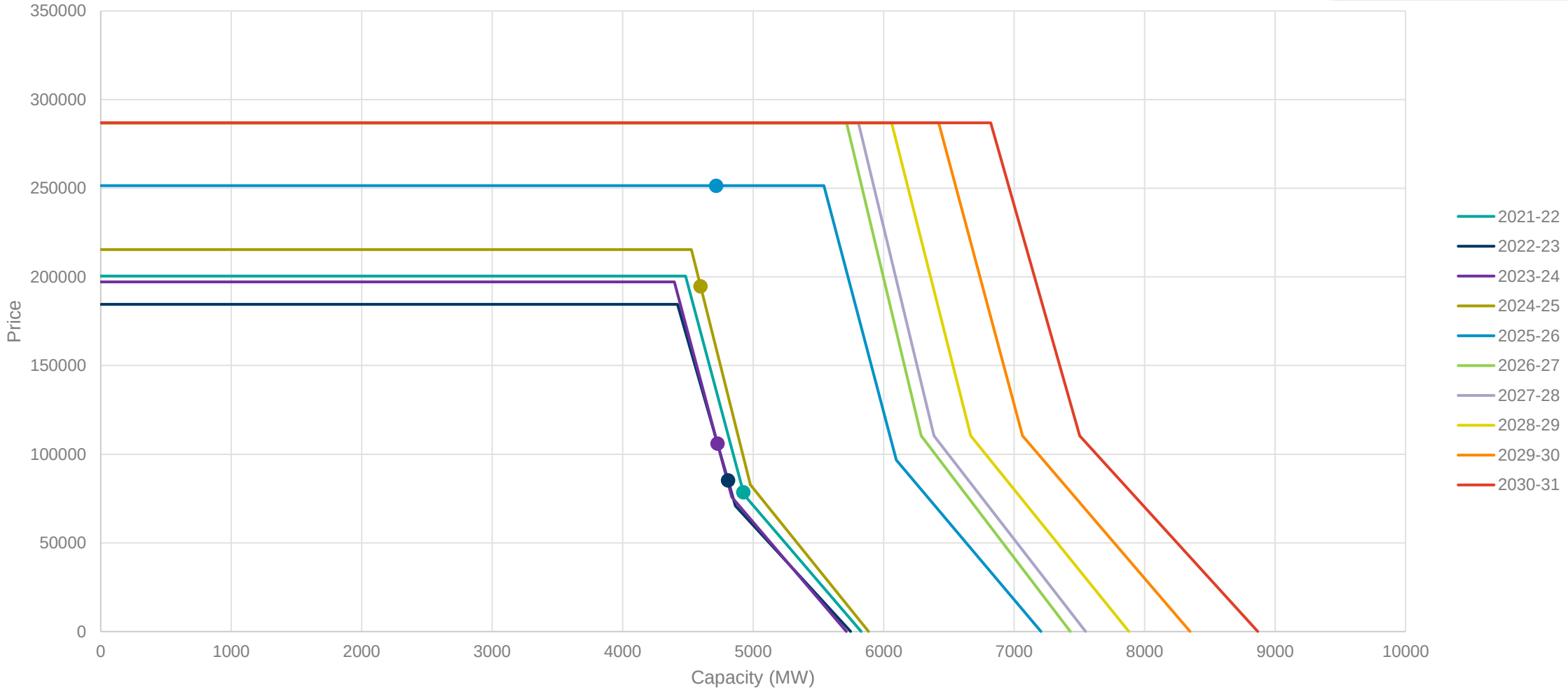
Appendix A – RCP Curve Implications

International Scan Price Curves[1]



[1] NYISO's curve is estimated from the average of Zero Crossing Point for each region; ISO-NE's curve is not exact and is for illustrative purposes only.

Current RCP Curve through the years[1]



[1] BRCP for 2026 onwards is assumed to be the 2026-2027 BRCP

RCP Curve Parameters

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap ($)	200,460.00	184,470.00	197,210.00	215,410.00	251,420.00	286,910.00	286,910.00	286,910.00	286,910.00	286,910.00
Target (MW)	4,482.00	4,421.00	4,396.00	4,526.00	5,543.00	5,716.00	5,806.00	6,061.00	6,422.00	6,821.00
Economic Zero ($)	77,100.00	70,950.00	75,850.00	82,850.00	96,700.00	110,350.00	110,350.00	110,350.00	110,350.00	110,350.00
110% of Target (MW)	4,930.20	4,863.10	4,835.60	4,978.60	6,097.30	6,287.60	6,386.60	6,667.10	7,064.20	7,503.10
Absolute Zero ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% of Target (MW)	5,826.60	5,747.30	5,714.80	5,883.80	7,205.90	7,430.80	7,547.80	7,879.30	8,348.60	8,867.30
Reserve Capacity Price ($)	**78,573**	**85,294**	**105,949**	**194,783**	**251,420**	-	-	-	-	-
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	-	-	-	-	-

Reserve Capacity Price Outcomes – Peak Capacity

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap	231,300.00	212,850.00	227,550.00	248,550.00	290,100.00	331,050.00	331,050.00	331,050.00	331,050.00	331,050.00
85% of Target	3,809.70	3,757.85	3,736.60	3,847.10	4,711.55	4,858.60	4,935.10	5,151.85	5,458.70	5,797.85
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
95% of Target	4,257.90	4,199.95	4,176.20	4,299.70	5,265.85	5,430.20	5,515.70	5,757.95	6,100.90	6,479.95
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
105% of Target	4,706.10	4,642.05	4,615.80	4,752.30	5,820.15	6,001.80	6,096.30	6,364.05	6,743.10	7,162.05
Absolute Zero	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% Target	5,826.60	5,747.30	5,714.80	5,883.80	7,205.90	7,430.80	7,547.80	7,879.30	8,348.60	8,867.30
Reserve Capacity Price ($)	**124,097**	**120,692**	**136,410**	**165,700**	**290,100**	-	-	-	-	-
Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	-	-	-	-	-

Reserve Capacity Price Outcomes – Flexible Capacity

Capacity Year	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31
Price Cap	246,720.00	227,040.00	242,720.00	265,120.00	309,440.00	353,120.00	353,120.00	353,120.00	353,120.00	353,120.00
85% of Target	3,809.70	3,757.85	3,736.60	3,847.10	4,711.55	4,858.60	4,935.10	5,151.85	5,458.70	5,797.85
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
100% of Target	4,482.00	4,421.00	4,396.00	4,526.00	5,543.00	5,716.00	5,806.00	6,061.00	6,422.00	6,821.00
BRCP	154,200.00	141,900.00	151,700.00	165,700.00	193,400.00	220,700.00	220,700.00	220,700.00	220,700.00	220,700.00
105% of Target	4,706.10	4,642.05	4,615.80	4,752.30	5,820.15	6,001.80	6,096.30	6,364.05	6,743.10	7,162.05
Absolute Zero	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
130% Target	5,826.60	5,747.30	5,714.80	5,883.80	7,205.90	7,430.80	7,547.80	7,879.30	8,348.60	8,867.30
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Capacity Credits Assigned (MW)	**4,925**	**4,807**	**4,727**	**4,596**	**4,717**	-	-	-	-	-

Appendix B – 2022 UK review

UK Review of Electricity Market Arrangements

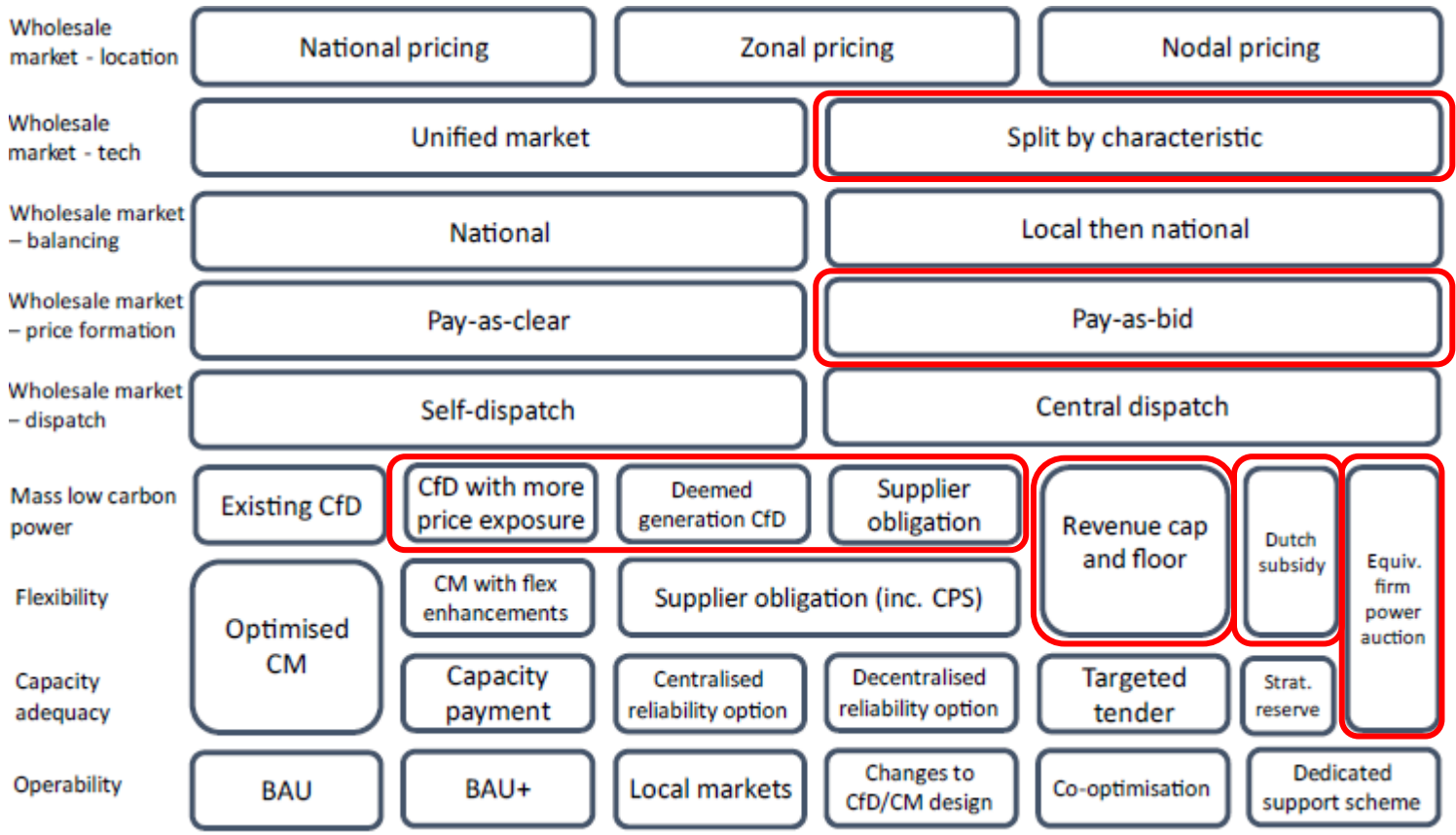
The UK government's 2022 Review of Electricity Market Arrangements noted four existing policies that support revenue for new renewable generation:

1. **Emissions performance standard (EPS):** Limits CO_2 emissions from any new power station
2. **Carbon price support:** Electricity generated from fossil fuels is taxed for CO_2 emissions
3. **Capacity Market:** Intermittent renewables can participate in the capacity auction
4. **Contracts for Difference (CfDs) auction:** Auction winners get a 15-year contract with the Low Carbon Contracts Company that fixes their price for energy. They are not exposed to spot prices.

The review also identified 8 potential changes to market arrangements to reflect a future market with high proportions of intermittent renewables.

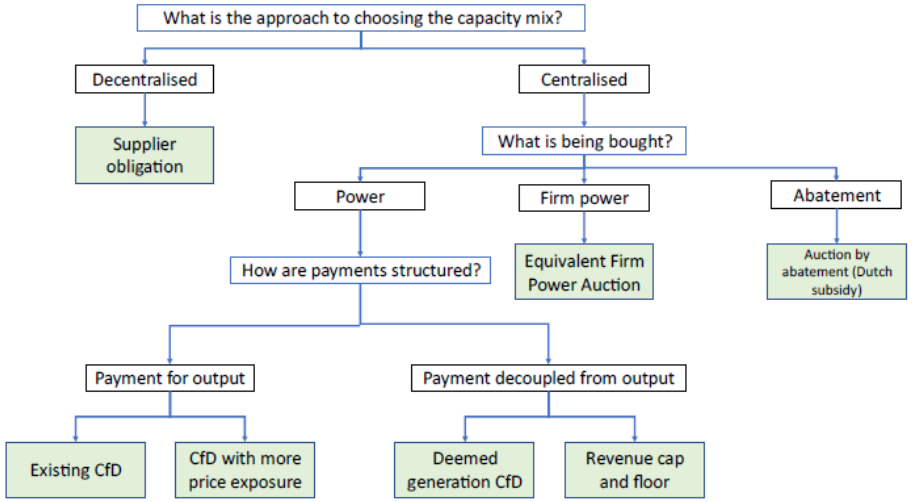
UK Options (1)

1. **Market split:** Separate markets for variable and firm power. Price of ‘variable market’ set by LRMC and ‘firm power market’ set by SRMC.
2. **Pay as bid:** Instead of marginal price, the electricity price is determined by pay-as-bid where participants receive the price of their bids/offers, rather than the bid of the highest priced supplier selected to provide supply.
3. **Supplier Obligation:** Obligation on electricity suppliers to procure green electricity directly on behalf of their consumers based on central targets.



UK Options (2)

4. **CfD with more price exposure:**
    1. A CfD with a price range instead of single strike price
    2. Change in CfD duration – decreasing/increasing duration based on the project
5. **Revenue cap and floor:** Introduction of revenue cap and floor where generators would be guaranteed a minimum revenue in each period.
6. **Deemed generation CfD:** plants are paid based on their potential to generate in a particular period, rather than their actual generation, allowing them to still receive payments while providing system services
7. **Dutch subsidy:** uses technology-specific ceiling prices. Like CfD but covers difference between tariff for CO2-e avoided and estimated market remunration.
8. **Equivalent Firm Power Auction:** Incentivizes variable generators to seek contracts with flexible assets to back up their variability and improve their de-rating factor to provide a greater ‘equivalent’ firm power.



UK Assessment of Identified Options

#	Option	Advantages	Disadvantages
1	Market split	• resolve the issues of price cannibalization and volatility • provides strong incentives for demand-side flexibility and consumer behavior to shift demand	• reduces competition as fewer facilities compete in each market • substantial structural changes
2	Pay as bid	• decoupling energy price from gas prices reducing the reliance on fossil for higher prices	• reduces the incentive for flexibility, as assets are paid based on their cost of production, rather than the value of an additional unit of electricity • market manipulation and distortions in the merit order
3	Supplier Obligation	• investment decisions are market-driven based on targets • maximizes the potential for cross-technology competition	• counterparty risk of contracting with suppliers would be high leading to higher costs
4	CfD with more price exposure	• improved innovation and higher involvement in market process	• increased risk/volatility exposure leading to lower investor confidence
5	Revenue cap and floor	• enables cross-technology competition supporting both renewable and flexible assets, and in the longer run, they could compete against one another for the floor • lowering risk for investors	• could lead to imperfect price signals as returns will be shielded by the floor
6	Deemed generation CfD	• less risk exposure to VRE if a storage is coupled with it	• ability to reliably deem potential to generate as it will be ex-ante
7	Dutch subsidy	• creates a common currency for comparing the relative value for money of decarbonization projects and leads to innovation	• disincentivizes flexible technology as the more they generate, the more the revenue
8	Equivalent Firm Power Auction	• creates a technology-neutral auction and a secondary market for flexibility • encourages VRE to couple with storage	• increased risks for renewable investors due to de-rating.

Appendix C – Additional topics

Initiative 3 – Key Topics

1. The overall approach to the scheme
2. **Trigger for scheme commencement and retirement including timing**
3. **Eligibility criteria for technologies to be considered and the firming requirement**
4. Calculation of the “top-up”
5. **Method of recovery of the “top-up” from the WEM**
6. **Administration of the scheme**
7. Design of the WEM Rules to amend the changes.

This appendix provides additional material on topics 2, 3, 5, and 6.

Eligibility

Whatever approach is used to provide an additional revenue stream, the WEM Rules will need to clearly define eligibility. To be eligible, a facility could need to:

- Be powered by renewable sources. The CIS requirements are probably suitable.
- Have an arrangement to firm its output (see next slide)
- Receive Peak Capacity Credits – Certified Reserve Capacity (CRC) alone would not be sufficient
- Have applied to the CIS and not been successful

Unlike the CIS, the WEM renewable support scheme will not require an additional competitive process.

Support should only be provided in relation to energy that actually flows through the WEM, i.e. not intermittent loads.

Firming requirements

A key component of eligibility for the guarantee is that the proponent is not completely intermittent – it provides some level of firm capacity.

This means that a wind or PV facility would need to also have storage (whether battery or not) or demand response (a Demand Side Programme (DSP) or some new construct) either collocated or contracted to respond when needed.

If collocated, any top-up would be associated with the intermittent component of the facility, not with the firming component.

The firming must be for a particular capacity over a defined duration. For example, to be eligible for the CIS, a facility “must be able to dispatch its **nameplate capacity** continuously for a minimum of **2 hours**.”

Firming requirements

EPWA has identified three options for setting the firming duration requirement. A supported project could be required to have contracts or collocated firming to:

- match the Scheduled Facility requirement. This would require the facility to have storage contracted to at least 50% of its capacity.
- match the Energy Storage Resource (ESR) Duration. This is the natural reference for a WEM duration requirement. It is currently 8 Trading Intervals, and from the 2024 ESOO, will be calculated by AEMO based on the shape of the load curve.
- One of the above *and* be capable of generating a certain amount of energy over a multi-day period.

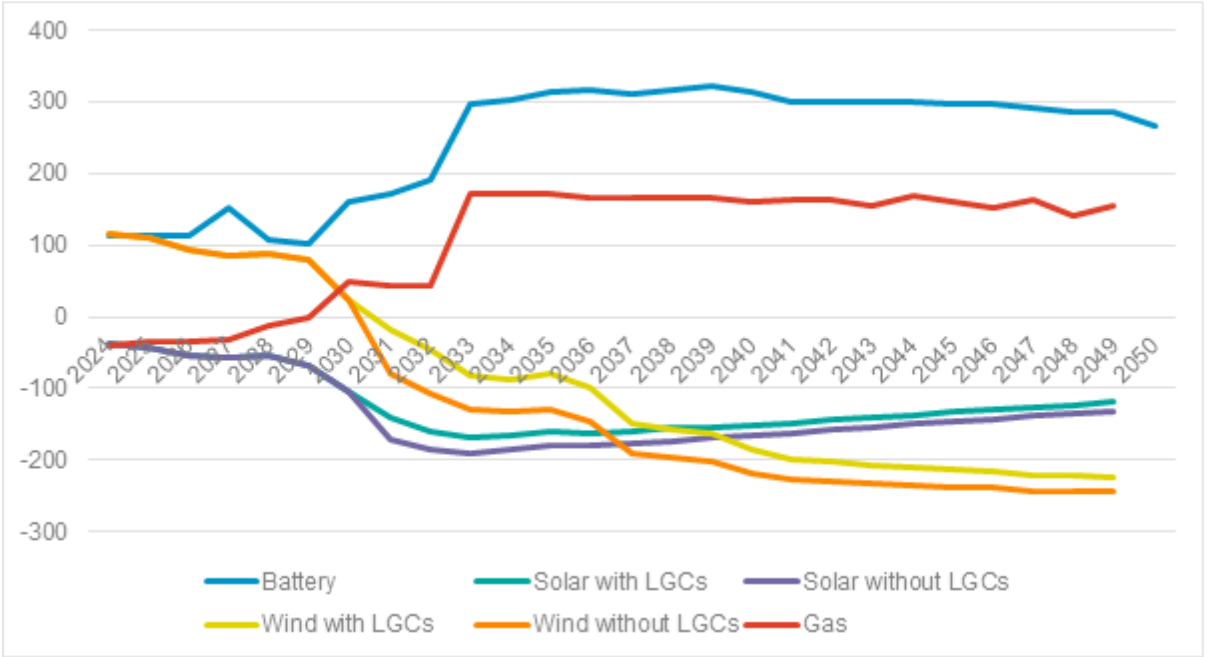
EPWA considers that the duration should be set to support intra-day firming rather than inter-day firming, and that the duration should be linked to the ESR duration.

Timing – options

RCM modelling indicated that revenue from the RTM, RCM and LGCs would be sufficient to support new entry of wind until around 2030. Under the modelled scenario, in years after 2030, a wind facility would not be receiving enough revenue to cover the annualized fixed costs.

Support could begin:

- in a specific year, for example the year following retirement of the last conventional baseload facility
- when actual prices fall below reference prices
- when payments under CIS contracts start being made in the WEM



Profitability of New Entrant Capacity ($/kW)
(RCM Review Information and Consultation Paper, May 2023)

Payments and Cost Allocation

If intermittent output is covered by a bilateral energy contract, then it is likely to already be receiving contributions to fixed costs from that revenue stream. Guarantee payments need to relate only to energy not sold under bilateral contracts.

Costs of providing the guarantees could be recovered from:

- All consuming participants on a per MWh basis (effectively functioning as an adder to energy prices)
- All participants on an IRCR basis (functioning as an adder to capacity prices)
- Only participants buying Capacity Credits from the specific facilities holding guarantees
- Only participants purchasing from the RTM, on a per MWh basis.

Scheme administration

Elements of the scheme require new administrative processes. These roles could be performed as follows:

- Registration and eligibility assessment – AEMO, with guidance in rules and Head of Power for a procedure
- Retailer obligation (if using RET-like scheme) – AEMO, with specific calculations in rules
- Reference determination (if using price top-up) – ERA/Coordinator as per the BRCP
- Settlement – AEMO, using calculations in the rules