



Storage Bid Cost Recovery (BCR) and Default Energy Bid (DEB) Enhancements

Stakeholder Meeting

August 19, 2024

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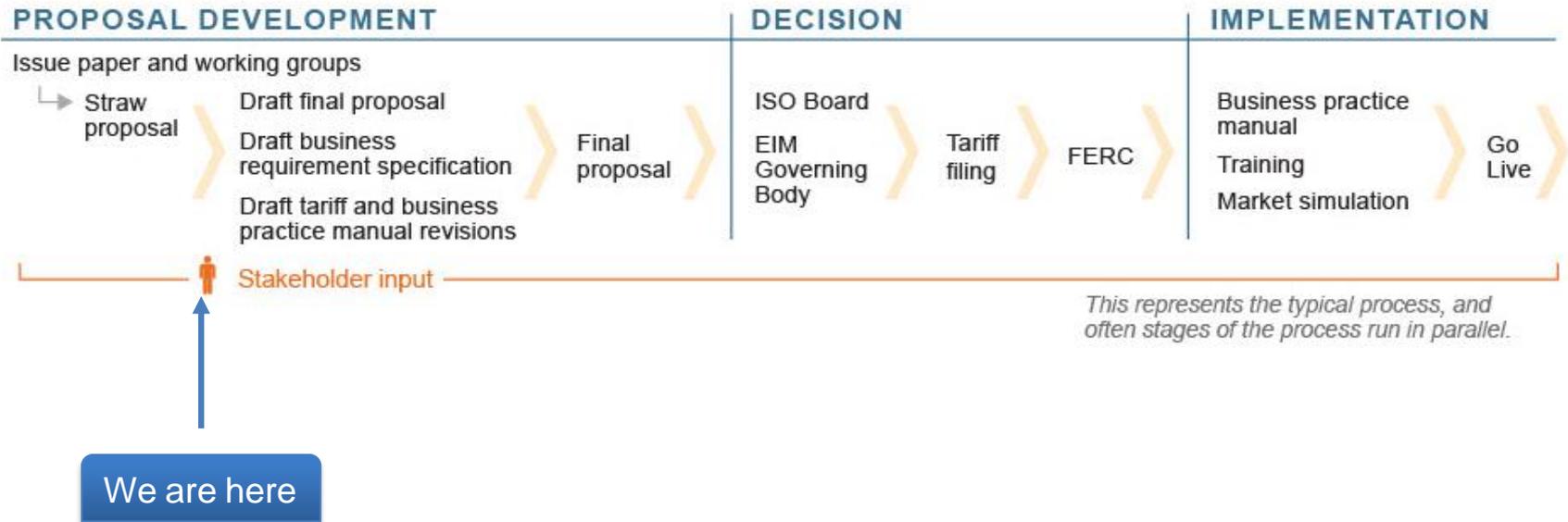
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- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon  located on the bottom of your screen.
Note: *3 only works if you dialed into the meeting.
 - Please remember to state your name and affiliation before making your comment.
- You may also send your question via chat to either **Brenda Marquez** or to all panelists.

Today's Agenda

Time	Topic	Presenter
1:00 – 1:05	Welcome and today's agenda	Brenda Marquez
1:05 – 1:35	Background, Stakeholder Feedback, and Schedule Updates	Sergio Dueñas Melendez
1:35 – 3:05	Alternative Solutions Proposed by Stakeholders	Sergio Dueñas Melendez
3:05 – 3:35	Issues Regarding Mitigation	Sergio Dueñas Melendez
3:35 – 3:55	Open stakeholder discussion	
3:55 – 4:00	Next steps	Brenda Marquez

CAISO Policy Initiative Stakeholder Process



Background, Stakeholder Feedback, and Schedule Updates

Background: The ISO has identified storage resources have received outsized BCR payments relative to their energy schedules

- This is because the CAISO's BCR construct does not adequately consider state of charge, which is necessary for an energy storage resource to support its awards and schedules
- Current rules result in materially different treatment between conventional generators and energy storage resources
- **Concern 1:** Storage assets are not exposed to real-time prices for deviating from day-ahead schedules
- **Concern 2:** Storage assets may have an incentive to bid strategically to maximize the combined BCR and market payment

Background: The Issue Paper & Straw Proposal (IPSP) included a Proposed Solution that would mitigate the two concerns identified

- The Proposed Solution would redefine dispatch unavailable due to SOC constraints in the binding interval as “non-optimal energy,” which would be ineligible for BCR
- If a given storage resource’s SOC at the start of the binding interval is equal to its minimum or maximum value, the market would rerate or derate the PMax or PMin to 0 in order to capture that the asset is completely full or empty
- The proposed solution would materially limit the chances of unwarranted BCR derived from day-ahead schedule buy- and sell-backs

Some stakeholders have recognized and supported the ISO's efforts to resolve market design issues related to storage BCR

- The Department of Market Monitoring (DMM) has noted that the BCR paradigm for storage creates gaming, market efficiency, and reliability concerns
- DMM noted that the ISO's proposed solution proposal addresses all those concerns by changing the BCR rules to fix the core issue: the incentive for batteries to bid in a manner that tends to result in battery capacity being discharged prior to the peak net load hours
- DMM also underscored that addressing all issues as proposed in Track 1 is a better approach than implementing an interim change to address only BCR gaming concerns and then tackling the core bidding incentive issue in a later process

Some stakeholders have recognized and supported the ISO's efforts to resolve market design issues related to storage BCR

- The California Public Utilities Commission's (CPUC) Public Advocates Office (CalAdvocates) has expressed support for the ISO's proposed solution, describing it as “a measured and sufficiently well-targeted approach to ensure that storage resources are not incentivized to deviate from day ahead schedules to achieve excess BCR payments,” supporting the expedited resolution of this issue
- Southern California Edison (SCE) generally support the timing and scope of the initiative, and supports the ISO's proposed solution partially, asking for more examples on how it would apply to resources that can only partially support their awards and schedules
 - SCE has noted that if a resource does not perform it should not receive BCR since said payments would harm market efficiency

Some stakeholders have requested the ISO delay the initiative to holistically revise BCR and identify instances where it may be warranted

- Feedback from stakeholders such as CalCCA, CESA, PG&E, CES, SDG&E, Vistra, and WPTF included recommendations regarding the timing and schedule of the initiative
- These stakeholders underscored that the current timeline of the initiative is insufficient to develop a holistic revision to BCR provisions

Updated Initiative Schedule

- Considering verbal and written stakeholder feedback, the ISO has updated the schedule for this initiative to allow for more robust discussion of alternative solutions put forth by stakeholders
- The revised schedule will allow for more time for feedback and will target a November Joint BOG and Governing Body meeting

Prior Track 1 Timeline *

Milestone	Date
Workshop issue slides posted	July 1, 2024
Stakeholder workshop on issue	July 8, 2024
Workshop stakeholder comments due	July 18, 2024
Second Stakeholder workshop on issue	July 22, 2024
Issue Paper & Straw Proposal (IPSP) posted	July 25, 2024
Stakeholder meeting on IPSP	August 5, 2024
IPSP stakeholder comments due	August 8, 2025
Revised Straw Proposal (RSP) posted	August 14, 2024
Stakeholder meeting on RSP	August 19, 2024
RSP stakeholder comments due	August 23, 2024
Final Proposal (FP) published	August 30, 2024
FP comments due	September 6, 2024
Joint Board of Governors and Governing Body Meeting	September 26, 2024

**All dates are tentative until confirmed through a notice in the ISO's Daily Briefing.*

Updated Track 1 Timeline *

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Workshop issue slides posted	July 1, 2024
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Issue Paper & Straw Proposal (IPSP) posted	July 25, 2024
Stakeholder meeting on IPSP	August 5, 2024
IPSP stakeholder comments due	August 8, 2025
Stakeholder meeting on Alternative Proposals	August 19, 2024
Comments on Meeting on Alternative Proposals due	August 26, 2024
Revised Straw Proposal (RSP) posted	September 3, 2024
Stakeholder meeting on RSP	September 09, 2024
RSP stakeholder comments due	September 23, 2024
Draft Final Proposal (DFP) published	September 30, 2024
Stakeholder meeting on DFP	October 7, 2024
DFP stakeholder comments due	October 21, 2024
Joint Board of Governors and Governing Body Meeting	November 7, 2024

**All dates are tentative until confirmed through a notice in the ISO's Daily Briefing.*

Alternative Solutions Proposed by Stakeholders

Background: The Issue Paper & Straw Proposal (IPSP) included a Proposed Solution that would mitigate the two concerns identified

- The Proposed Solution would redefine dispatch unavailable due to SOC constraints in the binding interval as “non-optimal energy,” which would be ineligible for BCR
- If a given storage resource’s SOC at the start of the binding interval is equal to its minimum or maximum value, the market would rerate or derate the PMax or PMin to 0 in order to capture that the asset is completely full or empty
- The proposed solution would materially limit the chances of unwarranted BCR derived from day-ahead schedule buy- and sell-backs

Some stakeholders have suggested to implement an alternative solution in the interim that would address concerns related to strategic bidding

- The California Energy Storage Alliance (CESA) suggested to implement an alternative solution that would address Concern 2 (Storage assets may have an incentive to bid strategically to maximize the combined BCR and market payment)
- The alternative solution proposed by CESA would imply modifying the formula used to calculate BCR as follows:
 - From: $(RT \text{ dispatch} - DA \text{ schedule}) * (RT \text{ bid} - RT \text{ LMP})$
 - To: $(RT \text{ dispatch} - DA \text{ schedule}) * (DA LMP - RT \text{ LMP})$
 - Other stakeholders, such as Vistra, have suggested something similar, which would use the asset's DEB instead of the DA LMP

Some stakeholders have suggested to implement an alternative solution in the interim that would address concerns related to strategic bidding

- Stakeholders argue that this would eliminate the impact of a resource's bid on BCR payments, with some stakeholders noting that their software used -\$150 bids in hours with DA schedules to “firm them up”
- Stakeholders acknowledge this would not resolve Concern 1, but they argue it would allow more time to develop a holistic solution that addresses said concern appropriately

Some stakeholders have suggested to implement an alternative solution in the interim that would address concerns related to strategic bidding

- Advantages:
 - This would eliminate the impact of a resource's bid on BCR payments
- Drawbacks:
 - This proposal would not address Concern 1, continuing the current insulation of storage resources from RT prices
 - This proposal would not eliminate buy- and sell-back BCR, but it may limit its magnitude
 - This formula would pay BCR to resources that are not available in real-time (and pay the price difference between DA and RT)

Examples Comparing the Status Quo, the Proposed Solution, and the CESA Proposal

DA LMP < RT LMP			
Market Results	Status Quo	Proposed Solution	CESA Proposal
DA Schedule	10	10	10
DA LMP	\$40	\$40	\$40
DA BID	\$30	\$30	\$30
FMM Schedule	-10	-10	-10
FMM LMP	\$150	\$150	\$150
RTD Schedule	-9	-9	-9
RTD LMP	\$100	\$100	\$100
RT Bid Price	-150	-150	-150
FMM-IIE	-20	-20	-20
RTD-IIE	1	1	1
DA Settlement (CC6011)	(\$400)	(\$400)	(\$400)
DA Bid Cost	\$300	\$300	\$300
DA Market Revenue	\$400	\$400	\$400
DA Net Amount	(\$100)	(\$100)	(\$100)
DA BCR Payment	\$0	\$0	\$0
FMM IIE Settlement (CC6460)	\$3,000	\$3,000	\$3,000
RTD IIE Settlement (CC6470)	(\$100)	(\$100)	(\$100)
RT Bid Cost	\$2,850	\$2,850	(\$760)
RT Market Revenue	(\$2,900)	(\$2,900)	(\$2,900)
RT Net Amount	\$5,750	\$5,750	\$2,140
RT BCR Payment (CC6620)	(\$5,750)	\$0	(\$2,140)
Net Cost to LESR	(\$3,250)	\$2,500	\$360

There are significant questions on how to implement this alternative proposal

- CESA's proposal would use the DA LMP instead of the RT Bid, it is unclear how this could be implemented for storage assets in the WEIM that are outside the ISO's footprint
 - There is no DA LMP for WEIM storage assets
 - This concern does not include EDAM BAAs, which will have a DA LMP
 - The DA PNode LMP could be used, but this is a price relative to the ISO's BAA, not reflective of the offers of the WEIM assets

There are significant questions on how to implement this alternative proposal

- It is unclear whether this proposed modification to the RT BCR formulae should apply in all intervals or only intervals when SOC constraints are binding
- If it is applied across all intervals, it is unclear how to treat incremental RT dispatch relative to the DA schedule
 - Should BCR credit for revenues when they are dispatched above their DAM schedule relative to the DA LMP?
 - If so, it would seem that this design might reduce the incentive to offer high in the afternoon

There are significant questions on how to implement this alternative proposal

- This modification to the BCR calculation could lead to revenue credit in intervals where the resource was not dispatched due to a high offer
- This modification to the BCR formula could lead to unwarranted BCR when the DA LMP is greater than the RT LMP and RT MW are greater than DA MW
 - While this scenario might not materialize often, it underscores that the modification might need to include additional logic
- For these reasons, the alternative solution might need to include logic that considers the difference between DA and RT LMPs, and focuses on of decremental dispatch relative to the DA schedule:
 - For example: If $DA\ LMP > RT\ LMP$, use DA LMP to calculate the RT Bid Cost; otherwise $BCR = 0$

There are significant questions on how to implement this alternative proposal

DA LMP > RT LMP			
Market Results	Status Quo	Proposed Solution	CESA Proposal
DA Schedule	10	10	10
DA LMP	\$250	\$250	\$250
DA BID	\$50	\$50	\$50
FMM Schedule	15	15	15
FMM LMP	\$150	\$150	\$150
RTD Schedule	15	15	15
RTD LMP	\$100	\$100	\$100
RT Bid Price	200	200	200
FMM-IIE	5	5	5
RTD-IIE	0	0	0
DA Settlement (CC6011)	(\$2,500)	(\$2,500)	(\$2,500)
DA Bid Cost	\$500	\$500	\$500
DA Market Revenue	\$2,500	\$2,500	\$2,500
DA Net Amount	(\$2,000)	(\$2,000)	(\$2,000)
DA BCR Payment	\$0	\$0	\$0
FMM IIE Settlement (CC6460)	(\$750)	(\$750)	(\$750)
RTD IIE Settlement (CC6470)	\$0	\$0	\$0
RT Bid Cost	\$1,000	\$1,000	\$1,250
RT Market Revenue	\$750	\$750	\$750
RT Net Amount	\$250	\$250	\$500
RT BCR Payment (CC6620)	(\$250)	\$0	(\$500)
Net Cost to LESR	(\$3,500)	(\$3,250)	(\$3,750)

Other stakeholders have suggested other interim solutions which would only deal with instances of BCR resultant from direct SC action

- Vistra put forth a proposal to classify energy associated with Instructed Imbalance Energy (IIE) as non-optimal (thus excluding it from BCR) in the intervals where the SC has submitted
 - (1) an outage card that reduces the resource's Pmax (an availability derate), its Pmin (a Load Max derate), its Maximum Continuous Stored Energy (Maximum Energy derate), or its Minimum Continuous Stored Energy (Minimum Energy derate); or,
 - (2) bid parameters that reduce its Maximum Continuous Stored Energy (Maximum Energy derate), or its Minimum Continuous Stored Energy (Minimum Energy derate)
- In addition, Vistra also included another proposal that is similar to the CESA Proposal, but would use the DEB as opposed to the DA LMP

If this proposal were implemented, there are open questions regarding which intervals it would affect

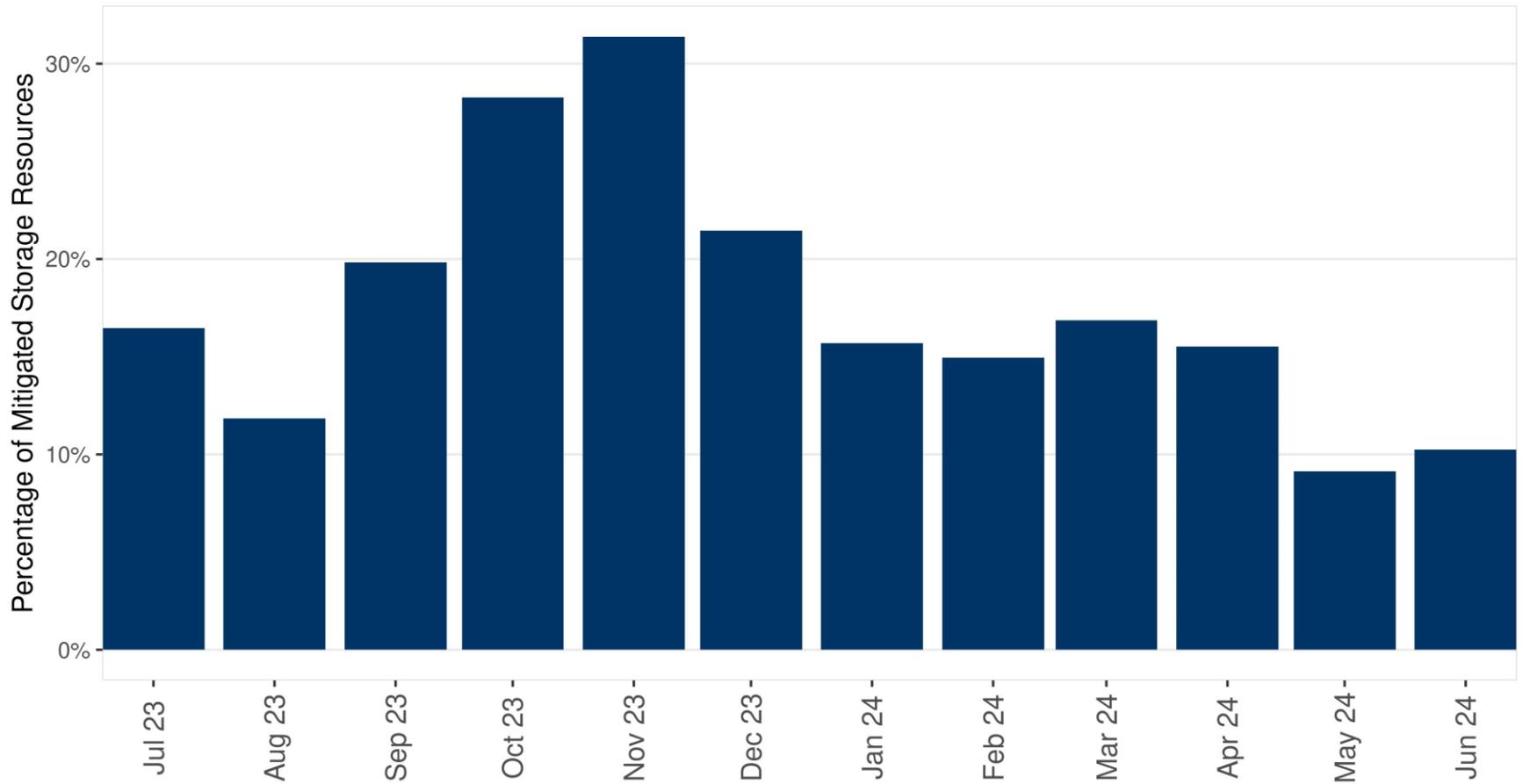
- If Vistra's Proposal is pursued, should only the energy from the intervals in which the outage or bid parameters were submitted be omitted from BCR calculations or should intervals prior be included?
 - For example: today, use of the EOH SOC makes storage resources ineligible for RTM Bid Cost Shortfalls in the hour preceding the scheduled Operating Hour

Issues Regarding Mitigation

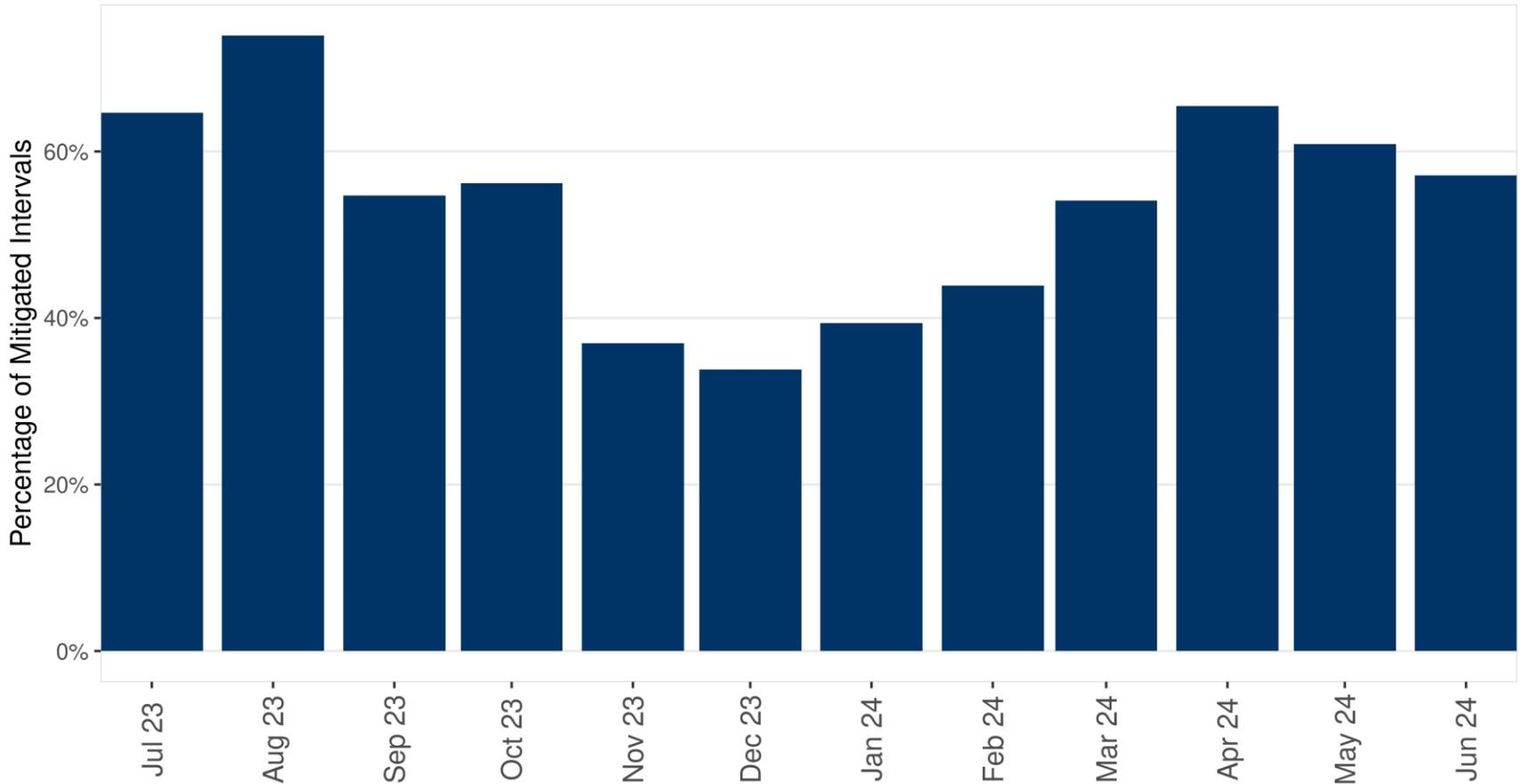
Stakeholders have noted that there are instances that would still warrant BCR, specifically underscoring mitigation

- Some stakeholders have noted that instances in which resources were mitigated in intervals prior to a buy- or sell-back may merit specific BCR provisions
- The MSC noted that we do not know how material this impact would be in the short-run
 - If material, the MSC noted that the same approach used for the Hold Exceptional Dispatch could be used to calculate BCR for dispatch due to mitigation that reduced resource revenues over the day

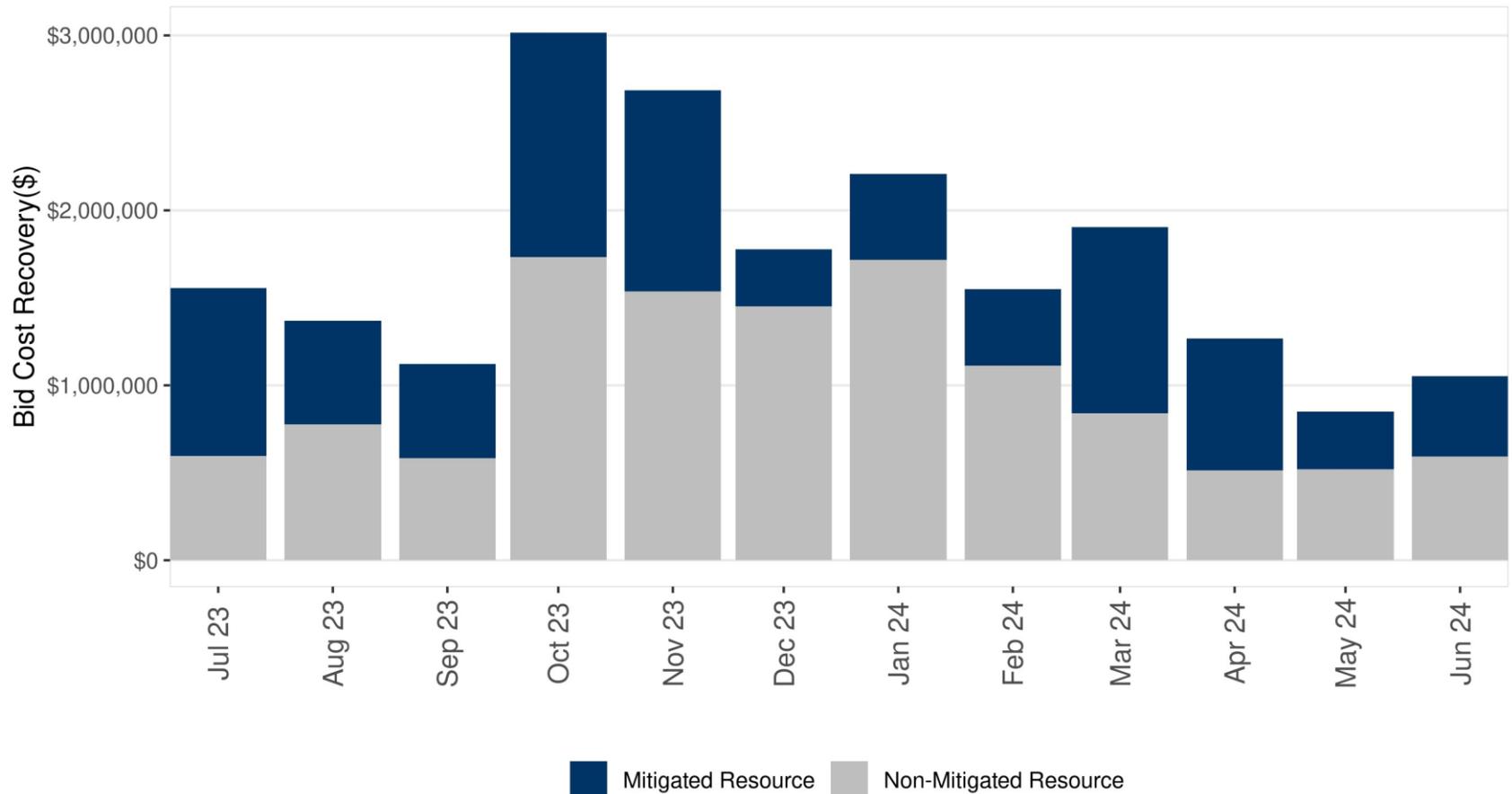
Between 10 and 30 percent of storage resource experienced at least one interval of mitigation



Between 40 and 50 percent of the time there was mitigation on storage resources, but incremental dispatch appears very low



About 41 percent of BCR was paid to mitigated resources in the reported period



Consideration for instances of mitigation may be warranted, but this is dependent on the solution pursued

- If the Proposed Solution is pursued, a specific exception for mitigation may be warranted, although initial analysis suggests mitigation did not result in significant incremental dispatch
- If a solution akin to the CESA proposal is pursued, it may not need a modification for the purposed of mitigation given that said solution does not eliminate BCR but only modifies the calculation of it
 - If this is pursued, further discussion of mitigation may be warranted in the development of a holistic revision to the storage uplift construct

Next Steps

Next steps

- Upcoming milestones:
 - 08/26: Comments on this meeting due
 - 09/03: Revised Straw Proposal (RSP) posting
 - 09/09: Stakeholder Meeting on RSP
 - 09/23: Comments on RSP due

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For reference

- Visit initiative webpage for more information:
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/storage-bid-cost-recovery-and-default-energy-bids-enhancements>
- If you have any questions, please contact ISOStakeholderaffairs@caiso.com

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<https://www.caiso.com/about/news/energy-matters-blog>



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08/13/2024



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By Neil Millar

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New Policy Initiatives Timeline

The California ISO has launched the Policy Initiatives Timeline to offer stakeholders a concise overview of ongoing policy initiatives. At a glance, it offers a snapshot view of key details such as the status of each initiative, projected timelines, and the current phase of the stakeholder engagement process. Updates to this timeline will be made weekly and posted on the [policy initiatives landing page](#). For more information, stakeholders are encouraged to reach out to ISOStakeholderAffairs@caiso.com.





REGISTRATION IS OPEN

2024 STAKEHOLDER SYMPOSIUM

Welcome reception - Oct. 29
at Kimpton Sawyer Hotel, Sacramento, CA

Symposium program - Oct. 30
SAFE Credit Union Convention Center
Sacramento, CA

Visit the event website: www.reg.eventmobi.com/2024stakeholdersymposium

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