



## Submit comment on draft summary report

Initiative: Assembly Concurrent Resolution 188

The ISO values stakeholder input on this preliminary draft, and plans to incorporate feedback received during the January 20 stakeholder call, and in written comments submitted by the deadline on February 3, into future iterations to ensure the accuracy and value of the final report. Please submit written comments to [infoACR188@caiso.com](mailto:infoACR188@caiso.com).

### Submitter information

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### **1. Provide a summary of your organization's comments on the draft summary report and January 20, 2023 stakeholder call discussion:**

The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) understands that the California Independent System Operator's (CAISO) responsibility under Assembly Concurrent Resolution (ACR) 188 is to summarize existing literature concerning the benefits of expanded regional cooperation in wholesale energy markets for California. The draft report provides a review of relevant literature that highlights the potential benefits if the CAISO were to expand its footprint or join a hypothetical western regional transmission operator (RTO). The draft report covers studies showing that regionalization would likely result in lower overall costs to ratepayers and benefit decarbonization across the West, on average. The draft report acknowledges that many of the studies "are analytically useful for estimating the **upper bound** of possible benefits from a regional organized market" [emphasis added].<sup>1</sup>

By contrast, little attention has been paid to estimating realistic lower bound estimates, or costs, whether qualitative or quantitative. Inasmuch as the report covers the many benefits expected from regionalization, it implicitly points to the comparative lack of literature on the many possible disadvantages or risks of regionalization for California.

Cal Advocates recommends several additions to the existing report that are within the scope of ACR 188. These additions will help ensure that legislators and stakeholders can make an informed decision as to how Western cooperation moves forward.

The first is an addition to Section 3 of the draft report. Specifically, Section 3.4 - which includes a discussion of transmission cost allocation - should acknowledge that recent history indicates that among the models for Western cooperation, a Western RTO is the only one that directly addresses the issue of transmission cost allocation. Absent a Western RTO, California ratepayers could continue to solely fund certain new interstate transmission projects.

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<sup>1</sup> Draft Report at 19.

Additionally, Cal Advocates suggests additions to Section 4 (Annotated Summary of the Literature) of the draft report. Section 4 should:

- Highlight the differences between the current CAISO governance structure and that of other RTOs;
- Note the importance of the bilateral market for achieving California’s Senate Bill (SB) 100 goals;<sup>2</sup> and
- Acknowledge the risks surrounding possible legal challenges to California’s SB 100 policy goals.

Finally, Cal Advocates proposes three areas for further research that should be covered in the draft report’s conclusion:

- The net costs and benefits of a Western RTO based on less-than-optimal assumptions.<sup>3</sup>
- The impact of a Western RTO on existing delays to the generation interconnection queue.
- Preventing resource shuffling while complying with decarbonization goals.

**2. Provide your organization’s comments on the regional cooperation efforts in the West, as described in section 2 of the draft report:**

Cal Advocates has no comments at this time.

**3. Provide your organization’s comments on the literature included in the review, as described in section 3 of the draft report:**

**Section 3.4’s discussion of the Brattle Group’s study on improving transmission planning should be expanded to note that a Western RTO is the only model of regional cooperation that directly addresses the dearth of new, interstate, Western transmission lines that allocate costs according to benefits.**

The Brattle Group’s study – Improving Transmission Planning: Benefits, Risks, and Cost Allocation (2019) – described current interregional transmission planning practices as “suboptimal” and stated that “concerns with cost allocation are a large barrier to interregional growth.”<sup>4</sup> Although the National Renewable Energy Laboratory (NREL) report argues that many of the benefits of an RTO can be captured via non-RTO means (such as energy imbalance

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<sup>2</sup> SB 100 (De León) Stats. 2018, Ch. 312. California Public Utilities Code Sections 399.11, 399.15, 399.30, and 454.53.

<sup>3</sup> Extant analyses summarized in the draft report have used optimistic assumptions to estimate ceilings for shared benefits under an RTO model, but no analysis has yet used assumptions that reflect more likely participation rates. See Cal Advocates’ answer to Question 6 for further details.

<sup>4</sup> Brattle Report - Improving Transmission Planning: Benefits, Risks, and Cost Allocation (2019) as cited in the Draft report at 76.

markets, etc.),<sup>5</sup> it is critical to recognize that 1) recent history indicates that an RTO is the only model that directly addresses this interregional transmission cost allocation barrier, and 2) the benefits of non-RTO methods of cooperation (like the Extended Day-Ahead Market) are dependent on the transfer capabilities that high-voltage, interregional transmission lines provide.<sup>6</sup>

Under an RTO structure, RTO participants would fund transmission projects that are selected in the RTO's transmission plan. If a Western RTO were to operate like the CAISO, the cost of high-voltage projects would be allocated to the entire RTO footprint, reflecting the broad benefits those projects provide.<sup>7,8</sup>

While the Federal Energy Regulatory Commission (FERC) is currently addressing transmission reform,<sup>9</sup> federal regulations are not likely to allocate the cost of new, interstate, Western transmission projects between states or regions according to the project's benefits. In comments at the FERC, Southern California Edison Company (SCE) noted that, in the West, the interregional coordination process put in place by FERC Order 1000 in 2011 has "not resulted in a single interregional transmission project."<sup>10</sup> The FERC's current Notice of Proposed Rulemaking (NOPR) on transmission reform does "not, at this time, propose changes to the existing interregional transmission coordination and cost allocation requirements of Order No. 1000."<sup>11</sup>

This is not to say that the FERC has not encouraged cost-sharing for interregional transmission projects. FERC Order 1000 adopts as one of six principles that the cost of interregional transmission should be allocated in a manner roughly commensurate with benefits,<sup>12</sup> and the current NOPR aims to increase cooperation between transmission providers

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<sup>5</sup> Energy Strategies, LLC's "CAISO EDAM Benefits Study: Estimating Savings for California and the West Under EDAM Market Scenarios (2022)," as summarized in "Impacts of Expanded Regional Cooperation on California and the Western Grid." NREL at 43.

<sup>6</sup> See a discussion of EDAM benefits in Section 3 of the Draft Report.

<sup>7</sup> "The CAISO's transmission cost allocation scheme recognizes that the high voltage transmission lines on the CAISO grid perform a backbone function that supports regional flows of bulk energy throughout the system." (Comments of the CAISO on FERC Rulemaking 21-17-000. October 2021. Available at <http://www.aiso.com/Documents/Oct12-2021-Comments-AdvanceNoticeOfProposedRulemaking-BuildingTransmissionSystemoftheFuture-RM21-17.pdf>.)

<sup>8</sup> "[Transmission revenue] associated with facilities rated 200 kV and above are recovered through a system-wide "postage stamp" rate (the high-voltage or "regional" rate), whereas [transmission revenue] for facilities rated below 200 kV are recovered via PTO [Participating Transmission Owner] -specific rates charges to load within the PTO's service territory (low-voltage or "local" rates)." (Transmission Access Charge Options for Integrating New

Participating Transmission Owners. CAISO Issue Paper. October 23, 2015. Available at <https://www.aiso.com/Documents/IssuePaper-TransmissionAccessChargeOptions.pdf>.)

<sup>9</sup> See FERC Rulemaking (RM) 21-17-00.

<sup>10</sup> Comments of Southern California Edison Company on FERC RM 21-17-000 on Transmission Reform. P. 4. October 12, 2021.

<sup>11</sup> FERC RM 21-17-000. April 12, 2022. Section 416. Available at <https://www.ferc.gov/media/rm21-17-000>.

<sup>12</sup> FERC Order 1000. July 21, 2011. Section 622. Available at <https://www.ferc.gov/sites/default/files/2020-04/OrderNo.1000.pdf>.

and state entities vis-à-vis cost allocation.<sup>13</sup> However, these frameworks do not, like a Western RTO, implement unified transmission planning and cost allocation.

Absent a Western RTO, CAISO-based ratepayers in particular will continue to be at risk of unilaterally funding new connections between the CAISO and neighboring regions. Recent examples of CAISO-based ratepayers exclusively funding interstate transmission lines include:

- The Ten West Link Project (which has an estimated capital cost of \$389M) connects SCE's service territory with that of Arizona Public Service (APS). It was approved by the CAISO in 2014 and the California Public Utilities Commission (CPUC) in 2021 and will be funded exclusively by CAISO ratepayers despite acknowledged benefits to Arizona.<sup>14</sup> It is projected to be in service in 2024.<sup>15</sup>
- The Devers-Palo Verde 2 Project (which has an estimated capital cost of \$545M) connects SCE's territory to the Palo Verde substation in Arizona (APS territory). It was approved by the CAISO in 2005 and the CPUC in 2007 and is funded by CAISO ratepayers. It increases capacity between Arizona and the CAISO.<sup>16</sup>
- The Harry Allen – El Dorado Line (which has an estimated capital cost of \$182M) is located exclusively in Nevada. This project connects the CAISO system to that of NV Energy and was approved by the CAISO in 2014. It is funded solely by CAISO ratepayers.<sup>17</sup>

This list is not comprehensive, and this trend of CAISO-funded interstate connections is ongoing. The CAISO is currently considering the Southwest Intertie Project (SWIP)-North Line, which would connect southern Idaho to the CAISO grid, and the developer has proposed that the project be exclusively funded by CAISO ratepayers.<sup>18</sup>

A current development that would mitigate this trend is subscriber-based, or merchant, transmission. Merchant lines do not collect revenue from captive ratepayers; they sell capacity on their transmission at negotiated rates ensuring that those that benefit from a transmission

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<sup>13</sup> "With respect to transmission cost allocation, the reforms proposed in this draft NOPR would require that public utility transmission providers in each transmission planning region seek to obtain the agreement of relevant state entities within the transmission planning region regarding the cost allocation method or methods..." (Presentation: FERC RM 21-17-000. April 21, 2022. Available at <https://www.ferc.gov/news-events/news/presentation-building-future-through-electric-regional-transmission-planning-and->)

<sup>14</sup> See Application (A.) 16-10-012. Cal Advocates Opening Brief at 27-29 and Reply Brief of the Public Advocates Office at 39.

<sup>15</sup> Per the CAISO's Transmission Development Forum, available at <http://www.caiso.com/informed/Pages/MeetingsEvents/UserGroupsRecurringMeetings/Default.aspx>.

<sup>16</sup> "The DPV2 project will increase the transfer capability between southern California and Arizona by 1,200 megawatts (MW)..." (Opinion Granting a Certificate of Public Convenience and Necessity. A.05-04-015. CPUC. January 26, 2007. Available at [https://docs.cpuc.ca.gov/PublishedDocs/WORD\\_PDF/FINAL\\_DECISION/64017.PDF](https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/64017.PDF).)

<sup>17</sup> Harry Allen-Eldorado 500 kV Transmission Project. CAISO. December 15, 2014. Available at [https://www.caiso.com/Documents/HarryAllen-EldoradoProjectAnalysisReport\\_AppendixA.pdf](https://www.caiso.com/Documents/HarryAllen-EldoradoProjectAnalysisReport_AppendixA.pdf).

<sup>18</sup> See the 2022-23 Transmission Planning Process for the consideration of SWIP-North, available at <https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2022-2023-Transmission-planning-process>.

line pay for it. The CAISO has recently adopted a subscriber-based tariff that will integrate merchant lines into their system without increasing the CAISO transmission access charge (TAC).<sup>19</sup>

Given the possibility of a) a non-RTO future for Western cooperation or b) a Western RTO that takes years to implement, the CAISO has a responsibility to inform decision-makers of the transmission cost implications to California ratepayers of this status quo<sup>20</sup> and to highlight the potential of merchant transmission to mitigate these impacts.

#### **4. Provide your organization's comments on the annotated summary of the literature, as described in section 4 of the draft report:**

Section 4.3 should be expanded to address 1) the importance of consumer advocates' role in RTO governance, 2) the retention of bilateral contracts under a Western RTO, and 3) the challenges an RTO could present to California's environmental goals.

Section 4 of the draft report provides an annotated summary of the literature focusing on the types of benefits of regionalization, options, and modes for achieving regionalization, and the unique impacts that regionalization would be expected to have on California. Cal Advocates urges NREL and the CAISO to consider expanding Section 4.3 ("Impacts on California") to identify the unique tradeoffs that California would face if it joined a Western RTO. While qualitative, these tradeoffs still represent "key issues that will most effectively advance the state's energy and environmental goals."<sup>21</sup>

Cal Advocates suggests adding at least three tradeoffs to Section 4.3. First, the draft report should highlight the changes that could occur with a shift in governance. The CAISO is unique among RTOs in North America because its Board of Governors is appointed directly by the Governor of California.<sup>22</sup> All other RTOs have very different approaches to forming a board, and they tend to emphasize independence from state oversight. Beyond the methodology for appointing a board, the costs and risks associated with expanded regional cooperation may also be unevenly distributed. An effective governance structure must recognize these asymmetries and be structured accordingly. The draft report correctly notes that governance continues to be a central issue.<sup>23</sup>

The market governance of a possible Western RTO should be structured, and continuously monitored, to ensure that the economic benefits of generation optimization flow to

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<sup>19</sup> See the CAISO's Subscriber Participating Transmission Owner Model Initiative.

<sup>20</sup> This is pursuant to ACR 188's requirement that the report include "any available studies that reflect the impact of regionalization on transmission costs and reliability for California ratepayers."

<sup>21</sup> ACR 188 at 81.

<sup>22</sup> Parent, Christopher A., et al, February 2021, *Governance Structure and Practices in the FERC-Jurisdictional ISOs/RTOs*, Prepared for the New England States Committee on Electricity, available at [HYPERLINK "https://nescoe.com/wp-content/uploads/2021/02/ISO-RTOGovernanceStructureandPractices\\_19Feb2021.pdf"](https://nescoe.com/wp-content/uploads/2021/02/ISO-RTOGovernanceStructureandPractices_19Feb2021.pdf)[https://nescoe.com/wp-content/uploads/2021/02/ISO-RTOGovernanceStructureandPractices\\_19Feb2021.pdf](https://nescoe.com/wp-content/uploads/2021/02/ISO-RTOGovernanceStructureandPractices_19Feb2021.pdf).

<sup>23</sup> Draft Report at 20.

the consumer and not solely to other market participants.<sup>24</sup> The most straightforward way to ensure that an extended Western RTO market provides economic benefits to consumers is to ensure that consumer advocates have voting power in governance. Optimally, ratepayer advocates should be integral in approving policy or market initiatives prior to deliberation by a final, independent decision-making body to ensure the protection of regional ratepayers.<sup>25</sup>

Second, the draft report should expand the “resource adequacy” topic of Section 4.3 to discuss the importance of bilateral markets for achieving California’s SB 100 goals. While the New York Independent System Operator, PJM Interconnection, and the Independent System Operator-New England utilize centralized auctions to procure resource adequacy capacity,<sup>26</sup> a central market auction run by CAISO would potentially be under FERC jurisdiction.<sup>27</sup> Bilateral contracting avoids FERC rules on wholesale energy sales that a multi-state centralized market is subject to, enabling LSEs to procure renewable resources to comply with California’s Renewable Portfolio Standard (RPS) Program. California would need a Western RTO to retain the bilateral contracting construct to ensure the state can meet its clean energy goals and avoid running afoul of FERC intervention. Therefore, a benefits study that assumes a centralized procurement approach to resource adequacy would not reflect the structures that need to be in place for California LSEs to realize their RPS goals.

Third, the draft report should note the risks of legal challenges to California’s greenhouse gas (GHG) policy goals. The draft report summarizes two legal analyses (Cite Codes [25] and [26] in the draft report) which conclude that California’s RPS Program would be enforceable under greater regionalization because the CAISO already encompasses a multi-state region and California participates in the Western interconnection. If California joined a Western RTO, the state would need to anticipate that its SB 100 programs would face additional

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<sup>24</sup> Cal Advocates comments only on the potential for a Western RTO, as the governance for more limited forms of regional cooperation involving California such as an energy imbalance market and extended day ahead market have been determined by consensus in the CAISO’s stakeholder processes.

<sup>25</sup> Of the four RTOs in the US that deliberate on issues of transmission planning and transmission cost allocation in addition to running a regional energy market covering significant territory in multiple states (PJM, ISO-NE, MISO, and SPP), PJM is the only RTO with voting power dedicated to consumer advocates through the Consumer Advocates of PJM States (CAPS) group (See the PJM Stakeholder Process Groups Diagram available at <https://www.pjm.com/-/media/committees-groups/committee-structure-diagram.ashx>, and the CAPS member list, available at: [http://www.pjm-advocates.org/Members\\_and\\_Related\\_Offices.html](http://www.pjm-advocates.org/Members_and_Related_Offices.html)). While CAPS has voting power, the influence of CAPS is heavily diluted in the voting pool. CAPS represents 1% of the voting power in PJM’s lower voting tier and 2.7% of PJM’s senior voting tier; both tiers must approve initiatives prior to deliberation by PJM’s board of governors. Fourteen CAPS members vote as ex-officio members in PJM’s stakeholder process (Percentages calculated against member counts from PJM member list, available at: <https://www.pjm.com/about-pjm/member-services/member-list.aspx>).

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See studies [5], [22], and [37].

<sup>27</sup> [FERC intervention that conflicted with renewable goals occurred in 2018. The PJM Interconnection operated a capacity market that incentivized procurement of renewable and nuclear resources in order to facilitate clean energy goals of member states. The FERC disallowed those incentives, calling them out-of-market actions that suppressed market clearing prices, rendering rates unjust and unreasonable. 163 FERC ¶ 61,236 \(June 29, 2018\), paragraph 149.](#)



legal challenges<sup>28</sup> even if the programs are likely to withstand such attempts.<sup>29</sup> Cal Advocates does not disagree with the draft report's suggestion that a Western RTO is likely to lead to reduced curtailments and emissions across the whole footprint.<sup>30</sup> However, it is unclear what California's contribution to reduced curtailments and emissions would be and how those gains would compare to a CAISO-only counterfactual. The draft report should add to its note on decarbonization<sup>31</sup> that while a Western RTO would likely promote decarbonization generally across states with less ambitious goals, it could hinder California's ability to fully meet its own SB 100 goals.

**5. Provide your organization's comments on SB 100 and relevant updates, as described in section 5 of the draft report:**

Cal Advocates has no comments at this time.

**6. Provide any additional comments on the draft summary report and January 20, 2023 stakeholder call discussion:**

The draft report summarizes "recent relevant studies on the impacts of expanded regional cooperation on California," while falling short of fully identifying "key issues that will most effectively advance the state's energy and environmental goals."<sup>32</sup> The Conclusion (Section 6) should highlight that significant gaps exist in the literature that must be addressed in order to better understand the implications of moving forward with West-wide regionalization. These gaps do not preclude decision-makers from continuing to consider greater regionalization but should be addressed to allow them to make fully informed decisions.

Cal Advocates suggests three areas for further research that should be addressed in this Conclusion.

1. The net costs and benefits of a Western RTO should be modeled using realistic assumptions.

Modeling a Western RTO is a challenging and very complex undertaking. However, too many of the studies to date have relied on simplified assumptions that are biased toward overestimating the benefits of an RTO. For example, study [4] modeled the expected benefits of the Extended Day-Ahead Market Initiative by assuming full participation in the WECC footprint and that all transmission owners released their full transmission rights to the RTO for optimization.<sup>33</sup> These assumptions are simplified to be useful, but as a result, are not appropriately conservative and tend to overstate expected benefits. Likewise, the CAISO has so far declined to provide any kind of cost estimates to stakeholders for new products that are being proposed in the Day-Ahead Market Enhancements initiative, preventing any consideration of *net* benefits. Further study that uses more specific assumptions and takes

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<sup>28</sup> Draft report at. 65.

<sup>29</sup> Draft report at 64.

<sup>30</sup> Draft Report at 87.

<sup>31</sup> Draft Report at 87.

<sup>32</sup> ACR 188.

<sup>33</sup> [4] CAISO EDAM Benefits Study: Estimating Savings for California and the West Under EDAM Market Scenarios (2022), Prepared by Energy Strategies, LLC, Prepared for CAISO.

expected costs seriously is necessary to protect ratepayers' interests when considering greater regionalization. Such a study would be a significant undertaking but is wholly appropriate when considering the magnitude of starting up a Western RTO.

## 2. The impact of a Western RTO on existing delays to the generation interconnection queue.

In 2021, the CAISO received more than triple the average number of interconnection requests compared to the past decade and, as a result, suspended interconnection queue applications for the entire year of 2022.<sup>34</sup> Interconnection requests across the country have been increasing quickly, and the share of projects that achieved a commercial online date after entering the CAISO queue between 2000 and 2016 was the lowest of any RTO at 13%.<sup>35</sup> Processing the interconnection queue is already time, labor, and computationally intensive. Expanding the interconnection queue to serve a Western RTO would likely increase the complexity of the analyses compared to CAISO's status quo. It is unclear if such an expansion would benefit from increasing returns to scale, or if the complexity would instead increase non-linearly and thereby exacerbate the backlog. If expanding the reach of the interconnection queue leads to worse delays, it could threaten reliability for California and the entire footprint of a Western RTO.

## 3. Preventing resource shuffling while complying with decarbonization goals.

The California Public Utilities Code requires that the process of achieving the SB 100 and SB 1020<sup>36</sup> goals "shall not increase carbon emissions elsewhere in the western grid and shall not allow resource shuffling."<sup>37</sup> Multiple studies summarized in the draft report acknowledge concerns regarding resource shuffling or emissions leakage while complying with decarbonization goals, both inside and outside of California.<sup>38</sup> Further research is needed on RTO market designs that could implicate these statutory requirements.

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<sup>34</sup> Ruddy, Stephen, *Decision on Cluster 14 Interconnection Procedures*, CAISO Board of Governors Meeting, July 15, 2021, available at [HYPERLINK "https://www.aiso.com/Documents/Decision-Cluster-14-Interconnection-Procedures-Presentation-July-2021.pdf"](https://www.aiso.com/Documents/Decision-Cluster-14-Interconnection-Procedures-Presentation-July-2021.pdf)<https://www.aiso.com/Documents/Decision-Cluster-14-Interconnection-Procedures-Presentation-July-2021.pdf>.

<sup>35</sup> Rand, J., et al, Lawrence Berkeley National Laboratory, *Queued Up: Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2021, April 2022* at 4 and 11, Available at [https://emp.lbl.gov/sites/default/files/queued\\_up\\_2021\\_04-13-2022.pdf](https://emp.lbl.gov/sites/default/files/queued_up_2021_04-13-2022.pdf).

<sup>36</sup> SB 1020 (Laird) Stats. 2022, Ch. 361. California Public Utilities Code Sections 454.53(a) and 454.59.

<sup>37</sup> California Public Utilities Code Section 454.53(a).

<sup>38</sup> See, for e.g. studies [5], [22], and [37].