October 27, 2016

California Independent System Operator (CAISO)
P.O. Box 639014
Folsom, CA 95630

California Air Resources Board (CARB)
1001 I Street
Sacramento, CA 95814

Re: Regional greenhouse gas emissions accounting and energy market design proposals from CAISO and CARB

Dear CAISO and CARB staff and stakeholders,

Thank you for the opportunity to comment on the recent CAISO Technical Workshop[1] and CARB Workshop[2] presentations concerning market design options to account for the regional greenhouse gas emissions implications of CAISO energy markets.

For context, we are longtime academic observers of California's energy and climate policies. Each of us has spent over a decade conducting research on state, federal, and international climate policy with a particular focus on the design and implementation of emissions trading systems and their impact on the electricity sector. We have also worked extensively on legal issues that affect the application of state climate policies to interstate markets for electricity and transportation fuels.

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1 CAISO, Regional Integration – California Greenhouse Gas Compliance Initiative – Second Update (Oct. 13, 2016) (hereinafter "CAISO Presentation"), *available at* http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalIntegrationCaliforniaGreenhouseGasCompliance.aspx.

2 CARB, Mandatory GHG Reporting Program and Cap-and-Trade Program Workshop – Energy Imbalance Market (EIM) (Oct. 21, 2016) (hereinafter "CARB Presentation"), *available at* https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf.

We are grateful for the details provided in CAISO's Technical Workshop on October 13 and appreciate the hard work that went into analyzing the market design options contained therein. We also thank CARB for providing its perspective on the regional GHG emissions accounting issues that arise in the Energy Imbalance Market (EIM), many of which also apply to the question of whether and how to expand CAISO's real-time and day-ahead energy markets in the context of a regional ISO. The detailed information from both CARB and CAISO is very helpful in focusing stakeholder conversations on the specific market mechanisms and policy issues under consideration. We believe that successful resolution of these issues is important to maintaining the environmental integrity of California's suite of climate policies.

Our comments today focus on five issues:

- **All of the market design concepts under consideration assume a price on carbon, but CARB only has clear legal authority to price carbon through the end of 2020.** If CAISO markets were expanded without clear legal authority to continue pricing carbon after 2020, this development would put California's climate leadership in jeopardy. We therefore urge stakeholders to condition CAISO expansion discussions on the successful legal authorization of post-2020 carbon pricing policy in California—and, if necessary, to delay CAISO expansion discussions until that time.

- **Policy and legal considerations for the EIM can and should be considered separately from those related to full integration of day-ahead and real time regional energy markets.** We note that while CAISO's overall process focuses on the integration of regional energy markets, both CAISO and CARB staff presentations address concerns with respect to potential EIM reforms. We respectfully ask CAISO and CARB staff to clarify the extent to which their proposed solutions for the EIM are also intended to apply to the full regionalization discussion. Our view is that the carbon prices needed to achieve California's post-2020 policy targets will be much higher than current prices. Put another way, the relatively low carbon price as applied in today's EIM is not representative of the likely market impacts and

dynamics in the post-2020 period. Accordingly, we believe it is a mistake to combine the discussion of potential EIM reforms with regionalization of the core energy markets.

- **Both proposals for Option 3 involve differential treatment of resources depending on their location and/or contractual arrangement with California load-serving entities (LSEs), raising new dormant commerce clause risks that require analysis.** CARB has proposed using dynamic average emissions factors to calculate the greenhouse gas compliance obligations associated with energy transferred into California territory. This will result in higher emissions factors for out-of-state renewable energy resources and potentially for natural gas combined cycle units located in areas where the average regional emissions factor is higher than that of natural gas. CAISO's preferred implementation of Option 3 contemplates retaining the source-specific emissions accounting in the current EIM, but supplementing this approach with a system "hurdle rate" that applies to resources imported into California. Both approaches consider exempting certain out-of-state resources that have bilateral contracts with California LSEs. CAISO proposes that any resource with such a contract would avoid the hurdle rate. In turn, CARB would give renewable energy resources with California contracts source-specific emissions factors. Both approaches raise significant new dormant commerce clause risks that require additional analysis.

- **The potential for post-2020 carbon prices to raise non-discrimination concerns under the Federal Power Act requires additional analysis.** Equal, non-discriminatory access to the transmission system for all generators is a central ordering principal of both the Federal Power Act and FERC Order 888. CAISO has not yet assessed the impacts on dispatch of realistic post-2020 California carbon prices under any of its proposals. These proposals also envision differential treatment of otherwise like resources in regional ISO-wide dispatch. We are concerned that differential treatment that may seem reasonable and not unduly discriminatory at a carbon price of $\$12.73/tCO_2$ might not be within the zone of reasonableness at a price

of $50 to $100 per tCO_2. Thus we believe that all proposals require further evaluation at much higher carbon prices than presented in the staff presentations.

- **CASIO's and CARB's proposals for Option 3 would place merchant generators at a disadvantage relative to out-of-state resources that contract with California LSEs.** Both the CAISO and CARB proposals for Option 3 would attribute emissions to resources with bilateral contract paths differently from those without them. At the high carbon prices expected after 2020, merchant zero-carbon resources—a crucial element in the CAISO analysis of the net benefits of a regional ISO—would face differential treatment that could significantly affect their economic competitiveness. CAISO should analyze this issue as it considers the question of non-discriminatory treatment under higher, post-2020 carbon prices.

We describe these issues and our recommendations in greater detail below. Before turning to our recommendations, however, we first summarize what we understand to be the positions taken by CARB and CAISO in their recent workshop presentations.

1. Summary of CAISO and CARB Presentations

As discussed in the CAISO presentation accompanying the Technical Workshop, CAISO considered three different ways to account for the regional GHG emission impacts in a regional energy market:[3]

- **CAISO Option 1 ("intertemporal netting"):** [4] This option would involve calculation of the net GHG impact of regional transfers based on a counterfactual dispatch scenario generated separately from the market optimization algorithm. The "netting" of GHG emissions would occur over a medium-length period of time, *e.g.* weeks to months, not minutes to hours. If net GHG emissions as calculated are

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[3] CAISO Presentation, slide 15.

[4] *Id*. at slide 16.

greater than the GHG emissions profile of the resources deemed delivered to California in the EIM, then CARB would retire additional cap-and-trade compliance instruments to cover the difference. If the net GHG emissions are less than or equal to the GHG emissions profile of the resources deemed delivered to California in the EIM, then no change to cap-and-trade compliance would be required.

- **CAISO Option 2 ("incremental deeming"):**[5] This option would involve modification of the CAISO optimization algorithm based on retention of source-specific cost and GHG attributions. Transfers would be assigned by comparing the dispatch in an optimized regional market against a counterfactual "economic base" scenario that optimizes dispatch without transfers from outside California to California. Using this two-step calculation, CAISO would identify the marginal resources outside of California that serve California loads and their associated GHG emissions. Unlike Option 1, the calculation of GHG emissions would occur in each market period—*e.g.* in five-minute increments for the real-time energy market—as opposed to integrated over weeks or months. CAISO concluded that this method is not computationally feasible on the five-minute time scale.[6]

- **CAISO Option 3 ("residual emission rate" or "hurdle rate"):**[7] This option would involve modification of the CAISO optimization algorithm to include a "residual emission rate" that accounts for the secondary dispatch concerns raised by CARB. This option would resemble Option 2 in that it calculates the GHG emissions of resources imported to California in real-time—*e.g.*, in five-minute increments for the real-time energy market—but differs in that the source-specific

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[5] *Id*. at slides 17-26.

[6] *Id*. at slide 42. At the CAISO technical workshop, CAISO staff also expressed concern with adopting one method in the real-time market and another method in the day-ahead market. Because CAISO concluded that Option 2 is not feasible for the real-time market, this would imply that Option 2 should not be applied to the day-ahead market, either.

[7] *Id*. at slides 27-41.

GHG emissions accounting would be augmented by the application of a "residual emission rate" that reflects leakage from secondary dispatch. CAISO indicated that out-of-state resources could avoid the hurdle rate by using bilateral contracting with California-based LSEs.[8]

In turn, CARB addressed each of these options in its presentation from Oct. 21, 2016. We review CARB's responses and suggestions here:

- **CAISO Option 1:** CARB appears to have rejected this option, stating that it is not open to crediting GHG benefits from exports of relatively low-carbon resources located inside of California that displace generation from relatively high-carbon resources located outside of California.[9]

- **CAISO Option 2:** CARB expressed a willingness to consider this approach, but acknowledged CAISO's objection on computational feasibility grounds.[10]

- **CAISO Option 3:** CARB expressed a willingness to consider this approach and suggested an alternative treatment for the GHG emissions. Instead of using source-specific GHG emissions, as would be the case under CAISO's proposal for Option 3, CARB indicated a preference for accounting for GHG emissions using a five-minute *average* of power transferred into California.[11] CARB also suggested that out-of-state renewable generators that have procurement contracts with California load-serving entities be treated as zero-emissions resources that are not subject to the average-emissions-factor-derived "dynamic hurdle rate."[12]

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[8] *Id*. at slide 28.

[9] CARB Presentation, slide 6; *see also* CAISO Presentation, slide 42.

[10] CARB Presentation, slide 7.

[11] *Id*. at slide 8.

[12] *Id*. at slides 8-9. Note that CARB only identified renewable resources as potentially taking advantage of this source-specific treatment; in contrast,

Based on CARB's objection to crediting the GHG benefits from exports from California under Option 1, as well as CAISO's statements about the computation infeasibility of applying Option 2 to its real-time energy markets, we understand that Option 3 appears to offer the only way to satisfy both entities' concerns at this time.

2. Successful CAISO regionalization depends on California developing a legally robust post-2020 carbon pricing policy.

As one of us (D.C.) noted in an earlier comment letter on CAISO's August 2016 Issue Paper, both of us (M.W. and D.C.) have expressed serious concerns about CARB's authority to extend the cap-and-trade program after 2020.[13] This is because we believe the current cap-and-trade program is authorized only through the end of 2020:

> In furtherance of achieving the statewide greenhouse gas emissions limit, by January 1, 2011, [CARB] may adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, *applicable from January 1, 2012, to December 31, 2020, inclusive*, that [CARB] determines will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those sources or categories of sources. [Emphasis added.][14]

We note that every one of the options discussed by CARB and CAISO presumes state legal authority to price carbon. In the context of the pre-2020 EIM market operations, this is a valid assumption. As applied to the

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CAISO identified all resources that have bilateral contracts with California LSEs.

[13] Comment letter from Danny Cullenward to CAISO re: August 2016 Issue Paper (Sept. 20, 2016), *available at* https://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalIntegrationCaliforniaGreenhouseGasCompliance.aspx.

[14] Cal. Health & Safety Code § 38562(c).

creation of a regional ISO that will operate after 2020, however, it is not. We provided a complete discussion of the issue in an earlier comment letter to CARB and would refer interested stakeholders to that letter for more information.[15]

Fundamentally, we believe that stakeholders should condition the creation of a regional ISO on the successful resolution of California's post-2020 carbon pricing legal authority.

Given our view that CARB currently does not have the authority to price carbon after 2020, we also believe the timeframe for developing a final regional ISO proposal is overly ambitious. In order to preserve California's climate leadership in the context of a regional ISO, it will be necessary for the state to have clear legal authority to price carbon after 2020. Achieving that standard will require either a future ballot initiative or new legislation that satisfies the requirements of Proposition 26.[16]

Both the legislature and the Governor's office have indicated their intention to pursue appropriate legislation in 2017, but that process will not be resolved in time to finalize a regional ISO proposal in early 2017. As a result, CAISO's proposed schedule[17] to develop a straw proposal for a regional ISO in November and a final proposal in December may need to be delayed.

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[15] Comment letter from Danny Cullenward and Michael Wara to CARB (Sept. 19, 2016) (comment #49), *available at* https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=capandtrade16.

[16] Cal. Constitution Art. XIII A § 3 (requiring a bicameral legislative supermajority for any change in statute that causes any taxpayer to pay higher taxes, as those terms are broadly defined).

[17] CAISO Presentation, slide 46.

3. **The EIM reform discussion should be separated from the question of how to integrate real-time and day-ahead energy markets in a regional ISO because western Clean Power Plan compliance strategies and the carbon prices required to meet California's 2030 climate target will fundamentally alter the market dynamics present in the pre-2020 EIM.**

It appears to us that CARB and CAISO have integrated their discussion of potential reforms to the EIM with the question of how to design a future regional ISO market. The most recent CAISO presentation focuses on potential EIM reforms, but takes place in a process focused on regional ISO market design; it is not entirely clear whether the EIM reforms CAISO discusses are intended to apply to the regional ISO market design discussion.[18] For its part, CARB appears to be focused primarily on concerns about the current operation of the EIM.

While it would of course be desirable to design a set of practices for the EIM that could be ported to future regional ISO markets, we think that combining the two processes confuses two key issues that will be material to success in each market design process. The first relates to the likelihood that multiple carbon pricing systems will be developed in the Western United Sates and the second concerns the likelihood that California carbon prices will be significantly higher in the post-2020 period.

First, as was pointed out by Berkshire Hathaway Energy in its comments on the August 2016 Issue Paper, any system for the regional ISO must be capable of managing multiple carbon pricing regimes. Assuming the Clean Power Plan survives review in the D.C. Circuit, it is likely that at least some western States will pursue carbon pricing schemes for their power sectors. Nevertheless, we believe it is unlikely that potential partner jurisdictions in a regional ISO will pursue economy-wide cap and trade or regulation of sufficient stringency to allow for linkage with the California

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[18] *Id*. at slide 7 (indicating CAISO's participation in CARB's public stakeholder process addressing the GHG impacts of the EIM and indicating that CAISO has not yet decided if proposed EIM solutions are "scalable to day-ahead [markets in] a multi-state balancing authority area").

cap-and-trade program under the requirements of SB 1018.[19] As a result, we believe that the most likely Clean Power Plan compliance scenario will involve multiple carbon pricing regimes in the Western United States, rather than a single integrated system managed in collaboration with CARB.

In addition, CARB has signaled—not least in its response to Option 1—that it objects to the concept of allowing GHG emission credits for zero-emission generation that is exported from California to neighboring states. This is consistent with the idea that California does not want its anticipated over-compliance with Clean Power Plan targets to facilitate under-compliance in other regional ISO member jurisdictions. CARB's concern is particularly pressing if such over-compliance occurs because of RPS-related bilateral contracts with California LSEs that are ultimately the financial responsibility of California ratepayers.

The need to manage multiple carbon pricing regimes within the regional ISO counsels for separating that market design process from the EIM greenhouse gas accounting reforms CARB has initiated, since the EIM reforms necessarily focus on California's pre-2020 cap-and-trade market regulations. The likelihood of multiple carbon pricing regimes also calls for broadening the set of stakeholders involved in that separate regional ISO related process to include air regulators and utilities from potential partner jurisdictions— perhaps once there is a decision regarding the Clean Power Plan from the D.C. Circuit Court of Appeals in 2017.

Second, the carbon prices required to achieve California's new 2030 climate target are very likely to be much higher than past experience or future expected prices for the current system. Current prices in the California cap-and-trade market reflect oversupply of allowances that is likely to continue to at least some degree until 2020.[20] However, the rate

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[19] Cal. Gov. Code § 12894(f).

[20] Severin Borenstein, James Bushnell, Frank Wolak, and Matt Zaragosa-Watkins, Expecting the Unexpected: Emissions Uncertainty and Environmental Market Design, Energy Institute at Haas Working Paper 274 (August 2016), 4; *see also* Danny Cullenward & Andy Coghlan, Structural

of absolute reductions in greenhouse gas emissions is set to increase by a factor of 10 beginning in 2021. Between 2014 and 2020, emissions under the cap must fall at a rate of about 1.4 million metric tons (MMT) per year in order to achieve the 2020 target.[21] By contrast, between 2021 and 2030, emissions under CARB's proposed extension to cap-and-trade are set to fall by 13.3 MMT per year.[22] This dramatic increase in the pace of reductions raises the odds that the system could flip between carbon prices at the price floor and carbon prices at the Allowance Price Containment Reserve (APCR) price, or even higher. That possibility is further supported by modeling work showing that prices in the cap-and-trade have a bimodal probability distribution that tends to rest at either the Auction Reserve Price or prices above the APCR price, with low probabilities of stable market prices in between these two thresholds.[23]

Thus, for practical planning purposes, there are two carbon price regimes that CAISO should analyze: the pre-2020 market (characterized by low carbon prices at the market price floor) and the post-2020 period (likely characterized by much higher prices). Consistent with PG&E's comments on the Issue Paper, we recommend addressing these two market periods in separate processes. One process could focus on the paired EIM and pre-

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oversupply and credibility in California's carbon market, *The Electricity Journal* 29: 7-14 (2016).

21 Overall statewide emissions have to fall at approximately 1.7 MMT per year between 2014 and 2020 to achieve the 2020 target. We assume that covered emissions represent 77% of this value, consistent with recent CARB analyses. CARB, California Greenhouse Gas Emission Inventory – 2016 Edition (June 2016), *available at* https://www.arb.ca.gov/cc/inventory/data/data.htm.

22 CARB, Public Hearing to Consider the Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Staff Report: Initial Statement of Reasons (Aug. 2, 2016), *at* 12, *available at* https://www.arb.ca.gov/regact/2016/capandtrade16/capandtrade16.htm. We note that a similar increase in the rate of GHG reductions—about a factor of 10—is required when one looks at statewide emissions, not just emissions under the capped sectors and pursuant to CARB's proposal for what those sectors must achieve by 2030. *See* CARB, *supra* note 21.

23 Borenstein et al., *supra* note 20 at 4.

2020 cap-and-trade reforms, consistent with CARB's interests. The other process could focus on the paired regional ISO and post-2020 carbon pricing. Separating the discussions would increase clarity and to some degree narrow the scenarios about which analysis and consensus is required.

To further reinforce our point, we note that in the examples presented in CASIO's August 2016 Issue Paper and the October Technical Workshop Presentation included greenhouse gas prices that varied between \$0/MWh and \$6/MWh.[24] In combination with recent grid average emission factors of 0.428 tCO_2/MWh[25] this implies a range of carbon prices from \$0 to \$14.02 per tCO_2.[26] This is far below the price levels that CARB estimates for the APCR in the post-2020 period—\$77/metric ton and above—in its recent regulatory amendments package.[27] Prudence requires insuring that any method for building a GHG adder into bids functions well at both high and low prices. We also note that at a price of \$80/tCO_2 and above, the carbon price for average generation in the regional ISO would be \$34/MWh—very close to current total wholesale energy costs in the ISO[28] and likely higher than current wholesale energy prices in jurisdictions that might join a regional ISO.

As a result, we believe that accounting for the GHG emissions associated with interstate transfers of electricity structures should be treated separately in the context of the EIM and regional ISO market designs.

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[24] CAISO Presentation, slides 9-39.

[25] CAISO, Western EIM Benefits Report, Third Quarter 2016, *at* 6 (October 26, 2016), *available at* https://www.caiso.com/informed/Pages/EIMOverview/Default.aspx.

[26] If the largest carbon price used in these discussions—\$6/MWh—is meant to represent the effect on a coal power plan, the implied carbon price would be more in the range of \$6-7/tCO_2.

[27] CARB *supra* note 22, *at* 15.

[28] CAISO, 2015 Annual Report on Market Issues and Performance (May 2016), *at* 60, *available at* https://caiso.com/market/Pages/MarketMonitoring/MarketIssuesPerfomanceReports/Default.aspx.

CARB and CAISO will need to anticipate multiple carbon prices in the regional ISO context; they will also need to analyze the much higher carbon prices in California that are likely in the post-2020 period. In developing options for a regional ISO greenhouse gas accounting proposal, CAISO should perform additional analysis to consider impacts of GHG prices that equal or even exceed present day wholesale energy prices.

4. The specific market mechanisms suggested by CAISO and CARB under Option 3 raise significant new dormant commerce clause risks that should be evaluated in more detail.

CAISO and CARB have proposed distinct mechanisms for implementing Option 3. Each raises potential dormant commerce clause risks; both share a common risk related to bilateral energy contracts with California LSEs. We address each in turn.

A complete analysis of the dormant commerce clause is beyond the scope of this comment letter. In brief, state laws that discriminate against interstate commerce must be no more discriminatory than is strictly necessary to support a compelling state interest. In contrast, state laws that have only incidental impacts on interstate commerce face a more lenient balancing test. A party that raises a dormant commerce clause challenge can show that the state law is discriminatory on its face, in its purpose, or by its practical effects.

The leading case on these issues concerns the constitutionality of CARB's Low Carbon Fuel Standard (LCFS) and is known as *Rocky Mountain Farmers Union v. Corey*.[29] One of us (D.C.) represented *amici* on behalf of CARB in this case; both of us strongly support the case's holding that California may use the best available scientific information to account for interstate GHG emissions in its climate policies.

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[29] Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070 (9th Cir. 2013), *cert. denied* 134 S.Ct. 2875 (2014).

We are concerned that the proposals under Option 3 would move away from a core premise in *Rocky Mountain Farmers Union*'s holding: that out-of-state resources are able to opt into a source-specific GHG calculation. While the Ninth Circuit majority found that CARB's use of regional calculations to assess the GHG emissions from corn-based ethanol was not facially discriminatory, an important component of the majority's reasoning was the ability for any regulated party to request an individualized calculation of its source-specific GHG emissions.[30] The dissenting judge went a step further, objecting to the use of average GHG emissions calculations that were less favorable than in-state GHG emissions calculations. She would have required use of individualized, source-specific GHG calculations as a remedy.[31]

Under CARB's proposal for Option 3, the GHG accounting for resources imported to California from the EIM would shift away from source-specific accounting to regional average accounting. CARB would impose a "dynamic hurdle rate" that calculates the *average* GHG emissions rate of external resources delivered to California on five-minute increments. In contrast, all generating resources inside California would receive source-specific treatment under the cap-and-trade program. This decisions raises significant dormant commerce clause risks because it produces situations where similarly situated power plants receive differential treatment merely on the basis of their location, as discussed below in more detail.

Under CAISO's proposal for Option 3, the market optimization algorithm would include a "hurdle rate" that applies in addition to the source-specific GHG price to resources that are willing to be deemed dispatched to California territory. The hurdle rate is proposed on a constant $/MWh basis, not on a basis that reflects the source-specific resources to which it applies. The hurdle rate would not apply to generating resources in

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[30] *Id*. at 1082, 1084, 1093-94 (discussing individualized calculations of GHG emissions under LCFS Methods 2A and 2B).

[31] *Id*. at 1109 (Murguia, J., dissenting) (arguing that CARB's regional average GHG emissions factors in Table 6 of the LCFS regulations are facially discriminatory and that the only appropriate remedy is to rely exclusively on source-specific calculations, *e.g.* under Methods 2A and 2B).

California. We are not sure exactly how CAISO would apply the hurdle rate and request additional clarification on this point. If the hurdle rate is applied to out-of-state resources, but not to in-state resources, dormant commerce clause concerns might be present. On the other hand, if the hurdle rate is merely charged to California LSEs (or other in-state parties) to account for the leakage impacts of secondary dispatch not captured in CAISO's source-specific GHG emissions attribution—and if the hurdle rate is not used to affect the dispatch algorithm directly—then this approach would raise significantly lower dormant commerce clause risks.

Under both CARB's and CAISO's proposals for Option 3, certain resources that have bilateral contracts with California LSEs receive preferential treatment. Under CARB's proposal, only renewable resources with bilateral contracts receive source-specific emissions attribution; all other (merchant) renewable resources dispatched to California would receive positive, non-zero GHG emission attributions.[32] Under CAISO's proposal, any resource with a bilateral contract with a California LSE would apparently be exempted from the hurdle rate, even as all resources receive source-specific GHG attribution. As a result, both proposals contemplate a different accounting standard for out-of-state resources that have contracted with California LSEs as compared to similarly situated resources that lack contracts with California LSEs.

The practical effect of both proposals is to preferentially treat resources that contract with California LSEs or are located in California on more favorable terms. For example, a wind power plant located in Wyoming that contracts with a California LSE would be treated as a zero-carbon resource under both proposals—as would any wind power plant located in California. In contrast, a wind power plant located in Wyoming without a contract with a California LSE would be assigned a non-zero regional GHG emissions factor (under CARB's proposal) or be subject to an additional hurdle rate (under CAISO's proposal).

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[32] We note the term "renewable" is not defined in CARB's proposal.

A similar situation could apply to out-of-state natural gas combined cycle (NGCC) resources. Under CARB's proposal, an out-of-state NGCC resource that is located in a region whose average emissions are higher than NGCC emissions would be assigned a higher GHG emissions rate than would a similarly situated plant located in California because the California NGCC resource would be subject to source-specific GHG accounting, whereas the out-of-state NGCC resource would be subject to regional average GHG emissions accounting. Under CAISO's proposal, if the out-of-state NGCC resource has a bilateral contract with a California LSE, it would avoid application of the hurdle rate and therefore receive preferable treatment compared to a similarly situated NGCC resource that lacks a bilateral contract.

Again, a complete analysis of the dormant commerce clause risks is beyond the scope of this comment letter. Indeed, we need further clarification on the precise mechanisms proposed by stakeholders to properly analyze the relevant legal risks. Our purpose here is to illustrate that these risks are real, significant, and deserve greater attention in the technical market design discussions going forward. We respectfully request that CARB and CAISO directly address these considerations in the next iteration of market design discussions.

5. **Option 3 also raises undue discrimination concerns under the Federal Power Act that require further analysis by CAISO—especially in light of the higher carbon prices expected in the post-2020 period.**

We also urge CAISO and CARB to consider possible Federal Power Act concerns regarding the proposed modifications to the EIM Greenhouse Gas Bid Adder—and, more importantly, the treatment of greenhouse gas compliance obligations under a regional ISO. The transfers associated with current EIM function are relatively modest; FERC has been generous in accommodating the request of participating members for flexibility in its

implementation. This is most notable with respect to the obligation for participating members to pay the ISO Transmission Access Charge.[33]

In contrast, we expect FERC (and any reviewing court) to be much more concerned with ensuring non-discriminatory treatment in the context of a full regional ISO. A fundamental obligation for all wholesale market operators is to ensure that their tariffs treat all users of the transmission system equitably. Indeed, the entire justification for the functional unbundling at the heart of the ISO model is the need to avoid unjust and undue discrimination in access to the high voltage transmission network.[34] This obligation to ensure that rates do not unduly discriminate is not a precise requirement—it is an obligation that rates be set within a zone of reasonableness.[35] But what is reasonable depends on the circumstances.

If CAISO were to expand into a regional ISO, the circumstances present in the EIM would not be representative of the future. Fundamentally, California's current cap-and-trade program and its associated carbon prices are not a good proxy for the post-2020 system. Foreseeable carbon prices in the post-2020 period might create very different outcomes than either the simplified scenarios presented in the CAISO Presentation or in the more complete analysis that CAISO refers to, but does not actually include in its Presentation.

Furthermore, as discussed above, both CARB and CAISO propose variations on Option 3 would treat merchant power plants differently than power plants operating under bilateral contracts with California LSEs. At the same time, CAISO's analysis of the benefits of regionalization suggests

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[33] Cal Indep. Sys. Operator Corp., 147 FERC 61,231 (2014), 53-56.

[34] New York v. FERC, 535 U.S. 1, 10-12 (2002); *see also* FERC, Order No. 888, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21540, 21541-21542 (May 10, 1996).

[35] *See* Permian Basin Area Rate Cases, 390 US 747, 767 (1968) *citing* FPC v. Natural Gas Pipeline Co., 315 U.S. 575, 585-586 (1942).

that additional-to-RPS wind might enter the market on a merchant basis.[36] We suggest that by the mid-2020's, it is reasonable to assume that merchant solar might also be interested in deploying in a regional ISO, as is beginning to occur in ERCOT.[37]

CAISO's and CARB's policy proposals under Option 3 raise the prospect of an out-of-state renewable generator receiving differential treatment depending on whether or not it has a bilateral contract with a California LSE. These concerns are magnified in a post-2020, high carbon price scenario. Under CARB's proposal, the renewable resource is assigned a carbon adder of $0/MWh if it has a bilateral contract, whereas the merchant generator will face a positive price under CARB's use of average emission rates for imports. Similarly, under CAISO's proposal, a renewable resource with a bilateral contract does is not obligated to pay the hurdle rate, whereas a merchant generator will face the hurdle rate. As discussed above, post-2020 carbon prices will likely be much higher than either at present or as simulated in the CAISO Presentation, illustrating the potential for the disparate impacts to merchant generators growing over time under either approach to Option 3. [38]

We think this problem merits further analysis in order to avoid a claim that treatment of similarly situated generation is unduly discriminatory under the CAISO tariff. The large foreseeable increase in the carbon price might well lead to increases in the differential treatment between merchant and non-merchant resources under Option 3 that might place the tariff beyond the zone of reasonableness as determined by FERC or a reviewing court.

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[36] CAISO, Senate Bill 350 Study: The Impacts of a Regional ISO-Operated Power Market on California (July 8, 2016), at I-65 to I-66.

[37] *Id.*

[38] CAISO has requested input on how to set the hurdle rate. CAISO Presentation, slide 41. We do not mean to suggest that the hurdle rate need necessarily scale 1:1 with the carbon price. With significantly higher post-2020 carbon prices, however, it seems likely that the hurdle rate will need to increase at a roughly comparable rate to accomplish its purpose.

In conclusion, Option 3 raises significant undue discrimination issues, especially with respect to merchant generators and in the presence of higher carbon prices. We urge that CAISO rerun its models to simulate these much higher carbon price levels. Only then will CAISO and CARB be able to fully consider the likely impacts from Option 3 as it develops its straw proposal.

Thank you for the opportunity to comment on both presentations. Again, we are very grateful for the extensive detail provided by both CAISO and CARB and look forward to continued discussions in the future. If we can provide additional information, please feel free to contact us.

Sincerely,

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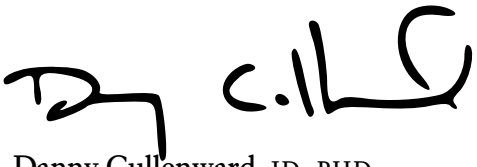

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