

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking to Consider  
Distributed Energy Resource Program Cost-  
Effectiveness Issues, Data Access and Use, and  
Equipment Performance Standards.

**COMMENTS OF SOLAR ENERGY INDUSTRIES ASSOCIATION  
IN RESPONSE TO ORDER INSTITUTING RULEMAKING**

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Pursuant to Ordering Paragraph 5 of Rulemaking 22-11-013 (“OIR”) issued on November 23, 2022, the Solar Energy Industries Association (“SEIA”) submits these comments in response to the scope and schedule for this OIR, including the Track 1 questions posed in the OIR. SEIA has participated actively for many years before this Commission on issues concerning distributed energy resources (“DERs”), in particular on matters involving the Avoided Cost Calculator (“ACC”) that has been the Commission’s primary tool to assess the cost-effectiveness of programs to support customer adoption of DERs. The OIR indicates that this proceeding will be the venue for future updates to the ACC.

**I. THE EXPANDED ROLE OF THE ACC IN RATEMAKING**

Since this OIR issued, the Commission approved Decision (D.) 22-12-056 in R. 20-08-020, a major order that changes the structure of the compensation received by customers who invest in solar and storage DERs and whose systems periodically export excess generation to the grid. The order provides that the compensation for these exports will now be based directly on the avoided cost values in the version of the ACC in effect on January 1 of the year in which a customer’s solar system enters service.<sup>1</sup> This will be the first direct use of ACC values in ratemaking. This signal change heightens the importance of the accuracy and timeliness of the ACC’s hourly avoided costs, and spotlights the need for complete transparency in the manner in which those avoided costs are determined.

The accurate valuation of DERs is essential to California’s efforts to expand its renewable generation capacity, an expansion that is necessary to reduce greenhouse gas

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<sup>1</sup> See D. 22-12-056, at pp. 138-147 and Conclusion of Law 32.

(“GHG”) emissions in conformance with SB 100’s clean energy goals for 2045<sup>2</sup> as well as the state’s intermediate emission reduction targets for 2030.<sup>3</sup> Solar and storage DERs also can provide a portion of the near- and mid-term capacity that the state needs to ensure reliable electric service. DERs collectively will be needed to reduce GHG emissions in the energy, building, and transportation sectors. The Commission has recognized that the state’s clean energy goals are achievable only in a “High DER” future in which all Californians make personal, long-term investments in all types of DERs – distributed solar & wind generation, storage, electric vehicles (“EVs”), smart thermostats, and heat pumps for space and water heating.<sup>4</sup> Californians will not make these investments, and the state’s DER industries will not thrive, unless these critical resources are valued in a fair, stable, transparent, and understandable way. The ACC plays a critical role as the primary tool used for this valuation, a role that is even more important after the issuance of D. 22-12-056.

## **II. COORDINATION WITH OTHER STATE AGENCIES**

The ACC is the product of complex modeling that draws key assumptions from many sources, including from the Commission’s Integrated Resource Planning (“IRP”) process and from work done by other state agencies, including the California Energy Commission (“CEC”) and the California Air Resources Board (“CARB”). SEIA appreciates the Commission’s commitment in the OIR to coordinate with those agencies in the work that will be done in this proceeding.<sup>5</sup> We highlight below several areas in which such coordination will be important, and which are not referenced in the OIR.

**CEC.** It is SEIA’s understanding that the Commission and the CEC have an inter-agency agreement that the Commission will use the CEC’s long-term natural gas forecast produced for the CEC’s Integrated Energy Policy Report (“IEPR”) as the long-term natural gas forecast for the Commission’s IRP modeling (which in turn is the basis for the ACC). The 2022 ACC is based

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<sup>2</sup> SB 100 (2018) establishes a state policy that renewable and zero-carbon resources supply 100 percent of retail electricity sales to California end-users by 2045. *See also* Executive Order BN-55-18 (2018) setting a statewide goal to achieve economy-wide carbon neutrality not later than 2045.

<sup>3</sup> The Commission’s Integrated Resource Plan (“IRP”) process focuses on meeting intermediate 2030 emission reduction goals.

<sup>4</sup> See R. 21-06-017.

<sup>5</sup> See OIR, pp. 10-11.

on IRP and ACC modeling performed in early 2022 which used an outdated 2020 IEPR natural gas forecast prepared in early 2020 and released in June 2020. The IRP Preferred System Portfolio (“PSP”) adopted in February 2022 and the 2022 ACC approved in May 2022 also used this outdated IEPR gas forecast even though the CEC staff had released an updated IEPR gas forecast in September 2021, which included important improvements to use more realistic long-term escalation rates for natural gas transportation rates in California. and the new forecast had been approved by the CEC as part of the 2021 IEPR. But the Commission declined to use that more up-to-date forecast for the 2022 ACC, on the grounds that the September 2021 forecast had not been used for the PSP. Thus, the 2022 ACC continues to use unrealistic natural gas transportation rates. SEIA respectfully asks the Commission to coordinate with the CEC such that the ACC can use to most up-to-date long-term IEPR natural gas forecast.

The excessive “regulatory lag” in the natural gas forecast used for the 2022 ACC also means that the gas commodity cost forecast is outdated, and fails to reflect the fact that fossil fuel prices worldwide have moved to sharply higher levels, in particular since Russia’s invasion of Ukraine in February 2022. In the future, pursuant to D. 22-12-056, the avoided costs in the first nine years of the ACC will be used directly to compensate new solar and storage customers for the excess power that such customers export to the grid. As a result, the avoided cost prices in the initial years of the ACC must be as accurate as possible and must reflect in a timelier fashion the current market conditions on the CAISO system. The Commission and the CEC need to address the fact that the IEPR gas forecast is revised only once every two years, and the timing of the IEPR forecasts may not match up with the updates to the ACC, with the result that the ACC will use stale gas commodity price data if it relies entirely on the IEPR forecast, as clearly happened with the 2022 ACC.

**CARB.** With respect to coordination with CARB, SEIA recommends that the Commission should coordinate with CARB on two issues related to the methane leakage component of the ACC. The first issue is the correct global warming potential (“GWP”) to use in the ACC. Methane emissions from natural gas are a potent GHG, particularly in the near-term after a leak to the atmosphere occurs. Methane’s GWP over the first 20 years is 84-87 times higher than CO<sub>2</sub>; over 100 years, methane’s GWP is 28-36 times higher than CO<sub>2</sub>.<sup>6</sup> The 2022

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<sup>6</sup> The Intergovernmental Panel on Climate Change (IPCC) has indicated a GWP for methane between 84-87 when considering its impact over a 20-year timeframe (GWP20) and between 28-36 when

ACC’s methane leakage adder presently uses a 100-year GWP of 25 times higher than CO<sub>2</sub> as the default value.<sup>7</sup> However, the DERs evaluated by the ACC have useful economic lives of 25 years (or less), and thus will avoid methane leaks during the initial years when methane’s GWP is highest. The Commission should consult with CARB on the appropriate GWP to use in the ACC.

Second, the methane leakage adder only includes an avoided cost for methane leakage associated with the production and transportation of natural gas that occurs entirely within the state of California. This excludes the avoided leakage for the 91% of the state’s gas supply that is produced and transported outside of the state, but then is burned in power plants within California. In D. 22-05-002, the Commission recognized that “greenhouse gas emissions know no state boundary,” but declined to include in the ACC the GHG emission impacts of this out-of-state methane leakage, on the grounds that the state’s official GHG inventory only includes methane leakage that occurs within the boundaries of the state.<sup>8</sup> Other California GHG regulations implemented by CARB do not draw such a line, and include the out-of-state GHG emissions caused by in-state energy use. California imports significant amounts of other forms of energy – for example, transportation fuels and electricity – that are produced out-of-state and consumed within California. CARB’s GHG regulatory programs for these other types of energy consider the major out-of-state GHG emissions from producing and transporting those resources.<sup>9</sup> SEIA asks the Commission to consult with CARB on the treatment of out-of-state methane leakage in the ACC, in order to ensure that there is a level playing field for all types of energy resources in the California market.<sup>10</sup>

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considering its impact over a 100-year timeframe (GWP100). See <https://www.iea.org/reports/methane-tracker-2021/methane-and-climate-change>.

<sup>7</sup> See the “Methane Leakage” tab of the 2022 ACC.

<sup>8</sup> See D. 22-05-002, at p. 47. Also D. 20-04-010, at p. 64; Resolution E-5077, at p. 21.

<sup>9</sup> CARB’s GHG regulatory programs for these other types of energy consider the major out-of-state GHG emissions from producing and transporting those resources. For example, electric power imports into California are imputed with the GHG emissions associated with producing that energy at out-of-state power plants, under the CARB-administered cap & trade program. With transportation fuels, CARB’s Low Carbon Fuel Standard (LCFS) uses a “well-to-wheels” calculation that includes the out-of-state GHG emissions associated with producing transportation fuels from oil wells, tar sands, and biomass (e.g. ethanol and other renewable fuels) from outside of the state.

<sup>10</sup> For example, ignoring out-of-state methane leakage favors natural gas imports in comparison to in-state gas production and to other types of energy imports, such as out-of-state coal-fired generation,

### III. RESPONSE TO TRACK 1 QUESTIONS

The OIR asked parties to comment on a series of questions relevant to the scope and schedule for this proceeding. SEIA presents its responses to these questions below:

*1. R.14-10-003 focused on making cost-effectiveness methods more consistent across DERs. To accomplish this, D.16-06-007 adopted a universal ACC which is updated annually and required for use by all DER proceedings. What other aspects of cost-effectiveness should also be made more consistent across DERs, and which of those are priorities?*

**SEIA Response:** Eight years ago, when R. 14-10-003 was initiated, it may have seemed like a good idea to adopt a “universal” ACC applicable to all DERs. At that time, the principal DERs were energy efficiency (“EE”), demand response (“DR”), and renewable distributed generation (“Clean DG”). These were all technologies that reduced the loads that customers place on the grid – i.e. they were all “load-reducing” DERs. With this set of DERs, it made sense to standardize the avoided costs that result from avoiding the supply-side resources and T&D costs that would have been required to serve the loads that these DERs displace. The impacts of load-reducing DERs are entirely within the electric sector, and simply result in demand-side resources avoiding the need for more supply-side resources and the associated grid capacity to deliver them. Today, however, DERs include resources such as electric vehicles (“EVs”) and heat pumps that increase the use of electricity in order to substitute for other more polluting fuels such as gasoline and natural gas – i.e. these are “load-increasing” DERs. Load-increasing DERs have complicated impacts on the state’s economy-wide GHG regulatory program, as they require the electric sector to bear the costs of reducing emissions in the transportation and building sectors. These cross-sectoral impacts have resulted in the addition of a controversial “GHG portfolio re-balancing adjustment” to the ACC, as well as disputes over how load-increasing DERs should be treated in the IRP modeling used for the ACC.<sup>11</sup> The Commission’s decision on the 2022 ACC, D. 22-05-002, indicated that the Commission will re-

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whose out-of-state emissions are included in the state’s inventory and, as a result, are imputed when power from out-of-state coal plants is imported into California.

<sup>11</sup> Whether load-increasing DERs should be removed from the “No New DER” scenario modeled for the 2022 ACC is the subject of a pending Petition for Modification of D. 22-05-002 filed by SEIA and the California Solar & Storage Association.

visit many of these complex issues in the next ACC update.<sup>12</sup> For SEIA, these controversies indicate that it may no longer be an appropriate goal to “make cost-effectiveness methods more consistent across DERs,” given the very different impacts of load-reducing versus load-increasing DERs. At a minimum, it is important for the Commission to explore in more detail in this docket which components of the ACC should be used with load-reducing DERs and which should be used with load-increasing DERs. Alternatively, the use of the No New DER case may no longer make sense given the different GHG impacts of load-reducing versus load-increasing DERs. One possible option is simply to use the avoided GHG costs from the base IRP portfolio, in order to reduce the complexity of the ACC and clarify the GHG impacts of varying DER technologies.

2. *Should the Commission develop cost-effectiveness methods for emerging and bundled technologies? Which technologies, or combinations of technologies, should we prioritize, and what are the most important considerations?*

**SEIA Response.** The Commission must recognize that electrification means that customers will be adopting more than one type of DERs. Solar customers will not be distinct from EV customers; in fact, it is likely that an EV customer may also add solar and storage to supply some of the power to charge the EV and to manage their increasing electric usage and bills. For example, based on data generated from discovery in R. 20-08-020, 34% of EV customers also have solar. This is more than three times the penetration of solar among all customers.<sup>13</sup> The expanding procurement of multiple DERs has implications for cost-effectiveness analyses that traditionally “silo” DERs by technology and design programs applicable only to that specific technology. This trend also needs to be considered in assessing, as discussed above in response to Question 1, whether and how the use of the ACC should be modified to reflect the different impacts of load-increasing versus load-reducing DERs, or whether the ACC can be simplified to better address the multiple different types of DERs that customers are adopting.

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<sup>12</sup> See D. 22-05-002, at pp. 52-53 and 91-92.

<sup>13</sup> See R. 20-08-020, *Prepared Rebuttal Testimony of R. Thomas Beach on behalf of the Solar Energy Industries Association and Vote Solar* (served July 16, 2021), at p. 57 and footnote 89.

3. *How important is it to fully incorporate DERs into the IRP process? What kinds of tools, data, models, or processes would we need? How can the resource proceedings best provide data to the IRP process, and how can they best use IRP output data?*

**SEIA Response.** The Commission first needs to be more specific about what is meant by “fully incorporating DERs into the IRP process.” The IRP process results in the Commission issuing orders to LSEs to procure certain amounts of specific new supply-side resources, by certain dates, with consequences if LSEs do not comply. It is utility customers who procure DERs, not LSEs. And of course, “fully incorporating DERs into the IRP process” is not going to result in the Commission ordering customers to buy, or not to buy, DERs in the same way that it can direct LSE procurement of supply-side resources – the CPUC simply does not have that authority over utility customers. Customers choose when and how much energy to buy from the utility and in which DERs they will invest. State and federal laws provide customers with certain rights to use DERs to self-generate energy used on their own premises, behind the meter. The Commission has tools to influence customers’ decisions with respect to DERs, but must recognize the fundamental differences between demand- and supply-side resources and the limits of “full incorporation” of DERs into the procurement processes of the IRP.

Today’s IRP process focuses only on planning the optimal procurement of supply-side resources – yet it is highly complex and difficult to keep on schedule, and struggles to adapt to changing circumstances and incorporate stakeholder feedback in a timely fashion. SEIA submits that the process could become unmanageable if it were to attempt to plan the optimal procurement of both demand- and supply-side resources. In addition, customer-sited DERs have complex impacts on the costs for the transmission and distribution system that the models used in the IRP cannot handle. Although even more complex models are emerging – such as Vibrant Clean Energy’s WIS:dom®-P model – that seek to optimize both demand- and supply-side additions with a robust representation of T&D system impacts, such models are not yet widely used in the industry. Finally, even if the Commission determined that a certain amount of DERs was optimal for the electric grid, the Commission would have limited ability either to restrict or to promote millions of customers’ purchases of EVs, heat pumps, solar panels, and batteries to produce the desired amount of DERs.

What is practical and feasible is to plan for both demand- and supply-side resources using parallel processes, with the values from each process used to inform the other, such that a



common resource valuation is approached. On the demand side, the Commission has made initial progress toward a common resource valuation by integrating IRP modeling into the ACC in the 2020-2022 ACCs; SEIA supports the direction of this effort, although significant challenges and issues remain with how this has been done.

On the supply-side, the IRP needs to use the most accurate forecasts of DER adoption. SEIA has commented recently in the IRP docket on the failure of the CEC IEPR demand forecast used in the IRP to reflect accurately the actual and expected growth of distributed storage resources, both behind-the-meter (“BTM”) and wholesale in-front-of-the-meter.<sup>14</sup> The Commission has established data bases to track the growth of both distributed solar and storage resources with relatively minimal time lag once projects become operational,<sup>15</sup> and the demand forecasts used in the IRP need to be consistent with this recorded data. One of the issues may be that the IRP relies on demand forecasts produced by the CEC IEPR process, which can introduce a long time lag between when the CEC IEPR forecast is produced and when it is used in the CPUC IRP.

4. *Should the Commission authorize the allocation of additional ratepayer funds for consultant support to continue the ACC work?*

**SEIA Response.** Given the complexity of the modeling used in the ACC, and the importance of the ACC to programs that support the adoption of DERs by ratepayers, SEIA supports the use of ratepayer funds to provide consultant support for work on the ACC. That said, we urge the Commission to prioritize the use of consultant funding to simplify and clarify the modeling used in the ACC and the methodologies used to calculate certain controversial and poorly-understood components of the ACC, such as the GHG portfolio re-balancing adjustment and the need for the No New DER case. This includes the issue discussed above about whether it makes sense to treat load-reducing and load-increasing DERs the same.

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<sup>14</sup> See *Comments of Solar Energy Industries Association and Large-Scale Solar Association in response to the Administrative Law Judge’s Ruling Seeking Comments on Load Forecasts and GHG Targets*, submitted in R. 20-05-003docket on May 16, 2022, at pp. 1-6.

<sup>15</sup> See <https://www.californiadgstats.ca.gov/>.

5. *Please comment on any additions or changes needed to the preliminary Track 2 [sic]<sup>16</sup> schedule provided in section 4 below.*

**SEIA Response.** SEIA’s primary concern with the Track 1 schedule for the next update to the ACC is assuring that the update process is based, from the outset, on the use of data and modeling consistent with the 2023 Preferred System Portfolio (“PSP”) that the Commission is scheduled to adopt in 2023 in the IRP docket (R. 20-05-003). SEIA is unsure of the exact current schedule for the issuance of a draft PSP in R. 20-05-003, but the general schedule included in D. 22-02-004 (at page 167) indicates that the draft PSP will be issued for comment in the third quarter of 2023. The schedule in the OIR for the next ACC update starts with a staff proposal in July 2023, which is the first month of the third quarter. SEIA submits that it is very important that the staff proposal, and the associated modeling, for the next ACC update should use the data and modeling for the draft 2023 PSP that will be released at about the same time. Otherwise, it will be very difficult for parties to know how the new PSP will impact the ACC update. The experience with past ACCs indicates that significant problems arise if parties have to litigate updates and changes to the ACC without having at least the initial/draft modeling from the IRP docket. For this update, this modeling should include the No New DER sensitivity case and the SERVVM production cost modeling of that case that will be the basis for the 2024 ACC.

The ACC update schedule references “[r]elease of data from IRP proceeding” to be “60 days after adoption of a preferred system plan.” SEIA assumes that this would be the data and modeling from the final, adopted 2023 PSP (scheduled for 4Q of 2023 – see D. 22-02-004, at p. 167) that ultimately will be used for the 2024 ACC. This is reasonable, and SEIA recognizes that the final ACC update may be impacted by changes that the Commission makes from the draft to the adopted 2023 PSP. Nonetheless, the important point is that the entire ACC update process in 2023 should be informed by both the draft and final 2023 PSPs.

Further, D. 22-05-002 set forth a number of issues to be reviewed through staff proposals, workshops, and formal comments before the formal update to the ACC begins.<sup>17</sup> The Track 1

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<sup>16</sup> We assume that the reference to Track 2 here is an error, and the OIR meant to refer to Track 1.

<sup>17</sup> For example, see D. 22-05-002, at p. 53, on the Market Equilibrium approach (emphasis added): “The scope of the successor to this proceeding should address whether the Commission should adopt the Market Equilibrium Approach, in which the parties will be provided an opportunity to discuss the staff proposal and the additional modeling during a workshop and subsequent formal comments. This work

schedule for the next ACC update included in the OIR does not show these events, appears to be limited to the formal update process only, and includes a footnote to “[s]ee D.22-05-002 for greater detail on biannual ACC schedules.”<sup>18</sup> The more detailed provisions for the ACC update schedule that are included in D. 22-05-002 are controlling, and the schedule for this proceeding set forth in the Scoping Memo should reflect the more detailed provisions of that Decision.

Respectfully submitted this 9<sup>th</sup> day of January, 2023, at San Francisco, California.

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should be conducted prior to the commencement of and in preparation for the 2024 Avoided Cost Calculator update.” See also, p. 75 “Energy Division is authorized to initiate review and analysis of avoided transmission and distribution costs to aid in the development, during the successor proceeding, of improved methods to calculate these values. The Commission anticipates the successor proceeding will include additional instruction for the study and allow for party feedback and participation.”

<sup>18</sup> See OIR, p 26, footnote 23.