

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

Order Instituting Rulemaking to Develop
an Electricity Integrated Resource
Planning Framework and to Coordinate
and Refine Long-Term Procurement
Planning Requirements.

Rulemaking 16-02-007
(Filed February 11, 2016)

**ADVANCED ENERGY ECONOMY'S REPLY COMMENTS ON THE
STAFF PROPOSAL ON PROCESS FOR INTEGRATED RESOURCE
PLANNING**

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***On Behalf of Advanced
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The Advanced Energy Economy (AEE) respectfully submits these reply comments in response to the comments of other parties on the California Public Utilities Commission (“Commission”) Staff’s May 16 proposal on process for integrated resource planning. This is a timely effort as California grapples with the challenges of a changing electric system and meeting state greenhouse gas (GHG) emissions goals. As such, we greatly appreciate the opportunity to participate in and support this effort.

AEE is a national association of businesses dedicated to transforming public policy to enable a prosperous world that runs on clean, secure, affordable energy. We are comprised of over 100 companies both large and small across the technology spectrum, including energy efficiency, solar, wind, storage, fuel cells, biofuels, electric vehicles, demand response, advanced metering, enabling software and many more. In these comments, AEE will be referenced collectively as “AEE,” “we,” and “our.”

AEE has substantial experience participating in regulatory proceedings across the country dealing with a variety of issues. AEE's participation in this proceeding is critical as the business voice for the advanced energy industry. The issues and questions raised in this proceeding will impact our membership and their future market in California. As an organization with stakeholders that provide a range of technologies and services, we balance a wide variety of interests and address issues with a technology-neutral perspective.

AEE believes that the increased participation of advanced energy technologies in integrated resource planning will improve grid reliability, help California meet its environmental objectives, and reduce overall costs for consumers. The Staff Proposal is well thought out and is a substantial step in the right direction to develop an IRP process that builds on the existing long-term procurement planning (LTPP) process to optimize the load serving entities' portfolios of resources to reach state policy goals – most notably the goal of reducing economy-wide GHG emissions 40 percent from 1990 levels by 2030.

In these comments, we first respond to the comments of the three large investor-owned utilities (IOUs) – Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) – given their extensive comments and analysis. We then comment more generally, by topic, on the comments of the other parties.

RESPONSES TO IOU COMMENTS

The initial comments of the utilities exhibit widespread agreement regarding deficiencies in the Staff Proposal. This section briefly summarizes some of the areas of agreement we have deemed significant, as well as a few specific points brought up by individual utilities we would like to highlight, including:

- Concerns with the sectoral marginal GHG emissions approach
- Concerns with the overall process and transparency into modeling assumptions
- Concerns over RESOLVE's capability to optimize demand-side resources
- Concerns over forcing resources into modeling through a siloed approach
- Alignment of the IRP process with other resource specific proceedings
- Relationship between IRPs and procurement

Concerns with the sectoral marginal GHG emissions approach

Some of the utilities expressed concern with the sectoral greenhouse gas (GHG) emissions approach. SDG&E said that the use of a sectoral marginal GHG abatement approach is the wrong approach and that the GHG planning price should be consistent across all sectors since the state GHG reduction goals are applied across all sectors. Furthermore, they stated that if the costs to obtain GHG reduction in the electric sector are high relative to other sectors, then the electric sector contribution should drop. AEE believes that using an overall sectoral marginal GHG abatement planning price, although potentially complex, is the most efficient and equitable approach to differentiate GHG emissions responsibility.

SCE also made a salient point in regards to the GHG emissions approach that we believe the Commission should strongly consider. SCE stated that the IRP process should clarify how inter-sector benefits and costs, such as GHG reductions, will be included in the IRP process. The electric sector should not be penalized for increased electric sector GHG emissions if on an inter-sector basis net GHG emissions are reduced. For example, what would happen if utilities invest in transportation electrification or other types of low-carbon electrification that increase their emissions but that help to reduce California's GHG emissions overall? AEE agrees with SCE that the Commission should conduct a special study to better understand the trade-offs of inter-sector GHG reductions and how they should be incorporated into the IRP process. If utilities have the flexibility and potentially an incentive to consider inter-sector benefits it will help California achieve its GHG emissions goals as cost-effectively and efficiently as possible.

Concerns with the overall process and transparency into modeling assumptions

The utilities seemed to be in alignment with Commission Staff that the first IRP cycle should be a true proof of concept foundation to demonstrate the feasibility of the IRP and establish the groundwork and infrastructure for the process moving forward. AEE agrees with this approach, and even though we have several concerns (as outlined in our initial comments), we recognize that it is too late to fundamentally change the process for the initial two-year cycle. To this point, it is important that the Commission take lessons learned from the first cycle to modify the process moving forward. As we stated in our initial comments, we recommend that

this iteration of the IRP include a future timeline to demonstrate the steps (i.e., regulatory or policy actions) that must be taken to translate the lessons learned from this cycle into practice moving forward. The roadmap should also include a timeline of when and how the IRP will take outputs from other proceedings and use them as inputs for the IRP process.

The utilities also expressed concerns about the transparency of the overall process. Specifically, they stated there should be evidentiary hearings to inform the Reference System Plan and the Preferred System Plan and that there should be several opportunities for formal comments throughout the process. All of the three large utilities stated that parties should have access to the RESOLVE model and all data used to support the modeling runs so parties can have confidence that the outputs of the modeling are reasonable. SDG&E stated that the Commission should adopt a collaborative approach in the IRP process similar to the California Independent System Operator's (CAISO's) approach and establish a working group to address the development and modeling of resource planning assumptions. AEE strongly supports an open, collaborative approach to enable all parties the opportunity to provide input.

Concerns over RESOLVE's capability to optimize demand-side resources

The utilities all expressed concerns with RESOLVE's capability to assess all possible resources within the optimizations. PG&E recommended treating demand-side resources, including energy efficiency, electric vehicles, behind-the-meter (BTM) PV and BTM storage as candidate resources to the fullest extent possible. As we mentioned in our initial comments, PG&E said that including all demand-side resources in the optimization process, rather than just selecting from fixed levels as load modifiers, provides for the greatest flexibility in selecting an optimal level of resources. SDG&E said that distributed demand-side resources should be modeled just like supply-side resources in modeling to ensure the optimization of all resources. SCE said the true value of distributed energy resources (DERs) and their geographic benefits, for the system or for disadvantaged communities, are not being identified. Furthermore, they stated that it is important to explore and understand the tools that can provide the information necessary to effectively compare the value of all candidate resources, based on societal cost and technology benefits to the system so that optimization of all resources can be realized.

AEE strongly agrees with these concerns and believes that demand-side resources and other distribution level resources can contribute to GHG reductions, resource adequacy, and reliability. Valuing all resources for all of the benefits they can provide will allow for all optimal resource acquisition according to least-cost, best-fit principles.

Concerns over forcing resources into modeling through a siloed approach

SCE expressed concerns over the siloed approach of forcing certain resources into the modeling (i.e., out of state wind, bulk energy storage, and geothermal resources). SCE said that the resources should be outputs of the optimization model and not inputs. AEE agrees with this alternative approach. The model should not be locked into fixed levels of these resources and instead should be able to optimize the level of all resources that will most cost-effectively help them reach California's GHG reduction goals. With that said, if the model identifies that specific resource procurement would be beneficial, especially for some of these capital-intensive, long-lead-time resources, AEE recommends that Staff consider initiating a specific procurement activity for the sake of securing ratepayer value from the expiring federal tax credits currently available for solar, energy storage, and wind technologies.

Alignment of IRP process with other resource specific proceedings

PG&E stated in their initial comments that a more holistic planning process will benefit California electricity customers by eliminating the inefficient and siloed approaches to procurement that currently exist. Furthermore, they stated that they believe alignment among other proceedings, especially the Integrated Distributed Energy Resources (IDER) proceeding and the Renewables Portfolio Standard (RPS) proceedings, is critical. SDG&E stated that it is imperative that the IRP align with and inform other resource specific proceedings. AEE strongly believes that the IRP process should align with other resource specific proceedings (i.e., Distribution Resource Plan (DRP), IDER, Transportation Electrification, Energy Efficiency Rolling Portfolios, Demand Response, and RPS) as soon as possible. There is currently a large gap between the top-down analysis of the IRP and bottom-up analysis in other distribution-level

proceedings. The more we can align processes, the more they will complement and inform each other and bring all resource options together in a single, integrated analysis to determine the optimal mix of resources.

Relationship between IRPs and procurement

The utilities all stated in their initial comments that the IRP process is a modeling process and not a procurement process. AEE believes that the IRP generally should not set resource-specific procurement targets and instead should give load-serving entities (LSEs) flexibility to achieve GHG reductions at least cost through all -source solicitations. With that said, in light of the phase-out of the Production Tax Credit (PTC) and the Investment Tax Credit (ITC), the Commission should reserve the right to accelerate near term procurement, if a GHG reduction need is identified or if resources are deemed beneficial through modeling to fully take advantage of these fleeting benefits. If the Commission fails to allow LSEs to take advantage of these federal tax credits, California ratepayers could face significant costs in achieving GHG reduction goals in the future.

RESPONSES TO OTHER COMMENTERS

1. Guiding principles. Are the guiding principles for IRP articulated in Chapter 1 of the Staff Proposal adequate and appropriate for Commission policy purposes? What changes would you recommend and why?

Several parties recommended the addition of new guiding principles and additions to the Staff's proposed principles. AEE strongly agrees with the following additions:

SCE recommended the addition of a guiding principle: "The IRP should consider inter-sector costs and benefits and facilitate electric sector efforts to achieve GHG emissions reductions in other sectors." As stated earlier in these reply comments, AEE believes this is a critical element to ensure California meets or exceeds its GHG emissions goals as cost-effectively as possible.

The California Wind Energy Association (CalWEA) recommended that each LSE pay, on an ongoing basis, for any indirect costs (such as ramping and curtailment costs) that its procurement choices would otherwise impose on other LSEs. AEE supports this point and believes it is important to ensure equitable cost allocation across all LSEs.

Vote Solar made several comments in response to this question around revising the guiding principles to focus more on DERs. As we stated in our initial comments, the IRP process needs to incorporate more of a bottom-up approach and integrate the current and future distribution resource plans with the IRP so that DERs can be considered as supply or demand-reduction options as appropriate.

3. Overall IRP process. Comment on the overall IRP process proposed in Chapter 2 of the Staff Proposal, beginning with the California Air Resources Board (CARB) establishing greenhouse gas planning targets for the electricity sector and ending with the Commission procurement and policy implementation. What changes would you recommend and why?

SDG&E stated that the Staff’s objective of integrating existing resource-specific planning functions into a single IRP process should be articulated as a primary and binding objective rather than a “hope” in future iterations of the IRP. AEE strongly agrees with this point and believes that the successful integration of other Commission resource proceedings is key to eliminating the existing siloed approach and developing an IRP that takes full advantage of new technologies and efficiently models how LSEs can serve customers as efficiently and cost-effectively as possible.

CalWEA expressed similar concerns to our initial comments in regards to what happens if the aggregate portfolio of individual utility plans is not consistent with the Reference System plan. AEE stated in our initial comments that the Reference System Plan and the utility plans will most likely remain in perpetual misalignment, since the utility plans will necessarily be in a continuous state of change to address evolving customer, system, and market conditions. The Staff Proposal should address what happens if such a scenario arises to ensure that all LSEs have equal responsibility for deficiencies in the aggregate portfolio.

4. 2017-2018 IRP process. Do you support the Staff Proposal’s characterization of the purpose and outcomes of the first round of IRP in 2017-2018? Why or why not?

Most parties and AEE agree with the Staff’s proposal that the first two-year IRP process should be to demonstrate the feasibility of the IRP and establish the groundwork and infrastructure for the process moving forward. To this point, AEE believes the first step should be to define the process and to best determine how to integrate the IRP with existing planning processes.

SCE stated that this cycle should not be used to evaluate the need for capital intensive, long-lead time resources. AEE respectfully disagrees with this statement. As stated earlier, the Commission should not miss the opportunity to take advantage of the pending federal tax credits for solar, wind, and energy storage technologies.

The Solar Energy Industries Association (SEIA) states and AEE concurs that it is inappropriate for this round of the IRP to inform BTM PV proceedings in the near term because of the limitations of the existing RESOLVE modeling and its inability to include DERs in the optimization process.

6. LSE-specific GHG emissions targets.

D. If you recommend a different approach to setting LSE-specific GHG emissions targets, please describe it in detail.

The Utility Reform Network (TURN) stated that the Commission must ensure that GHG-based targets do not incentivize resource-shuffling strategies as a preferred means of least-cost compliance. For example, they noted that many Community Choice Aggregators (CCAs) currently engage in extensive procurement from existing large hydro resources throughout the Pacific Northwest and advertise these services as sources of GHG-free energy. AEE strongly agrees and believes it is important to ensure that the IRP process incentivizes procurement that produces net regional GHG reductions.

7. Modeling in 2017-2018.

A. Do you support use of the RESOLVE modeling approach for development of a Reference System Plan in 2017-2018? Why or why not?

Many commenters expressed significant concerns with the RESOLVE modeling approach, specifically around the optimization of DER and other demand-side resources.

SDG&E stated that RESOLVE is not a resource optimization model but it seems too late to use another capacity expansion model in this cycle. They said that before the next cycle there should be a process to evaluate RESOLVE results and determine if another model should be used. SCE similarly expressed concerns about the limitations of RESOLVE and said that in its current form it cannot optimize EE, BTM resources, supply resources, and inter-sector GHG reductions simultaneously. The Clean Coalition suggested that RESOLVE incorporate and consider the locational net benefits and avoided transmission costs so that DER can be fairly considered. Several other commenters, including the Office of Ratepayer Advocates (ORA), Vote Solar, and SEIA, expressed their concerns with the current model not optimizing DER. AEE strongly agrees with all of these points and hopes that the Commission Staff will include the outputs of the DRP and IDER proceedings to modify RESOLVE or whichever capacity expansion model is used in the future.

8. GHG emissions scenarios to be modeled.

A. Are the four GHG emissions levels for the electric sector recommended to be analyzed by Staff the appropriate ones? Why or why not?

SDG&E stated that they support dropping the extra large GHG share scenario. AEE respectfully disagrees and believe that all of the emission levels recommended by the Staff are appropriate and should be analyzed.

9. Modeling Assumptions. Do you have any specific changes to recommend to the modeling assumptions detailed in Chapter 4 and Appendix B of the Staff Proposal and the associated

spreadsheet Scenario Tool? What are they and why? Indicate a publicly-available source of your recommended assumptions.

See response under header “Concerns over RESOLVE’s capability to optimize demand-side resources.”

12. Futures. Are the alternative futures proposed to be modeled in Chapter 4 of the Staff Proposal the appropriate ones? What changes would you suggest and why?

Vote Solar recommended that alternative futures that combine DER technologies and capabilities should be used. AEE strongly agrees and believes that these technologies should be considered together as a bundle rather than siloed into individual scenarios or futures. For several of these technologies, the net benefits may increase when certain technologies are used together. For example, co-location of utility-scale or distributed renewables and flexible storage could create combined benefits that exceed the benefits of either technology individually. Other technology combinations include wind with solar, anaerobic digester gas with fuel cells, and demand reduction/response technologies with energy storage.

13. Costs. Is the cost analysis summarized in the Staff Proposal appropriate and sufficient for the Commission to assess tradeoffs among alternative futures and choose the appropriate level of GHG emissions reductions in the electric sector by 2030 for which to plan? Explain.

Vote Solar recommended that the Commission develop a process to ensure dialog and transparency around the determination of resource cost inputs for the IRP. AEE strongly agrees and as Vote Solar said, costs are one of, if not the most important assumption in the IRP process. Many advanced energy technologies are in the beginning stages of the cost curve and their costs will most likely fall dramatically and become more cost-effective in the near future. AEE agrees

with Vote Solar and recommends that the Commission convene an IRP resource cost working group to address resource cost assumptions.

16. Demand-side resources.

A. Is the treatment of these resources in the staff’s recommended approach reasonable? What changes would you suggest and why?

Many parties expressed their concerns with the treatment of demand-side resources in RESOLVE. As mentioned on our initial comments and earlier in these comments, AEE believes that all demand-side resources should be included in the optimization process. In addition, future analysis should take into account the locational benefits of DERs by using the Locational Net Benefits Analysis (LNBA) heat map and tool currently under development in the DRP proceeding.

SEIA stated in their comments and AEE agrees that a distinction should be made between customer-owned and LSE procured resources. The IRP process should not dictate precise quantities of those resources nor dissuade customers from adopting them. Instead, it should focus on maximizing the value of customer-sited DERs within the planning framework.

Finally, ORA stated that demand response resources should count toward meeting the planning reserve margin in the RESOLVE model where they provide reliable load reductions. AEE agrees and believes that flexible load resources, such as DR, should not be included just as load modifiers but also as resources that can provide resource adequacy.

19. Transportation electrification.

A. Do you support the Staff Proposal’s approach to characterizing transportation electrification and the uncertainties and impacts associated with it?

See response about inter-sector benefits under header “Concerns with the sectoral marginal GHG emissions approach.”

30. Relationship between IRPs and procurement. Describe your reaction to the Staff Proposal’s characterization of how IRP development and approval will lead to actual resource procurement in the next few years.

See response under header “Relationship between IRPs and procurement.” In addition to the above points, AEE agrees with SEIA’s comments that an evolutionary approach to IRP based procurement is appropriate. As the IRP matures, it should feed back its results into and possibly amend resource budgets and goals over which the Commission has jurisdiction. This will ensure that the Commission’s resource-specific proceedings are integrated and not in conflict with each other.

34. Alignment of IRP process with other Commission resource proceedings. Are there obvious opportunities for alignment across Commission proceedings that the staff should consider in developing a process alignment workplan? What would be the benefits to coordinating proceedings to align based on these opportunities?

See response under header “Alignment of IRP process with other resource specific proceedings.”

37. Regional Planning. How should the IRP process and analysis take into account the potential for CAISO regionalization?

AEE believes that CAISO regionalization should be taken into account in the IRP process. To this point, AEE agrees with SEIA’s comments that regionalization is a vital strategy

to reach higher levels of renewables penetration. The potential for regionalization will have a significant impact on the flexibility requirements of California's grid, especially with the increased penetration of variable wind and solar resources. AEE believes that any modeling must include the potential effects of regionalization as a future scenario.

CONCLUSION

Developing an integrated IRP process that considers all supply- and demand-side resources, and adequately considers the potential for substantial increases in renewable energy, storage and other clean energy technologies, is a timely effort as California grapples with the challenges of a changing electric system and meeting state GHG emissions goals. As the process evolves, other states will be watching closely to learn how they can take the lessons learned in California to integrate more advanced energy resources and reduce their environmental impact.

We appreciate the opportunity to provide the Commission these reply comments, and we look forward to our continued involvement in this process.

Respectfully Submitted,

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