

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

Order Instituting Rulemaking to Create a
Consistent Regulatory Framework for the
Guidance, Planning, and Evaluation of
Integrated Distributed Energy Resources.

Rulemaking 14-10-003
(Filed October 2, 2014)

**REBUTTAL TESTIMONY OF NANCY RADER
ON PROPOSED UPDATES TO THE AVOIDED COST CALCULATOR
ON BEHALF OF THE CALIFORNIA WIND ENERGY ASSOCIATION**

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*On behalf of the California Wind
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1 **I. INTRODUCTION**

2 Pursuant to Ordering Paragraph 12 of Decision (D.) 19-05-019, as modified by the
3 extension of time granted by the California Public Utilities Commission’s (CPUC) Executive
4 Director on August 19, 2019, the California Wind Energy Association (CalWEA) submits this
5 rebuttal testimony regarding proposed major changes to the CPUC’s Avoided Cost Calculator
6 (ACC). The ACC is a spreadsheet model used to broadly determine the cost-effectiveness of a
7 variety of distributed energy resource (DER) policies and programs.

8 **II. REBUTTAL TESTIMONY OF NANCY RADER**

9 **Q.1. What is CalWEA’s primary objective in this rebuttal testimony?**

10 A.1. CalWEA recommends that the ACC be aligned as closely as possible with the
11 Commission’s Integrated Resources Planning (IRP) process. The proposed continued use of the
12 current ACC methodology, as advocated by the California Large Energy Consumers Association
13 (CLECA), and the proposed modifications to the ACC advocated by Vote Solar and the Solar
14 Energy Industries Association (VS/SEIA), are inconsistent with that objective.

15 **Q.2. Why is it important to align the Avoided Cost Calculator with the IRP?**

16 A.2. The IRP process has become central to California’s goal of optimally achieving its
17 greenhouse gas goals reliably and at least cost. The ACC was first implemented in 2004, when
18 California’s commitment to a clean-energy future was just beginning to emerge. California’s
19 resource mix and its planning objectives have radically changed since then, informed most
20 recently by the adoption of SB 100, which requires carbon-free electricity by 2045. While new
21 natural gas plants were clearly the marginal resource in 2004, it is just as clear that, today, they
22 are not. The Commission’s first Preferred System Plan, adopted after a two-year IRP process,
23 found no need for additional gas resources. Instead, the plan included approximately 6,000
24 megawatts (MW) of new utility-scale solar; 2,200 MW of new wind resources, 1,700 MW of
25 new geothermal and 2,000 MW of battery storage.¹ The initial results of the current IRP cycle
26 are similar and, moreover, indicate that a substantial amount of gas-fired capacity can be retired
27 while maintaining a reliable grid.² Therefore, the ACC’s use of new gas-fired power plants as
28 the avoided resource is out-of-step with the Commission’s current planning efforts.

¹ D.19-04-040 (April 25, 2019) at Table 3 and Figure 2.

² See R.16-02-007, CPUC Energy Division, 2019-20 IRP: Preliminary Results (October 4, 2019).

1 As California shifts to an increasingly electricity-driven economy to achieve its carbon-
2 reduction goals,³ the ACC must also be aligned with the IRP to promote electricity affordability.
3 Affordability is essential to maintain equitable access to essential services and to support the
4 electrification of end-uses in other economic sectors. While considerations other than cost will
5 come into play, total costs (net of benefits) associated with each program or technology must be
6 made on a consistent, transparent basis so that decision makers are able to make informed,
7 effective trade-offs between costs and other objectives in achieving state policy goals. The IRP
8 process is intended to evaluate all options, both supply- and demand-side, on an equal basis
9 using consistent inputs and assumptions.

10 The concept that the Commission should evaluate the various options for meeting the
11 state’s clean-energy goals on a consistent basis is grounded in statute and in prior Commission
12 decisions.

13 **Q.3. Could you please elaborate?**

14 A.3. Yes. In 2015, SB 350 was adopted by the state legislature and signed into law, codified
15 as Section 454.51 of the Public Utilities Code. This statute, which established the IRP process,
16 requires that the Commission “[i]dentify a diverse and balanced portfolio of resources needed to
17 ensure a reliable electricity supply that provides optimal integration of renewable energy in a
18 cost-effective manner.” In the Commission order that began the implementation process for this
19 statute, the Commission stated that the statute contemplates “comprehensive resource
20 optimization”⁴ and that preparing the Commission for the resource optimization analysis
21 required in the IRP process will require “consistent methodologies for resource valuation and/or
22 selection criteria across multiple resource types, for use in comparisons in all-source or multiple-
23 source procurement”⁵ and “[c]onsistent cost-effectiveness analysis of demand-side and
24 distributed energy resources, as well as identification of demand-side resource potential.”⁶ The

³ *Ibid* and Mahone, Amber, Zachary Subin, Jenya Kahn-Lang, Douglas Allen, Vivian Li, Gerrit De Moor, Nancy Ryan, Snuller Price. 2018. *Deep Decarbonization in a High Renewables Future: Updated Results from the California PATHWAYS Model*. California Energy Commission. Publication Number: CEC-500-2018-012.

⁴ R.16-02-007, *Order Instituting Rulemaking to Develop an Electricity Integrated Resource Planning Framework and to Coordinate and Refine Long-Term Procurement Planning Requirements* (“OIR”). February 19, 2016, at 13.

⁵ *Id.* at 15.

⁶ *Id.* at 16.

1 Commission noted that it is continuing to move “in the direction of all-source solicitations of all
2 types of resources (including all resources traditionally classified as supply-side, as well as
3 sometimes including resources traditionally classified as demand-side, such as energy efficiency
4 or behind-the-meter solar photovoltaics).”⁷

5 More recently, in the present proceeding, the Commission opted not to adopt a “societal
6 cost test” for application only to DERs, stating:

7 A defining feature of integrated resource planning is the fair and unbiased
8 consideration of both demand and supply side resources as potential solutions for
9 meeting system or societal needs. This feature is also a statutory requirement for
10 the Commission’s Integrated Resource Planning process.⁸

11 **Q.4. How, specifically, do the CLECA and VS/SEIA proposals fail to align with the IRP?**

12 A.4. VS/SEIA and CLECA both propose to continue to use the energy and capacity costs of
13 gas-fired electric generation as a proxy for marginal generation capacity, whereas IRP shows the
14 long-term marginal resource to be a combination of solar and battery storage, as stated in the E3
15 presentation during the August 30, 2019 workshop.⁹ VS/SEIA proposes to adjust energy price
16 shapes and gas price forecasts in ways that are inconsistent with those being used in IRP.

17 VS/SEIA objects to the ACC’s current method of adjusting avoided energy price shapes
18 in future years based on an assumed future build-out of renewable generation because the ACC
19 overestimated projected zero- or negative-price-value hours in the day-ahead market have, so far,
20 been fewer than predicted.¹⁰ To address this problem, VS/SEIA propose to freeze the actual
21 market heat rate shapes for the most recent calendar year. Rather than applying this type of
22 arbitrary “solution,” it would be much preferable to draw from the far more robust IRP model.
23 As explained in the opening testimony of the Joint Utilities, the methodology in the IRP model to
24 produce resource output shapes would represent a marked improvement over the current version
25 of the ACC, and also allow for the standardization and alignment of load forecasts and resource

⁷ *Id.* at 18-19.

⁸ Decision 19-05-019 (May 16, 2019) at p. 32.

⁹ See Energy+Environmental Economics (E3), “Integrating DER into the IRP” (August 30, 2019) at Slide 8.

¹⁰ Prepared Direct Testimony of R. Thomas Beach on behalf of the Solar Energy Industries Association and Vote Solar (“VS/SEIA Opening Testimony”) at p. 9.

1 output shapes.¹¹ Similarly, with regard to gas price forecasts, using the natural gas price
2 forecasts from the Energy Commission’s Integrated Energy Policy Report (IEPR) would align
3 the ACC with the IRP.

4 **Q.5. Do you agree with VS/SEIA that DERs should be credited for the fact that that they**
5 **will reduce future market prices?**¹²

6 A.5. No. This argument once made sense, when renewable energy was an atypical addition to
7 the energy supply and before California had committed itself to shifting away from fossil fuels
8 entirely. Given that this commitment has been made and that we are well on that path, however,
9 it makes no sense to credit DERs for reducing market prices. The market environment is
10 fundamentally shifting; DERs and utility-scale renewable resources with free “fuels” and zero
11 marginal costs will inevitably reduce future market prices. The IRP model anticipates this
12 fundamental shift and, in that context, evaluates the optimal overall resource mix.

13 **Q.6. Do you agree with VS/SEIA that DERs should be credited for avoided transmission**
14 **and distribution investments?**¹³

15 A.6. No. CalWEA agrees with CLECA that the ability of DERs to avoid transmission and
16 distribution investment is highly resource- and site-specific.¹⁴ As noted by the Joint Utilities,
17 transmission avoided costs are currently being addressed in the Distribution Resources Plan
18 proceeding (R.14-08-013) and should not be included in the ACC.¹⁵ Rather, benefits that are
19 resource- or technology-specific, including transmission and distribution benefits, should be
20 evaluated on a case-by-case basis within the resource-specific DER proceeding and not included
21 in the ACC, which is used to determine the cost-effectiveness of all DERs across the board. As
22 the Joint Utilities noted, the CPUC has established mechanisms where DERs can compete to
23 cost-effectively defer planned distribution infrastructure investments.¹⁶

¹¹ Prepared Testimony of Pacific Gas and Electric Company, San Diego Gas and Electric Company and Southern California Edison Company (“Joint Utilities’ Opening Testimony”) at p. 2-5.

¹² VS/SEIA Opening Testimony at p.13.

¹³ VS/SEIA Opening Testimony at Section II.E, p.iii-iv.

¹⁴ Testimony of Paul D. Nelson on behalf of the California Large Energy Consumers Association (“CLECA Opening Testimony”) at Section X, p. 18.

¹⁵ Joint Utilities’ Opening Testimony at p. 1-7.

¹⁶ *Id.* at p. 3-2.

1 **Q.7. What is your response to VS/SEIA’s point that the Commission has identified a**
2 **near-term capacity need in the procurement phase of the IRP proceeding?**

3 A.7. VS/SEIA argues that the Commission and certain parties have identified a need for
4 capacity starting in the summer of 2021, which conflicts with the 2017-18 IRP finding that there
5 is a 2022 need only for solar resources and not storage.¹⁷ However, the Commission has not yet
6 issued a decision regarding whether to mandate the near-term procurement of reliability
7 resources. Many parties, including CalWEA, have argued that the stack analyses used by parties
8 to identify the need is both improper and too simplistic a tool for this purpose; by comparison,
9 the IRP modeling method employs both a capacity expansion model and a production simulation
10 analysis.¹⁸ Indeed, the preliminary 2019-20 IRP modeling results show only a relatively small
11 need for storage resources in 2022.¹⁹ Therefore, if the Commission does order additional
12 reliability resources to be procured, that determination will be based more on the instinctual
13 concerns of the Commission and certain parties, largely over the near-term availability of
14 imports (or lack thereof), than on any rigorously determined establishment of need. As such, it
15 should not be used to support the assumption of any near-term resource need in the ACC.
16 Finally, the Commission’s Proposed Decision in the IRP “procurement track” stated that both
17 existing or new resources may qualify to satisfy the identified need;²⁰ it is not presently clear
18 whether or not new resources will be required to satisfy that need.²¹

19 **Q.8. What is your response to CLECA’s argument that the current ACC method, using a**
20 **combustion turbine, is needed because a CT represents contingency capacity and**
21 **RESOLVE cannot generate a capacity value?**²²

¹⁷ *Id.* at p. 12-13.

¹⁸ *See* R. 16-02-007, CalWEA Opening Comments on Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023, at section II (October 2, 2019).

¹⁹ *See* note 2 *supra*, at slides 52-54.

²⁰ R. 16-02-007, Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023 (September 12, 2019).

²¹ *See, e.g.*, R. 16-02-007, Opening Comments of the Union of Concerned Scientists on Proposed Decision Requiring Electric System Reliability Procurement for 2021-2023, at section II (October 2, 2019). (“UCS believes there is ambiguity surrounding the eligibility of both imports and OTC plants for meeting incremental procurement requirements.”) In addition, numerous parties, including CalWEA, argued that existing at-risk resources should be eligible to meet the requirement.

²² CLECA Opening Testimony at Section IV.

1 A.8. In its workshop presentation, E3 indicated that its RESOLVE model can calculate all
2 supply-side avoided costs, including capacity.²³ In response to follow-up questions from the
3 workshop, E3 indicated that a recommendation will be made in a forthcoming E3/CPUC staff
4 proposal.²⁴ If generating a capacity value proves not to be possible or satisfactory, the ACC
5 framework can be retained, but should use a clean resource or combination of resources as the
6 proxy avoided resource, consistent with IRP findings.

7 Regarding contingency value, it is important to recognize that, for the 2019-20 IRP
8 process, Energy Division staff have carefully calibrated the RESOLVE model to the SERVM
9 model.²⁵ The role of SERVM is to “validate the reliability, operability and emissions of resource
10 portfolios generated by RESOLVE.”²⁶ This is achieved by running thousands of scenarios in
11 SERVM. These scenarios do, in fact, address the types of contingencies noted by CLECA, such
12 as constrained gas supplies due to extreme weather events. However, the ACC has a broader
13 purpose than to address contingency value specifically; the ACC is for broad application to all
14 types of DERs that provide generic energy and capacity values.

15 **Q.9. Why does E3’s proposed approach to DER valuation best align DER avoided cost**
16 **calculations with the current IRP?**

17 A.9. The purpose of IRP is to plan an optimal portfolio to achieve California’s clean-energy
18 goals, considering cost and reliability. The IRP represents the state’s expected resource build-
19 out, and thus will best reflect the cost that DERs will be avoiding and the value they will be
20 providing. These costs and values will change as the overall resource mix changes. IRP
21 captures these dynamic effects, which should be reflected in the ACC.

22 E3 proposes to integrate DERs into the IRP using a transitional, simpler method for the
23 2020 IDER ACC update. Based on the preliminary 2019-20 IRP results, as with the 2017-18
24 adopted Preferred System Plan, the IRP will recognize that the short-and long-term marginal
25 resource is no longer a gas-fired power plant but, rather, a combination of solar and storage
26 resources. In addition, integrating DERs into the IRP analysis will synchronize other

²³ See note 9, *supra*, at slide 14.

²⁴ See “Follow-up to August 30, 2019 Avoided Cost Calculator (ACC) Major Changes Workshop, Post-Workshop Questions for E3 and Energy Division submitted by parties,” at p. 3, response to question 2.g.

²⁵ See note 2 *supra*, at slide 15. At the October 4, 2019, workshop, Energy Division staff emphasized that considerable effort has been made to calibrate the two models.

²⁶ *Id.* at slide 20.

1 assumptions across demand- and supply-side resources, including resource cost trajectories, fuel
2 price forecasts, and financial data such as the cost of capital.

3 **Q.10. What if IRP outputs cannot be used directly in the next iteration of the ACC model?**

4 A.10. If, for whatever reason, it is not possible to use IRP outputs in the next iteration of the
5 ACC model, then the marginal resource used in the existing ACC framework should be a clean
6 resource, or combination of clean resources, or an *existing* thermal resource, and be based on
7 publicly available cost data. It should not be a new gas-fired facility.

8 **Q.11. Why is it important to CalWEA and its member companies to align the ACC with**
9 **IRP?**

10 A.11. CalWEA has a long history of advocating total-cost and transparent-cost accounting as
11 the state seeks to achieve its clean energy goals. CalWEA’s member companies have always
12 been willing to compete on an all-in, total-cost basis, and we believe that the total costs
13 associated with different technologies and strategies for shifting off of fossil fuels – while not the
14 only consideration – must be made transparent to the legislature and to policy makers at the
15 agency level as decisions are made regarding how the state should go about achieving SB 100’s
16 goals.

1 **EXHIBIT A**

2 **QUALIFICATIONS OF NANCY RADER**

3 Q: Please state your name and business address for the record.

4 A: My name is Nancy Rader, and my business address is 1700 Shattuck Avenue, #17, Berkeley
5 CA 94709.

6 Q: Briefly describe the California Wind Energy Association and your present responsibilities
7 there.

8 A: The California Wind Energy Association is a 19-year-old trade association representing wind
9 energy and related companies focused on the California market, primarily including owners,
10 operators and developers of wind energy projects located in California.

11 Q: Briefly describe your experience and qualifications.

12 A: I am currently employed as CalWEA's executive director and have served in that role since
13 2002. In this role, I oversee the association's advocacy before state energy agencies and the
14 California legislature. For nearly 20 years, I have been actively engaged in the state's adoption
15 and implementation of the Renewables Portfolio Standard program and the Integrated Resource
16 Planning policy, as well as the development of market rules related to variable energy resources
17 at the California Independent System Operator.

18 Q: Briefly describe your educational and professional background.

19 A: I received a Bachelor of Arts degree in Political Science/Public Service from the University
20 of California at Davis in 1983 and a Master of Arts degree in Energy and Resources from the
21 University of California at Berkeley in 1992.

22 Q: What is the purpose of your testimony in this proceeding?

23 A: I am sponsoring CalWEA's Rebuttal Testimony in R. 14-10-003 filed on October 21, 2019.

24 Q: Was this material prepared by you or under your supervision?

25 A: Yes, it was.

26 Q: Insofar as this material is factual in nature, do you believe it to be correct?

27 A: Yes, I do.

28 Q: Insofar as this material is in the nature of opinion or judgment, does it represent your best
29 judgment?

30 A: Yes, it does.