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)
(NOT CONSOLIDATED)	
Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program.	Rulemaking 15-02-020 (Filed February 26, 2015)

CLEAN COALITION COMMENTS ON REPORT AND NEXT STEPS FOR DEVELOPMENT OF RENEWABLES INTEGRATION COST ADDER

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I. INTRODUCTION

Pursuant to the May 6, 2016 *Joint Administrative Law Judge's Ruling Seeking Input on Report and Next Steps for Development of Renewables Integration Cost Adder* ("ALJ Ruling"), the Clean Coalition submits these comments.

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources ("DER")—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

The Clean Coalition appreciates this opportunity to comment on the development of the Renewables Integration Cost Adder ("RICA").

II. COMMENTS

A. The Renewable Integration Cost Adder Report

1. *Do you agree with the primary conclusion of SCE's report that the results of this study (calculations of variable integration costs), as calculated using the tools and methodology described in the report, are unreliable? Explain why or why not.*

The Clean Coalition supports the Southern California Edison Company ("SCE") position that the results from the SCE (U 338-E) Renewable Integration Cost Adder Report ("SCE Report") are unreliable and that additional modeling work is necessary in order to define integration costs. The difficulty associated with calculating integration costs is well documented and raises caution regarding when and how calculation of integration costs for resources are worthwhile. We agree with the concerns about calculating integration costs noted in the National Renewable Energy Laboratory's *Cost-Causation and Integration Cost Analysis for Variable Generation* Technical Report ("Cost-Causation Report"), which reviewed wind and solar integration methodologies to identify common mistakes and best practices for calculating integration costs.[1] The report ultimately found that:

> "[T]he many complex interactions among components of the power system and assumptions regarding the no-wind base case all have important influences on integration cost estimates, and in fact raise questions of whether cost components that are commonly thought to be integration costs can be correctly untangled."

Given the challenges of accurately defining integration costs for renewables, we are sympathetic to SCE's challenges and suggest that the Commission turn towards adopting a comprehensive integrated resource planning process to better fill the role of the RICA.

B. Questions Related to Policy Considerations and Next Steps

9. *What future activities would you recommend the Commission to undertake to further refine calculation of renewables integration costs according to the legislative requirements, considering that the result should also have a productive impact on both renewables and broader resource planning and procurement? How high a priority should it be for the Commission to undertake such activities, if any? Explain.*

[1] Milligan, Michael, et al., National Renewable Energy Laboratory, U.S. Dep't of Energy, *Technical Report NREL/TP-5500-51860, Cost-Causation and Integration Cost Analysis for Variable Generation* (June 2011), available at http://www.nrel.gov/docs/fy11osti/51860.pdf.

Due to the problematic exercise of identifying integration costs in a reliable manner, the Commission should deprioritize RICA development activities. Industry experts have spent years attempting to develop a methodology that reliably and fairly identifies integration costs without consensus. Rather than devoting additional Commission and party resources to improving upon the commendable efforts of SCE, the Commission would be better served by deferring this issue until academia and/or industry experts identify better methods. There is no value in study results which are unreliable, and even potential for substantial harm in implementing changes based on poorly supported conclusions. Application of a grossly inaccurate RICA would distort procurement processes or inhibit compliance with established goals related to emission reduction and the transition to sustainable resources, the only reliable conclusion from efforts to establish a RICA value is that no method yet exists to establish a RICA with any reasonable level of confidence. Distortions in procurement resulting from improper application of RICA would also disrupt market development for those resources otherwise deemed most cost effective and commit utilities and their customers to enter into contracts for sub-optimal portfolios.

In the event that the Commission decides that an interim RICA is necessary, the Commission must highly prioritize further review of the RICA methodology to ensure that any approved methodology holistically considers costs relative to all alternatives, including costs associated with non-renewable sources of generation. The preferred approach would include a baseline of resources compliant with renewable portfolio standard ("RPS") and SB 350 greenhouse gas reduction. We describe this proposal in additional detail in response to question 12 below.

The legislative requirements of AB 2363 and PUC Code 399.13 are consistent with our proposed approach. As noted in the ALJ Ruling, AB 2363 requires RPS least-cost best-fit ("LCBF") evaluation to include "[e]stimates of electrical corporation expenses resulting from integrating and operating eligible renewable energy resources, including, but not limited to, any additional wholesale energy and capacity costs associated with integrating each eligible renewable resource." Our proposed approach would require a full accounting of integration and operating costs for *all* energy resources, beginning with the assumption that some portfolio of RPS-eligible resources must be procured, and that electric generation will be required to contribute to compliance with the SB 350 mandate. In order to do this, the Clean Coalition proposes the approach discussed below, in response to Question 12.

10. Should the adopted interim values for the variable component of the renewables integration cost adder be retained for use in the RPS Calculator and least-cost best-fit evaluation in RPS procurement? If not, what should replace them?

In D.14-11-042, the CPUC adopted interim renewable integration cost adders for wind and solar photovoltaic resources.[2] These costs include variable cost components of $4/MWh for wind resources and $3/MWh for solar PV resources.[3]

The interim values for the variable component should not be retained for ongoing use in the RPS Calculator and LCBF evaluation because they do not reflect the conclusions of the RICA study by SCE and E3, or the broader conclusions reached by NREL. Equally importantly, the interim values dramatically oversimplify the true integration costs associated with each project.

The variable cost components identified in D.14-11-042 reflect an average of integration costs for wind and solar resources throughout the Western Electricity Coordinating Council ("WECC") region. However, locational values are critically relevant to the actual integration costs of each project, including the transmission capacity, congestion, and portfolio of electrically related resources. These factors are being considered in the CAISO Transmission Planning Process, in the Locational Net Benefits Assessment being developed in the utility Distribution Resource Plans, and are related to Local Capacity Areas and the associated resource development, including local demand response, energy efficiency, and the 1,300 MW of planned energy storage procurement. The larger WECC region RICA prices are not wholly relevant to actual costs of individual renewable project selection in California, even if these values were reliable. This averaged integration cost injects an imprecise adder on the procurement of preferred resources, whereas integration costs of other resources are socialized separate from procurement costs. This distorts the value of wind and solar PV resources in LCBF decisions at a time when significant investments in renewable energy is being considered.

Furthermore, the current interim RICA values are inappropriate because the statute contemplates "each eligible renewable resource," suggesting that integration costs unique to each individual resource should be considered. Because the current interim values reflect an average

[2] D.14-11-042, *Decision Conditionally Accepting 2014 Renewables Portfolio Standard Procurement Plans and an Off-Year Supplement to 2013 Integrated Resource Plan* (20 Nov. 2014).

[3] *Id.* at 61-63.

rather than a location-specific cost, they should not be retained for further use. Again, the challenges related to identifying resource-specific integration costs have not yet led to a reliable methodology among industry experts and academia.[4] Instead of continuing use of the flawed interim RICA, the Clean Coalition urges the Commission to refrain from imposing the costs until it can identify a methodology that accurately reflects true costs.

11. *Should renewables integration cost adders be developed for geothermal and biomass resources to reflect costs to the system for the relative inflexibility of these resources? If yes, how should these adders be calculated? How should such a methodology recognize that any resources that are not infinitely flexible will likely have some "integration" costs?*

All resources have some integration cost and value in the context of the portfolio available resources, location, and associated loads they serve. Integration costs should be determined to the extent practical for all resources, both renewable and conventional, and adjustment adders applied in LCBF analysis. Imposing an integration cost adder only on some resources, or only on renewable resources, provides an incomplete reflection of real costs and creates an inappropriately discriminatory pricing structure in procurement decisions. However, as already noted, it is premature to apply RICA to any resources until the methodology is adequately developed and unlikely to introduce unreliable values.

12. *Should the Commission modify its previous work to develop a renewable integration cost adder specifically targeted to inform RPS planning and procurement, and instead, inform RPS planning and procurement via a comprehensive integrated resources planning process (for example, an analysis that optimizes for reliability, low carbon emissions, and least cost across all resource types)? Why or why not?*
    a. *How would such an analysis be conducted?*
    b. *How would any resulting optimized portfolio(s) inform procurement of individual resources?*
    c. *If the idea of a separate RICA with California-specific fixed and variable components is no longer pursued, how would the Commission fulfill its legislative requirement to calculate renewables integration costs?*

The Clean Coalition strongly supports the development of a comprehensive, integrated resource planning process. The Commission's efforts to develop a RICA to date reflect an important, but incomplete view of the integration costs. Rather than focusing on renewables as

[4] *See* Milligan, *supra*.

an integration cost, the Clean Coalition advocates for a methodology that incorporates the integration costs of each energy resource, including generation currently in service. All resources exhibit particular limitations that should be priced into the methodology. For example, various types of natural gas generation have different minimum generation levels as well as ramping and shut down constraints. A comprehensive approach would allow for a better comparison of the integration costs of all resources, including both renewable and conventional. The Commission should therefore pursue a comprehensive integrated resources planning process.

The Clean Coalition recommends that a comprehensive integrated resource planning approach utilize a baseline set at the level of renewable resources required under the RPS mandate, and incorporating SB 350 GHG compliance requirements. This will allow for the development of an appropriate portfolio of resources that optimizes for particular goals and does not attempt to apply an overly simplistic adder that artificially considers new resources in isolation. Because the RPS and SB 350 requirements are a legislative mandate, alternatives that do not meet legislative compliance are not a viable option for consideration on a comparative cost basis. It is inappropriate to apply an integration cost adder based solely on a factor such as flexibility when other factors are necessary to achieve integration into the necessary portfolio or resources. For example, the addition of a GHG emitting resource will require the procurement of additional non-emitting resources in order to integrate it into a GHG or RPS compliant portfolio. In this context, the Commission should differentiate between the costs associated with complying with legislative requirements and the costs of different options for meeting those requirements.

After establishing a baseline portfolio of RPS-compliant resources, the comprehensive planning approach should calculate marginal integration costs of each additional resource, whether renewable or not. Importantly, the planning process should reflect the integration costs of utilizing existing non-preferred resources, which should not be entitled to avoid integration costs that they impose. Resources, which make achievement of the 50% RPS goal more expensive from an integration standpoint, should be tied to the additional cost. In some cases, retiring old generation will avoid costs. For example, costs associated with curtailing RPS-eligible resources to accommodate inflexible facilities and existing contracts are currently poorly considered. However, a truly comprehensive planning process should connect integration costs of conventional generation to those resources. California currently inflexibly imports contracted

non-RPS power even as we curtail solar PV generation, and the costs associated with absorbing these imports should be tied to the contracted power rather than added to solar integration costs. This process would better reflect actual costs associated with all energy generation and provide means for the most cost-effective resource mix that complies with California's RPS mandate. A new comprehensive integrated resource planning process would meet the legislative requirements of AB 2363.

The Commission should also consider discounting integration costs of resources in accordance to the societal benefits that those resources provide. The socioeconomic value of renewable resources can be quantified in a variety of ways,[5] but these values should be identified and considered in the same way that we consider the costs. This information will further ensure that the prices of renewable energy resources are accurately reflected in LCBF procurement decisions.

13. How should parties most effectively participate in any future development of integration cost analysis pursued by the Commission?

The Clean Coalition recommends that the Commission convene a series of workshops to further develop a comprehensive integration cost analysis because workshops allow participation from parties lacking resources to staff a working group. In addition, this will allow smaller organizations to more easily stay up-to-date on the evolution of the issues.

III. CONCLUSION

The Clean Coalition appreciates this opportunity to offer comments on the RICA development and supports the Commission's continued work on developing the Integrated Resource Planning Program.

Respectfully submitted,
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[5] *See, e.g.,* International Renewable Energy Agency, *the Socio-economic Benefits of Solar and Wind Energy* (May 2014), available at www.irena.org/DocumentDownloads/Publications/Socioeconomic_benefits_solar_wind.pdf.