



October 31, 2016

California Energy Commission
Docket No. 16-IEPR-01 – General/Scope
Docket Office
1516 Ninth Street
Sacramento CA 95814
Submitted Electronically via CEC website

Re: 16-IEPR-01-- Draft 2016 Integrated Energy Policy Report Update

The California Wind Energy Association (“CalWEA”) offers the following comments on the Draft 2016 Integrated Energy Policy Report Update (“Draft IEPR”). We urge that several items be corrected, clarified or supplemented, as discussed below.

1. Wind Land Use Figures Require Correction

The Draft IEPR reports the “average land use” for wind projects as ranging from 24.8 to 40 acres/MW for wind, which is far higher than the reported figures for all other energy technologies. Further, the Draft IEPR states that the acreage assumptions listed “are direct land use disturbances,” which is false with respect to wind energy projects. (Draft IEPR at p. 45.) The reported figure is apparently an attempt to represent the total project area, of which direct land use disturbance is a small fraction, with the rest remaining available for ranching, farming, forestry or habitat. The misleading information presented in the Draft IEPR requires correction.

A 2009 NREL report, “Land-Use Requirements of Modern Wind Power Plants in the United States,” which is cited as a source for the Draft IEPR information, states that “using the total area metric without qualification may significantly overstate the land impacts of wind power compared to other sources.” The NREL report therefore also analyzes the “direct impact area” along with the “total area” and reports an average total direct impact area (both temporary and permanently disturbed land) of about 2.5 acres/MW, and a total project area of about 85 acres/MW. (NREL report at p. 22, with figures converted from hectares to acres.) Both figures are subject to wide variation; the NREL report shows that

the sampled wind projects in California were less than half the national average in terms of total acreage and well below the national averages for direct land use disturbances. (NREL report, Appendix Table A.1.)

Therefore, the average land use figures for wind reported in Draft IEPR Table 4 and the surrounding text should be revised to reflect the NREL figures. If total-area figures are used, they should be accurately represented as the project area and not the land-disturbance area.

2. Portfolio Diversity Is Important in Addressing Grid-Integration Challenge

With regard to the subsection titled “Expansion of Renewable Resources” (Draft IEPR, beginning on page 20) and the discussion related to the grid integration challenges related to hourly changes in variable renewable generation and energy demand, an important solution is missing from the discussion: portfolio diversity.

The Draft IEPR implicitly attributes the growing need for flexible resources to renewable energy technologies generally, or to wind and solar particularly, when in fact the largest contributor to the need for flexible ramping resources is solar PV generation.¹ The Draft IEPR discusses storage and regionalization as solutions to this need. However, a primary means of addressing the flexible ramping need is to cost-effectively diversify the resource portfolio to minimize the need for ramping resources in the first place.² The diversity “solution” has been shown to be significantly more cost-effective than adding storage resources at the back-end of a solar-heavy portfolio. A 2015 CAISO study of bulk storage presented to the Energy Commission (at a workshop cited in Draft IEPR footnote 157) showed that the least-cost way to meet the 40% RPS while minimizing over-generation is to add wind alone, without any storage.³ This result could be expected to be magnified under a 50% RPS.

¹ See California ISO, “Final 2014 Flexible Capacity Needs Assessment, Table 2 (May 1, 2014). Available at: https://www.caiso.com/Documents/Final_2014_FlexCapacityNeedsAssessment.pdf.

² See, e.g., Draft 2016 RPS Portfolios, RETI 2.0 Plenary Group Meeting, slide 12 (3/18/16) (CPUC [presentation](#) by Forest Kaser); Energy and Environmental Economics, Inc., (E3) [Draft Renewable Portfolios for CAISO SB 350 Study](#) (e.g., slide 35) presented at a February 8, 2016, CAISO Public Workshop; E3, [Investigating a Higher Renewables Portfolio Standard in California](#) (January 2014) (e.g., see slide 8); CalWEA, [“Investigating the Investigation of a Higher Renewables Portfolio Standard in California: A Review of the Five-Utility E3 Study”](#) (April 2014).

³ See [“A CAISO Bulk Energy Storage Case Study,”](#) CPUC/CEC Joint Workshop on Bulk Energy Storage (Nov. 20, 2015), at slide 8.

The importance of portfolio diversity to the goal of addressing the flexible ramping challenge and associated costs should be highlighted in the final IEPR as an important, and least-cost, solution.

3. Seasonal, Geographical and Technological Diversity Is Possible Without CAISO Expansion

The discussion of regionalization (beginning on page 34; also at p. 76), suggests that both CAISO expansion and regional transmission expansion would be required to obtain seasonal and geographical diversity of resources for California. While CalWEA agrees that CAISO expansion would bring important operational benefits and access to cost-effective renewable energy resources, the IEPR should recognize that substantial regional renewable energy resources – including, most importantly, low-cost wind resources -- can be accessed without the expansion of the CAISO grid and without significant new transmission.⁴ This is already occurring and will continue to occur given (1) planned and potential coal retirements that will free up transmission capacity in the WECC and (2) wind energy resources that can be accessed through dynamic transfer arrangements with the CAISO.⁵ Dynamically scheduled wind energy (or other renewables) would reduce California’s electric bills and reduce in-state gas generation just the same as if the resources were in the CAISO’s existing or expanded footprint.

The IEPR should correctly inform readers that seasonal, geographical and technological diversity is possible without CAISO expansion. This information should also be included in any IEPR 2017 effort to “enhance transmission planning decisions by integrating environmental and transmission alternatives into the 2017 IEPR process” (Draft IEPR at p. 76).

4. Wind Energy Price Data Requires Clarification

The Draft IEPR states (p. 63) that the “price of power purchase agreements for onshore wind have dropped significantly from the high of around \$70/MWh, with an average of

⁴ WECC studies have shown that the retirement of over 6,000 MW of coal units that are already scheduled to occur by 2024 will enable approximately 3,500 MW of wind energy and 1,800 MW of solar to be accessed through dynamic transfer (DT) arrangements with the CAISO (or via an expanded CAISO) without any transmission upgrades (some 600 MW of New Mexico wind projects under dynamic transfer arrangements and using existing transmission are already under construction). The retirement of 16,000 MW of coal capacity (about half that now operating) would enable 9,600 MW of wind and 4,800 MW of solar to be dynamically scheduled with very modest transmission upgrades. See note 5 *infra*.

⁵ See CalWEA’s 4/28/16 [Comments](#) submitted in the RETI 2.0 process.

\$23.5/MWh between 2009 and 2014,” citing a 2015 Lawrence Berkeley National Laboratory report but without the caveats noted in that report.⁶ The LBNL report states that the average \$23.5/MWh price is “focused on a sample of projects that largely hail from the lowest-priced Interior region of the country.” The LBNL report indicates that PPA prices in California and the West are substantially higher. The IEPR should note, as the LBNL report does, that “PPA prices are generally low in the U.S. Interior, high in the West, and somewhere in between in the Great Lakes and Northeast regions.”

5. A Wind Repowering Plan Is Not Needed

The Draft IEPR (p. 75) recommends the development of a Wind Repowering Action Plan. CalWEA appreciated, and participated in, an Energy Commission Workshop in January 2015 for “Identifying Challenges and Effective R&D Paths for Promoting Repowering.” CalWEA also appreciated the Commission’s subsequent issuance, in June 2016, of a research grant opportunity to improve the performance and cost-effectiveness of wind and other renewable energy technologies.⁷ Further, CalWEA lent its support to a research proposal that was funded by this program.

Particularly given these recent activities, CalWEA believes that developing a “Wind Repowering Plan” need not be a high priority for the state. As we explained at the January workshop, the primary obstacle to repowering at present is the lack of a market at prices sufficient to support repowering, despite the clear long-term need for wind energy in the state’s long-term electricity portfolio (see discussion above under “Importance of Portfolio Diversity to Addressing Integration Challenge”). Therefore, in CalWEA’s view, the two most important things that should be done, immediately, to promote wind repowering are (1) to accelerate development of the indirect-cost values for use in the CPUC’s Integrated Resources Planning to demonstrate the long-term value of wind energy, and (2) for the CPUC to ensure that the investor-owned utilities act on the diminishing availability of federal tax credits for wind energy to ensure that some of that value is captured through 2017 PPAs.⁸

The Draft IEPR states that “many older turbines that are no longer in use remain throughout California.” This statement should be supported by data. CalWEA is not aware

⁶ Wisner, R., M. Bolinger. 2014 Wind Technologies Market Report. LBNL. August 2015. See p. 57.

⁷ GFO-16-301.

⁸ See CalWEA’s September 16, 2016, [Reply Comments](#) on the 2016 Procurement Plans of the Investor-Owned Utilities, filed before the CPUC.

of a significant number of turbines that are non-operational.⁹ Despite their age, most 1980s-vintage turbines continue to operate, a testament to the durability of much of the early-generation technologies. However, keeping these turbines in good repair requires higher power purchase prices than the short-term, energy-only pricing presently seen in the CAISO market. Therefore, multi-year power purchase agreements reflecting grid-integration values are needed both to support maintenance of the existing turbines as well as to promote their repowering.

Given the urgent need to take specific actions whose purpose is already clear, it would not make sense to take the time to develop a plan before taking those actions.

Thank you for considering CalWEA's views.

Sincerely,

A handwritten signature in black ink that reads "Nancy Rader". The signature is written in a cursive, flowing style.

Nancy Rader
Executive Director
Email: nrader@calwea.org

⁹ See also, e.g., this [Tweet](#) from a Palm Springs based reporter, attesting to the operability of turbines there.
