April 16, 2012

Mr. Neil Millar
California Independent System Operator
250 Outcropping Way
Folsom, CA 95630

Dear Mr. Millar:

Clean Line Energy Partners (Clean Line) appreciates the opportunity to provide comments on the "portfolios and development assumptions" discussed at the April 2nd stakeholder meeting, and particularly on the recommended scenarios submitted by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) as referenced in their March 12 transmittal letter. Long-haul transmission projects that will deliver high-quality, low cost renewable resources directly to California are one of several options through which California can meet its renewable portfolio standard and greenhouse gas reduction goals. Indeed, California continues to benefit from HVDC projects that connect the state with out-of-state resources. However, the renewable portfolio assumptions presented by the CAISO, the CPUC and CEC at the April 2, 2012 stakeholder meeting do not appear to contemplate low-cost renewable generation connected to the state via long-haul interstate transmission lines.

Out-of-state projects connected directly with the California grid offer the prospect of reduced energy costs and easier integration of variable resources. High quality wind resources outside California, combined with reduced land and construction costs, make for lower overall costs even when the cost of new transmission is included. According to an assessment by the National Renewable Energy Laboratory (NREL) and AWS Truepower[1], the available land area (excluding areas unlikely to be developed) with a 40% gross capacity factor at 100 meters in California is a fraction of that in many other Western states including Montana, Wyoming, and New Mexico.

	Available Land with 40%+ CF at 100 meters (km^2)
Montana	117,351
Wyoming	70,373
New Mexico	51,941
California	1,324

The lower costs associated with high capacity wind, in addition to reduced land and construction costs, are illustrated in a sample of wind Power Purchase Agreement prices by region from the Department of Energy's 2010 Wind Technologies Market Report (Figure 1).

[1] "Wind Powering America." National Renewable Energy Laboratory and AWS Truepower. Updated April 24, 2011.

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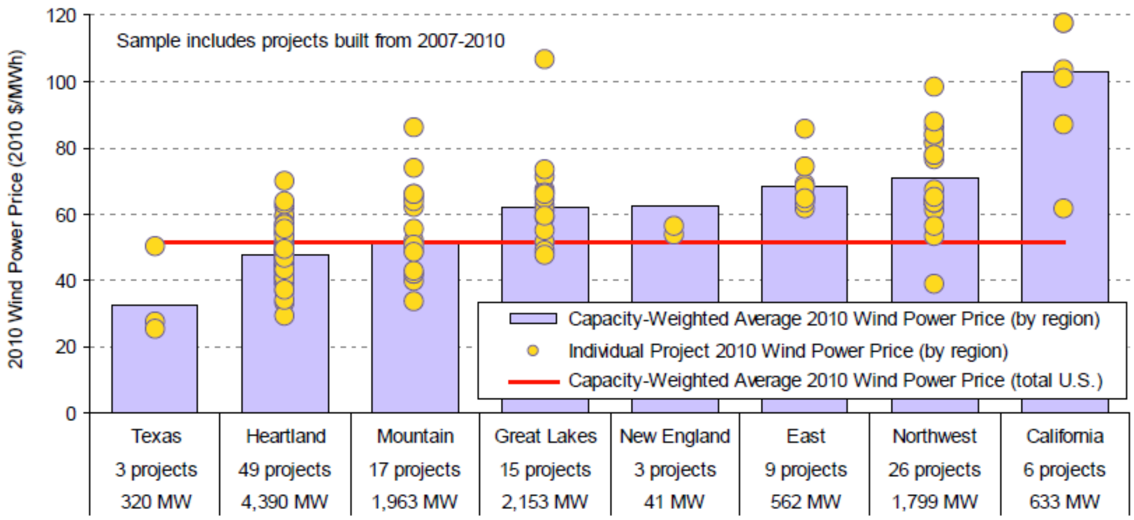
Figure 1

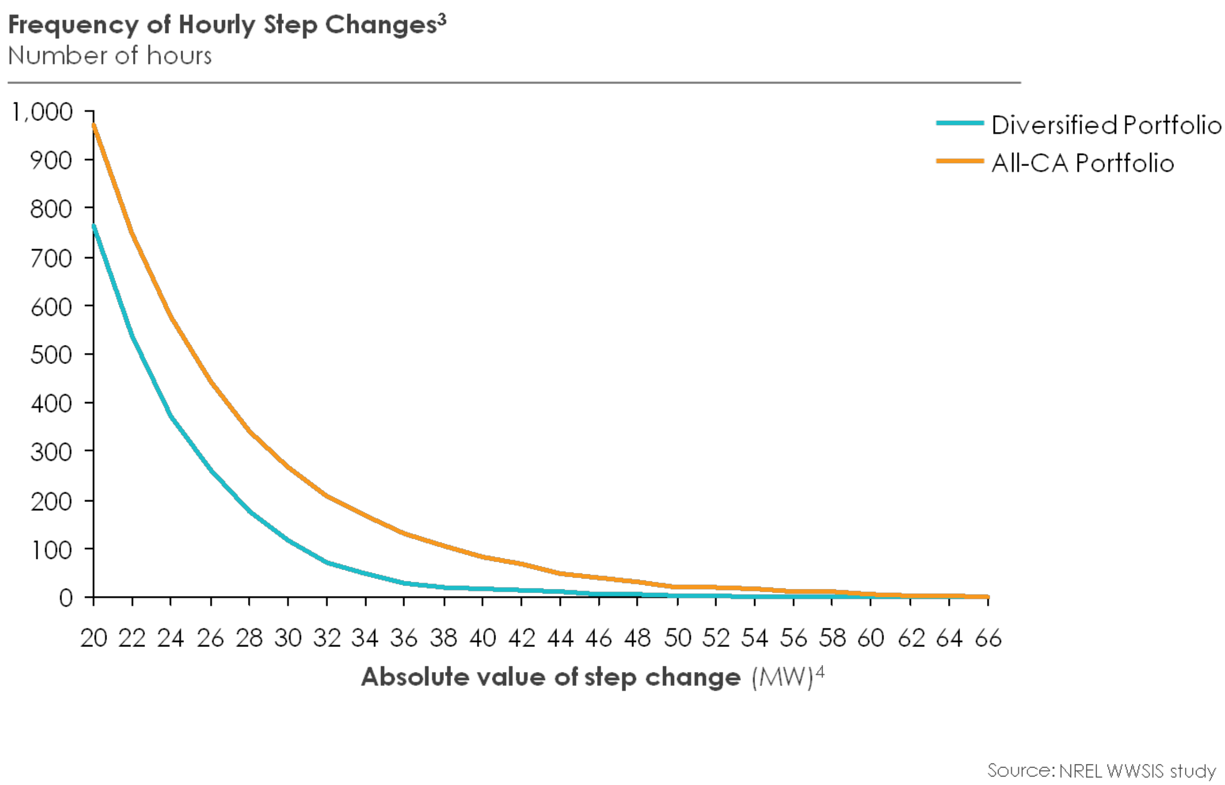


Source: Berkeley Lab

According to the report, wind from the "Mountain" region averages around $50/MWh as opposed to over $100/MWh in California. Even when a transmission charge of $25/MWh (based on Clean Line estimates for a 900 mile HVDC facility) is included, the delivered cost of mountain region wind is well below both in-state wind and in-state solar PV price estimates. As a reference, the average energy cost from a Large Scale Solar PV plant ranked in the Cost-Constrained Scenario presented at the April 2nd stakeholder meeting is $114/MWh.

Increasing the geographic diversity of a generation portfolio also provides integration benefits. By integrating geographically diverse, uncorrelated (to California) wind resources through HVDC transmission, the CAISO can greatly reduce variability by decreasing the likelihood that wind generation will ramp up or down simultaneously. See Figure 2 below for more detail.

Figure 2[2]



The graph above shows the frequency of discrete up or down shifts in wind output for two portfolios: A portfolio including generation in California, Wyoming and New Mexico, and a portfolio with same amount of generation located only in California. The x-axis gives the absolute value of the shifts in output[5] while the y-axis gives the number of hours in the year during which such a shift occurred. The curves show that changes in output in a diversified portfolio are smaller in magnitude than those occurring in an all-California portfolio. Larger hourly swings in production are more difficult and more expensive to balance with dispatchable generation, storage, or demand response. Therefore, the reduction in hourly swings as a result of a diverse portfolio can lower overall system costs.

Combining imported wind and California solar also creates a production curve that more closely fits California's load profile, as shown in Figure 3 below.

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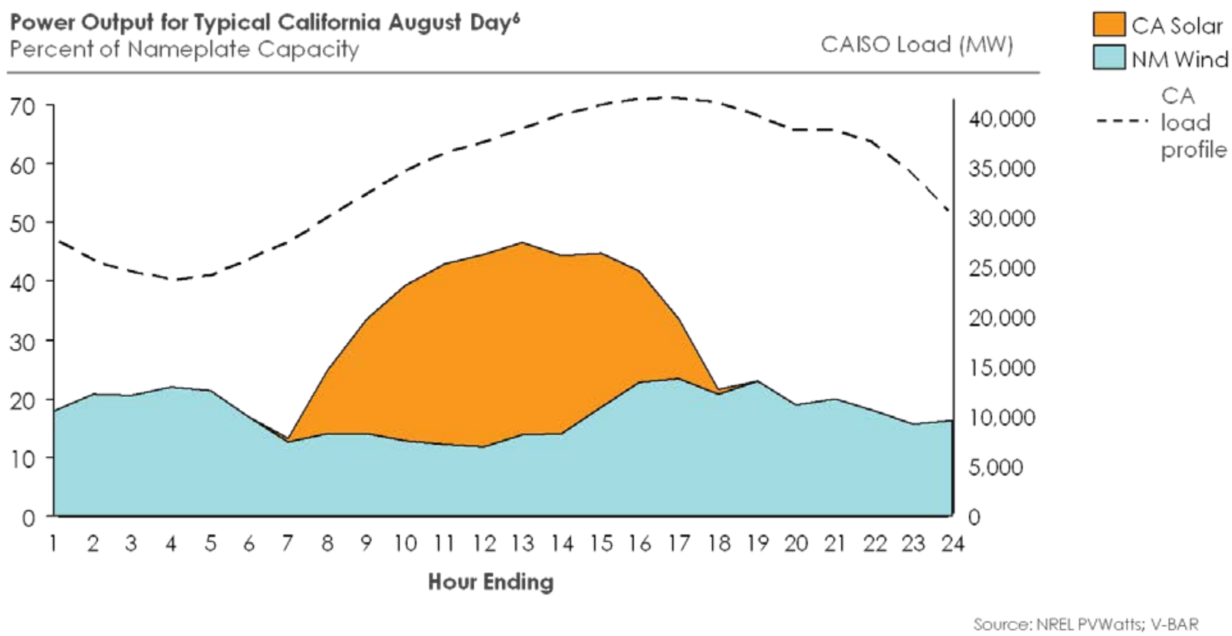
[2] Unless otherwise noted, all graphs are from Clean Line Energy Partners

[3] Comparison of generation output (for the years 2004-2006) of a portfolio of 3 wind farms all located in California versus a portfolio of 3 wind farms, with one wind farm each in California, Wyoming and New Mexico

[4] For a total capacity of 90 MW (30 MW per wind farm)

[5] Called "step changes" in the graph

Figure 3



The graph above shows the combined production, as a percentage of a generic facility or facilities nameplate capacity, of solar generation in California and wind generation in New Mexico over the course of a day. The California load profile is given to demonstrate how demand fluctuates throughout the same day. The combination of solar and imported wind more closely follows the load profile than either would if taken individually.

Sourcing wind generation from multiple states also smoothes seasonal variation as can be seen in the comparison of Tehachapi wind output (Figure 4) with the output from a combination of California, New Mexico and Wyoming wind (Figure 5).

The graphs show wind production as a percentage of a facility's nameplate capacity over the course of a year. The first graph, Figure 4, shows output generated by a wind farm in Tehachapi, CA. The second graph, Figure 5, shows output as a percentage of the total nameplate capacity of three same-sized wind farms located in Wyoming, New Mexico, and Tehachapi, CA. As shown by the average line, output in each graph is the same when averaged over the year. The output of the diversified portfolio, however, is more consistent.

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[6] Assuming equal nameplate capacity for solar and wind

Figure 4

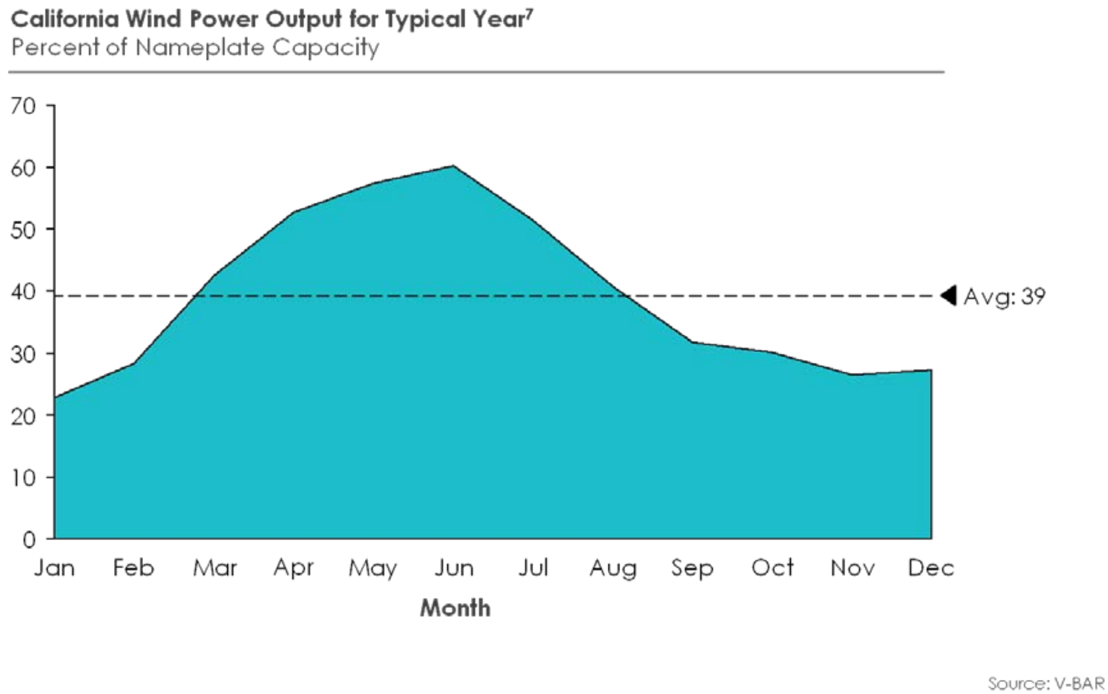
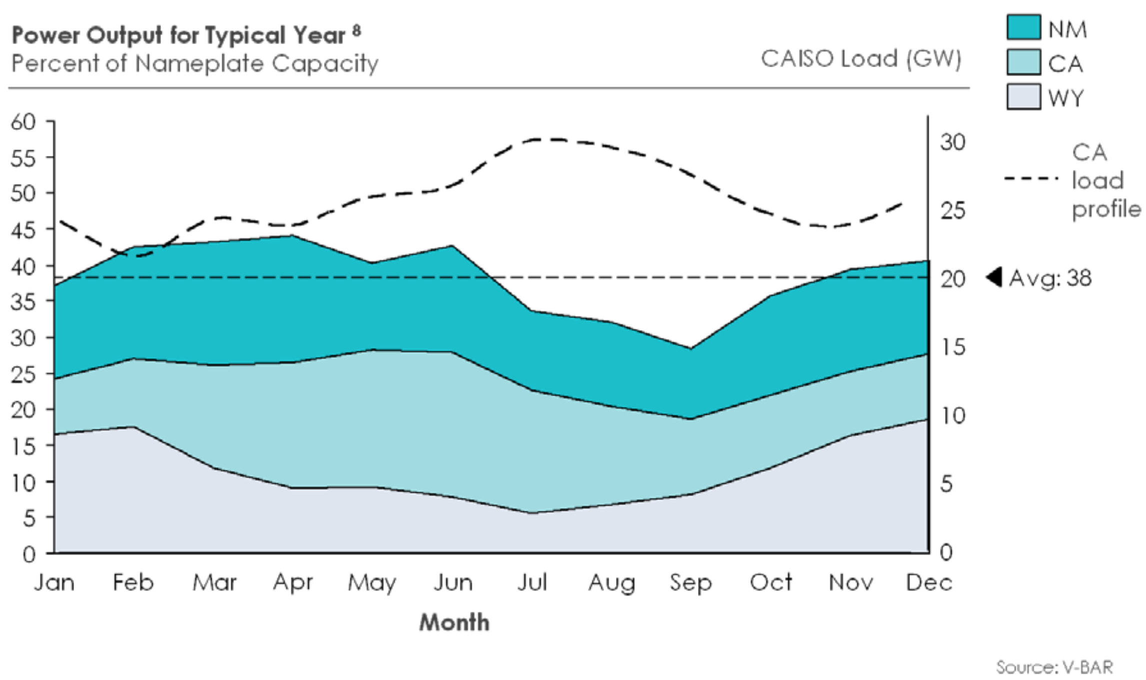


Figure 5



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[7] Wind at Tehachapi

[8] Assuming equal nameplate capacity for each location shown

To ensure the benefits associated with out-of-state renewable generation are incorporated into future transmission planning efforts, such generation should be incorporated into the scenarios submitted by CPUC and CEC. These resources will be even more important if Renewable Portfolio Standard (RPS) targets increase. Unfortunately, the March 12th transmittal omits consideration of broad Western resources available to California consumers. Therefore, Clean Line requests that the CAISO create an additional scenario for analysis that does include high-value external-to-California resources transmitted via HVDC transmission directly to California, like the Centennial West Clean Line being developed by Clean Line Energy Partners. In addition, the process by which generation is analyzed through the RPS calculator and scored under each scenario should be more transparent. Assumptions such as transmission line costs, contract failure rates, and declining generation costs should be based on verifiable, cited data. If the array of tools and inputs assembled by the CAISO, CPUC and CEC is to create a truly fair and effective scenario analysis, all options must be compared side by side and given the opportunity to be judged on their merits.

Respectfully submitted,

Jayshree Desai

Jayshree Desai, Executive Vice President
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