



STANFORD UNIVERSITY



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Governor Jerry Brown

Speaker Anthony Rendon

Senate President pro Tempore Toni Atkins

RE: AB 813 -- Support

AB 813 calls for a fully integrated regional grid across the Western United States. In combination with SB 100, AB 813 will help stabilize the grid, improve its efficiency, and lower energy costs to consumers.

First, it is well known that interconnecting geographically dispersed wind and solar farms converts completely intermittent wind and solar energy into partial baseload energy while simultaneously reducing transmission requirements (e.g., Archer and Jacobson, 2007). In that study, for example, it was found that interconnecting 19 wind farms across the Midwest turned 33-47% of completely intermittent wind energy to baseload power with the same reliability as a coal-fired power plant. The reason for this is that the more wind farms are interconnected, the lower the probability that all sites experience the same wind speed at the same time. The array then behaves more like a single wind farm exposed to a constant wind speed. Thus, interconnecting more wind and solar farms through the transmission grid, as AB 813 will allow, is a simple and effective way of reducing variability of power output. In other words, allowing California greater access to geographically dispersed wind in Wyoming, Colorado, and Oregon or solar in Nevada and Arizona and vice versa, will smooth out variations in California's as well as other Western states' energy supplies, reducing the risk of grid failure and decreasing cost to consumers throughout the west.

Second, right now, California sheds (curtails) excess production of renewable energy. AB 813 would create an additional market for such excess renewables in other Western states, replacing the equivalent amount of dirty energy use in those states and lowering the cost of energy in California since the previously curtailed energy would now be paid for. In other words, a greater percent of California's output would be sold in the market.

Third, right now, California imports some dirty coal electricity on the grid. Under AB 813, the amount of dirty imports should decrease because the mix of imported electricity has the potential to include more clean energy than the mix that is currently imported.

The reason is that virtually all western states have increased their renewable penetrations in the past few years and some (e.g., Washington State now and Colorado) are contemplating going to 100% renewables as California effectively has, whereas others (e.g., Nevada and Arizona) have pending laws to go 50% renewable.

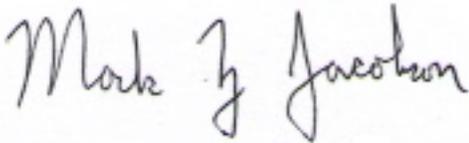
Fourth, and most important, in the limit of a 100% renewables in California, as SB 100 calls for, it is impossible for California to have any emissions at all, no matter what any other state does. Thus, for any hour of the year in which dirty electrons might flow into California, as they currently do, California would send clean electrons to other states during another hour. As such, California would stay 100% renewable in the annual average, produce zero dirty energy, and experience zero adverse health effects regardless of what other states did.

Finally, here are answers to additional frequently asked questions about AB 813:

<https://securecaenergyfuture.org/news/a-western-regional-grid-legislative-faq/>

Thank you for considering this information

Sincerely,

A handwritten signature in black ink that reads "Mark Z. Jacobson". The signature is written in a cursive, flowing style.

Mark Z. Jacobson

Reference:

Archer, C.L., and M.Z. Jacobson, Supplying baseload power and reducing transmission requirements by interconnecting wind farms, *J. Applied Meteorology and Climatology*, 46, 1701-1717, doi:10.1175/2007JAMC1538.1, 2007, https://web.stanford.edu/group/efmh/winds/aj07_jamc.pdf