California's Renewable Portfolio Standard: How will Arizona and the Southwest be affected?

The Essentials

- Many states throughout the West (including Arizona) export power to California, where energy demand is very high.
- California recently set a 33% Renewable Portfolio Standard (RPS) -- one of the most aggressive standards in the country.
- Because of California's large energy demand, it could have substantial effect on renewable energy development across the Western U.S. electric grid.
- California's RPS law sets quotas for (1) in-state (or designated equivalent by the CA balancing authority) renewable resources, and (2) out-of-state resources. These limits will affect the amount of renewable energy Arizona and other states can export to California.

Details of the policy

In 2011 California's legislature passed SB 2-1X, which set a renewable portfolio standard that increases over time to 33% by 2020. Like renewable portfolio standards in other states[1] (including Arizona) this law mandates that a certain percentage of electric utility retail sales be provided by non-hydro renewable resources such as wind and solar. Given the size of California's projected energy demand, and the ambitious 33% target, this law will undoubtedly shape much of the renewable energy development in the Western U.S. For instance, according to studies by the Western Electricity Coordination Council, 66% of the incremental renewable energy in the Western U.S. grid will go towards meeting California's RPS requirement (see Figure 1). Where the development of these resources should occur has been a topic of recent debate.

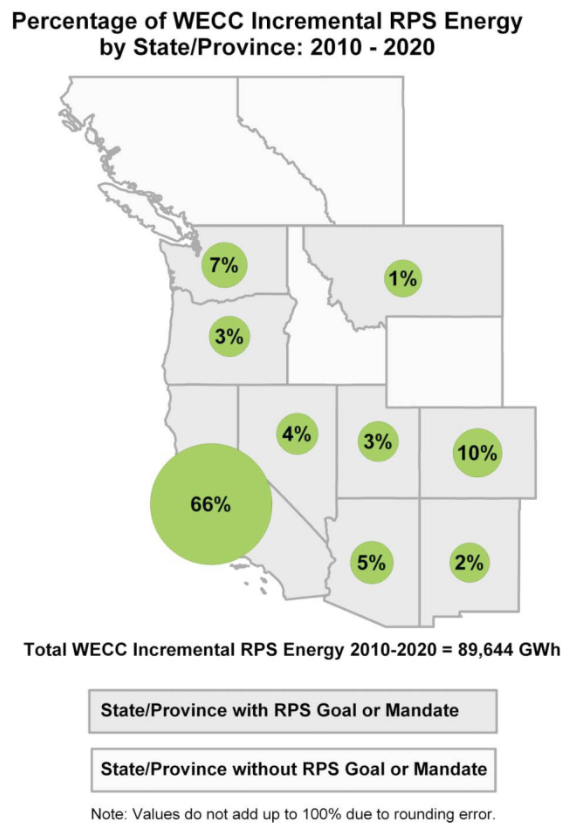

Figure 1. This map illustrates the incremental renewable energy contributed by each state as a percentage of total required by RPS policies throughout the in the Western U.S. grid. Source: WECC 10-year Regional Transmission Plan. (Source: http://www.wecc.biz/library/StudyReport/Wiki%20Pages/Home.aspx)

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[1] For more complete information about various state Renewable Portfolio Standards, please consult the DSIRE database: http://www.dsireusa.org/

In addition to the 33% overall standard, California's law set certain quantitative limits on different categories of renewable energy that can be used to comply with the standard. Under SB 2-1X, renewable energy used for RPS compliance may fall into one of three distinct categories or "buckets":

- **Bucket 1 -- In-state or in-state-equivalent products:** Energy resources developed within CA are given priority, with a minimum requirement of 75% of the total RPS sales by 2017. In addition to energy generated in-state, Bucket 1 also may include renewable energy generated outside CA but scheduled into a *CA balancing authority*[2] through some transmission arrangement. Some California balancing authorities extend into other states, (including some parts of Arizona), thus giving a chance for certain renewable resources to fall into this more valuable category. However, most areas outside of CA are not connected and would be excluded.
- **Bucket 2 -- Firmed and shaped products that provide incremental power:** Firming and shaping involves combining energy from a renewable energy resource with a traditional energy resource. The purpose is to even out the characteristic intermittency of solar and wind energy (Figure 2).

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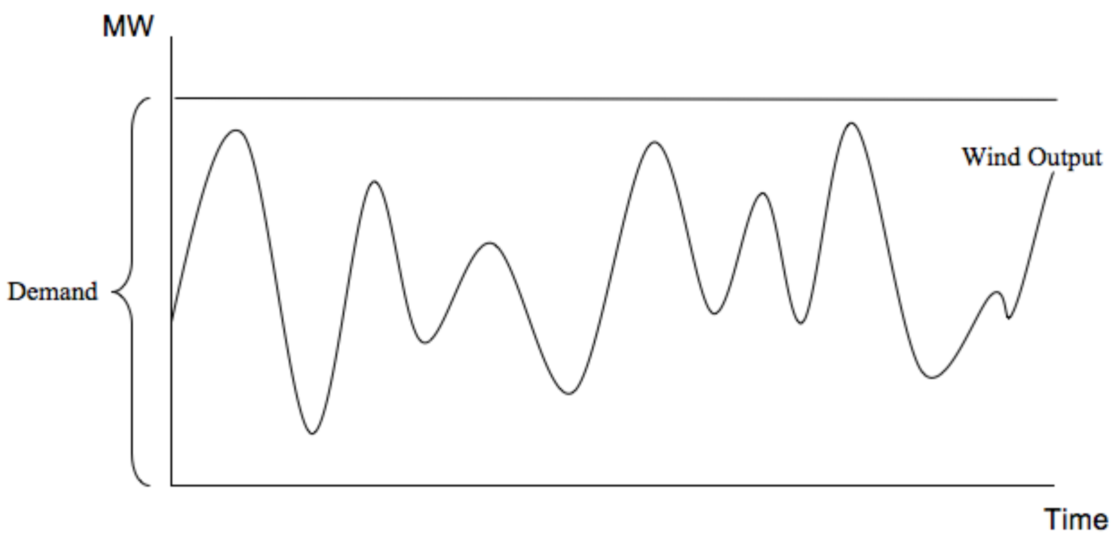

Figure 2. This graphic shows an example of a firmed power transaction. The squiggly line represents a variable resource such as wind. A conventional resource (such as natural gas) would adjust to fill in the difference between the total power demand (horizontal line) and the peaks and valleys of the wind power (Source: CPUC, http://docs.cpuc.ca.gov/word_pdf/REPORT/55606.doc)

The California Public Utilities Commission dictates how out-of-state wind or solar energy must be firmed and shaped to make it marketable to a California retail energy provider. Firmed and shaped products are primarily intended for distant renewable energy providers who need additional flexibility from

[2] A balancing authority (BA) is an institution responsible for balancing the supply and demand for electricity in real time. Most of California's electricity provision occurs within a single BA – the California Independent System Operator. However there are several exceptions, particularly for municipal providers.

conventional resources (e.g. natural gas, hydro) or some other means to address intermittency and variability.

- **Bucket 3 -- Unbundled renewable energy credits (RECs):**
  This bucket represents renewable energy that is sold separately (or unbundled) from the RECs that are produced along with renewable energy generation. Since RECs can be sold separately, without also requiring power delivery, this category provides the most flexibility to out-of-state generators that may be unable to meet the requirements for Buckets 1 or 2. These distant providers can simply sell RECs to California utilities for compliance. However, this category comprises the smallest permissible share of total RPS compliance (~10%).

Remaining questions, concerns or points

Among the reasons California has adopted its RPS law is to increase the contribution that renewable energy makes to the state's energy demand. According to the language of SB 2X:

> "Achieving the renewables portfolio standard through the procurement of various electricity products from eligible renewable energy resources is intended to provide unique benefits to California, including all of the following, each of which independently justifies the program:
> (1) Displacing fossil fuel consumption within the state.
> (2) Adding new electrical generating facilities in the transmission network within the Western Electricity Coordinating Council service area.
> (3) Reducing air pollution in the state.
> (4) Meeting the state's climate change goals by reducing emissions of greenhouse gases associated with electrical generation.
> (5) Promoting stable retail rates for electric service.
> (6) Meeting the state's need for a diversified and balanced energy generation portfolio.
> (7) Assistance with meeting the state's resource adequacy requirements.
> (8) Contributing to the safe and reliable operation of the electrical grid, including providing predictable electrical supply, voltage support, lower line losses, and congestion relief.
> (9) Implementing the state's transmission and land use planning activities related to development of eligible renewable energy resources."

Meanwhile, out-of-state renewable energy developers have expressed interest in selling power to California that might ultimately be counted towards California's new RPS requirement. Determining the appropriate level of in-state versus out-of-state generation is a challenging issue from both a practical and a legal perspective.

For instance, California has historically relied heavily on imported electricity, including from Arizona, to meet its power demand. In recent years, the state has typically imported over 30% of its electricity – the largest volume of imports for any state in the U.S.[3] When electricity markets are connected regionally, they can offer more flexibility and reliability to grid operators, while bringing lower costs to consumers. This is especially true for renewable energy resources, which are inherently variable energy resources. However, a recent statement by a representative of California's Governor suggested that the state's RPS law is poised to change that position and that the significant local renewable energy development will allow California to become a net exporter.[4] If achieved, this can have a substantial effect on renewable energy development in surrounding states, like Arizona.

California's efforts to favor in-state over out-of-state development of renewable resources may face legal challenges on the grounds that such a requirement violates the U.S. Constitution's interstate commerce rules. Already, one such a challenge has been raised by a utility district in Washington state to rehear a decision by the California Public Utilities Commission.[5] Under legal scrutiny, any local benefits to California would be weighed against the counterargument that California has sought protectionist measures in crafting its RPS law and subsequent CPUC rulings. In light of these issues, the extent to which California can allow out-of-state renewable energy to comply with RPS targets has been a topic of substantial interest.

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[3] Estimated from EIA data on state electricity generation and consumption: http://205.254.135.7/electricity/state/california/xls/sept10ca.xls

[4] Letter to TEPPC from California: http://www.wecc.biz/committees/BOD/TEPPC/20110809/Lists/Minutes/1/Letter%20to%20TEPPC%20from%20California.pdf

[5] www.cpuc.ca.gov/EFILE/R/157930.pdf

Read more *(provide links to important documents, other websites, etc.)*

- CPUC Final Decision on RPS content categories (proceeding number: R1105005): http://docs.cpuc.ca.gov/WORD_PDF/FINAL_DECISION/156060.PDF

- Letter from the Governor's Office to WECC on California's in-state renewable energy development: http://www.wecc.biz/committees/BOD/TEPPC/20110809/Lists/Minutes/1/Letter%20to%20TEPPC%20from%20California.pdf

- Whitepaper on Interstate Commerce Clause issues that pertain to Renewable Portfolio Standards: http://lawofficesofcarolynelefant.com/renewablesoffshore/wp-content/uploads/2011/04/cegcommerceclause.pdf

- California's RPS Law passed in 2011 (SB 2X): http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/sbx1_2_bill_20110412_chaptered.pdf

Contact information

- California Public Utilities Commission: http://www.cpuc.ca.gov/PUC/

- California Governor's Office: http://gov.ca.gov/m_contact.php

Latest developments *(any action alerts, impending deadlines, meetings, etc.)*

Recently, some parties have expressed concern that California's restrictions on out-of-state renewable energy may be in violation of constitutionally protected interstate commerce rules. This concern was first brought by the Public Utility District No. 1 of Cowlitz County Washington through a CPUC Rehearing Request on January 20, 2012: http://docs.cpuc.ca.gov/EFILE/R/157930.PDF