



Memorandum

DATE: 8 April 2014
TO: Jeff Morales, Mark McLoughlin
FROM: Margaret Cederoth, Interim Planning Manager, Program Management Team
SUBJECT: Renewable Energy Feasibility Highlights

Authority Renewable Energy Approach

The Authority has committed to using 100 percent renewable energy for powering the system. This will be achieved by procuring or producing enough renewable energy to offset the amount of energy it takes from the state's power grid to operate trains and facilities.

Background and Feasibility In September 2008, the Authority Board of Directors adopted a policy goal to use renewable energy to power the electrically-driven high-speed rail system (http://hsr.ca.gov/docs/brdmeetings/2008/brdmtg0908_min.pdf).

Since then, the Authority has worked with state partners such as the California Energy Commission (Energy Commission), to gain knowledge on the use and availability of renewable energy to supply the system's needs over the life of the project. There is an abundance of renewable energy resources in California, as discussed in a 2008 report to the Authority¹. These sources represent sufficient accessible renewable energy resource capacity to meet the State of California's Renewable Portfolio Standard (RPS), a substantial amount, as well as the minimal demand of the high speed rail system.

In April 2013, to increase the Authority's knowledge of feasible, available and planned renewable energy supply further, the Authority released a formal request to the renewable energy industry to receive information on renewable energy opportunities.

The initial findings are that a variety of companies have capacity to supply the entire electricity need of the system at full volume, and were prepared and interested in delivering that capacity (approximately 140 MW in 2022 and 960 MW of generated power in 2050). Fourteen private companies responded to the Call to Industry. Several of the respondents had sufficient existing planned capacity for the 2022 load, and two confirmed planned resources to be able to meet the full 2050 demand. The preliminary findings from the RFEI process reinforce the realistic, feasible nature of the Authority's renewable

¹ *The Use of Renewable Energy Sources to Provide Power To California's High Speed Rail*, Navigant 2008. http://www.cahighspeedrail.ca.gov/energy_policy_goal.aspx

energy commitment, and match the observations by the Energy Commission, in meetings with the Authority, that the requirements of the high-speed rail system are modest within the overall scale of the State of California renewable energy demand.

Plans or studies complete

- Call to Industry: Sourcing Renewable Energy for High Speed Rail Operations, 2013 Attachment A
http://www.hsr.ca.gov/docs/programs/green_practices/operations/Letter%20Renewable%20Energy%20Call%20to%20Industry.pdf
- California High Speed Rail Authority, Strategic Energy Plan, 2012 Attachment B
http://www.hsr.ca.gov/docs/programs/green_practices/operations/The%20Use%20of%20Renewable%20Energy%20Sources%20to%20Provide%20Power%20to%20Californias%20High%20Speed%20Rail.pdf
- White paper on Renewable Energy and System Requirements, 2011 Attachment C
Attached
- The Use of Renewable Energy Sources to Provide Power To California's High Speed Rail, Navigant report, 2008 Attachment D
Attached

Next Steps

When final loads for the initial operational segment are confirmed, as well as the expected date to begin testing and commissioning of systems, the Authority will issue a request for proposals for sufficient renewable energy supply to meet its phased demands.

California Law & State Renewable Energy Background

California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country.

Public Utilities Code §§ 399.11 – 399.19, established in 2002 under Senate Bill 1078 (Sher) and modified in 2006 under Senate Bill 107 (Simitian), required retail sellers (investor-owned utilities (IOUs), electric service providers (ESPs) and community choice aggregators (CCAs)) regulated by the California Public Utilities Commission (CPUC) to procure an additional 1% of retail sales per year from eligible renewable sources until 20% is reached, no later than 2010.

In 2011, Senate Bill SB 2 of the First Extraordinary Session (SB 2 (1x)) (Simitian) (Stats. 2011, ch.1) made significant changes to §§ 399.11-399.31; it increased the renewable target to 33% by 2020 and required both retail sellers and publicly-owned utilities to achieve a 33% RPS. The CPUC and the California Energy Commission (CEC) are jointly responsible for implementing the program.

RPS 'approved' renewable sources

Biomass, micro-hydro, geothermal, solar, wind. (others not included: ocean thermal, wave, tidal action)

Agencies:

California Energy Commission (Energy Commission). "The California Energy Commission is the state's primary energy policy and planning agency." The CEC is responsible for implementing renewable energy portfolio standard.

CAISO: California ISO. The balancing authority. "The California Independent System Operator Corporation (ISO) manages the flow of electricity across the high-voltage, long-distance power lines that make up 80 percent of California's power grid."

California Public Utilities Commission: CPUC, "The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies". Sets prices for investor owned utilities.

The Western Renewable Energy Generation Information System. WREGIS. Is an independent, renewable energy tracking system for the region covered by the Western Electricity Coordinating Council (WECC). WREGIS tracks renewable energy generation from units that register in the system by using verifiable data and creating renewable energy certificates (REC) for this generation.