

## CALIFORNIA ENERGY COMMISSION

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January 14, 2014

California Energy Commission

**DOCKETED****11-RPS-01**

TN 73013

MAY 12 2014

Oscar Alvarez  
Los Angeles Department of Water and Power  
111 N. Hope St., Rm 1246  
Los Angeles, CA 90012

RE: Applications for Renewables Portfolio Standard (RPS) Certification for the Castaic Power Plant, RPS ID 62561A

Dear Mr. Alvarez:

This letter is regarding Los Angeles Department of Water and Power's (LADWP) applications for RPS certification for the Castaic Power Plant based on efficiency improvements to Unit 3 and Unit 5 and under the eligibility category for "Incremental Hydroelectric Generation from Efficiency Improvements Regardless of Facility Output."

After careful review of your applications, Energy Commission staff has determined that the Castaic Power Plant is not eligible for RPS certification under the above-noted eligibility category for the following reasons:

1. The efficiency improvements were initiated before January 1, 2008.
2. The portion of generation that contributes to pumped storage hydroelectric does not use an RPS-eligible resource.
3. Applications for generating units that are part of a single facility must be considered in a single application as one project.

Details of these findings are provided below.

1. Efficiency improvements at the facility were initiated before January 1, 2008, which does not meet the Energy Commission's eligibility criteria for incremental hydroelectric facilities related to the date efficiency improvements were initiated.

To be eligible for RPS certification, an electrical generation facility must satisfy the eligibility criteria specified in the edition of the Energy Commission's Renewables Portfolio Standard Eligibility Guidebook that is in effect at the time of application for certification. The *Renewables Portfolio Standard Eligibility Guidebook, Sixth Edition (RPS Eligibility Guidebook)*, adopted in August 2012, governs the applications you submitted for the Castaic Power Plant.

Chapter II, Section B.5.d, of the *RPS Eligibility Guidebook, Sixth Edition*, specifies the eligibility criteria for incremental hydroelectric generation from efficiency improvements, and provides in pertinent parts as follows:

"d. Incremental Hydroelectric Generation From Efficiency Improvements Regardless of Facility Output

The incremental increase in generation that results from efficiency improvements to a hydroelectric facility, regardless of the electrical output of the facility, is eligible for the RPS if all of the following conditions are met:

1. The facility is owned by a retail seller or a local publicly owned electric utility.<sup>1</sup>
2. The facility was operational before January 1, 2007.
3. *The efficiency improvements are initiated on or after January 1, 2008, are not the result of routine maintenance activities and were not included in any resource plan sponsored by the facility owner before January 1, 2008.*
4. ...”

(*RPS Eligibility Guidebook, Sixth Edition, pg. 23.*)

In addition, the *RPS Eligibility Guidebook* requires applicants seeking RPS certification for incremental hydroelectric generation due to efficiency improvements to provide the following documentation (*RPS Eligibility Guidebook, Sixth Edition, pg. 27*):

- a. Documentation showing when the existing hydroelectric facility commenced commercial operations.
- b. Documentation describing the efficiency improvements and when they were initiated and completed.
- c. Documentation demonstrating that the efficiency improvements are not the result of routine maintenance.
- d. Documentation demonstrating that the efficiency improvements were not included in any resource plan sponsored by the facility owner before January 1, 2008. An example of this documentation is submission of pertinent sections of a resource plan.

Energy Commission staff has reviewed copies of LADWP's integrated resource plans (IRPs) prior to 2008 and, based on information from LADWP's 2007 IRP dated December 2007, it appears that the efficiency improvements to Unit 3 and Unit 5 were initiated prior to 2008. Therefore, the Castaic Power Plant is not eligible for RPS certification under the category for incremental hydroelectric generation from efficiency improvements, because this category of eligibility requires the efficiency improvements to be initiated on or after January 1, 2008.

Information on efficiency improvements to Unit 3 and Unit 5 are discussed on page 44 of LADWP's 2007 IRP, which states:

- "1) Refurbish Castaic unit 7. This unit provides automatic generation control for LADWP's power system. This unit should be refurbished and made as efficient as possible. The use of this unit is expected to increase with increasing amount of renewable resources. This project should have an in-service date of December 2011."
- "4) Retrofit any hydro power plants along LADWP's aqueduct system to have the ability to follow load, if feasible. This project should have an in-service date of December 2013."
- "6) Retrofitting some Castaic pump-turbine units to have variable speed pumping ability. This project should have an in-service date of December 2014."
- "7) Currently, the Castaic upgrade project is refurbishing 5 of the 6 pump-turbine units. Further studies should be done to evaluate if refurbishing the 6<sup>th</sup> pump-turbine unit is cost-effective, as the preliminary LADWP wind integration study indicated that Castaic

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<sup>1</sup> Footnote omitted.

would increase its pumping by 89% when the expected wind farms come on-line. This project should have an in-service date of December 2014."

Based on information in LADWP's 2007 IRP, the efficiency improvements to units 3 and 5 may have been contemplated as early as 2000. Page 6 of the 2007 IRP states:

"2000 IRP Accomplishments

Significant progress has been made in implementing the goals of the 2000 IRP since its approval by the Board of Water and Power Commissioners and the Los Angeles City Council. Some of the key goals that were achieved are listed below:

- A 80 MW capacity upgrade and life extension project for the Castaic Pumped Storage Power Plant is under construction. To date, three of the six main units have been upgraded."

Additionally, page 20 of the 2007 IRP states:

"Castaic Pumped Storage Power Plant capacity is increased by 20 MW per year, for a total increase of 80 MW (increasing plant capacity from 1175 MW to 1255 MW) by 2009, resulting from its plant upgrade program."

According to information from HydroWorld.com, a comprehensive website for the global hydroelectric community, these "upgrades were started in 2001 and is (sic) 65 percent complete. Work on four of the seven generating units and all five transformers has been completed. The upgrade of the fifth unit is scheduled to be complete in June 2009." The upgrades were referred to as the "Castaic Modernization Project" which is "a refurbishment and upgrade of this pumped-storage plant on the California State Aqueduct. The work is intended to improve plant reliability and efficiency and increase its capacity. The scope of work is to mechanically upgrade the main turbine-generator units, replace five of the seven main transformers, install new generator stators, and replace the hard-wired control system with a distributed control system (DCS)." (HydroWorld January 2009, accessed from [www.hydroworld.com/articles/hr/print/volume-27/issue-8/feature-articles/project-profiles/snapshots-of-north-american-rehabilitation.html](http://www.hydroworld.com/articles/hr/print/volume-27/issue-8/feature-articles/project-profiles/snapshots-of-north-american-rehabilitation.html))

2. The portion of the generation from the Castaic Power Plant that may be described as resulting from pumped storage hydroelectric, or pumped hydro, does not meet the Energy Commission's eligibility requirements for pumped hydro because the energy used to pump the water into the storage reservoir is not an eligible renewable energy resource .

Pumped hydro is defined in the *Overall Program Guidebook, Fifth Edition*, as follows:

**"Pumped hydro** — an energy storage technology consisting of two water reservoirs separated vertically; during off-peak hours, water is pumped from the lower reservoir to the upper reservoir, allowing the off-peak electrical energy to be stored indefinitely as gravitational energy in the upper reservoir. During peak hours, water from the upper reservoir may be released and passed through hydraulic turbines to generate electricity as needed. (*Overall Program Guidebook, Fifth Edition*, page 25)"

Pumped storage hydroelectric is further addressed in the *RPS Eligibility Guidebook, Sixth Edition*, on page 24:

"A pumped storage hydroelectric facility may qualify for the RPS if: 1) the facility meets the eligibility requirements for small hydroelectric facilities, and 2) the energy used to pump the water into the storage reservoir qualifies as an RPS-eligible resource. The amount of energy that may qualify for the RPS is the amount of electricity dispatched from the pumped storage facility."

It is staff's understanding that the Castaic reservoir is filled by pumping water from Elderberry Forebay back into Pyramid Lake during the off-peak periods using a non-RPS eligible energy resource, or using renewable electricity without the retirement of the associated RECs for this purpose. If this is an accurate description of operations of the Castaic Power Plant, then the Castaic Power Plant would not meet the requirements to be an RPS-eligible pumped hydroelectric storage due to the use of energy inputs that are not eligible renewable energy inputs. Additionally, the Castaic Pumped Storage Power Plant does not meet the RPS eligibility requirements for a small hydroelectric facility due to its nameplate capacity. As a result, it appears any application for the certification of the Castaic Power Plant must be made for a hydroelectric facility that uses a nonrenewable energy input. Given the unique nature of this approach, an alternative energy input measurement method would need to be proposed and evaluated by Energy Commission staff as part of the application process. The contribution of the nonrenewable energy input would also need to be accounted for in the baseline calculations.

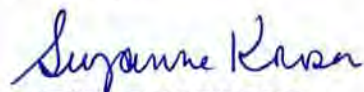
3. Lastly, for purposes of future RPS certification applications, please note that all generating units that are part of a single project, or facility, as defined in the *Overall Program Guidebook, Fifth Edition*, must be included in a single application.

Based on the information available to Energy Commission staff, this would require that the entire Castaic Power Plant be represented in a single application. It is the generation and energy input for the entire facility that will need to be considered when evaluating the incremental generation from the Castaic Power Plant.

If you believe the Castaic Power Plant is eligible for RPS certification under an eligibility category other than "Incremental Hydroelectric Generation from Efficiency Improvements Regardless of Facility Output", you may reapply by submitting a new application in accordance with the *RPS Eligibility Guidebook, Seventh Edition* using the application forms provided in that document, which can be found at: [[www.energy.ca.gov/renewables/documents/index.html#rps](http://www.energy.ca.gov/renewables/documents/index.html#rps)].

If you have any questions, please do not hesitate to contact Kate Zocchetti at (916) 653-4710 or <[kate.zocchetti@energy.ca.gov](mailto:kate.zocchetti@energy.ca.gov)>.

Sincerely,



SUZANNE KOROSEC  
Deputy Director  
Renewable Energy Division

Enclosures