



State Water Project Briefing: Emissions Reduction and Power Generation

Introduction

The Department of Water Resources (DWR) is responsible for operating and maintaining the State Water Project (SWP) – a water conveyance system that includes 36 water storage facilities, approximately 700 miles of aqueducts and pipelines, 21 pumping plants, four pumping-generating plants, and five hydroelectric power plants. The SWP facilities are interconnected to the California Independent System Operator (California ISO) grid, which provides electricity to approximately 80 percent of California. Due to the implementation of policies and mandates meant to promote clean energy portfolios, more renewable energy sources are coming online. As a result, California ISO market design, reliability needs, and price trends are evolving. As a participant in California ISO wholesale electricity market, SWP has to adapt to these changes and emerging trends by continuously adjusting its operational profile (when it generates and uses power) and its bidding strategies.

SWP operations are being optimized along the following parameters: first, the SWP meets its water delivery obligations; second, it operates within California ISO power market design constraints by consuming more energy during solar hours, which reduces greenhouse gas emissions, and by generating power during super peak hours, which helps displace fossil generation, again reducing greenhouse gas emissions.

Power and Risk Office

The SWP Power and Risk office (PARO), a division within the SWP, is tasked with the long-term power planning of the SWP power portfolio and has been investigating options and developing plans that would increase operational flexibility of their pumping and power-generating functions. This would allow the SWP to be more responsive to grid needs, position the SWP to better participate in future renewables integration markets as a buyer and a seller of power, and extend support to state clean energy policies.

Flexible Resources Study

PARO is leading a Flexible Resources Study to assess the SWP's potential to support the state's clean energy policy, as required by SB-49, *Energy: appliance standards and State Water Project assessment*, which was approved on October 9, 2019. The study is comprised of multiple tracks that consider the following: the SWP's physical setup (civil, mechanical, and electrical), operational needs and constraints, and emerging and projected wholesale energy market design changes. The implementation of the recommended actions will be a staged process,

ultimately driven by SWP reliability needs, economic viability, and strategic timing and portfolio fit of the actions identified by the study. It is the intent of DWR to summarize the findings of the first phase of the Flexible Resources Study in a report that would be submitted to the legislature by January 2022, in conformance with SB-49.

Background

The California State Water Project (SWP) supplies water to 27 million people and irrigates 750,000 acres of farmland. The Department of Water Resources (DWR) also operates the world's tallest water lift – the Edmonston Pumping Plant – which pumps water more than 1,900 feet up and over the Tehachapi Mountains into Southern California.

Goal Two of the Commission's Strategic Plan directs the Commission to remain apprised of the operations and construction activities of the State Water Project, focusing on how the SWP adapts and responds to hydrological extremes expected with climate change, restores critical ecosystems, and addresses aging infrastructure. As required by Water Code section 165, the Commission conducts an annual review on the progress of the construction and operation of the SWP and reports its findings and recommendations to the Department and the Legislature. This presentation will inform the Commission of SWP construction activities over the past year, in preparation for the Commission's 2020 annual review.

Meeting Overview

At the September meeting, PARO Chief Ghassan AlQaser will brief the Commission on the SWP's power portfolio resource mix and its evolution toward adding renewables and reducing greenhouse gas emissions.

This is an information item.

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