



**SPECIAL MEETING**  
**ENGINEERING AND OPERATIONS COMMITTEE**

**San Diego County Water Authority**  
**Board Room**  
**4677 Overland Avenue**  
**San Diego, Ca 92123**

**FEBRUARY 12, 2015**  
**1:30 P.M.**

Ken Williams – Chair  
Marty Miller – Vice Chair  
Ron Watkins – Vice Chair  
Gary Arant  
Jimmy Ayala  
Brian Brady  
Gary Croucher  
Michael Hogan

John Linden  
Ron Morrison  
Ken Olson  
Halla Razak  
Esther Sanchez  
Javier Saunders  
John Simpson

1. Call to Order
2. Roll call – Determination of quorum.
3. Public Comment – opportunities for members of the public to address the Committee on matters within the Committee’s jurisdiction.
4. San Vicente Pumped Storage Study - Update and Next Steps (Discussion)
5. Adjournment

Linda A. Troyan, MMC  
Clerk of the Board

**NOTE:** This meeting is called as an Engineering & Operations Committee meeting. Because a quorum of the Board may be present, the meeting is also noticed as a Board meeting. Members of the Board who are not members of the Committee may participate in the meeting pursuant to Section 2.00.060(g) of the Authority Administrative Code (Recodified). All items on the agenda, including information items, may be deliberated and become subject to action. All public documents provided to the committee or Board for this meeting including materials related to an item on this agenda and submitted to the Board of Directors within 72 hours prior to this meeting may be reviewed at the San Diego County Water Authority headquarters located at 4677 Overland Avenue, San Diego, CA 92123 at the reception desk during normal business hours.



February 6, 2015

**Attention: Engineering and Operations Committee**

## **San Vicente Pumped Storage Study - Update and Next Steps (Discussion)**

### **Background**

The newly raised San Vicente Dam and expanded reservoir provides an additional 152,000 acre-feet of emergency and carryover storage for the region. The site also has the potential to serve as the lower reservoir for a pumped storage project, providing up to 500 megawatts (MW) of energy generation and storage. Recognizing this potential, the Water Authority first applied for and received a three-year preliminary permit from the Federal Energy Regulatory Commission, or FERC, in March 2007 to develop a license application to construct and operate a pumped storage facility. From March 2007 through late 2014, the Water Authority kept the FERC permit active through a variety of activities, including the filing of two successive preliminary permit extensions requiring staff to prepare comprehensive application documents with each submittal. During the term of the first preliminary permit, substantial changes were made to the San Vicente dam raise design, going from the Emergency Storage Project height to the new, higher height for the Carryover Storage Project (CSP), causing delay in the start of construction while the CSP environmental clearances and permits were obtained. During the term of the second FERC preliminary permit, construction began on the San Vicente Dam Raise and staff resources were focused on its completion, preventing identification of a preferred upper reservoir location for a pumped storage project. A third successive preliminary permit was filed with FERC in 2013, as the dam raise construction continued. Further discussion of the preliminary permit status with FERC is outlined in the Discussion section, below.

Once the San Vicente Dam Raise project neared completion, the Water Authority and City of San Diego entered into a partnership agreement to conduct an initial pumped storage study. On behalf of both agencies, the Water Authority hired Black and Veatch to perform a \$150,000 economic and financial viability study, the results of which found that a 500 MW pumped storage project could potentially provide two valued services to the energy market: capacity and ancillary services.

To oversee the initial work, in 2013 a Hydropower Task Force of the board was created. The Task Force, now structured as a Subcommittee of the Engineering and Operations Committee continues to be chaired by Director Michael Hogan. The subcommittee is overseeing the ongoing efforts by the San Vicente Pumped Storage team consisting of Water Authority and City of San Diego staff. Both Water Authority and City staff members participate in the subcommittee meetings.

The Water Authority and City team is exploring a third potential revenue stream: energy storage. This new and upcoming potential revenue stream is due to a couple of emerging factors. First, is the advent of bringing more renewable energy sources online, such as wind and solar, and the overgeneration of electricity from these sources. The overgeneration of electricity occurs because these resources can only generate electricity at times when the sun is shining or the wind

blowing, usually during the daytime. This generation does not match up to peak demand times on the electrical grid. Therefore, in the absence of having energy storage, energy utilities must curtail renewable energy production to manage the grid. Second, there is much discussion on increasing the amount of renewable energy resources in the state. Currently, the state mandate requires energy investor-owned utilities, and other energy providers, to procure 33 percent of their overall energy portfolio from renewable energy resources. This percentage of renewables could go higher, to 40 or even 50 percent as the Governor mentioned in his State of the State address in January. Increasing the amount of procurement for renewable energy will only add to the overgeneration problem, and will require energy storage solutions; hydro pumped storage is an energy storage solution.

As further background on the San Vicente Pumped Storage Study, staff compiled a reference list of questions and answers, as Attachment 1, many of which have been addressed at previous board, task force, or subcommittee meetings.

**Previous Board Action:** *At the August 2014 board meeting, the board authorized the General Manager to execute an agreement with the City of San Diego for the implementation of the next necessary steps for the San Vicente Pumped Storage Study including the San Vicente Reservoir modeling and the inlet/outlet study; Accepted and approved a portion of an amendment to the Black and Veatch contract for engineering and environmental studies; and authorized expenditures for the Water Authority's share of San Vicente Reservoir modeling and project administration.*

### **Discussion**

Since August 2014, when this project was last presented to the Engineering and Operations Committee, staff has been meeting regularly with the Hydropower Task Force (now the Hydropower Subcommittee), most recently on February 3, 2015. The subcommittee and staff from both the Water Authority and the City of San Diego continue to collaborate on project issues such as those described below.

#### Pure Water Project Reservoir Modeling

Water Authority and City of San Diego staff continue to collaboratively examine the possible impacts of a pumped storage project at San Vicente relative to the City's Pure Water Project. At the February 12, 2015 Special Board meeting, the Water Authority and City team will present an overview and the key findings from the San Vicente Reservoir studies for the City's potable reuse reservoir augmentation projects, and will present the current work assessing the compatibility of reservoir augmentation with the proposed pumped storage project. The presentation will describe regulatory criteria for San Vicente reservoir augmentation, the technical work and regulatory discussions completed to date, and future work needed to ensure compatibility of the pump storage project with Pure Water San Diego.

### FERC Issues

As stated above, the Water Authority received an initial preliminary permit from FERC in March 2007 to study development of a pumped storage project at San Vicente. A preliminary permit does not authorize construction, but it maintains priority of application for a license (i.e., guarantees first-to-file status) while the applicant studies the site and prepares to apply for a license from FERC. A FERC-issued license is what authorizes the construction and ownership of an energy project. The preliminary permit provides a three-year term to allow an entity – or entities – enough time to perform feasibility studies and develop project information to file for a license without competition. FERC does this to protect the up-front investments being made by the entities. The initial preliminary permit expired in February 2010, and the Water Authority applied for and received a second successive preliminary permit which expired in June 2013. At that time, the Water Authority filed an application for a third successive permit for the site. In June 2014, the Commission issued an order denying the Water Authority a third permit extension.

The Water Authority filed a response to FERC's Order of Denial, and requested that the agency reconsider issuing a third successive permit based on new information that was submitted as part of the rehearing request packet. FERC granted a rehearing, and on October 16, 2014, FERC issued an Order Denying Rehearing and upheld its denial of issuing a third successive preliminary permit. However, FERC clarified that since a sufficient amount of time had passed for other interested parties to file a preliminary permit application, it allowed the Water Authority to immediately submit a new permit application. To avoid a gap in permit coverage at the site, the Water Authority subsequently submitted a new preliminary permit application on the same day. FERC made it clear in the order that the Water Authority needed to demonstrate sustained progress towards development of a license application on the project as noted in the following excerpt:

“If the Water Authority receives a new preliminary permit, we expect that it will act in good faith and with due diligence in order to file a development application during that permit term. Specifically, we would expect the Water Authority to identify the location of its proposed upper reservoir, initiate consultation with agencies, tribes, and other interested parties, and ***file a Preliminary Application Document (PAD) and Notice of Intent (NOI) not later than July 2015.***”

FERC accepted the Water Authority's new preliminary permit application as complete on October 16, and placed a notice in the Federal Register for a 60-day comment period. During the comment period, on December 29, 2014, the City filed a Motion to Intervene, Protest, and Request for Hearing with FERC for the Water Authority to submit an amended preliminary permit application naming the Water Authority and City as joint applicants. On January 13, 2015, the Water Authority and the City filed a joint letter to FERC requesting they refrain from acting on the pending motion, and hold processing of the preliminary permit application in abeyance for a 90-day period to allow the parties further time to complete additional agreements regarding specific partnership arrangements, see Attachment 2. On January 15, 2015, FERC confirmed it would wait the 90 days to allow the parties to finalize the agreement. In the

meantime, Water Authority and City staff have been actively developing the new agreement and expect it can be finalized within the 90 day period. It is anticipated that this agreement would be on the Committee agenda in March 2015 as an action item. Upon execution of the agreement, the Water Authority will submit an amended preliminary permit application naming the City as co-applicant.

Submittal of the PAD and NOI documents initiate the FERC licensing process. The PAD is prepared by the applicant(s) and must include information pertaining to the proposed new infrastructure, potential environmental impacts, project boundaries/land issues, and tribe and regulatory agency outreach. It has been the intention of the Water Authority that both the Water Authority and City be named as co-applicants on the PAD when it is submitted to FERC in July 2015. In order to meet the FERC submittal requirements, the Water Authority and City must complete several studies.

### Anticipated Project Phasing

Generally speaking, the following phases define discrete work efforts and will involve decision points for the board and City whether to stop work or continue.

Phase 1(through July 2015) – The goal is to complete work required to file the FERC-ordered Preliminary Application Document (PAD) and Notice of Intent (NOI) to file a formal license application, listing both Water Authority and the City as co-applicants. Primary activities include upper reservoir alternative site screenings, tribe and regulatory agency outreach, and upper reservoir desktop environmental and geotechnical studies as well as preparing the formal submittal to FERC. The July 2015 deadline is fixed and if the Water Authority-City PAD is not submitted, other entities may file and take priority standing for this project.

Phase 2 (ending about July 2016) – The staff team will be recommending the procurement of an Owners' Advisor (a.k.a. Owners' Agent) Team who will supplement staff to perform several key functions. First, they will assist in reaching out to potential development partners and customers (for example investor-owned utilities) to ascertain specific interest and explore possible business models. Second, they will further develop financial and economic models allowing for an understanding and quantification of potential project value ranges in the energy market. Lastly, they will assist staff in identifying risk factors, quantifying those risk factors and any associated mitigation measures. The team will regularly present information and obtain guidance from the Hydropower Subcommittee throughout the approximately year-long process. The subcommittee will provide the board updates on an interim basis. Once sufficient information is compiled and presented to the board for consideration, the board will be asked to provide direction on how or if to proceed.

Phase 3 (beyond July 2016) – Should the board decide to direct staff to move forward, the team along with the Owners' Advisor Team would proceed with work that may include advertising requests for proposals from potential partners under several business models and subsequently negotiating contracts. Additionally, required California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) work would be performed during this time

period. Once the environmental work is finished, FERC would issue a license to construct, own and operate the facility. The final off-ramp for the board/City would be prior to entering into a development agreement.

Phase 4 (circa 2021) – Once a FERC license is issued, a project delivery method is chosen, and a development agreement is in place, the project would be designed and constructed in accordance with those future agreements.

Staff will be submitting for consideration at the February 26, 2015 E&O Committee meeting three actions necessary to meet the July 2015 FERC required PAD submittal deadline.

Attachment 3 – Project Accounting provides information on funds authorized to date and recommended work.

1. Approve the expenditure of the remaining \$525,000 previously appropriated by the board to complete the work needed to fulfill the FERC requirements. The \$525,000 includes funding for items (a) and (b) below as well as \$125,000 for project administration costs.
  - a. Award a professional services contract, via waiver of competitive acquisition, to Harvey Consulting Group, LLC in the amount of \$150,000, to prepare the PAD. This work will include conducting environmental studies for upper reservoir screenings. The screening will narrow the upper reservoir alternatives, which will ultimately be analyzed during the CEQA/NEPA process and be described in the PAD. The work will also include conducting stakeholder outreach to tribes, resources agencies, and other stakeholder groups; also a requirement of the PAD.

The Water Authority and City must retain this expertise now to prepare and submit the PAD by FERC's July 2015 deadline. Dr. Jeff Harvey, of Harvey Consulting Group, LLC, possesses the expertise required for pumped storage projects and also has an extensive history with the San Vicente area. He was the lead in obtaining the most recent FERC license for a large-scale hydro pumped storage project (1,300 MW) in Southern California. Dr. Harvey not only has the specialized skillset pertaining to the FERC licensing process, but also has expert knowledge of the Water Authority's aqueduct system, having worked on the Water Authority's 2013 Facilities Optimization and Master Plan Update Supplemental Program EIR and the Water Authority's first Climate Action Plan. Dr. Harvey was also the lead in development of the Water Authority's 2003 Regional Water Facilities Master Plan Program EIR, which included the San Vicente Reservoir site for the development of Carryover Storage for environmental analysis. The work for this project will build on his previous work on the San Vicente Reservoir.

- b. Amend Black and Veatch's contract a fourth time for \$250,000 to perform engineering and geotechnical desktop studies for the upper reservoir screening, refine the overall engineering configuration and cost estimates contained in the initial study, and support Harvey Consulting Group, LLC with the technical information required to complete the PAD.

As detailed in our existing agreement with the City, the City will reimburse the Water Authority for half the costs of items 1a and 1b, or \$200,000.

Next Steps

Water Authority and City staff will continue to meet regularly with the Hydropower Subcommittee and provide updates to the Engineering and Operations Committee as directed by the Subcommittee. Water Authority and City staff will continue to work towards finalizing an agreement that outlines the agencies' respective roles and responsibilities, including FERC permitting/licensing and work not covered under existing agreements.

Prepared by: Kelly Rodgers, Principal Engineer  
Kelley Gage, Principal Water Resources Specialist  
Gary Bousquet, Engineering Manager  
Reviewed by: William J. Rose, Director of Engineering  
Approved by: Frank Belock, Jr., Deputy General Manager

Attachments: (1) Questions and Answers  
(2) Joint City and Water Authority Request for Abeyance letter to FERC  
(3) Project Accounting

**San Vicente Pumped Storage Study  
Question and Answers  
February 4, 2015**

General

- What are the components of a pumped storage project?
  - A: The project will consist of an inlet/outlet facility on the shore of the lower reservoir (San Vicente Reservoir). There will be a generation/pumping facility that house the pump/turbines and electrical and mechanical equipment required to control the flow of water downhill to generate, and pump the water back uphill. There will be a connecting tunnel (around 20-22 feet in diameter) installed between the lower and upper reservoirs. Lastly, a new upper reservoir would need to be constructed. This new reservoir would be much smaller when compared to the lower San Vicente Reservoir. There would also need to be electrical works and a transmission line to connect to the existing electrical grid.

Budget Questions

- Q: How much funding was initially allocated to this project?
  - A: Before the project was added to the CIP, approximately \$550,000 of operating funding was allocated for this project to perform initial engineering, economic, and financial analysis to determine if the project was viable.
- Q: How much did the initial financial and economic study cost?
  - A: \$150,000. The Water Authority and City split this cost.
- Q: What dollars are included in the CIP for this project?
  - A: \$1.2M has been appropriated for this project. Of the \$1.2 million, \$675,000 has been authorized by the Board for expenditure and \$525,000 is yet to be authorized by the Board for expenditure.
- Q: Are the legal fees part of this \$1.2 million?
  - A: No
- Q: Is Indirect Potable Reuse (Pure Water project) modeling part of the \$1.2 million that was appropriated?
  - A: Yes. The study is being managed by City staff.
- Q: How much does the San Vicente reservoir modeling cost?
  - A: Approximately \$250,000. The Water Authority and City are sharing this cost.



- Q: How much does the inlet/outlet study cost?
  - A: Approximately \$325,000. The Water Authority and City are sharing this cost.
- Q: What will the remaining \$525,000 fund?
  - A: If authorized for expenditure, these funds will support the professional services and in-house effort to complete the Federal Energy Regulatory Commission (FERC) required submittal of the license Preliminary Application Document (PAD) by the July 2015 due date.

### Permitting/Licensing/Environmental Questions

- Q: Is it possible for another party to develop a pumped storage project at San Vicente?
  - A: As long as the permit now held by the Water Authority (the City will be added upon next submittal) is kept active, it would be very difficult for another party to file for a FERC preliminary permit given the site is owned and operated by public agencies (City and Water Authority) in terms of ownership of the land, facilities, water rights, and water storage capacity. The Water Authority owns 152,000 acre-feet of storage and the City owns 90,000 acre-feet in San Vicente reservoir.
- Q: If a third party ends up operating the facility, who is responsible for the FERC license compliance?
  - A: If we join with a private entity, the owners who are listed on the license (i.e., City & Water Authority) are ultimately responsible for license compliance.
- Q: Are we committing ourselves to a particular path by claiming municipal preference in the preliminary permit?
  - A: Yes...however, taking away the municipal preference from the preliminary permit would allow us to partner with a private entity. As two public agencies, the City and Water Authority tie up the site in terms of ownership; therefore, there are minimal benefits to us claiming municipal preference because it is unlikely that another entity could file a preliminary permit to get ahead of us. There are a couple ways to remove the municipal preference. First, we can remove the municipal preference option when we submit an amended preliminary permit application to add the City as co-applicant. Alternatively, we can submit the FERC-ordered Preliminary Application Document in July 2015 without municipal preference and amend the preliminary permit at that time to also remove municipal preference.
- Q: Has there been any consideration of sending staff from San Diego to meet with FERC? Perhaps we ask that Congressmen Hunter and Vargas request a meeting with FERC.
  - A: Yes. The San Diego delegation of Congress members sent a letter to FERC in July 2014 in support of the pumped storage project for the region and asked that

FERC reconsider issuing a preliminary permit. In addition, Board members and staff held meetings with two FERC Commissioners and their staff as part of San Diego Regional Chamber, *One Region, One Voice* trip to Washington, D.C. in September 2014.

- Q: Does the agency that has the permit have to be the agency that gets the license?
  - A: If the entity is claiming municipal preference, then yes the same entity must obtain the license.
  
- Q: Is the City a full partner through an agreement?
  - A: Yes. In addition to the agreement now being developed by the Water Authority and staff team, the City will be added as co-applicant to the FERC permit.
  
- Q: When can we begin putting water in San Vicente?
  - A: The San Vicente Pumped Storage study does not affect filling San Vicente reservoir. Filling involves the recent completion of the San Vicente Dam Raise project. Filling above the height of the old dam is contingent on completing coring of the dam verify the concrete strength and obtain Division of Safety of Dams certification to fill against the new structure (raised dam).
  
- Q: What is the difference between a preliminary permit and license?
  - A: A preliminary permit does not authorize construction; it maintains priority of application for license (i.e., guaranteed first-to-file status). The preliminary permit is only a hold period; it is a 3-year term to allow an entity the exclusive rights to perform feasibility studies and develop project information to file for a license without competition. FERC does this to protect the up-front investments being made by the entities.
  
- Q: Do we need the FERC preliminary permit or license issued before we submit an interconnection request application to the California Independent System Operator (CAISO)?
  - A: No. One is a federal process and the other is a state process.
  
- Q: What are we doing to change state policy to find a home for procuring hydro pumped storage?
  - A: Staff has been meeting with California Public Utility Commission (CPUC) commissioners and CAISO staff to discuss the project in terms of market needs, how it fits into the overall energy market, and the value of large-scale hydro pumped storage on the grid. Value includes storing the overgeneration of renewable energy and meeting greenhouse gas emission reduction goals. Staff has also been involved in development of the Energy Storage Roadmap for California, which was conducted jointly by the CPUC, CAISO and the California

Energy Commission. The final Storage Roadmap is complete and outlines needed policies at the three agencies to allow for storage procurement.

- Q: When will we investigate greenhouse gas considerations and related mitigation factors?
  - A: For a pumped storage operation, greenhouse gases (GHGs) should be discussed both in the context of generation and pumping operations. For generation mode, an argument has been made that there is a benefit that instead of utilizing “dirty” carbon-based, GHG-generating gas fired peaker plant facilities to generate electricity during peak demand times, a pumped storage facility can be used to generate during peak times which emits no GHG emissions resulting in a net offset of GHG emissions for the agency. For the pumping operation, the energy industry is changing to meet the state-mandated Renewable Portfolio Standard (RPS) goals. The conventional thinking had been that, energy from carbon-based facilities would be used to pump the water up to the upper reservoir, using greater amounts of greenhouse gases. However, the industry has been ramping up to meet the RPS goals and has more renewable energy sources than necessary during daylight hours. The pumping operation could happen during this afternoon peak when available “clean” renewable electricity will be in excess of what is necessary for the grid. Therefore, the pumping operation would also use less GHG energy, and potentially in the future emit no GHGs if the energy mix was from 100% renewables.
  
- Q: Can we pursue legislation to have the project be considered a renewable, and/or included in the state energy plan?
  - A: Meetings involving regulatory policy staff, Government Relations, and our state lobbyists are taking place in an effort to provide input on proposed legislation and/or develop appropriate legislation.
  
- Q: What is a FERC Preliminary Application Document (PAD)?
  - A: Submittal of a PAD is what formally begins the licensing process with FERC. A FERC license is what ultimately allows an entity to construct, own and operate a power project in the U.S. The PAD includes a detailed description of proposed facilities, existing/known potential environmental impacts, maps of proposed project facility locations and underlying land use, as well as project development schedule.
  
- Q: When does the environment process start?

- A: Environmental studies will begin once the PAD has been filed with FERC and consultations with tribes, wildlife and regulatory agencies have been conducted. Information obtained from detailed, on-the-ground environmental studies will make up a portion of the actual license application. Once the license application is filed with FERC, the applicant may begin the CEQA process. At the same time, once FERC has determined the license application is complete, FERC will begin their NEPA process.
- Q: When will we submit an interconnect request application to CAISO?
  - A: Consideration of submittal of an interconnection request to CAISO will occur much later in the project timeline. It would occur after the board considers selection of project delivery method. CAISO only solicits interconnection requests during the month of April each year. So for this project, it would be April 2017.

#### Project Value and Value Questions

- Q: What financial metrics will we use to assess the project?
  - A: The Financial Subcommittee of the Hydropower Task Force determined that the payback period, internal rate of return, and annual royalty be metrics that we use to evaluate the project's financial potential.
- Q: Is the timing as such that there would be a need for this project?
  - A: Yes. This project falls in line with the excess renewables and inexpensive power for pumping. Locking into a power purchase agreement would help too. We will continue to meet with potential partners regarding the possibility of entering into a power purchase agreement.
- Q: What happens if there is not a market for power when the project is complete and operational?
  - A: A power purchase agreement (PPA) or developer MOU would secure the terms of the facility's operations and revenue stream over the next twenty to thirty years. This would be agreed upon prior to constructing the project. The PPA would be enforced both by the parties to the PPA as well as by the California Public Utilities Commission. Typically, these include a capacity availability payment that is received regardless of how much power is sold. Additionally, Large-scale pumped storage is unique in it provides an immediate response to a need ("on call" energy). Also, as the investor-owned energy utilities move toward 33 percent renewable energy in their portfolios, pumped storage's value will increase. Energy experts' power market projections show an increasing need to capture the excess renewables due to overgeneration and avoid curtailment. Overgeneration is a byproduct of meeting the 33 percent renewable standard.

Both small scale emerging technologies such as battery storage as well as large scale pumped storage are expected to be a part of the solution.

- Question: How are the San Vicente Pumped Storage revenue streams related? Is capacity revenue 75% of total potential revenue?
  - A: The Black and Veatch Study range identified two revenue sources: capacity and ancillary services. Capacity is a payment received for being on-call to deliver a given amount of energy capacity, for example 500 MW. The customer (e.g. an investor-owned utility) can call upon the facility as needed. The second revenue stream is for ancillary services. These are “products” that assist the system operator (CAISO) in managing or balancing the system. Examples are quickly increasing or lowering generation or pumping in response to system wide demand changes. The Black and Veatch study estimated the capacity revenue at 71% to 79% of the total revenue. So, generally the ancillary services provide about 25 percent of the revenue. It should be noted that the study did not consider the value of storage as part of the revenue assumptions.
  
- Q: Why is the internal rate of return (IRR) for municipalities less than the IRR for private entities?
  - Q: When used to calculate present value, the IRR is also referred to as the “discount rate.” The basic principal of a discount rate is that money today is more valuable than money in the future. A high discount rate implies that money today is much more valuable than money in the future, while a lower discount rate implies a more balanced weighting of the value of present and future dollars. Many business entities use their cost-of-funds to establish their discount rate. The Water Authority has historically used this approach. The Water Authority’s cost of funds is established from time to time, when the Water Authority issues its bonds. A discount rate of 5% is an approximate measure of the Water Authority’s average long-term borrowing rate. A corporate entity typically has a significantly higher cost-of-funds. A corporate entity typically finances its long-term investments through a combination of debt and equity (stock), and pays income tax on earnings. For both these reasons, a corporate entity’s effective cost of funds is significantly higher than the Water Authority’s. A discount rate of 10% may more typically describe the cost-of-funds of an established corporate entity.
  
- Q: How do we assess the value of energy storage?
  - A: While difficult to quantify, the value of energy storage lies in the reliability that it brings to the grid. At the point where we are negotiating an agreement,

the storage benefit will need to be part of the discussions. See National Hydropower Association white paper: [http://www.hydro.org/wp-content/uploads/2014/01/NHA\\_PumpedStorage\\_071212b12.pdf](http://www.hydro.org/wp-content/uploads/2014/01/NHA_PumpedStorage_071212b12.pdf)

- Q: How do we know when and how to unload the risk associated with the project?
  - A: The point at which risk is transferred to another party would be determined by the project delivery method. If the board authorizes hiring an owner's advisor team, staff will work with the owner's advisor to identify risks, quantify the risks and any mitigation costs associated with them. That information will be presented to the board along with potential revenue reduction associated with risk transfer. The board can then consider the risk/revenue assessment relative to proposed business models or project delivery methods. It is true that the less risk the Water Authority and City assumes, the lower the return.

### Project Delivery Questions

- Q: What is meant by project delivery alternative?
  - A: We have different ways we can approach project implementation. For example, the Water Authority and City could take the lead on all aspects in developing the project. We can also partner with another entity such as a developer through design-build and design-build-operate contractual arrangements or an arrangement in which they take on more of a leadership role.
- Q: What is the difference between a partner and a contractor?
  - A: It depends on if there is an equity investment or not, and on the financial arrangement and type of project delivery method (design-bid-build, design-build, design-build-operate, other) between the parties that distinguishes whether or not there is municipal preference.
- Q: How do we know that we have a buyer?
  - A: The Owners' Advisor scope includes assisting staff with identifying potential buyers or customers. While determining the desired project delivery method, staff would provide information for the board's consideration to decide on the direction in terms of entering into a specific developer agreement and/or power purchase agreement.
- Q: Has there been a discussion with SDG&E regarding this project?
  - A: We have met with SDG&E several times. They are interested in and are keeping track of the project. They are a likely power purchaser but not the only

potential power purchaser. We are meeting with them periodically to update them on progress.

- Q: Are there other pumped storage projects in SDG&E's service area that are being contemplated?
  - A: No. There are projects being worked on are outside of SDG&E's service area. The closest planned pumped storage project is in Lake Elsinore.
- Q: Do the existing agreements state that neither the City nor the Water Authority will attempt to enter into an agreement with a third party partner?
  - A: Yes

### Miscellaneous Questions

- Is this project compatible with the City's Pure Water project?
  - A: The Water Authority and the City team will be conducting additional water quality modeling of various inlet/outlet locations to ensure that the San Vicente Pumped Storage project does not negatively impact the Indirect Potable Reuse project.
- Q: Were there any lessons learned from the Lake Hodges Pumped Storage operations and limnology studies:
  - A: The issues surrounding the Lake Hodges pumped storage project were predominately associated with design and construction and will be brought forth during that phase of the project. Ongoing operations by both Water Authority and Contractor staff have gone well with no significant issues. The scope of the limnology study for the Lake Hodges project was different than what is required for San Vicente. As with Lake Hodges, it will be important to properly identify the objectives of the study at the outset to ensure that the proper information is obtained.



January 13, 2015

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**Re: San Diego County Water Authority  
San Vicente Pumped Storage Project  
Project No. 14642-000**

**Joint Request to Hold in Abeyance  
Processing of Preliminary Permit Application**

On October 30, 2014, the Commission issued public notice of the San Diego County Water Authority's (Water Authority) application for a preliminary permit in the referenced proceeding. On December 29, 2014, the City of San Diego (City) filed a Motion to Intervene, Protest, and Request for Hearing.

As stated in the City's December 29<sup>th</sup> motion, the Water Authority and the City (together, the Parties) have entered into certain agreements that contemplate development of the San Vicente Pumped Storage Project (Project) as a partnership between the Parties, and contemplate that the Parties will jointly hold the license for the Project. It continues to be the intent of the Parties that the Project be developed in this manner. However, the Parties require further time to complete additional agreements regarding the specific partnership arrangements. When those additional agreements are reached, the Parties intend to amend the pending preliminary permit application by naming the Water Authority and the City as joint applicants.

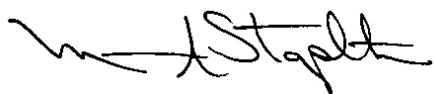
In order to accomplish these ends, the Parties request that the Commission both refrain from acting on the pending motion and hold processing of the preliminary permit application in abeyance, for a period of 90 days from the date of this submission.



In the event that the Parties are unable to successfully negotiate the additional agreements within 90 days (or any subsequent extension(s) of the abeyance period), the Parties expect that the Commission will act on the City's pending motion and any subsequent response of the Water Authority.

If you have questions concerning this submission please contact the undersigned.

Sincerely,



Maureen A. Stapleton  
General Manager  
San Diego County Water Authority  
Tel: (858) 522-6600

Robert Mulvey  
Assistant Public Utilities Director  
City of San Diego  
Tel: (858) 292-6418

cc: Michael Swiger, Counsel for San Diego County Water Authority  
Michael E. Vergara, Counsel for City of San Diego  
Official Service List

**CERTIFICATE OF SERVICE**

Pursuant to Rule 2010 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission, I hereby certify that I have this day caused the foregoing document to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 13<sup>th</sup> day of January, 2015.

/s/ Lineth Metcalf  
Lineth B. Metcalf  
Legal Secretary  
Van Ness Feldman, L.L.P  
1050 Thomas Jefferson Street, N.W.  
Seventh Floor  
Washington, D.C. 20007-3877  
Telephone: (202) 298-1827  
Facsimile: (202) 338-2416

Document Content(s)

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Project Accounting

In June 2014, the Board approved the addition of the San Vicente Pumped Storage Study to the Capital Improvement Program and transferred \$1.2 million from the San Vicente Dam Raise project to provide funding for the work. Subsequently, in August 2014, the Board authorized the General Manager to a) execute an agreement with the City of San Diego that provided for cost sharing of work activities including engineering studies to support the City's Pure Water project, b) amend a consultant contract to perform the engineering and environmental support studies, and c) approved project expenditures.

**Table 1**  
**Authorized to Date**

<b>Cost</b>	<b>Activity</b>
\$162,500	Power Market Analysis (Navigant)
\$550,000	Engineering Analysis (Black & Veatch)
\$225,000	IPR/Reservoir Modeling (Water Quality Solutions) Water Authority Share
\$3,400	Legal Services to Support FERC Permit Application
<b>\$940,900</b>	<b>Total</b>
(\$237,500)	Reimbursed to Water Authority by City for Engineering Analysis
\$280,000	Water Authority Staff (Project Administration)
<b>\$983,400</b>	<b>Water Authority Share</b>

Table 2 details the work that will be recommended for approval at the February 26, 2015 Engineering and Operations Committee meeting to support the FERC Licensing process.

**Table 2**  
**Recommended Work**

<b>Cost</b>	<b>Activity</b>
\$250,000	Engineering Studies for Upper Reservoir Screenings and Refinement of Project Configuration by Black & Veatch Corporation *
\$150,000	Environmental Studies for Upper Reservoir Screenings, Stakeholder Outreach, and FERC required Preliminary Application Document (PAD) Preparation by Harvey Consulting Group, LLC *
<b>\$400,000</b>	<b>Total</b>
(\$200,000)	Reimbursed to Water Authority by City
\$125,000	Water Authority Staff (Project Administration)
<b>\$325,000</b>	<b>Water Authority Share</b>

Note: \* The City will reimburse the Water Authority for half of these costs.