



● **Board of Directors**
Engineering and Operations Committee

10/13/2020 Board Meeting

7-4

Subject

Amend the Capital Investment Plan for fiscal years 2020/21 and 2021/22 to include battery energy storage systems at Joseph Jensen Water Treatment Plant, Robert A. Skinner Water Treatment Plant, F. E. Weymouth Water Treatment Plant, and OC-88 Pumping Plant; and authorize an agreement with Stantec Inc. in an amount not-to-exceed \$900,000 for design of these facilities; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The addition of battery energy storage system (BESS) facilities at Joseph Jensen Water Treatment Plant, Robert A. Skinner Water Treatment Plant, F. E. Weymouth Water Treatment Plant, and OC-88 Pumping Plant will enhance the efficiency of Metropolitan's long-term power use, provide a hedge against projected electricity price increases, and improve the resiliency of the electric supply at these facilities. Moving forward with BESS facilities at this time is necessary to ensure that Metropolitan receives the California Public Utilities Commission's (CPUC) enhanced incentives for microgrid-capable BESS at critical facilities that benefit High Fire Threat Districts (HFTD) and low-income/disadvantaged communities. These incentives are expected to reimburse Metropolitan for \$10.3 million of project costs, which are estimated to be between \$11 million and \$12 million. Metropolitan submitted applications to the incentive program in May 2020. Three of those applications have been conditionally accepted, and the fourth application has been placed on a waitlist. Board action is required at this time to preserve the status of the four applications and meet the incentive program's project milestones.

This action amends the current Capital Investment Plan (CIP) to include four BESS projects: (1) a one-megawatt BESS at the Jensen plant; (2) a one-megawatt BESS at the Skinner plant; (3) a one-megawatt BESS at the Weymouth plant; and (4) a 0.5-megawatt BESS at the OC-88 Pumping Plant (OC-88). These four projects, while discussed at previous Engineering and Operations (E&O) Committee meetings, were not included in the CIP budget for fiscal years 2020/21 and 2021/22, and therefore require specific board authorization to proceed. An increase in the Capital Investment Plan appropriation for fiscal years 2020/21 and 2021/22 is not required for this action, as staff plans to defer lower-priority, less time-sensitive work on other CIP projects as necessary. In addition, the \$10.3 million in Self Generation Incentive Program incentive funds that staff anticipates receiving for the BESS projects will offset the impact on the CIP appropriation.

Timing and Urgency

In 2019, staff initiated the Energy Sustainability Plan effort to identify new projects within the framework of the Board-approved Energy Management Policies. Updates on the Energy Sustainability Plan findings and recommendations have been presented to the Board throughout its preparation, including:

- At the October 2019 E&O Committee meeting, staff presented the interim results of the Energy Sustainability Plan and discussed the potential for battery energy storage systems to reduce energy costs and improve the resiliency of the electric supply at critical facilities.
- At the June 2020 E&O Committee meeting, the Water System Operations Group Manager's report discussed the potential for Metropolitan to receive enhanced financial incentives from the CPUC Self Generation Incentive Program (SGIP) for implementation of battery storage systems at critical facilities,

and reported that staff submitted applications in May 2020 to reserve financial incentives at the Skinner, Jensen, and Weymouth Plants and at OC-88 Pumping Plant.

- At the July E&O Committee meeting, staff presented the draft results of the Energy Sustainability Plan that included the near-term recommendation to implement battery energy storage projects at the Weymouth, Jensen, and Skinner plants, and at the OC-88 Pumping Plant.
- In August 2020, the final draft Energy Sustainability Plan was submitted to the Board for review and comments.

As discussed in these meetings, the current environment of declining battery energy storage costs and the potential to receive enhanced financial incentives provides Metropolitan a unique opportunity to invest in battery energy storage systems at the Jensen, Skinner, and Weymouth Plants and at the OC-88 Pumping Plant.

Metropolitan is eligible for \$10.3 million in financial incentives from the SGIP Program, which will largely offset the cost of the four systems. However, work on these projects needs to proceed immediately to ensure that Metropolitan does not lose its reservations for the SGIP incentives. For this reason, staff is recommending moving forward with this project, which is not contained in the current CIP.

Details

Background

In 2010, Metropolitan's Board adopted Energy Management Policies intended to contain energy costs and reduce exposure to price volatility through the implementation of cost-effective alternative energy projects. The policies directly related to battery energy storage development include:

- Contain costs and reduce exposure to energy price volatility.
- Increase operational reliability by providing system redundancy.
- Provide a revenue stream to offset energy costs.
- Move Metropolitan toward energy independence.

Prior to the adoption of the Energy Management Policies, Metropolitan implemented a 540-kilowatt solar facility at the Center for Water Education at Diamond Valley Lake in 2006, and a one-megawatt solar facility at the Skinner Water Treatment Plant in 2009. Guided by the board-adopted Energy Management Policies, Metropolitan added three-megawatts of solar generation at the Weymouth plant in 2016, and one-megawatt of solar generation at the Jensen plant in 2018.

Metropolitan initiated the Energy Sustainability Plan effort in 2019 to identify new projects within the Energy Management Policies' framework. The Energy Sustainability Plan combined a peer review of comparable water utilities, an analysis of Metropolitan's retail electricity charges, and a holistic multi-criteria decision analysis framework, in which potential projects were vetted against a range of future scenarios based upon historical water and power demands and time-of-use tariff updates.

The Energy Sustainability Plan effort was guided by the significant changes that have occurred in California's energy landscape over the past decade, most notably the rapid adoption of renewable energy generation. Renewable energy now sustains more than one-third of California's energy consumption, with a target set by the California State Legislature of 100 percent clean energy by 2045. California's rapid adoption of renewable solar generation has created a significant challenge for California's electric utilities. Notably, although there is excess daytime generation during peak solar hours, there is insufficient complementary storage to extend green energy utilization to the evening and overnight hours. In addressing the daily temporal imbalance in renewable generation, the CPUC now allocates more than 80 percent of funds within its long-standing Self-Generation Incentive Program toward energy storage technologies. This program was established in 2001 and encourages the development of peak-load reduction technologies.

In light of California's recent wildfires and Public Safety Power Shutoff (PSPS) events, the CPUC implemented enhanced incentives for microgrid-capable energy storage projects at eligible critical facilities. These incentives are structured to support the development of microgrids as a way to support critical infrastructure resiliency and reliability. Microgrids are an interconnected system of electric loads and energy resources, including generation and energy storage, that can connect to and disconnect from the electric grid. Currently, Metropolitan is required

to cease solar generation during an electric utility outage. With the implementation of a microgrid, Metropolitan will be able to isolate its interconnected system of on-site solar generation, energy storage, and diesel generation from the grid during a PSPS event or other grid outage.

Metropolitan's Energy Sustainability Plan identified battery energy storage systems at the Jensen, Skinner, and Weymouth plants and at OC-88 as projects that will provide electricity cost savings and improve operational flexibility and resiliency. Each project has been recommended by the Energy Sustainability Plan for near-term implementation.

Self-Generation Incentive Program Available for Jensen, Skinner, Weymouth, and OC-88

The Jensen and Skinner plants and OC-88 Pumping Plant are located within CPUC-designated Tier 2 and Tier 3 HFTDs. The facilities' designation as critical facilities by the CPUC, their location within HFTDs, and their role in serving HFTDs and low-income/disadvantaged communities make each site eligible for the Equity Resiliency budget within the CPUC's Self-Generation Incentive Program. The SGIP is administered by the Southern California Gas Company (SoCalGas) at the Jensen plant and by Southern California Edison (SCE) at the Skinner plant and OC-88. Each Equity Resiliency budget-eligible site will receive \$1.00 per watt-hour (Wh) in incentives from the SGIP administrators.

The Weymouth plant is located within a low-income census tract, as defined by AB 1550 (2016). The facility's designation as a critical facility by the CPUC, its location within a low-income census tract, and its role in serving low-income/disadvantaged communities make the Weymouth facility eligible for the equity budget within the CPUC's Self-Generation Incentive Program. Equity budget-eligible sites receive \$0.85/Wh in incentives from the SGIP administrator, which is SCE at the Weymouth plant.

In May 2020, Metropolitan submitted four applications to the SGIP for the Jensen, Skinner, Weymouth, and OC-88 facilities. In August 2020, Metropolitan received a conditional reservation letter from SoCalGas for \$3.0 million in incentives for the Jensen BESS project application. Metropolitan also received conditional reservation letters from SCE for \$3.0 million and \$1.75 million for the Skinner and OC-88 BESS project applications, respectively. The Weymouth BESS project application for \$2.55 million in incentives is on the waitlist of the equity budget. The combined potential incentive amount for the four projects is \$10.3 million. The SGIP incentive is paid to Metropolitan in phases: 50 percent at project completion, with the remaining 50 percent paid equally over five years upon annual proof of 5 kgCO₂/kWh reduction in greenhouse gas emissions.

Each site's BESS was sized in accordance with the SGIP's energy capacity incentive structure, as well as the facilities' historical hourly energy use, and electric utility rate structure. Each BESS project will be installed in a microgrid configuration to support the CPUC's goal of critical infrastructure resiliency and reliability. In order to maintain the conditional reservations and waitlist status granted by SCE and SoCalGas, Metropolitan must construct and place into operation the battery facilities described in this letter by mid-2022. This is an aggressive schedule considering that Metropolitan must design and competitively bid the BESS facilities, and then return to the Board to award a contract or contracts prior to the start of construction. Hence staff is recommending that the Board amend the CIP to include this project with this action.

In April 2020, the Board appropriated funds and authorized the General Manager to initiate or proceed with work on all capital projects identified in the CIP, subject to any limits on the General Manager's authority and CEQA requirements. These BESS projects were not included in the CIP budget for fiscal years 2020/21 and 2021/22. Any project not included in the CIP budget requires specific board authorization to proceed. This action would fulfill this requirement by amending the CIP to include the four BESS projects. An increase in the Capital Investment Plan appropriation for fiscal years 2020/21 and 2021/22 is not required for this action, as staff plans to defer lower-priority, less time-sensitive work on other CIP projects as necessary. In addition, the \$10.3 million in SGIP incentive funds that staff anticipates receiving for the BESS projects will offset the impact on the CIP appropriation. When received, the check reimbursing Metropolitan for project costs will be credited directly to the CIP. The BESS projects have been reviewed in accordance with Metropolitan's CIP prioritization criteria and were approved by Metropolitan's CIP evaluation team to be included in the Energy Sustainability Program.

Project Scope

This project will install new BESS facilities at the four sites identified in this board letter. For each facility, the proposed battery system is sized based on the facility's peak demand and, in the case of the Jensen, Skinner, and Weymouth plants, based on the existing solar generation capacity. The BESS will be installed in a microgrid configuration to ensure seamless operation of the facility in the event of a utility system outage.

The battery system footprints of 500 kW and 1 MW batteries are typically 12 feet by 20 feet and 12 feet by 28 feet, respectively. The recommended location of the battery system is within each facility's operational boundary. Each optimal location will be close to a point of interconnection to facilitate integration with the existing electrical system and will be validated during the preliminary design phase.

Battery Energy Storage Projects at Jensen, Skinner, Weymouth, and OC-88 – Design

Planned activities for the design of the BESS facilities include: (1) conducting field investigations; (2) reviewing record drawings, energy metered data, and critical loads at each facility; (3) development of power studies for several power systems, including load flow, short circuit, protective relay, and arc flash; (4) preparation of a preliminary design report; (5) establishing final design criteria, preparing drawings and specifications, and development of a construction cost estimate; and (6) receipt of competitive bids. Staff will return to the Board at a later date to award a construction contract(s). Design is recommended to be performed by Stantec, Inc., as discussed below. Metropolitan staff will perform design review, project management, and oversee integration of the project with other activities underway at the facilities.

The total estimated cost to complete the BESS projects, including the funds required for the work described in this action and future construction costs, is anticipated to range from \$11 million to \$12 million. As noted, Metropolitan is eligible for SGIP incentives totaling \$10.3 million, with 50 percent paid upon completion of construction and 50 percent paid over the first five years of operation.

A total of \$2,200,000 is required for design-related activities. Allocated funds include: \$900,000 for design activities and technical assessments by Stantec Inc., \$100,000 for activities by a value engineering consultant; \$719,000 for technical review and electrical utilities interconnection related work by Metropolitan staff; \$311,000 for SGIP coordination, hazardous material testing, preparation of environmental documentation, permits, project controls, and project management; and \$170,000 for remaining budget. **Attachment 1** provides the allocation of the funds required for design. The total estimated cost of construction for this project is anticipated to range from \$8.7 million to \$9.7 million. Engineering Services' performance metric target range for final design of construction greater than \$3 million is 9 to 12 percent. For this work, the anticipated cost of final design is 10.2 percent of the total construction costs. The cost of final design is \$884,000, which includes final design by Stantec Inc. (\$515,000) and Metropolitan design activities (\$369,000). Staff will return to the Board later to award construction contracts.

Agreement for Engineering Services (Stantec Inc.) – New Agreement

Stantec Inc. is recommended to provide technical field investigations, studies, and design, under a new professional services agreement. This work is highly specialized, and Metropolitan has insufficient technical staff in-house to conduct the electrical system design. Stantec Inc. was prequalified through a competitive process via Request for Qualifications No. 1215 and was selected to provide engineering services for the BESS facilities based on their specialized expertise and their participation in the Energy Sustainability Plan's development, including the BESS implementation feasibility analysis. The estimated cost for these design services is \$900,000.

This action authorizes an agreement with Stantec Inc., for a not-to-exceed amount of \$900,000, to provide engineering services for BESS projects at the Jensen, Skinner, Weymouth, and OC-88 facilities. For this agreement, Metropolitan has established an SBE participation level of 5 percent. The planned subconsultants for this agreement are Project Line Technical Services, Inc., and Integrated Engineering Management.

Alternatives Considered

Metropolitan also evaluated the addition of a BESS facility at the Henry J. Mills Water Treatment Plant. However, the plant is neither located within a HFTD nor a low-income/disadvantaged community. The plant is eligible for the general budget of the SGIP. Unfortunately, general budget projects currently do not have the option to introduce a microgrid configuration. Additionally, the general budget has a much lower incentive rate, \$0.35/Wh. At the Robert B. Diemer Water Treatment Plant, Metropolitan's Energy Sustainability Plan recommends moving the Yorba Linda Hydroelectric Plant behind the treatment plant's meter to fully power the treatment plant with power from the hydroelectric plant. The Energy Sustainability Plan calls for a periodic re-evaluation of BESS feasibility at Metropolitan's largest electric accounts, including the Mills and Diemer plants.

An important element that could influence the cost and schedule of the project is the location of the battery pack. Current proposed locations were selected based on a desktop review of spaces available and their proximity to on-site solar equipment. Other options would be to install the batteries near the main switchgears. Final selection will be confirmed based on the outcome of the field investigations.

Summary

This action amends the CIP for fiscal years 2020/21 and 2021/22 to include Battery Energy Storage Systems at Jensen, Skinner, and Weymouth plants, and OC-88 Pumping Plant. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

Project Milestone

June 2021 – Completion of design to construct battery energy storage facilities at the Jensen, Skinner, and Weymouth plants, and OC-88 Pumping Plant

Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 51963, dated April 14, 2020 the Board appropriated a total of \$500 million for projects identified in the Capital Investment Plan for Fiscal Years 2020/21 and 2021/22.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection, research, experimental management, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines). Additionally, the proposed action involves feasibility or planning studies for possible future actions which the agency, commission or board has not yet approved, adopted or funded. Accordingly, the proposed action qualifies as a Statutory Exemption (Section 15262 of the State CEQA Guidelines)

CEQA determination for Option #2:

None required

Board Options

Option #1

- a. Amend the current CIP to include the implementation of BESS at four Metropolitan facilities; and
- b. Authorize an agreement with Stantec Inc. in an amount not-to-exceed \$900,000.

Fiscal Impact: It is not anticipated that the addition of the project to the CIP will increase the total planned spending over the current budget biennium period. This project adds planned spending of \$2,200,000 in capital funds for total design costs, including \$900,000 for the agreement with Stantec Inc. approved with this action. The amendment to the CIP also adds total estimated project cost anticipated to range from \$11 to \$12 million to the CIP. However, an increase in the CIP appropriation for fiscal years 2020/21 and 2021/22 is not required for this action, staff anticipates receiving \$10.3 million in SGIP incentive funds for the BESS projects which will offset the impact on the CIP appropriation. In addition, staff plans to defer lower-priority, less time-sensitive work on other CIP projects as necessary, including deferral of the delivery of conical plug isolation valves for the Second Lower Feeder PCCP Rehabilitation Program.

Business Analysis: This option will enable Metropolitan to receive incentives for microgrid-capable battery energy storage systems at critical facilities, reduce retail electricity expenditures, and increase treatment plant and pumping plant resiliency. Metropolitan will receive \$10.3 million in incentives from the SGIP to offset project expenditures. This includes \$5.15 at the completion of construction in mid-2022 and an additional \$5.15 million over a 3 to 5-year period thereafter. Based on the projected electric utility rate increases, the net present value of this option is \$5.0 million over 10 years, and the payback is 3 years.

Option #2

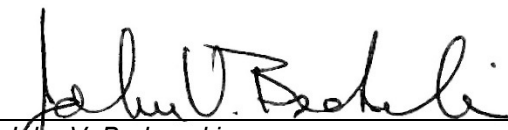
Do not amend the CIP to include microgrid-capable battery energy storage systems at the Jensen, Skinner, and Weymouth plants, and OC-88 Pumping Plant.

Fiscal Impact: None

Business Analysis: Metropolitan will forego an opportunity to reduce operating costs and improve resiliency at critical facilities.

Staff Recommendation

Option #1


 _____ 9/25/2020
 John V. Bednarski Date
 Manager/Chief Engineer
 Engineering Services


 _____ 9/29/2020
 Jeffrey Kightlinger Date
 General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Location Map

Ref# es12678987

Allocation of Funds for Battery Storage Projects

	Current Board Action (Oct. 2020)
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Labor	
Studies & Investigations	\$ 350,000
Final Design	369,000
Owner Costs (Program mgmt., envir. monitoring)	226,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses (Utility Fees)	70,000
Professional/Technical Services	-
Stantec Inc.	900,000
Value Engineering & Lead/Asbestos Consultants	115,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	170,000
Total	<hr/> \$ 2,200,000 <hr/>

This is the initial action for the Battery Storage project. The total estimated cost to complete the project including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from \$11 million to \$12 million.

Distribution System

