THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- Board of Directors
  Engineering and Operations Committee

7/12/2011 Board Meeting

7-2

Subject

Appropriate $130,000; and authorize preliminary design to replace standby generators at the Temescal and Corona Power Plants (Approp. 15441)

Description

This action authorizes preliminary design to replace two standby generators at the Temescal and Corona Power Plants. These 50 kilowatt (kW) generators are required to power slide gates that control flows from the Lower Feeder to the Diemer plant during a utility power outage.

Timing and Urgency

The existing standby generators at the Temescal and Corona Power Plants have both reached the end of their service life. The generator manufacturer is no longer in business and replacement parts are difficult to obtain. The standby generators provide backup electrical power during a utility power outage, allowing the operation of critical control facilities that maintain flows in the Lower Feeder. Additionally, upgrades to the electrical and fuel storage systems are required to meet current fire codes and environmental regulations.

These projects have been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria, and are categorized as Infrastructure Upgrade projects. The two projects are budgeted within Metropolitan's CIP for fiscal year 2011/12.

Background

The Corona and Temescal Power Plants, which are both rated at 2.8 MW, generate approximately $1.5 million each in annual revenues. These hydroelectric power plants were both constructed in 1982 within the Lower Feeder system. From Lake Mathews, the Lower Feeder conveys untreated water sequentially through the Temescal Power Plant and the Corona Power Plant before reaching the Robert B. Diemer Water Treatment Plant. The two hydroelectric plants have similar layouts and operate in a similar manner.

At each plant, the Lower Feeder serves as a bypass when the hydroelectric turbines are not in operation. Each plant has a control tower, penstock, turbine-generator, and outlet pipe. The flow into each plant is regulated by its control tower. The control towers are multi-functional and serve to adjust flowrates into the plants; divert flow back to the Lower Feeder in the event of a generator trip; suppress surges in the Lower Feeder; keep the Lower Feeder pressurized upstream of the towers; and bypass flows when the turbines are not in operation.

Each control tower contains a throttling gate and a bypass gate. The throttling gates maintain constant water pressure at the inlets to the turbines. These gates adjust their position automatically to handle fluctuating flows in the Lower Feeder due to varying system demands. The bypass gates are used to divert flows around the turbines when the plants are offline. Automatic flow adjustments at both power plants are necessary to minimize air entrainment within the water, which can severely impact the filtration process at the Diemer plant. The standby generator at each power plant provides backup power for operation of the control tower slide gates in the event of a utility power outage.

The existing standby generators at each hydroelectric plant were both installed during the original plant construction. Recent inspections have identified that both generators have reached the end of their service life. Both generators have excessive piston blow-by, excessive oil leaks, and crankshaft bearing wear. Further, the manufacturer of the two engines is no longer in business. Replacement parts have become increasingly difficult to obtain. Staff has had to fabricate replacement parts or salvage them from other equipment in order to make recent repairs.

Preliminary design is recommended to proceed at this time to replace the existing standby generators at the Temescal and Corona Power Plants. Upgrades to the electrical and fuel storage systems at both hydroelectric plants are also required to meet current fire codes and air quality regulations.

Project No. 1 – Temescal Power Plant Standby Generator Replacement – Preliminary Design Phase ($65,000)

The new generator will be relocated from inside the power plant structure to outside in order to comply with current fire codes. Each generator will be supplied with an integrated, self-contained fuel storage tank, and will meet current emission regulations. Modification of the electrical system is needed to support the replacement generator at the new location. The existing nonconforming above-ground fuel storage tank and containment area will be removed.

This action appropriates $65,000 and authorizes preliminary design phase activities to replace the standby generator at Temescal Power Plant. Planned activities include: site survey; preparation of layout drawings, based on code and permitting requirements; preparation of a preliminary design report and environmental documentation; and development of a cost estimate. All work will be performed by Metropolitan staff. Staff will return to the Board at a later date for authorization of final design.

Project No. 2 – Corona Power Plant Standby Generator Replacement – Preliminary Design Phase ($65,000)

The scope of work for this project is similar to that of the Temescal Power Plant. The new generator will be relocated from inside the power plant structure to outside in order to comply with current fire codes. Each generator will be supplied with an integrated, self-contained fuel storage tank, and will meet current emission regulations. Modification of the electrical system is needed to support the replacement generator at the new location. The existing above-ground fuel storage tank and containment area will be removed.

This action appropriates $65,000 and authorizes preliminary design phase activities to replace the standby generator at Corona Power Plant. Planned activities include: site survey; preparation of layout drawings, based on code and permitting requirements; preparation of a preliminary design report and environmental documentation; and development of an estimate. All work will be performed by Metropolitan staff. Staff will return to the Board at a later date for authorization of final design.

Summary

This action appropriates $130,000 and authorizes preliminary design to replace standby generators at the Temescal and Corona Power Plants. These projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2011/12 capital budget. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

These projects are included within capital Appropriation No. 15441, the Conveyance and Distribution System Rehabilitation Program Phase II, which was initiated in fiscal year 2006/07. Appropriation No. 15441 also includes projects such as the Sepulveda Feeder Repairs and Allen-McColloch Pipeline Repairs. With the present action for the Temescal and Corona Power Plants, the total funding for Appropriation No. 15441 will increase from $31,569,000 to $31,699,000.

These projects are consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing conveyance and distribution system in order to maintain reliable water supplies in the future.

Project Milestone

October 2011 – Completion of preliminary design for both power plants

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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 research, resource evaluation and preliminary design activities which do not result in a serious or major disturbance to an environmental resource. This may be 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 under a Class 6 Categorical Exemption (Section 15306 of the Sate CEQA Guidelines). In addition, the proposed action is not defined as a project under CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines), and, further, that the proposed action is not subject to CEQA pursuant to Section 15378(b)(4) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

a. Appropriate $130,000; and
b. Authorize preliminary design to replace the standby generators at Temescal and Corona Power Plants.

Fiscal Impact: $130,000 in budgeted funds under Approp. No. 15441

Business Analysis: These projects will enhance system reliability and allow operation of critical Lower Feeder flow control equipment in the event of a utility power outage.

Option #2

Do not authorize the generator replacement projects at this time.

Fiscal Impact: Increased cost to maintain the existing standby generators

Business Analysis: Under this option, staff would continue to maintain the existing standby generators. Failure of the generators could result in the inability to operate critical Lower Feeder flow control equipment during a utility power outage. Disruptions in Lower Feeder flows can adversely affect treatment operations at the Diemer plant by decreasing filter performance and could lead to increases in filter outlet turbidity.

Staff Recommendation

Option #1

6/20/2011
Gordon Johnson *Date*
Manager/Chief Engineer,
Engineering Services

6/23/2011
Jeffrey Kightlinger *Date*
General Manager

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Ref# es12612369

Financial Statement for Conveyance and Distribution System Rehabilitation Program – Phase II

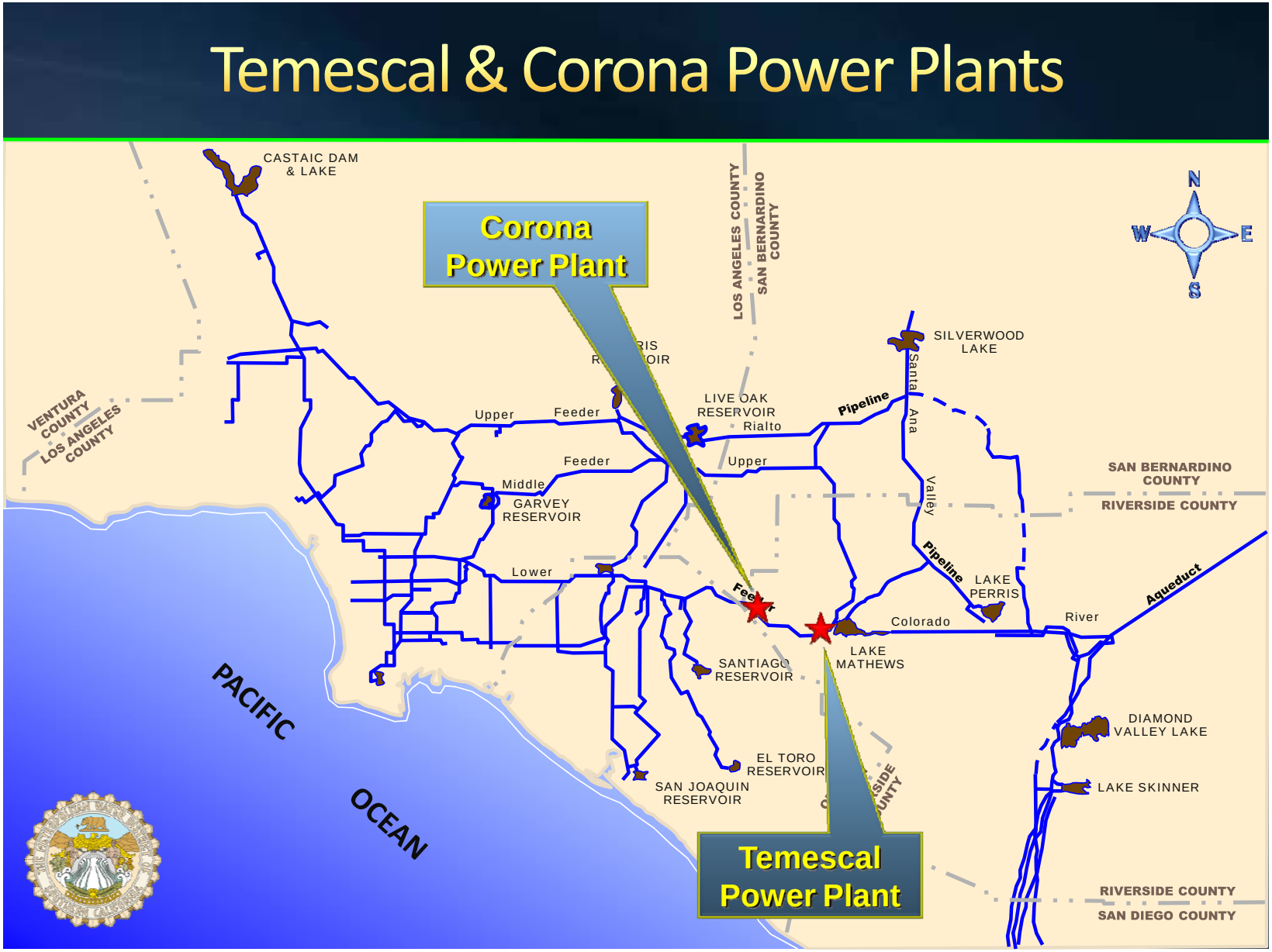
A breakdown of Board Action No. 34 for Appropriation No. 15441 for replacement of the standby generators at the Temescal and Corona Power Plants* is as follows:

	Previous Total Appropriated Amount (June 2011)	Current Board Action No. 34 (July 2011)	New Total Appropriated Amount
Labor			
Studies & Investigations	$ 1,970,000	$ 80,000	$ 2,050,000
Final Design	2,331,400	-	2,331,400
Owner Costs (Program mgmt, permitting)	3,737,350	40,000	3,777,350
Submittals Review & Record Drwgs	13,100	-	13,100
Inspection & Support	1,464,300	-	1,464,300
Metropolitan Force Construction	6,972,300	-	6,972,300
Materials and Supplies	1,438,100	-	1,438,100
Incidental Expenses	770,400	-	770,400
Professional/Technical Services	1,543,500	-	1,543,500
Equipment Use	228,200	-	228,200
Contracts	8,136,730	-	8,136,730
Remaining Budget	2,963,620	10,000	2,973,620
Total	**$ 31,569,000**	**$ 130,000**	**$ 31,699,000**

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation Program – Phase II		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15441	**Board Action No.:**	34
Requested Amount:	**$** 130,000	**Capital Program No.:**	15441-I
Total Appropriated Amount:	**$** 31,699,000	**Capital Program Page No.:**	35
Total Program Estimate:	**$** 68,224,000	**Program Goal:**	I-Infrastructure Reliability

* This is the initial appropriation for replacement of the standby generators at the Temescal and Corona Power Plants


Temescal & Corona Power Plants
Corona Power Plant
Temescal Power Plant
CASTAIC DAM & LAKE
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Santa Ana
Pipeline
LIVE OAK RESERVOIR
Rialto
Upper
Feeder
Feeder
Middle
GARVEY RESERVOIR
Lower
Upper
Valley
Pipeline
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
LAKE PERRIS
Aqueduct
Colorado
River
LAKE MATHEWS
SANTIAGO RESERVOIR
EL TORO RESERVOIR
SAN JOAQUIN RESERVOIR
DIAMOND VALLEY LAKE
LAKE SKINNER
PACIFIC
OCEAN
RIVERSIDE COUNTY
SAN DIEGO COUNTY
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