El Dorado Irrigation District

AGENDA
REGULAR MEETING OF THE BOARD OF DIRECTORS

District Board Room, 2890 Mosquito Road, Placerville, California
May 23, 2016 — 9:00 A.M.

Board of Directors

Bill George—Division 3
President

George Osborne—Division 1
Vice President

Greg Prada—Division 2
Director

Dale Coco, MD—Division 4
Director

Alan Day—Division 5
Director

Executive Staff

Jim Abercrombie
General Manager

Thomas D. Cumpston
General Counsel

Jennifer Sullivan
Clerk to the Board

Jesse Saich
Communications

Brian Mueller
Engineering

Mark Price
Finance

Jose Perez
Human Resources

Tim Ranstrom
Information Technology

Tom McKinney
Operations

PUBLIC COMMENT: Anyone wishing to comment about items not on the Agenda may do so during the public comment period. Those wishing to comment about items on the Agenda may do so when that item is heard and when the Board calls for public comment. Public comments are limited to five minutes per person.

PUBLIC RECORDS DISTRIBUTED LESS THAN 72 HOURS BEFORE A MEETING: Any writing that is a public record and is distributed to all or a majority of the Board of Directors less than 72 hours before a meeting shall be available for immediate public inspection in the office of the Clerk to the Board at the address shown above. Public records distributed during the meeting shall be made available at the meeting.

AMERICANS WITH DISABILITIES ACT: In accordance with the Americans with Disabilities Act (ADA) and California law, it is the policy of El Dorado Irrigation District to offer its public programs, services, and meetings in a manner that is readily accessible to everyone, including individuals with disabilities. If you are a person with a disability and require information or materials in an appropriate alternative format; or if you require any other accommodation for this meeting, please contact the EID ADA coordinator at 530-642-4045 or email at adacoordinator@eid.org at least 72 hours prior to the meeting. Advance notification within this guideline will enable the District to make reasonable accommodations to ensure accessibility.

CALL TO ORDER

Roll Call
Pledge of Allegiance
Moment of Silence

ADOPT AGENDA

COMMUNICATIONS

General Manager's Employee Recognition

APPROVE CONSENT CALENDAR

Action on items pulled from the Consent Calendar

PUBLIC COMMENT

COMMUNICATIONS

Board of Directors

Brief reports on community activities, meetings, conferences and seminars attended by the Directors of interest to the District and the public.

Clerk to the Board
General Manager

CONSENT CALENDAR

1. **Finance (Pasquarello)**
   Ratification of EID General Warrant Registers for the periods ending May 3 and May 10, 2016, and Employee Expense Reimbursements for these periods.

   Option 1: Ratify the EID General Warrant Registers as submitted to comply with Section 24600 of the Water Code of the State of California. Receive and file Employee Expense Reimbursements.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

2. **Clerk to the Board (Sullivan)**
   Approval of the minutes of the May 9, 2016, regular meeting of the Board of Directors.

   Option 1: Approve as submitted.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

3. Finance (Pasquarello)
Funding approval for District Capital Improvement Plan (CIP) Projects.

Option 1: Authorize funding for the CIP projects as requested in the amount of $61,300.
Option 2: Take other action as directed by the Board.
Option 3: Take no action.

Recommended Action: Option 1.

4. Information Technology (Ranstrom)
Consideration to authorize funding of $458,370 for the replacement of eight computer systems hosting District supervisory control and data acquisition (SCADA) software applications.

Option 1: Authorize funding of $458,370 for the replacement of eight computer systems hosting District supervisory control and data acquisition (SCADA) software applications.
Option 2: Take other action as directed by the Board.
Option 3: Take no action.

Recommended Action: Option 1.

5. Operations (Strahan)
Consideration to authorize staff to renew the District's SCADA annual software support agreement for Wonderware® ArchestrA System Platform from authorized Vendor Wonderware® NorCal in the not-to-exceed amount of $64,235.60.

Option 1: Authorize staff to renew the District's SCADA annual software support agreement for Wonderware® ArchestrA System Platform from authorized Vendor Wonderware® NorCal in the not-to-exceed amount of $64,235.60.
Option 2: Take other action as directed by the Board.
Option 3: Take no action.

Recommended Action: Option 1.

6. Finance / Operations (Ruiz / Strahan)
Consideration to award competitive bid P16-04 to Doug Veerkamp General Engineering, Inc. to provide as-needed asphalt patch-paving services for one year for the not-to-exceed amount of $435,670.

Option 1: Award competitive bid P16-04 to Doug Veerkamp General Engineering, Inc. to provide as-needed asphalt patch-paving services for one year for the not-to-exceed amount of $435,670.
Option 2: Take other action as directed by the Board.
Option 3: Take no action.

Recommended Action: Option 1.

END OF CONSENT CALENDAR

PUBLIC HEARING – 9:30 A.M.

7. **Office of the General Counsel (Cumpston)**
   Proposed amendment of Board Policy 3010, "Budget"

   Option 1: Approve amendment to Board Policy 3010 as presented by staff.
   Option 2: Take other action as directed by the Board.
   Option 3: Take no action.

   Recommended Action: Option 1.

INFORMATION ITEMS

8. **Engineering (Mueller)**
   Forebay Dam Modification project update.

   Recommended Action: None – Information only.

9. **Engineering (Eden-Bishop / Wells)**
   Power mitigation project alternatives update.

   Recommended Action: None – Information only.

ACTION ITEMS

10. **Engineering (Wilson)**
    Consideration to award a construction contract to Syblon Reid General Engineering Contractors in the not-to-exceed amount of $532,985; and authorize total funding of $743,546 for the Reservoir A Water Treatment Plant Chemical Containment Improvements Project No. 14019.01.

    Option 1: Award a construction contract to Syblon Reid General Engineering Contractors in the not-to-exceed amount of $532,985; and authorize total funding of $743,546 for the Reservoir A Water Treatment Plant Chemical Containment Improvements; Project No. 14019.01, Contract No. E15-09.
    Option 2: Take other action as directed by the Board.
    Option 3: Take no action.

    Recommended Action: Option 1.

CLOSED SESSION

A. **Closed session pursuant to Government Code section 54956.8 (Cumpston)**
   Conference with Real Property Negotiators – Real Property Negotiations pursuant to Government Code Section 54956.8.

   Properties: Assessor's Parcel Number 115-400-22
   District negotiators: General Counsel, General Manager
   Under negotiation: price and terms of sale
   Negotiating party: El Dorado Hills Community Services District

REVIEW OF ASSIGNMENTS

ADJOURNMENT

TENTATIVELY SCHEDULED ITEMS FOR FUTURE MEETINGS

Engineering

- Consideration of a professional services contract for complete design of Town Center Force Main Replacement Project Phase 2, Action Item, regular Board meeting June 13 (T. Sullivan)
- Consideration of a professional services contract for water system analysis at Caples and Silver Lake campgrounds, Action Item, regular Board meeting, June 13 (Wilson)
- Consideration of a professional services contract for the Sly Park Intertie preliminary design, Action Item, regular Board meeting, June 13 (Eden-Bishop)
- Consideration to award a contract for the Outingdale Tank Improvements, Action Item, regular Board meeting, June 13 (T. Sullivan)
- Consideration to adopt 2015 Urban Water Management Plan, Public Hearing, regular Board meeting, June 27 (Corcoran)

Finance

- Presentation of the 2015 Financial Audit, Action Item, regular Board meeting, June 13 (Pasquarello)
- Review feasibility of implementing a low-income assistance program for District customers, Action Item, regular Board meeting, June 27 (Downey)

Operations

- 2016 Public Health Goals Report, Public Hearing, regular Board meeting, June 13 (Strahan)

CONSENT ITEM NO. 1
May 23, 2016

EL DORADO IRRIGATION DISTRICT

Subject: Ratification of EID General Warrant Registers for the periods ending May 3, and May 10, 2016 and Employee Expense Reimbursements for these periods.

Previous Board Action:

February 4, 2002 – The Board approved to continue weekly warrant runs, and individual Board member review with the option to pull a warrant for discussion and Board ratification at the next regular Board meeting.

August 16, 2004 – Board adopted the Board Expense Payments and Reimbursement Policy.

August 15, 2007 – The Board re-adopted the Board Expense Payments and Reimbursement Policy as Board Policy 12065 and Resolution No. 2007-059.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

Section 24600 of the Water Code of the State of California provides no claim is to be paid unless allowed by the Board.

Summary of Issue:

The District's practice has also been to notify the Board of proposed payments by email and have the Board ratify the Warrant Registers. Copies of the Warrant Registers are sent to the Board of Directors on the Friday preceding the Warrant Register's date. If no comment or request to withhold payment is received from any Director by the following Tuesday morning, the warrants are mailed out and formal ratification of said warrants is agendized on the next regular Board agenda.

On April 1, 2002, the Board requested staff to expand the descriptions on the Warrant Registers and modify the current format of the Warrant Registers.

On July 30, 2002, the Board requested staff to implement an Executive Summary to accompany each Warrant Register which includes all expenditures greater than $3,000 per operating and capital improvement plan (CIP) funds.

Staff Analysis/Evaluation:

Warrant registers submitted for May 3, and May 10, 2016 totaling $820,072.88, and Employee Expense Reimbursements for these periods.

Current Warrant Register Information
Warrants are prepared by Accounts Payable; reviewed and approved by the Accounting Manager; the Director of Finance and the General Manager or their designee.

Register Date	Check Numbers	Amount
May 3, 2016	653120 – 653237	$393,874.69
May 10, 2016	653238 – 653369	$426,198.19

Current Board/Employee Expense Payments and Reimbursement Information
The items paid on Attachment A are expense and reimbursement items that have been reviewed and approved by the Clerk to the Board, Accounting Manager and the General Manager before the warrants are released. These expenses and reimbursements are for activities performed in the interest of the District in accordance with Board Policy 12065 and Resolution No. 2007-059.

Additional information regarding employee expense reimbursement is available for copying or public inspection at District headquarters in compliance with Government Code Section 53065.5.

Board Decision/Options:

Option 1: Ratify the EID General Warrant Registers as submitted to comply with Section 24600 of the Water Code of the State of California. Receive and file Employee Expense Reimbursements.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff/General Manager's Recommendation:

Option 1.

Support Documents Attached:

Attachment A: Employee Expenses/Reimbursements totaling $100 or more

Tony Pasquarello
Accounting Manager

Mark Price
Director of Finance (CFO)

Jennifer Sullivan
Clerk to the Board

Jim Abercrombie
General Manager

Attachment A

Employee Expenses/Reimbursements
Warrant Registers dated 05/03/16 - 05/10/16

EMPLOYEE	DESCRIPTION	AMOUNT
Kelly Cross	Travel Expenses - Hydro Operator Training	$280.00
Jason Warden	Travel Expenses - Vac-Con Training Aifare for Three Employees	$2,377.41
		$2,657.41

El Dorado Irrigation District

MINUTES
REGULAR MEETING OF THE BOARD OF DIRECTORS

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May 9, 2016 — 9:00 A.M.

Board of Directors

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President

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Vice President

Greg Prada—Division 2
Director

Dale Coco, MD—Division 4
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Jennifer Sullivan
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CALL TO ORDER

President George called the meeting to order at 9:00 A.M.

Roll Call
Board

Present: Directors Osborne, Prada, George, Coco and Day

Staff

Present: General Manager Abercrombie, General Counsel Cumpston and Acting Clerk to the Board Costa

Absent: Clerk to the Board Sullivan

Pledge of Allegiance and Moment of Silence

President George led the Pledge of Allegiance followed by a moment of silence for our troops serving us throughout the world.

ADOPT AGENDA

ACTION: Agenda was adopted.

MOTION CARRIED

Ayes: Directors Osborne, Coco, Prada, George and Day

COMMUNICATIONS

General Manager's Employee Recognition

1) Awards and Recognitions
   a) Congratulations, Eric Parker. Eric has been promoted to the position of Customer Field Technician II in the Meter Services Division.

APPROVE CONSENT CALENDAR

ACTION: Consent Calendar was approved.

MOTION CARRIED

Ayes: Directors Coco, Prada, Osborne, George and Day

PUBLIC COMMENT

None

COMMUNICATIONS

Board of Directors

Director Day commented on his recent conversations with two ratepayers.

Director Osborne commented on a recent correspondence from ACWA JPIA regarding the District's workers compensation rating and facility safety and security efforts.

Director George spoke about his recent attendance at the ACWA conference and several sessions that he attended, including presentations by District staff.

Clerk to the Board
None

General Manager
2) Staff Reports and Updates
The General Manager summarized meetings with USBR and Westlands Water District at the ACWA conference. He also congratulated staff on their participation in leadership roles during the ACWA conference.

CONSENT CALENDAR

1. **Finance (Pasquarello)**
Ratification of EID General Warrant Registers for the periods ending April 19 and April 26, 2016, and Board and Employee Expense Reimbursements for these periods.

ACTION: Option 1: Ratified the EID General Warrant Registers as submitted to comply with Section 24600 of the Water Code of the State of California. Received and filed Board and Employee Expense Reimbursements.

MOTION CARRIED
Ayes: Directors Coco, Prada, Osborne, George and Day

2. **Clerk to the Board (Sullivan)**
Approval of the minutes of the April 25, 2016, regular meeting of the Board of Directors.

ACTION: Option 1: Approved as submitted.

MOTION CARRIED
Ayes: Directors Coco, Prada, Osborne, George and Day

3. **Finance (Pasquarello)**
Investment Report for the quarter ended March 31, 2016.

ACTION: Option 1: Received and filed the Investment Report for the quarter ended March 31, 2016.

MOTION CARRIED
Ayes: Directors Coco, Prada, Osborne, George and Day

4. **Engineering (Mueller)**
Consideration of a resolution for appointments to the Cosumnes American Bear Yuba Joint Powers Authority (CABY JPA) Board of Directors.

ACTION: Option 1: Approved Resolution No. 2016-011 appointing a Director and Alternate Director to the CABY JPA Board of Directors.

MOTION CARRIED
Ayes: Directors Coco, Prada, Osborne, George and Day

5. **Office of the General Counsel (P. Johnson)**
   Consideration of a resolution to authorize execution of an easement quitclaim to property owner Jeffrey A. Cook for portions of Gold Hill Ditch. [APNs: 323-410-61, 323-410-62, 321-140-07, and 323-410-17].

   ACTION: Option 1: Adopted Resolution No. 2016-012 approving and authorizing execution of the Easement Quitclaim as submitted.

   MOTION CARRIED
   Ayes: Directors Coco, Prada, Osborne, George and Day

6. **Engineering (T. Sullivan)**
   Consideration of award of a construction contract to Trimark Associates Inc. in the not-to-exceed amount of $89,987; and authorize total funding of $126,501 for the El Dorado Hills Wastewater Treatment Plant Solar Rehabilitation Project No. 15023.01.

   ACTION: Option 1: Awarded a construction contract to Trimark Associates Inc. in the not-to-exceed amount of $89,987; and authorized total funding of $126,501 for the El Dorado Hills Wastewater Treatment Plant Solar Rehabilitation Project No. 15023.01, Contract No. 16-04.

   MOTION CARRIED
   Ayes: Directors Coco, Prada, Osborne, George and Day

END OF CONSENT CALENDAR

INFORMATION ITEMS

7. **Human Resources / Office of the General Counsel (Perez / Poulsen)**
   Employee benefits summary and funding of pension and healthcare obligations.

   Public Comment: Darwin Thorne, El Dorado Hills
   Ray Myers

   ACTION: None – Information only.

8. **Finance (Price)**
   March 31, 2016 Financial Update.

   ACTION: None – Information only.

ACTION ITEMS

9. Engineering (Mueller)

Consideration to adopt a resolution terminating the Stage 2 Water Warning.

Public Comment: Craig Schmidt, Placerville

ACTION: Option 2: Took other action as directed by the Board.
Adopted Resolution No. 2016-013 terminating the Stage 2 Water Warning as presented by staff, and included "…and to support the District's continued commitment to meeting its 20x2020 conservation mandate"; affirming the District's commitment to meet the state's 20% by 2020 conservation mandate.

MOTION CARRIED
Ayes: Directors Day, Osborne, Prada, George and Coco

10. Engineering (Wells)

Consideration of a professional services agreement with Psomas in the not-to-exceed amount of $167,704 for the GIS and CMMS Integration Project and authorize total funding of $207,704; Project No. 14035.

ACTION: Option 1: Awarded a professional services contract to Psomas in the not-to-exceed amount of $167,704 and authorized total funding of $207,704 for the GIS and CMMS Integration Project, Project No. 14035.

MOTION CARRIED
Ayes: Directors Prada, Coco, Osborne, George and Day

11. Operations (Washko)

Consideration of a professional services agreement with Excelchem Environmental Laboratory in the not-to-exceed amount of $247,607 over three years to perform wastewater and recycled water regulatory laboratory analyses for the District.

ACTION: Option 1: Awarded a professional services agreement with Excelchem Environmental Laboratory in the not-to-exceed amount of $247,607 over three years to perform wastewater and recycled water regulatory laboratory analyses for the District.

MOTION CARRIED
Ayes: Directors Day, Prada, Osborne, George and Coco

CLOSED SESSION

A. Closed session pursuant to Government Code section 54957.6 (Cumpston)

Conference with Labor Negotiators pursuant to Government Code Section 54957.6

Agency Negotiators: Jack Hughes, Jim Abercrombie, Tom Cumpston, Brian Poulsen, Jose Perez, Mark Price

Employee Organization: Association of El Dorado Irrigation District Employees (general and engineer bargaining units)

ACTION: The Board conferred with and gave direction to its negotiating team but took no reportable action.

REVIEW OF ASSIGNMENTS

Director Coco requested a projection of future pension costs based on actuarial forecasts.

ADJOURNMENT

President George adjourned the meeting at 1:55 P.M.

_____

Bill George
Board President
EL DORADO IRRIGATION DISTRICT

ATTEST:

_____

Jennifer Sullivan
Clerk to the Board
EL DORADO IRRIGATION DISTRICT

Approved: _____

CONSENT ITEM NO. 3
May 23, 2016

EL DORADO IRRIGATION DISTRICT

Subject: Funding approval for District Capital Improvement Plan (CIP) Projects.

Previous Board Action:

October 13, 2015 – The Board adopted the 2016-2020 CIP, subject to available funding.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

Staff advised that each CIP project would be presented to the Board for funding approval.

Summary of Issue:

Board approval is required to authorize CIP funding prior to staff proceeding with work on the projects.

Staff Analysis/Evaluation:

The CIP project identified in Table 1-1 on page 2 requires immediate funding.

Funding Source:

The primary funding source for the District CIP projects are listed in Table 1-1. Table 1-1 also lists the projects currently in progress and the amount of funding requested.

The CIP project descriptions for these projects are also attached for review. (Attachment A)

Table 1-1
CIP Funding Request

	Project Name and Number	2016-2020 CIP Plan[1]	Funded to Date	Actual Costs to date[2]	Amount Requested	Funding Source
1.	**PLC Replacement Program 14027**	**$285,959**	**$71,562**	**$78,943**	**$11,300**	**100% Water rates**
1.	**PRS Replacement Program 16024**	**$619,114**	**$34,933**	**$31,541**	**$50,000**	**100% Water rates**
	TOTAL FUNDING REQUEST				**$61,300**	

[1] Includes all existing costs plus any expected costs in the 5 year CIP Plan.
[2] Actual costs include encumbrances.

The following section contains a brief breakdown and description of the projects in the table. For complete description of the CIP projects see Attachment A.

CIP Funding Request

Project No.	14027	**Board Date**	5/23/2016
Project Name	PLC Replacement Program		
Project Manager	Strahan		

Budget Status	**$**	**%**
Funded to date	$ 71,562	--
Spent to date	$ 78,943	100%
Current Remaining	$ (7,381)	0%

Funding Request Breakdown	**$**
Consulting services	$ 9,600
Materials	$ 500
Capitalized labor	$ 1,200
Total	$ 11,300

Funding Source
100% Water rates

Description
The project involves the eventual replacement of 8 antiquated and end of life Tesco PLC control panel/radio units. These units need to be replaced in groups due to specific network connectivity between facilities and remote sites. This funding is to cover internal capitalized labor, on-call consultant for design and miscellaneous materials for the replacement of the Dolomite and Union Mine Pump Station Tesco LIC series PLC's. Once the design is complete a final funding request will be submitted for the construction of the replacement PLC's.

CIP Funding Request

Project No.	16024	**Board Date**	5/23/2016
Project Name	PRS Replacement Program		
Project Manager	Strahan		

Budget Status	**$**	**%**
Funded to date	$ 34,933	--
Spent to date	$ 31,541	90%
Current Remaining	$ 3,392	10%

Funding Request Breakdown	**$**
Materials	$ 50,000
Total	$ 50,000

Funding Source
100% Water rates

Description
The District has numerous pressure reducing stations throughout the service area to keep line pressures within acceptable ranges as it travels from Pollock Pines down to El Dorado Hills. Loss of pressure control or valve failure can result in extensive water line damage or complete failure. This program will fund stations to be removed, replaced or rehabilitated to maintain service reliability throughout the District. This funding request is for the rehabilitation of EDM1PRS5 and for replacement of end-of-life flow meters on both EDM1 and EDM2 transmission mains.

Board Decisions/Options:

Option 1: Authorize funding for the CIP projects as requested in the amount of $61,300.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff/General Manager Recommendation:

Option 1

Support Documents Attached:

Attachment A: Capital Improvement Project Descriptions and Justifications.

Tony Pasquarello
Accounting Manager

Dana Strahan
Drinking Water Operations Manager

Tom McKinney
Operations Director

Mark Price
Finance Director (CFO)

Jim Abercrombie
General Manager

2016 CAPITAL IMPROVEMENT PLAN Program: Water

Project Number: 14027

Project Name: PLC Replacement

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Strahan **Board Approval:** 10/13/15

Project Description:

The project involves replacing 8 antiquated and end of life cycle Tesco PLC control panels / radio units. The current units are controllers and radio units. Replacing these units fixes two issues at once. The new PLCs will have a separate modern radio, greatly stabilizing the network and control system. Additionally this also includes the removal of one Tesco repeater site (Res12) and two master Tesco PLCs (Res1 & Res A). Some of these sites are dependent on each other for proper control and radio communication. This interdependency makes it infeasible to replace these sites one at a time. This must be a coordinated effort requiring labor beyond our current staffing levels.

The following sites need to be replaced: Gold Hill Intertie, Dolomite, Union Mine PS, Pollock Pines, Sportsman's PS, Moose Hall Res, Res 2. (3) of these sites can be replaced with a smaller and less expensive control panel - Pollock Pines, Res A (incorporate into the current CL), Res 2 (remote I/O). The remaining (5) sites will need full control panels. These Tesco units are long past life cycle replacement by about 10 to 15 years.

Basis for Priority:

These units are transmitting on an illegal frequency under the FCC's new regulations, as of 2013, and are not capable of being modified to meet compliance. EID has been notified by the FCC to modify all of our licensed frequency to meet narrow banding requirements. The replacement of these units will bring our radio system into compliance and stabilize a fragile water distribution control system. In addition to the great risk of interrupted service to our customers, EID is needlessly spending a lot of resources (Mechanics, Operators, Electrician, & Control Technicians) in an attempt to keep this system running. New parts have not been available for this technology for years. Technical support is not available and the operating software is not supported.

Project Financial Summary:			
Funded to Date:	$ 71,562	Expenditures through end of year:	$ 125,959
Spent to Date:	$ 60,959	2016 - 2020 Planned Expenditures:	$ 160,000
Cash flow through end of year:	$ 65,000	Total Project Estimate:	$ 285,959
Project Balance	$ (54,397)	Additional Funding Required	$ 214,397

Description of Work	Estimated Annual Expenditures					
	2016	2017	2018	2019	2020	Total
Design & PM						$ -
Construction	$ 80,000	$ 80,000				$ 160,000
						$ -
						$ -
TOTAL	$ 80,000	$ 80,000	$ -	$ -	$ -	$ 160,000

Funding Sources	Percentage	2016	Amount
Water Rates	100%		$134,397
			$0
			$0
Total	100%		$134,397

Funding Comments:

2016	CAPITAL IMPROVEMENT PLAN	Program:	Water

Project Number: PLANNED

Project Name: Pressure Reducing Station Replacement Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Strahan **Board Approval:** 10/13/15

Project Description:

The District has numerous pressure reducing stations throughout the service area to keep line pressures within acceptable ranges as it travels from Pollock Pines down to El Dorado Hills. This program is to identify specific stations to remove, replace or upgrade to maintain service reliability throughout the District. Many stations have suffered extensive corrosion and will be difficult to maintain in the future. Loss of pressure control or valve failure can result in extensive water line damage or complete failure. Program management expenditures identified include prioritizing and designing each PRS replacement. Actual PRS replacement costs for each individual station will be brought to the Board for specific approval.

Basis for Priority:

Existing stations are incurring increasing maintenance costs and reduced service reliability due to age and degradation.

Project Financial Summary:			
Funded to Date:	$ 104,047	Expenditures through end of year:	$ 69,114
Spent to Date:	$ 69,114	2016 - 2020 Planned Expenditures:	$ 550,000
Cash flow through end of year:	$ -	Total Project Estimate:	$ 619,114
Project Balance	$ 34,933	Additional Funding Required	$ 515,067

Description of Work	Estimated Annual Expenditures					
	2016	2017	2018	2019	2020	Total
Study/Planning	$10,000	$10,000	$10,000	$ 10,000	$ 10,000	$ 50,000
Design						$ -
Construction Costs	$100,000	$100,000	$100,000	$100,000	$100,000	$ 500,000
						$ -
TOTAL	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 550,000

Funding Sources	Percentage	2016 Amount
Water Rates	100%	$75,067
		$0
		$0
Total	100%	$75,067

Funding Comments: Projects involve upgrade of existing facilities and no planned increase in capacity, therefore funding is 100% water rates.

CONSENT ITEM NO. 4
May 23, 2016

EL DORADO IRRIGATION DISTRICT

SUBJECT:

Consideration to authorize funding of $458,370 for the replacement of eight computer systems hosting District supervisory control and data acquisition (SCADA) software applications.

Previous Board Action:

- September 27, 2010 - Approved the purchase of computer upgrades for process control management of water treatment plants, wastewater collections and treatment plants, and the Project 184 canal system and powerhouse.

Board Policies (BP) Administrative Regulations (AR) and Board Authority:

BP 3060 and AR 3061.04 require Board approval for all purchases over $50,000.

AR 3061.07 allows for "piggyback" purchases of goods or services when the pricing has been previously established by another government agency using the competitive bidding or negotiation process.

Summary of Issues:

The District utilizes multiple Supervisory Control and Data Acquisition (SCADA) systems to manage automated processes that treat drinking water, wastewater, and recycled water to regulatory standards. SCADA also manages drinking water distribution, wastewater collections, raw water conveyance and hydroelectric power generation. Each SCADA application is considered mission critical and designed to meet specific operational and regulatory requirements related to utility management and information reporting. SCADA systems are complex environments of integrated sub-systems and components, including an extensive array of instrumentation and industrial controllers, numerous software products, and multiple host computer systems.

Staff is requesting funding to replace eight of the eleven computer systems currently hosting the District's SCADA software applications. These computer systems are nearing the end of their useful life and need proactive replacement to minimize the potential impact to District operations. SCADA systems have proven to provide more reliable service delivery, lower operating cost, and greater regulatory compliance than the non-automated approaches that preceded this technology.

The requested amount of $458,370 is in excess of the General Manager's authorization of $50,000 and therefore requires Board approval. This replacement is the major expenditures identified for 2016 in the project entitled, "Shared IT Computing Reliability Program" in the District's adopted Capital Improvement Plan (CIP).

Staff Analysis/Evaluation:

Operations' Reliance on SCADA
The District's Drinking Water, Wastewater/Recycled Water, and Hydroelectric/Watershed Divisions now depend heavily on SCADA to support mission critical aspects of their operations, including:

- Around-the-clock operations of the many integrated systems that treat, convey, and collect water and wastewater
- Around-the-clock quality monitoring and control of our drinking water supplies
- Meeting mandatory regulatory reporting requirements on a daily, weekly, monthly, quarterly, and annual basis
- Automating routine tasks to free staff to focus on more productive activities
- Providing faster access to meaningful information to make better decisions

The District's multiple SCADA applications allows an operator to monitor and control processes that are distributed across one or more plants, and among various remote sites. SCADA reduces or eliminates the need for staff to visit each site to inspect, make adjustments, or collect data. Other generally recognized benefits of SCADA systems include:

- Reduced operational costs
- Immediate knowledge of system performance
- Improved process efficiency and performance
- Extended equipment life
- Reduced equipment repairs
- Reduced labor hours required for troubleshooting or service
- Reduced labor hours required for data collection and report generation
- Improved regulatory compliance
- Enabling staff to perform other important tasks

Given the degree of reliance District operations has on SCADA applications in place today, it is necessary to ensure that critical IT infrastructure supporting these applications, comprised of data, computer-based equipment, software, networks, service vendors, and well-trained staff, are reliably maintained and regularly replaced to remain available and performing optimally.

The Integrated SCADA System
The District's extensive service area and varied operational requirements necessitate eleven different SCADA applications. Each SCADA application is comprised of highly integrated hardware and software components designed and configured to meet the specific operational and regulatory requirements of the systems and processes it serves. The District's SCADA application software includes:

- Products to collect and act on a steady stream of sensory data
- Products to visualize and report on current and historical system status
- Products to alert operations staff of potential problems needing attention

- Products to furnish secure remote access to operations staff
- Databases to record conditions and events
- Operating system software for the host equipment

To effectively fulfill their particular roles, the SCADA software products are each integrated to a range of specialized equipment, including transducers, spectrum analyzers, electro-chemical sensors, cameras, receivers, transmitters, repeaters, switches, programmable logic controllers, and computers – as well as to other software products. In order to achieve the necessary high level of reliability and also maintain operational efficiency, all of the associated equipment, operating software, and SCADA application software are highly standardized and managed as one integrated system.

Each SCADA application has a stringent reliability requirement of less than 1 hour of downtime per year to ensure public health and safety, environmental protection, and regulatory compliance. That standard necessitates locating a host computer system at the plant or primary facility it serves. Though a centralized computing architecture would reduce cost and ease maintenance, the wide area network communications serving the District's plants cannot guarantee the desired level of SCADA operational reliability. As a result, a distributed architecture of standardized and integrated computer systems configured for high-availability is necessary.

The District's current SCADA applications are:

Drinking Water

- El Dorado Hills Water Treatment Plant and associated distribution system / Folsom Lake Pumping Station
- Reservoir A Water Treatment Plant and associated distribution system / Sly Park Dam outlet works
- Reservoir 1 Water Treatment Plant and associated distribution system / Forebay Dam outlet works
- Strawberry Water Treatment Plant and Distribution System

Wastewater / Recycled Water

- Sewer Collections System
- Deer Creek Wastewater Treatment Plant System
- El Dorado Hills Wastewater Treatment Plant System
- Camino Heights Wastewater Treatment Plant System

Hydro / Power

- Project 184 Canal Conveyance System / South Fork American River Diversion Dam and Watershed
- Akin Powerhouse System

Common

- Headquarters Historian System

Currently only the Headquarters and Camino Heights SCADA applications are hosted on newer computer systems that do not require replacement, and the replacement of the El Dorado Hills Water Treatment Plant SCADA computer system is already underway. The remaining eight computer systems hosting SCADA applications (approximately 70% of the District's total SCADA computing infrastructure) are now more than five years old. Though they have proven to be reliable to date, they have reached the end of their useful life and can no longer adapt to

meet pressing needs. Manufacturer support of many critical components of these systems ends on December 31, 2016; for other critical components, support ends in 2017. Therefore, staff is requesting funding to replace them.

Proposed solution
Staff recommends proactively replacing the eight aging SCADA computer systems before manufacturer support ceases and they become obsolete.

To ensure no more than one hour of downtime per year, the proposed replacement computer systems utilize District standards and best practices for high availability computing, include virtualization and clustering technologies that have already proven capable of achieving this required performance in the current generation of SCADA computers. Each proposed computer continues to utilize a clustering architecture of two rack servers sharing a single storage system, with each component having numerous high availability features. The continued use of virtualization software further aids to minimize downtime while also increasing efficiency through automation and enabling multiple SCADA application software products to share the computer. Clustering and virtualization should also allow District IT staff to transition to the new equipment without any SCADA downtime.

Major components of the proposed replacement computer systems include:

- Cisco UCS C220 M4 High-Density Rack Server (2)
- EMC VNXe 3200 Unified Storage System (1)
- VMware vSphere 6 Enterprise Virtualization Software

At a purchase price of approximately $35,000 each, the proposed replacement computers provide roughly twice the capacity and performance of the current computers. This purchase price is nearly 40% less than what the District paid for the SCADA computers these are proposed to replace. The falling prices are attributed to growing competition in this segment of the computer market. Though relatively small in size and stature compared to their relatives residing in data centers, the proposed computers can be further expanded if necessary. This scalability helps ensure that the new units will be able to meet current and future operational needs over their expected five-year life span.

The proposed replacement requires total funding of $458,370. Of that total, $280,700 is required to purchase the computer systems, $136,000 is required for capitalized staff time to install and configure the equipment and integration functions, and a 10% contingency of $41,670 is included for incidental materials or labor to complete installation tasks. The total funding also includes five years of support for the expected life of the EMC unified storage system equipment at no additional cost to the District. This replacement is the major expenditure identified for 2016 in the Shared IT Computing Reliability Program CIP project.

The proposed equipment purchase would piggyback several competitively bid contracts solicited and awarded by another government agency to ensure the lowest costs have been attained while reducing staff time and effort related to procurement. The contracts recommended by staff are a type of Leveraged Procurement Agreement (LPA) administered by the State of California Department of General Services (DGS) and the National Joint Powers Alliance (NJPA). LPA contracts are commonly used as one of the State government's main procurement vehicles for leveraging its buying power. The piggyback contracts that would be used are:

- NJPA 100614 for Cisco PC Servers at 60% off hardware list price and VMware licenses
- DGS 1-13-70-10C for EMC Entry Level Data Storage at 70% off hardware, 80% off software, and 100% off support list price

The cumulative discount for the proposed purchase is approximately 65% and more than $400,000 off of list pricing.

IT staff proposes that each replacement computer installation be timed to avoid the peak seasonal use period of the plant or system the computer supports. This is an important consideration to ensure plant and system operations staff is able to allocate the time and attention necessary to thoroughly test their SCADA applications using the replacement computer system and its extensive integrations before it is placed into production service.

The proposed implementation strategy will spread the entire project out over approximately 6 months. Due to this extended schedule, IT staff recommends the replacement computers be purchased individually for each SCADA application, as needed, rather than in a single mass procurement. The use of a piggy-back contract ensures quoted prices remain consistent throughout the project, while the "just in time" approach ensures that expensive computer system components are not sitting idly for up to 6 months – which represents about 10% of the equipment's useful life.

Because the District has standardized strategic and critical products within the IT infrastructure and invested in technical training for IT staff to support the products the District uses, ongoing costly consultant labor is minimized and District IT staff – who are already understand the District's operational needs and existing SCADA system – are also skilled and capable to perform nearly all operations and maintenance tasks required to keep the IT infrastructure performing optimally.

Risks of deferring this project
Computer systems hosting SCADA applications are one of the more complex integrations of multiple pieces of equipment and software that IT staff must support, and include highly specialized processors, arrays, controllers, switches, and associated operating software. Therefore, manufacturer support services are an essential supplement to the IT staff's expertise to ensure ongoing near-continuous availability and optimal performance of these critical IT assets.

The rapid obsolescence of technology causes manufacturers to cease their support for older technology and focus their resources on enhancing and supporting newer products. Once a manufacturer ceases support on any one of the multiple pieces of equipment or operating software in an integrated system, that component becomes the weakest link and threatens the entire integrated system and the services relying on it with extended failure. All manufacturer support for the first critical component in the current integrated SCADA computer infrastructure end on December 31, 2016. Other critical pieces of equipment and software will soon follow suit and reach their end of life in 2017.

Electronics degrade with age and the corresponding risk of failure increases substantially over time. Once a manufacturer ceases support on a piece of equipment, only aftermarket options

remain to supply new old stock, used or refurbished components, and expertise to repair or support the technology. Because certain parts may be in short supply or specialized diagnostic equipment and expertise unavailable, aftermarket suppliers typically cannot guarantee that mission critical systems will continue to operate at nearly continuous availability.

Since their initial deployment over five years ago, utilization on each of the computer systems has grown substantially and several are now running near or at capacity during normal use. Operating a computer in an overloaded condition leaves it without resources available to take over if a component fails, creating longer recovery times when problems occur and increasing the risk of a small component failure triggering a chain of events that leads to total system failure.

Lagging performance is a less dramatic but more chronic risk. Several of the existing systems experience periods of slow performance during peak demand. Because of virtualization and the high degree of shared resource use within the computer system architecture, over-taxed resources affect multiple virtual servers, causing several different database or software applications to slow at the same time. Operating a computer system in an overloaded condition decreases performance, which correlates to a loss of productivity for the staff and processes the system supports - meaning tasks take longer to complete and processes may time-out or fail.

Board Decisions/Options:

Option 1: Authorize funding of $458,370 for the replacement of eight computer systems hosting District supervisory control and data acquisition (SCADA) software applications.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff / General Manager Recommendation:

Option 1.

Supporting Documents Attached:

Attachment A: CDW-G Quote GXJW083
Attachment B: Kovarus Quote E151106MTv2
Attachment C: Shared IT Computing Reliability Program CIP Project Description

Tim Ranstrom
Information Technology Director

Tom McKinney
Operations Director

Mark T. Price, CPA
Finance Director

Thomas D. Cumpston
General Counsel

Jim Abercrombie
General Manager

CDW·G

CDWG.com | 800.594.4239

OE400SPS

SALES QUOTATION

QUOTE NO.	ACCOUNT NO.	DATE
GXJW083	8608998	3/28/2016

BILL TO:
INFORMATION TECHNOLOGY
2890 MOSQUITO RD BLDG P-6

Accounts Payable
PLACERVILLE , CA 95667-4761

Customer Phone #530.642.4075

SHIP TO:
EL DORADO IRRIGATION DISTRICT
Attention To: INFORMATION TECHNOLOGY
2890 MOSQUITO RD BLDG P-6

PLACERVILLE , CA 95667-4761
Contact: JAMES PROCTOR 530.642.4076

Customer P.O. # UCSC220M4 QUOTE

ACCOUNT MANAGER	SHIPPING METHOD	TERMS	EXEMPTION CERTIFICATE
JON CACIOPPO 877.603.6330	DROP SHIP-GROUND	MasterCard/Visa Govt	

QTY	ITEM NO.	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
2	3935190	CIS DIR UCS UCS-SP-C220M4-S2 Mfg#: UCS-SP-C220M4-S2 Contract: NJPA 100614#CDW Technology Catalog 100614#CDW $699.84 TAX: PLACERVILLE, CA 8.0000% $699.84	4,373.99	8,747.98
8	3909150	CIS DIR UCS UCS-SPM-M16-RUA Mfg#: UCS-SPM-M16-RUA Contract: NJPA 100614#CDW Technology Catalog 100614#CDW $138.23 TAX: PLACERVILLE, CA 8.0000% $138.23	215.99	1,727.92
2	3886092	CIS DIR UCS C1F2PUCSK9-UCS-SPM Mfg#: C1F2PUCSK9-UCS-SPM Contract: NJPA 100614#CDW Technology Catalog 100614#CDW Electronic distribution - NO MEDIA TAX: PLACERVILLE, CA .0000% $.00	591.06	1,182.12
2	2881006	CIS DIR UCS UCSC-PCIE-IRJ45= Mfg#: UCSC-PCIE-IRJ45= Contract: NJPA 100614#CDW Technology Catalog 100614#CDW TAX: PLACERVILLE, CA 8.0000% $72.83	455.17	910.34
4	2231637	CIS DIR UCS A03-D300GA2= Mfg#: A03-D300GA2= Contract: NJPA 100614#CDW Technology Catalog 100614#CDW TAX: PLACERVILLE, CA 8.0000% $86.90	271.56	1,086.24
2	3935191	CIS DIR 1YR SNET 8X5XNBD Mfg#: CON-SNT-SMC220S2 Contract: NJPA 100614#CDW Technology Catalog 100614#CDW Electronic distribution - NO MEDIA TAX: PLACERVILLE, CA .0000% $.00	304.27	608.54
2	3645574	VMWARE VSPH 6 ENT + 1 PROC Mfg#: VS6-EPL-C Contract: NJPA 100614#CDW Technology Catalog 100614#CDW Electronic distribution - NO MEDIA TAX: PLACERVILLE, CA .0000% $.00	3,295.00	6,590.00
2	3645582	VMWARE PSNS VSPH 6 ENT + 1 PROC 1Y Mfg#: VS6-EPL-P-SSS-C Contract: NJPA 100614#CDW Technology Catalog 100614#CDW Electronic distribution - NO MEDIA TAX: PLACERVILLE, CA .0000% $.00	828.12	1,656.24

----------SPECIAL INSTRUCTIONS----------
TAX:MULTIPLE TAX JURISDICTIONS APPLY
TAX: CONTACT CDW FOR TAX DETAILS

SUBTOTAL	22,509.38
FREIGHT	0.00
TAX	997.80

US Currency

TOTAL **23,507.18**

CDW Government
230 North Milwaukee Ave.
Vernon Hills, IL 60061

Fax: 847.371.8831

Please remit payment to:
CDW Government
75 Remittance Drive
Suite 1515
Chicago, IL 60675-1515

Attachment B

Sales Proposal

KOVARUS
Integrated IT Expertise

Date	Quote #
4/1/2016	E151106MTv2

2000 Crow Canyon Place, Suite 250
San Ramon CA 94583
650-392-7848
www.kovarus.com

Bill To	Ship To
Lisa Gay El Dorado Irrigation District Send Invoices to: lgay@eid.org 2890 Mosquito Rd Placerville CA 95667	Lisa Gay El Dorado Irrigation District Send Invoices to: lgay@eid.org 2890 Mosquito Rd Placerville CA 95667

Expiration Date	Account Manager	Terms	Contract Manufacturer
6/4/2016	Earp, Rick A	Net 45	EMC

Contract Number	Contract Expiration Date	Contract Website
DGS 1-13-70-10C (Cat C)	6/18/2017	https://www.bidsync.com/DPX?ac=agencycontview&contid=106813

Ln	Qty	Model #	Description	List Price	Unit Price	Ext. Price	Discount %	Tax Rate	Item Type
1	1	CE-EVALPAKVNXE	VNXE ELEARNING VALUEPAK	500.00	398.95	398.95	20.21%	0.0%	Services
2	2	V32-PWR-12	2 C13 PWRCRD W/ NEMA 5-15 PLUGS 125V 10A	0.00	0.00	0.00	47.5%	0.0%	Hardware
3	1	V32D12AN5QM12	VNXE3200;2XSP DPE;25X2.5 DS;12X900GB 10K	14,488.00	7,606.20	7,606.20	47.5%	8.0%	Hardware
4	1	V6-2S10-900	VNXE 3200 900GB 10K SAS 25X2.5	790.00	414.75	414.75	47.5%	8.0%	Hardware
5	1	WU-PREHWE-02	PREMIUM HW SUPPORT-WARR UPG	2,301.48	0.00	0.00	100.0%	0.0%	Support
6	1	W-BASHW-001	BASIC HARDWARE WARRANTY	0.00	0.00	0.00	47.5%	0.0%	Hardware
7	1	M-PREHWE-002	PREMIUM HARDWARE SUPPORT	3,087.12	0.00	0.00	100.0%	0.0%	Support
8	1	458-000-868	VNXE3200 REMOTE PROTECTION=IC	0.00	0.00	0.00	79.55%	0.0%	Software
9	1	M-PRESWE-002	PREMIUM SW SUPPORT	0.00	0.00	0.00	100.0%	0.0%	Support
10	1	458-000-402	VNXE3200 FAST SUITE=IC	0.00	0.00	0.00	79.55%	0.0%	Software
11	1	M-PRESWE-002	PREMIUM SW SUPPORT	0.00	0.00	0.00	100.0%	0.0%	Support
12	1	458-000-400	VNXE3200 BASE DUAL SP ECOSYS=IC	4,880.00	997.96	997.96	79.55%	8.0%	Software
13	1	M-PRESWE-002	PREMIUM SW SUPPORT	4,392.00	0.00	0.00	100.0%	0.0%	Support
14	1	VNXEPERFTB	VNXE OE PER TB PERFOR FOR VNXE3200	428.00	87.53	87.53	79.55%	8.0%	Software
15	1	W-BASSW-001	BASIC SOFTWARE WARRANTY	0.00	0.00	0.00	100.0%	0.0%	Support
16	1	WU-PRESWE-02	PREMIUM SOFTWARE SUPPORT-WARRANTY UPG	0.00	0.00	0.00	100.0%	0.0%	Support
17	1	M-PRESWE-002	PREMIUM SW SUPPORT	74.16	0.00	0.00	100.0%	0.0%	Support
18	1	458-001-361	VNXE3200 RP4VMS=IB	0.00	0.00	0.00	79.55%	0.0%	Software
19	1	M-PRESW-001	PREMIUM SOFTWARE SUPPORT	0.00	0.00	0.00	100.0%	0.0%	Support
20	1	458-001-122	VNXE3200 RP/SE PRODUCT=IC	0.00	0.00	0.00	79.55%	0.0%	Software
21	1	M-PRESW-001	PREMIUM SOFTWARE SUPPORT	0.00	0.00	0.00	100.0%	0.0%	Support
22			►Maintenance Included: 5 YEARS PREM						

Notes: This proposal is valid for 90 days. Payment terms are Net 45 days. F.O.B. Destination Freight Prepaid. Kovarus utilizes the Commercial Useful Function (CUF) of Castro International Consulting (CIC) for both DVBE as well as Certified California Small Business (Ref#: 1744407). For further information, please contact your Kovarus representative.
►NEW systems support covers 5 Yrs PREM HW/SW◄
For quote refresh/updates, please reach out to: ►Sabra Hill | shill@kovarus.com |O: 916-248-4017 |F: 916-436-3228◄

Subtotal	9,505.39
Total Tax	728.52
Total	$10,233.91

ACCEPTED BY: _____ DATE: _____ PURCHASE ORDER: _____

2016 CAPITAL IMPROVEMENT PLAN Program: General District

Project Number: PLANNED

Project Name: Shared IT Computing Reliability Program

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Ranstrom **Board Approval:** 10/13/15

Project Description:

This ongoing project maintains the reliability and performance of the shared computing environments required to conduct daily District business by replacing end-of-life or over-utilized equipment and systems, including host, data storage and backup systems, and specialized resources to manage the unique requirements of the computing environment.

Major actions in 2016 include:
- Replace end of life server equipment that hosts SCADA software applications at plants and HQ data center.
- Replace end of life DMZ server equipment that hosts select District information and services accessed from the internet.
- Replace end of life high-end engineering PCs with a more reliable and scalable graphics-enhanced virtual desktop solution.
- Implement an event log aggregation and problem alerting solution for the virtual computing environment.
- Consulting to assist with major version upgrades to server virtualization software in conjunction with these needed equipment replacements. Major version upgrades typically introduce a number of significant changes and enhancements to the software, and are necessary to ensure ongoing reliability, security, and support.

Basis for Priority:

Maintain the reliability and performance of the current shared computing environment used to perform operations, customer service, billing, financial management, regulatory reporting, security, and other critical and essential functions of the district.

Project Financial Summary:			
Funded to Date:	$ -	**Expenditures through end of year:**	$ -
Spent to Date:	$ -	**2016 - 2020 Planned Expenditures:**	$ 2,245,000
Cash flow through end of year:		**Total Project Estimate:**	$ 2,245,000
Project Balance	$ -	**Additional Funding Required**	$ 2,245,000

Description of Work	**Estimated Annual Expenditures**					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Core computing and central data storage	$ 120,000	$ 210,000	$ 40,000	$ 40,000	$ 280,000	$ 690,000
Distributed computing and data storage	$ 315,000				$ 130,000	$ 445,000
Virtual desktop computing	$ 50,000	$ 30,000	$ 200,000	$ 240,000		$ 520,000
Computing environment and management	$ 50,000	$ 50,000	$ 150,000	$ 210,000	$ 130,000	$ 590,000
TOTAL	$ 535,000	$ 290,000	$ 390,000	$ 490,000	$ 540,000	$ 2,245,000

Funding Sources	**Percentage**	**2016**	**Amount**
Water Rates	60%		$321,000
Wastewater Rates	40%		$214,000
			$0
Total	**100%**		**$535,000**

Funding Comments: Funding carried over from prior year in CIP, previously part of the Business IT Infrastructure Reliability Program.

CONSENT ITEM NO. 5
May 23, 2016

EL DORADO IRRIGATION DISTRICT

Subject:

Consideration to authorize staff to renew the District's SCADA annual software support agreement for Wonderware® ArchestrA System Platform from authorized Vendor Wonderware® NorCal in the not-to-exceed amount of $64,235.60.

Previous Board Action:

November 9, 2015: The Board adopted the 2015-2016 mid-cycle operations budget

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

BP 3060 and AR 3051.15 require Board approval for all purchases over $50,000.

Summary of Issue:

The District operates and maintains a sophisticated software based industrial automation system known as SCADA (Supervisory Control And Data Acquisition). The Wonderware® Industrial Platform suite has been deployed as the District's standard SCADA software solution since 2007. As with all software, routine patching, upgrades and factory support for trouble shooting are required to ensure the system functions reliably. The renewal of this software support agreement ensures staff receives timely and competent technical support for this very complex suite of software, and that periodic software updates are provided to maintain the optimal operation of the Wonderware® software.

The requested amount of $64,235.60 is in excess of $50,000 and therefore requires Board approval. This requested amount is budgeted in the approved operating budget of the Operations Department. This is not a request for additional funding.

Staff Analysis/Evaluation:

The District has been using the Wonderware® Industrial Platform SCADA software solution since 2007 to improve the efficiency and effectiveness of its business, treatment and operations processes. SCADA is considered a core application for the District and supports many business operations including the supervised control of all water, wastewater, recycled water and hydro operations. This includes data storage and data acquisition for regulatory and business reporting associated with these facilities.

Staff routinely needs timely and competent technical support for this very complex suite of software. In addition, periodic software updates are provided to maintain the optimal operation of the SCADA software, which is integrated to District facilities and other business applications.

Failure to renew the agreement would leave staff without essential technical support resources to assist them in with troubleshooting, maintenance, and best-practice application of the very complex and highly specialized SCADA software. Without these support resources, the reliability and functionality of the SCADA software and the integrations to other District information systems would likely degrade and fail over time. The loss of these capabilities would require staff to perform numerous tasks in less efficient ways and likely lead to regulatory excursions, increased labor expenses, lower levels of customer service, and greater risk of service interruptions that collectively far outweigh the cost of renewing the agreement.

Funding for this renewal is identified in the operations budget so there is no additional funding request associated with this item.

Wonderware® NorCal, Inc. is the only factory authorized vendor for Wonderware® software, support and licensing. Therefore, a single-source award is necessary.

Board Decision/Options:

Option 1: Authorize staff to renew the District's SCADA annual software support agreement for Wonderware® ArchestrA System Platform from authorized Vendor Wonderware® NorCal in the not-to-exceed amount of $64,235.60.

Option 2: Take other action as directed by Board.

Option 3: Take no action

Staff/General Manager's Recommendation:

Option 1.

Support Documents Attached:

Attachment A: Wonderware® NorCal Quote 158399.1

Tim Ranstrom
Information Technology Director

Dana Strahan
Drinking Water Operations Manager

Tom McKinney
Operations Director

Mark Price
Finance Director

Jim Abercrombie
General Manager

126 Mill Street
Healdsburg, CA 95448
(866) WONDER N
(866) 966-3376

QUOTE 158399.1 **ELDOR1**

WW CFA# 24979 Exp 06/30/2016

03/02/2016

Attachment A

Direct Delivered

Attn: **Jess Leanos**
EL DORADO IRRIGATION DISTRICT
direct (530) 642-4076

fax

From: Dani Vargas
dani.vargas@eandm.com
direct (707) 473-3101
main (866) 966-3376
fax (707) 473-3190

Ship To: EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO ROAD
PLACERVILLE, CA 95667

Bill To: EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO ROAD
PLACERVILLE, CA 95667

According to our records, your Invensys/ Wonderware Customer First Agreement # 24979 will expire on 06/30/2016

SiteID: 2301 El Dorado Irrigation District, 2890 Mosquito Rd., Placerville California 95667 ,

License(s) covered: 1270188, 255942, 1068757, 330896, 1270187, 355547, 1068705, 420336, 1068707, 420337, 1068709, 420338, 1068711, 420339, 1068706, 420340, 1068758, 480271, 1068704, 480272, 1068708, 480273, 1068710, 480274, 1068712, 480275, 1068713, 480276, 990309, 616434, 1068759, 781103, 1068760, 781104, 990310, 814371, 1068715, 1068714, 1068725, 1068716, 1068726, 1068717, 1068727, 1068718, 1068728, 1068719, 1068729, 1068720, 1068730, 1068721, 1068731, 1068722, 1068732, 1068723, 1068733, 1068724, 1068737, 1068734, 1068738, 1068735, 1068739, 1068736, 1068749, 1068741, 1068750, 1068742, 1068751, 1068743, 1068752, 1068744, 1068753, 1068745, 1068754, 1068746, 1068755, 1068747, 1068756, 1068748, 1068762, 1068761, 1213813, 1213812, 1213814, 1213815, 1213816, 1213817, 1213818, 1270185, 1270186, 1213822, 1213819, 1213823, 1213820, 1213824, 1213821, 1213826, 1213825, 1213830, 1213827, 1213831, 1213828, 1213832, 1213829, 1620795, 1620794, 1620797, 1620796, 1629045, 1629044, 480277, 616430, 616431, 616432, 616433, 776470, 781106, 781109, 797716, 797717, 814372, 877930, 877931, 877932, 877933, 877934, 877935, 877936, 877937, 877938, 877939, 877940, 877941, 877942, 877943, 877944, 971515, 1036221, 1036222, 1036223, 1036224, 1036225, 1036226, 1036227, 1036228, 1036229, 1036230, 1036231, 1036232, 1036233, 1036234, 1036235, 1036236, 1036237, 1068693, 1068694, 1068695, 1068696, 1068697, 1068698, 1068699, 1068700, 1068701, 1068702, 1068703, 1068740, 1069702, 1069703, 1078694, 1078695, 1136454, 1462609, 1493779, 1620798, 1620799

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1	10-7002R Customer FIRST # 24979 - Premium Level - Renewal EXP 06/30/2016	1 Estimated 1-2 Weeks	$58,725.00	$58,725.00
1	10-7008R Customer First # 24979 for AutoSave Renewal EXP 06/30/2016	1 Estimated 1-2 Weeks	$3,040.00	$3,040.00
			Sub-Total	$61,765.00

PO Number:
Duration: This quote is valid for 30 days. **FOB:** Healdsburg, CA
Freight: Prepaid and Add
Terms: Net 30 Days
Pages: 1 of 2

126 Mill Street
Healdsburg, CA 95448
(866) WONDER N
(866) 966-3376

QUOTE 158399.1

ELDOR1

WW CFA# 24979 Exp 06/30/2016

03/02/2016

Direct Delivered

Attn: **Jess Leanos**
EL DORADO IRRIGATION DISTRICT
direct (530) 642-4076

fax

From: Dani Vargas
dani.vargas@eandm.com
direct (707) 473-3101
main (866) 966-3376
fax (707) 473-3190

Ship To: EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO ROAD
PLACERVILLE, CA 95667

Bill To: EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO ROAD
PLACERVILLE, CA 95667

Base Quotation Pricing Summary

Freight is NOT included in this total. Your final invoice may include shipping charges!

Taxable:	$61,765.00
Non-Taxable:	$0.00
Subtotal:	$61,765.00
Tax (8.00%):	$2,470.60
Freight:	TBD
TOTAL:	**$64,235.60**

Availability:

- Part availability is subject to change and is based on the availability at the time this quote was created.
- Time in transit is subject to change depending on the "Ship To" address that is provided by the customer at the time the order is placed and the method in which customer requests that the part(s) ship.
- For "In Stock" parts, orders must be received by 3:00PM PST to ship same day.
- For Factory Stock parts, please allow approximately one week for delivery via our standard shipping methods.

PO Number:
Duration: This quote is valid for 30 days. **FOB:** Healdsburg, CA
Freight: Prepaid and Add
Terms: Net 30 Days
Pages: 2 of 2

CONSENT ITEM NO. 6
May 23, 2016

EL DORADO IRRIGATION DISTRICT

Subject:
Consideration to award competitive bid P16-04 to Doug Veerkamp General Engineering, Inc. to provide as-needed asphalt patch-paving services for one year for the not-to-exceed amount of $435,670.

Previous Board Action:
May 26, 2015: Board awarded a one-year extension for bid P13-01 to Doug Veerkamp General Engineering, Inc. for as-needed asphalt patch-paving for one year.

November 9, 2015: The Board adopted the 2015-2016 mid-cycle operations budget.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:
BP 3060 and AR 3061.04 require Board approval for all purchases over $50,000.

Summary of Issue(s):
The purpose of this item is to award competitive bid P16-05 to Doug Veerkamp General Engineering, Inc. for as-needed asphalt patch-paving services for one year.

Staff Analysis/Evaluation:
Asphalt patch-paving services are required in roadways throughout the District. This is a result of District maintenance staff performing service repairs to District pipelines beneath roadway surfaces. The volume of line repairs has resulted in a backlog of patch paving repairs which current staffing levels cannot complete in a timely manner. In addition, some patch-paving repairs require the use of specialized equipment. Therefore the Operations department has found it necessary to contract out much of this work to reduce the backlog of patch-paving and road repairs requiring specialized equipment.

Over the last several years fewer contractors expressed interest in a bid solicitation for patch-paving due to several significant factors. One small patch-paving job may produce relatively little revenue for a contractor considering the labor and equipment required to do each job. The El Dorado County DOT traffic control requirements can be considered a costly burden in relation to a small patch-paving job. The need to mobilize staff and equipment quickly for a small job can also be costly. These factors present difficulty for all contractors based outside El Dorado County and for some located within. They have contributed to few bid responses.

In 2015, the Board awarded a second extension to the existing contract to Doug Veerkamp General Engineering, Inc., which was the third and final year for the contract.

Staff advertised bid P16-05 for patch-paving services. Some new potential interest from paving contractors was created as purchasing staff worked closely with two local contractors which in recent years have not participated in the patch paving bid. The bid documents and alternative means to qualify and perform the work were discussed with the contractors. This effort resulted in a total of two bids received. The low bidder Placerville Paving, however, included none of the bonds and other bid requirements. Therefore its bid is deemed non-responsive. The bid results are as follows.

ITEM	JOB SIZE	TOTAL ANNUAL ESTIMATE	UNIT BID PRICE	TOTAL
1. Asphalt Patch-Paving	a) 1-300 sq. ft.	8,000 sq. ft.	Placerville Paving $7.75	$124,000
			Doug Veerkamp $10.88	$174,080
	b) 301-1,000 sq. ft.	4,000 sq. ft.	Placerville Paving $7.75	$62,000
			Doug Veerkamp $10.53	$84,240
	c) 1,001 sq. ft. and above	4,000 sq. ft.	Placerville Paving $7.75	$62,000
			Doug Veerkamp $10.19	$42,080
2. Chip Sealing	a) 1-300 sq. ft.	8,000 sq. ft.	Placerville Paving $2.875	$46,000
			Doug Veerkamp $2.63	$42,080
	b) 301-1,000 sq. ft.	4,000 sq. ft.	Placerville Paving $3.00	$24,000
			Doug Veerkamp $2.58	$20,160
	c) 1,001 sq. ft. and above	4,000 sq. ft.	Placerville Paving $3.00	$24,000
			Doug Veerkamp $2.52	$20,160
3. Slurry Sealing	All	2,000 sq. ft.	Placerville Paving $2.00	$4,000
			Doug Veerkamp $2.02	$4,040
4. Traffic Line Painting	All	1,000 Linear ft.	Placerville Paving $4.00	$4,000
			Doug Veerkamp $8.91	$8,910
Grand Total Bid Price			**Placerville Paving***	**$350,000**
			Doug Veerkamp	**$435,670**

*Non-responsive bidder

The total bid price for Doug Veerkamp reflects an approximate 1% decrease in price from the 2015 contract extension price. The District has received good service and value from Doug Veerkamp for these services in recent years. Staff therefore recommends the Board award a new contract to Doug Veerkamp General Engineering, Inc. The total amount of patch-paving services is an estimate of what the District may require within the period of one year. The unit prices will determine payment for work actually performed, and the contract price is a not-to-exceed amount.

Board Decision/Options:

Option 1: Award competitive bid P16-04 to Doug Veerkamp General Engineering, Inc. to provide as-needed asphalt patch-paving services for one year for the not-to-exceed amount of $435,670.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff/General Manager's Recommendation:

Option 1.

Support Documents Attached:

Attachment A: Bid from Placerville Paving
Attachment B: Bid from Doug Veerkamp General Engineering, Inc.

Edward Ruiz
Buyer, General Services

Steve Griffin
General Services Supervisor

Dana Strahan
Drinking Water Operations Manager

Tom McKinney
Operations Director

Mark Price
Finance Director

Thomas Cumpston
General Counsel

Jim Abercrombie
General Manager

(b) Bidder has given District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by District is acceptable to Contractor.

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following List of Bid Prices:

5. SCHEDULE OF BID PRICES All Bid items, including lump sums, unit prices and alternates, must be filled in completely. Quote in figures only, unless words are specifically requested. The Unit Price (price per square and linear foot) will reflect the all-inclusive cost related to the work unto completion. Bids received that do not include all items bid will not be accepted.

ITEM	JOB SIZE	TOTAL ESTIMATE	UNIT PRICE	TOTAL
1. Asphalt Patch Paving	a) 1-300 sq. ft.	16,000 sq. ft.	Per S.F $7.75	$124,000
	b) 301-1,000 sq. ft.	8,000 sq. ft.	Per S.F $7.75	$62,000
	c) 1,001 sq. ft. and above	8,000 sq. ft.	Per S.F $7.75	$62,000
2. Chip Sealing	a) 1-300 sq. ft.	16,000 sq. ft.	Per S.F $2.87.50	$46,000
	b) 301-1,000 sq. ft.	8,000 sq. ft.	Per S.F $3.00	$24,000
	c) 1,001 sq. ft. and above	8,000 sq. ft.	Per S.F $3.00	$24,000
3. Slurry Sealing	Any	2,000 sq. ft.	Per S.F $2.00	$4,000
4. Traffic Line Painting	Any	1,000 Linear Feet	Lin.Ft $4.00	$4,000

TOTAL BID PRICE $ 350,000

Total Bid Price in Words: Three Hundred and fifty Thousand-

Company Name: Placerville Paving Bidders Initials: R L

(b) Bidder has given District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by District is acceptable to Contractor.

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following List of Bid Prices:

5. SCHEDULE OF BID PRICES All Bid items, including lump sums, unit prices and alternates, must be filled in completely. Quote in figures only, unless words are specifically requested. The Unit Price (price per square and linear foot) will reflect the all-inclusive cost related to the work unto completion. Bids received that do not include all items bid will not be accepted.

ITEM	JOB SIZE	TOTAL ESTIMATE	UNIT PRICE	TOTAL
1. Asphalt Patch Paving	a) 1-300 sq. ft.	16,000 sq. ft.	$ 10.88	$ 174,080.00
	b) 301-1,000 sq. ft.	8,000 sq. ft.	$ 10.53	$ 84,240.00
	c) 1,001 sq. ft. and above	8,000 sq. ft.	$ 10.19	$ 81,520.00
2. Chip Sealing	a) 1-300 sq. ft.	16,000 sq. ft.	$ 2.63	$ 42,080.00
	b) 301-1,000 sq. ft.	8,000 sq. ft.	$ 2.58	$ 20,640.00
	c) 1,001 sq. ft. and above	8,000 sq. ft.	$ 2.52	$ 20,160.00
3. Slurry Sealing	Any	2,000 sq. ft.	$ 2.02	$ 4,040.00
4. Traffic Line Painting	Any	1,000 Linear Feet	$ 8.91	$ 8,910.00

TOTAL BID PRICE $ 435,670.00

Total Bid Price in Words: Four hundred thirty five thousand six hundred seventy and no/100

Company Name: Doug VeerKamp General Engineering, Inc. Bidders Initials: OBV

PUBLIC HEARING ITEM NO. 7
May 23, 2016

EL DORADO IRRIGATION DISTRICT

Subject:

Proposed amendment of Board Policy 3010, "Budget"

Previous Board Action:

September 11, 2006 – The Board adopted Board Policy (BP) 3010.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

BP 3010 – The Board adopts a two-year operating budget and may modify it prior to the end of the year; the Board also annually adopts a five-year Capital Improvement Plan and approves its funding on an as-required basis.

BP 1030 – The Board may amend Board Policies by an affirmative vote of at least three members as a publicized public hearing.

Summary of Issue:

A 2010 Board resolution directed the General Manager to implement an internal financial control test requiring that each budget's annual operating revenues, excluding the volatile revenues from Facility Capacity Charges (FCCs), must equal or exceed the projected annual operating expenses plus debt payments. Implemented ever since then, this test was further documented through the adoption of Administrative Regulation 3015 in 2012.

On April 25, Director George requested that staff prepare a proposed Board Policy that incorporates this financial control test. In response, staff noticed a public hearing for the May 23, 2016 meeting, for the Board to consider a staff-prepared revision to existing Board Policy 3010 that incorporates this test and also makes other additions and clarifications to the policy.

Staff Analysis/Evaluation:

The economic recession that began in 2008 exposed both the volatility of the District's FCC revenues from new development, and the District's imprudent reliance on those revenues to meet both its operating expenses and its bond covenants. In response, the District adopted an internal

financial test to eliminate over-reliance on FCCs. The internal financial test supplements the District's bond requirement that the projected ***total net revenues*** of each year's budget, including FCCs, are at least 1.25 times that year's debt service cost. The internal financial test requires that the budget's projected annual ***operating revenues***, excluding FCCs, must equal or exceed projected annual operating expenses plus debt service.

The District first adopted this internal financial test in 2010 by direction of the Board, given in Resolution No. 2010-003 (paragraph 11.H.). In 2012, staff adopted Administrative Regulation 3015, imposing the same requirement.

Director George recently requested staff to set a public hearing and prepare a proposed revision to Board Policy 3010, to incorporate this internal financial test into a Board Policy. Because the Board initiated the internal financial test, the Board adopts the annual budgets, and the test is a core fiscal policy choice, staff believes it is appropriate to document the test in a Board Policy. Also, Board Policies are more durable than Administrative Regulations, because they can only be adopted or modified by Board action after a public hearing.

In reviewing Board Policy 3010, staff identified some other additions and clarifications that staff believes are appropriate to make at this time. First, Board Policy 3010 should be adjusted to accurately describe the District's two-year operating budget process. Second, Board Policy 3010 should document and require the Board's current practice of annually adopting a five-year financial plan. The financial plan's purposes, goals, and objectives (found in Administrative Regulation 3012) include maintaining a 1.7 to 2.0 debt coverage ratio when all revenues, including FCCs, are included, as well as a 1.25 debt coverage ratio without FCCs. Staff believes that those important objectives, which are intended to ensure adequate funding for pay-as-you-go capital projects and reduce future debt, should also be incorporated as a third change to Board Policy 3010. Finally, in 2015 the District first accessed a new source of revenue – water transfers. As summarized in staff presentations to the Board on March 28 and April 25, water transfer revenue is at least as volatile as FCC revenue. Staff therefore believes that water transfer revenue should also be expressly excluded from the internal financial test in the revised Board Policy 3010.

If the Board acts to add the internal financial test to Board Policy 3010, staff will rescind Administrative Regulation 3015.

Based on the foregoing discussion, staff recommends that Board Policy 3010 be amended as follows (deletions shown in ~~strikethrough~~, and additions shown in underline):

BP 3010 Budget

Adopted: September 11, 2006
Amended: May 23, 2016

The Board is committed to promoting the most efficient and effective use of the District's financial resources that will accomplish the goals of the District, support facilities and programs, and provide quality services to District customers. It is the responsibility of the General Manager to inform the Board about financial operations of the District so the Board can make informed decisions and fully discharge its legal responsibilities in a financially sound manner.

The Board shall adopt a two-year operating budget and ~~may modify~~ update it prior to the ~~end~~ beginning of the second budget year. The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges and water transfer revenues, must equal or exceed the projected annual operating expenses plus debt payments. Further, to ensure that every adopted District operating budget provides adequate funding for pay-as-you-go capital projects, the Board's financial goals and objectives for annual debt service coverage are as follows:

- Maintain a 1.7 to 2.0 ratio of net revenue, including Facility Capacity Charges and water transfer revenues, to debt service expense; and
- Maintain a 1.25 ratio of net revenue, excluding Facility Capacity Charges and water transfer revenues, to debt service expense.

The Board shall also adopt every year a five-year Financial Plan and a five-year Capital Improvement Plan, and approve funding for the Capital Improvement Plan on an as-required basis.

Board Decisions/Options:

Option 1: Approve amendment to Board Policy 3010 as presented by staff.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff's/General Manager's Recommendation:

Option 1.

Support Documents Attached:

Attachment A: Proposed Board Policy 3010 (with changes incorporated)
Attachment B: Administrative Regulation 3012
Attachment C: Administrative Regulation 3015

Thomas D. Cumpston
General Counsel

Mark T. Price
Finance Director - Treasurer

Jim Abercrombie
General Manager

BP 3010 Budget

Adopted: September 11, 2006
Amended: May 23, 2016

The Board is committed to promoting the most efficient and effective use of the District's financial resources that will accomplish the goals of the District, support facilities and programs, and provide quality services to District customers. It is the responsibility of the General Manager to inform the Board about financial operations of the District so the Board can make informed decisions and fully discharge its legal responsibilities in a fiscally sound manner.

The Board shall adopt a two-year operating budget and update it prior to the beginning of the second budget year. The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges and water transfer revenues, must equal or exceed the projected annual operating expenses plus debt payments. Further, to ensure that every adopted District operating budget provides adequate funding for pay-as-you-go capital projects, the Board's financial goals and objectives for annual debt service coverage are as follows:

- Maintain a 1.7 to 2.0 ratio of net revenue, including Facility Capacity Charges and water transfer revenues, to debt service expense; and
- Maintain a 1.25 ratio of net revenue, excluding Facility Capacity Charges and water transfer revenues, to debt service expense.

The Board shall also adopt every year a five-year Financial Plan and a five-year Capital Improvement Plan, and approve funding for the Capital Improvement Plan on an as-required basis.

El Dorado Irrigation District

AR 3012 Budget Management and Five-Year Financial Plan

Approved: December 12, 2006
Revised: November 4, 2014

The General Manager desires to maximize efficiency in the management of revenue and expenditures and thereby assigns responsibility for monitoring program budgets to department heads and program managers who shall use financial reports, program reports, and other pertinent data to ensure maximum effectiveness of program operation.

Purpose of the Five-Year Financial Plan

The Five-Year Financial Plan establishes the cost of funding the operations and maintenance, capital expenditures, and debt expenses required to meet the District's mission of providing high quality, wastewater treatment, recycled water, hydro-power, and recreational services in an environmentally and fiscally responsible manner, meeting the District's debt covenant requirements to its bond holders and matching future revenues to those costs.

Long-term financial planning:

- Avoids volatile rate adjustments;
- Better manages debt;
- Better manages prepayment of debt;
- Funds the Capital Improvement Plan;
- Provides a plan for meeting debt covenant requirements; and
- Sets clear, public goals and expectations.

Goals and Objectives of the Financial Plan

The goals and objectives are to:

- Establish necessary operating and maintenance costs, debt expenses, and pay- as-you-go project costs;
- Generate adequate revenues to fund those costs, meet debt covenants, and maintain adequate cash reserves;
- Avoid "rate shock" – small annual rate adjustments are better than years of zero rate increases followed by double-digit increases to make up shortfalls;
- Maintain strong credit ratings with rating agencies (S&P – A+, Moody's – A1);
- Maintain cash reserves between $60 million and $80 million;
- Maintain CIP funding levels to replace high priority capital assets prior to end of life, avoiding critical asset failures;
- Maintain 1.7 to 2.0 debt coverage ratio with Facility Capacity Charges (FCC); and
- Maintain 1.25 debt coverage ratio without FCC's – in all years, meet Finance Control test that annual operating revenue, excluding FCC's, must equal or exceed total annual operating expenses plus debt payments.

El Dorado Irrigation District

AR 3015 Financial Control Test

Approved: August 22, 2012

The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges, must equal or exceed the projected annual operating expenses plus debt payments.

PROPOSED AMENDMENT OF BOARD POLICY 3010, "BUDGET"

EL DORADO IRRIGATION DISTRICT

MAY 23, 2016

PREVIOUS BOARD ACTION

- **September 11, 2006 – The Board adopted Board Policy (BP) 3010**

BOARD POLICY/ADMINISTRATIVE REGULATIONS/BOARD AUTHORITY

- **BP 3010 – The Board adopts a two-year operating budget and may modify it prior to the end of the year; the Board also annually adopts a five-year Capital Improvement Plan and approves its funding on an as-required basis**

- **BP 1030 – The Board may amend Board Policies by an affirmative vote of at least three members at a publicized public hearing**

SUMMARY OF ISSUE

- **Internal financial control test**
- **Requires each budget's annual operating revenues, excluding Facility Capacity Charges (FCCs), to equal or exceed projected annual operating expenses plus debt payments**
- **Implemented by 2010 Board resolution**
- **Further documented in 2012 – Administrative Regulation (AR) 3015**
- **Added in AR 3012 (Financial Plan) in 2014**

SUMMARY OF ISSUE

- **April 25: Director George requested preparation of a BP to incorporate the test**
  - **Noticed May 23 public hearing for Board to consider revision to BP 3010:**
    - **Incorporates the test**
    - **Makes other additions, clarifications to BP**

STAFF ANALYSIS/EVALUATION

- **Economic recession beginning in 2008**
  - **Exposed FCC revenue volatility**
  - **Exposed District's imprudent reliance on FCCs**
    - **To cover operating expenses**
    - **To satisfy bond covenant requiring 1.25 debt coverage ratio**
- **Response in 2010: added internal financial test to eliminate over-reliance on FCCs**
  - **Bond covenant: projected *total net revenues* of each year's budget, including FCCs, are at least 1.25 times that year's debt service cost**
  - **Internal financial test: budget's projected annual *operating revenues*, excluding FCCs, must equal or exceed projected annual operating expenses plus debt service**

STAFF ANALYSIS/EVALUATION

- **Internal financial test first established by Resolution No. 2010-003 in 2010**
- **Staff adopted it in AR 3015 in 2012**
- **Staff also added it to AR 3012 in 2014**
- **Appropriate to establish the test as a BP**
  - **Board initiated the test**
  - **Board adopts the operating budgets, five-year Financial Plans that apply the test**
  - **The test is a core fiscal policy choice**
  - **BPs are more durable than ARs**
    - **Can only be adopted or modified by Board action, after a public hearing**

STAFF ANALYSIS/EVALUATION

- **Staff proposes 4 other additions, clarifications to BP 3010**
  - **Accurately describe two-year operating budget procedure**
  - **Document and require Board's annual adoption of five-year financial plan**
  - **Document financial plan objectives for debt coverage ratio**
    - **Financial plan's objectives include 1.7 - 2.0 debt coverage ratio for total net revenues, including FCCs**
      - **Bond covenant – 1.25 minimum ratio**
    - **Financial plan's objectives include 1.25 debt coverage ratio without FCCs**
      - **Internal financial test – 1.0 minimum ratio**
  - **Expressly exclude volatile water transfer revenues from internal financial test, financial plan's "1.25x" objective**

STAFF ANALYSIS/EVALUATION

- **If Board adds internal financial test to BP 3010, staff will rescind AR 3015**

- **Proposed amended BP 3010 (deletions in ~~strikethrough~~, additions in underline):**

The Board is committed to promoting the most efficient and effective use of the District's financial resources that will accomplish the goals of the District, support facilities and programs, and provide quality services to District customers. It is the responsibility of the General Manager to inform the Board about financial operations of the District so the Board can make informed decisions and fully discharge its legal responsibilities in a financially sound manner.

STAFF ANALYSIS/EVALUATION

The Board shall adopt a two-year operating budget and ~~may modify~~ update it prior to the ~~end~~ beginning of the second budget year. The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges and water transfer revenues, must equal or exceed the projected annual operating expenses plus debt payments.

STAFF ANALYSIS/EVALUATION

Further, to ensure that every adopted District operating budget provides adequate funding for pay-as-you-go capital projects, the Board's financial goals and objectives for annual debt service coverage are as follows:

- ***Maintain a 1.7 to 2.0 ratio of net revenue, including Facility Capacity Charges and water transfer revenues, to debt service expense; and***

- ***Maintain a 1.25 ratio of net revenue, excluding Facility Capacity Charges and water transfer revenues, to debt service expense.***

STAFF ANALYSIS/EVALUATION

The Board shall also adopt every year a five-year Financial Plan and a five-year Capital Improvement Plan, and approve funding for the Capital Improvement Plan on an as-required basis.

BOARD DECISIONS/OPTIONS

- **Option 1: Approve amendment to Board Policy 3010 as presented by staff.**
- **Option 2: Take other action as directed by the Board.**
- **Option 3: Take no action.**

STAFF'S/GENERAL MANAGER'S RECOMMENDATION

Option 1

EL DORADO IRRIGATION DISTRICT

SUBJECT: Forebay Dam Modification project update.

Previous Board Actions:

- July 21, 2003 – Staff briefed the Board on stability concerns raised by DSOD regarding the El Dorado Forebay Dam.
- July 7, 2004 – Board awarded a professional services contract to GEI Consultants Inc. to conduct a geotechnical investigation and stability analysis for Forebay Dam.
- September 11, 2006 – Board awarded a professional services contract (Phase I) to GEI Consultants, Inc., to prepare the Alternatives Evaluation for the Remediation of El Dorado Forebay Dam, Basis of Design Report.
- January 24, 2011 – Board authorized staff and GEI Consultants to proceed with Design (Phase II) and environmental analysis for the rehabilitation and enlargement of the El Dorado Forebay Dam as proposed in Alternative 3, and authorized funding for staff time and environmental services.
- February 27, 2012 – Board awarded a contract amendment to GEI Consulting, Inc. for design (Phase II).
- February 11, 2013 – Board awarded a contract amendment to GEI Consultants Inc. to address FERC and DSOD directives on the 60% design review.
- May 28, 2013 – Board awarded a professional services agreement to AECOM for preparation of an Environmental Impact Report, Environmental Assessment, and FERC License Amendment Application and authorized funding for staff time and environmental services.
- March 24, 2014 – Board certified Final Environmental Impact Report, Adoption of Findings of Fact, Adoption of Statement of Overriding Considerations, and Approval of the El Dorado Forebay Dam Modification Project
- June 22, 2015 – Board authorized $421,416 in additional funding for design and environmental work

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

BP 5010: The Board is committed to provide a water supply based on the principles of reliability, high quality, and affordability in a cost-effective manner with accountability to the public. It is the General Manager's responsibility to ensure that the tenets of this policy are carried out in an open, transparent manner through sound planning, to assure preparedness under varying conditions, and effective management.

BP 8010: The District maintains and operates its hydroelectric generating facilities in a safe, efficient, and environmentally responsible manner, and in compliance with all applicable federal and state permits and regulations, the terms of the Federal Energy Regulatory Commission

license, and all related agreements. Hydroelectric power generation shall be compatible with the District's consumptive water supply operations.

AR 8014: Priority of the Dam Safety Program: The District shall maintain a dam safety program to safeguard the public, the environment, and its hydroelectric facilities. This will be facilitated through the Owner's Dam Safety Program (ODSP), as required by the Federal Energy Regulatory Commission; applicable to the District's high and significant hazard potential dams.

The ODSP shall assure that dam safety is of the highest priority within the District's organization through: acknowledging dam safety responsibilities; promoting internal communication throughout the organization; clearly designating responsibility for maintaining dam safety; allocating adequate resources to dam safety; and continual learning in dam safety.

Summary of Issue:

The Forebay Dam Modifications Project's (Project) primary purpose is to comply with specific public safety regulatory mandates issued to the District by the California, Department of Water Resources, Division of Safety of Dams (DSOD) and the Federal Energy Regulatory Commission (FERC). The Project will also significantly improve water supply reliability and power generation income.

A recent concern raised by the U.S. Fish and Wildlife Service that the project may adversely affect the California red-legged frog as part of the federal environmental review and permitting has resulted in a one-year delay to the start of construction.

Staff Analysis/Evaluation

Project Description Summary

The Project elements are:

- Constructing an earthen stability buttress on the lower side of the Forebay Dam to meet DSOD and FERC regulatory requirements
- Raising the Forebay Dam ten vertical feet to meet dam safety requirements and improve emergency water storage and hydroelectric generation efficiency
- Remediating the emergency spillway structure, outfall, and stabilizing the unstable slope above the spillway to arrest continued erosion
- Repairing the existing unstable reservoir inlet (also known as the outlet channel of the 14-mile Tunnel) to arrest further erosion and maintain public safety
- Relocating the valve house to the Main Ditch to accommodate the downstream embankment buttress
- Relocating the dam seepage pump-back facility to accommodate the downstream embankment buttress
- Abandoning the two unused penstocks within the dam to meet dam safety requirements
- Armoring the upstream face of the dam to repair the wave-induced erosion to meet dam safety requirements
- Re-contouring a berm within the reservoir allowing drinking water intake at lower reservoir levels
- Installing a control valve on the penstock intake conduit to meet dam safety requirements

- Installing a control valve on the drinking water intake conduit to meet dam safety requirements
- Repairing the 14-Mile tunnel downstream portal (inlet tunnel to Forebay reservoir)

The Project design is complete and the District has received DSOD and FERC approval of the 100% design package.

Environmental Review:

The environmental review, permitting, and three-stage license amendment consultation processes for the Project, which began in March 2013, are nearly complete. The District completed the California Environmental Quality Act (CEQA) review and the Board certified the Environmental Impact Report in March 2014. The District received the Clean Water Act Section 401 Water Quality Certification from the California State Water Resources Control Board (SWRCB) in April 2015. Ongoing activities include the Federal Energy Regulatory Commission (FERC) Project No. 184 license amendment and National Environmental Policy Act (NEPA) review, the U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 Nationwide Permit, CalFire Timberland Conversion Permit and Timber Harvest Plan, and Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS).

U.S. Fish and Wildlife Service Section 7 Consultation for California Red-legged Frog (CRLF)

Staff is currently working to address a determination by the USFWS that the Project may adversely affect the federally-threatened California red-legged frog (CRLF). The USFWS raised this issue in response to FERC's issuance of the NEPA Environmental Assessment (EA) for the Project, which was circulated for public review in October 2015. In a November 25, 2015 letter USFWS provided concurrence of a "not likely to adversely affect" determination for CRLF for the Project, provided specific conservation measures were implemented. However, in a January 4, 2016 letter, the USFWS proposed even more extensive construction-related conservation measures and added compensatory mitigation for habitat loss, effectively withdrawing their previous concurrence letter for the Project. Staff believes the proposed conservation measures and compensatory mitigation requirements to be overly onerous and without merit given the lack of documented occurrences of this species within the Project area. The USFWS contends that the proximity of the Project to a known population of CRLF provides sufficient basis for the determination that the CRLF could also be present at the Project site. The USFWS also requested that FERC delay authorization of the Project until an endangered species consultation is completed for the District's Main Ditch piping project.

The comments provided by the USFWS presented substantial concern to the District staff because they forced a delay in implementing the Project and because the proposed conservation measures and mitigation requirements present significant additional costs. In an effort to address USFWS concerns and help facilitate completion of the consultation process, District staff has met with USFWS staff on December 10, 2015, conducted a site visit with USFWS staff on December 15, 2015, and most recently met with USFWS management on May 6, 2016.

The District is making progress to address USFWS concerns regarding CRLF. As a result of the May 6, 2016 meeting, the District understands the USFWS is committed to: 1) work with the District to review and modify construction-related compensatory mitigation measures to help ensure that measures are reasonable and practical to implement; 2) reduce the proposed compensatory mitigation for habitat loss, which as originally proposed by the USFWS could have resulted in unreasonable additional costs; and 3) expedite consultation for the Project

without delay. The District is continuing to work with the USFWS to address their concerns and anticipates completing the Section 7 consultation process by December 2016.

USACE Clean Water Act Section 404 Nationwide Permit
The conclusion of the Section 7 consultation process with the USFWS is a necessary precursor to obtaining a USACE Clean Water Act Section 404 Nationwide Permit. The issuance of the USACE permit also requires the District pay mitigation fees for temporary and permanent impacts to waters of the United States. The District is working with the USACE to coordinate payment of mitigation fees for waters of the U.S. that are permanently impacted by the Project and also develop a plan describing post-Project conditions for waters of the U.S. that are temporarily impacted by the Project. The District anticipates completing the USACE permit process by December 2016, soon after receiving USFWS authorization.

CalFire Timberland Conversion Permit and Timber Harvest Plan
The CalFire Timberland Conversion Permit and Timber Harvest Plan are currently under final review by CalFire and staff anticipates receiving an approved permit by June 2016.

FERC Project No. 184 license amendment and NEPA review
The District anticipates that the FERC Project No. 184 license amendment would be issued in spring 2017, once all other permits and authorizations for the Project are received. Once the NEPA process is complete and the license amendment is issued, FERC can issue the Authorization to Construct.

Project Schedule:

The Project permitting phase has increased by one-year due to the FERC permitting process and USFWS consultation. Staff is working closely with the FERC and DSOD to move the process forward. While DSOD has worked with the District's timeline up to now, DSOD recently sent a letter to the District requiring construction to begin by December 31, 2017. On May 16, 2016, staff coordinated a conference call with FERC and DSOD representatives to review progress and discuss the anticipated schedule moving forward.

The forecasted project schedule is as follows:

- *Design*: Complete
- *Environmental:* Ongoing 2016-2017
- *Contractor Prequalification:* Oct 2016-Feb 2017
- *Bidding:* Feb-May 2017
- *Construction:* June 2017 through 2019

Funding

The estimated project cost in 2015 was $19M. Project costs will be updated prior to bidding based upon the planned design/permitting work and construction cost inflation.

Board Decisions/Options:

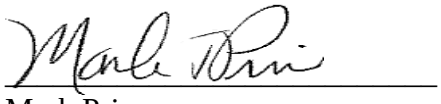
No Action – Information only

Brian Mueller
Engineering Director

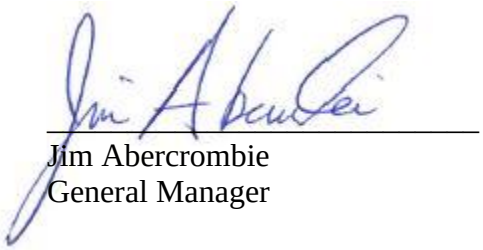
Brian Deason
Hydroelectric Compliance Analyst

Dan Corcoran
Environmental Division Manager

Elizabeth Wells
Engineering Manager



Mark Price
Finance Director



Jim Abercrombie
General Manager

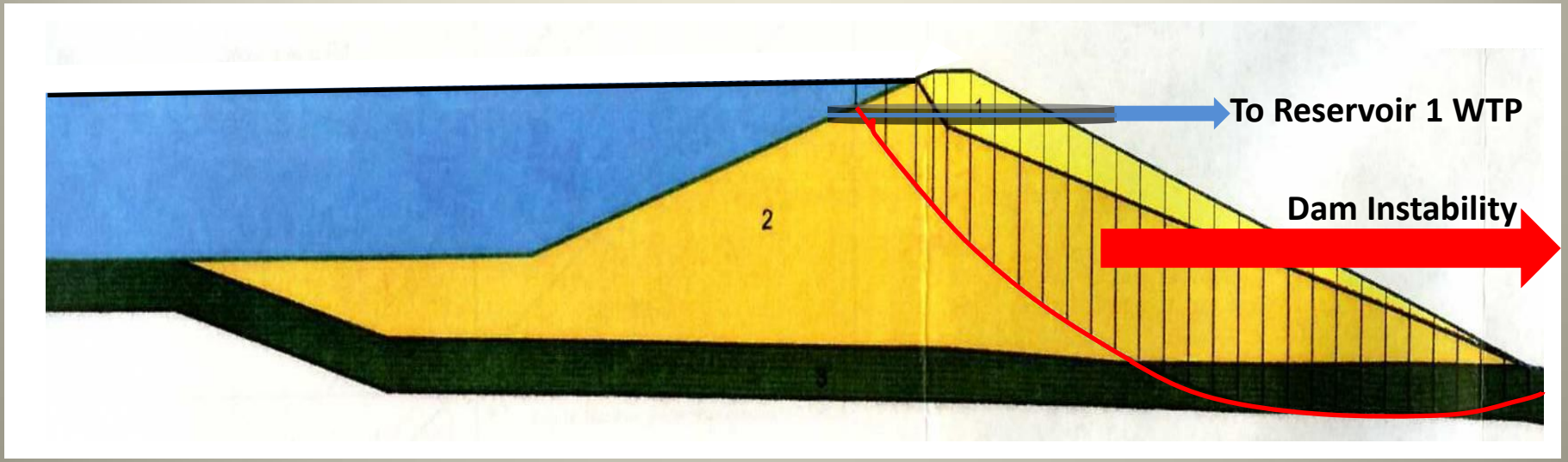
El Dorado Forebay Modification Project Update

May 23, 2016

Project Objectives

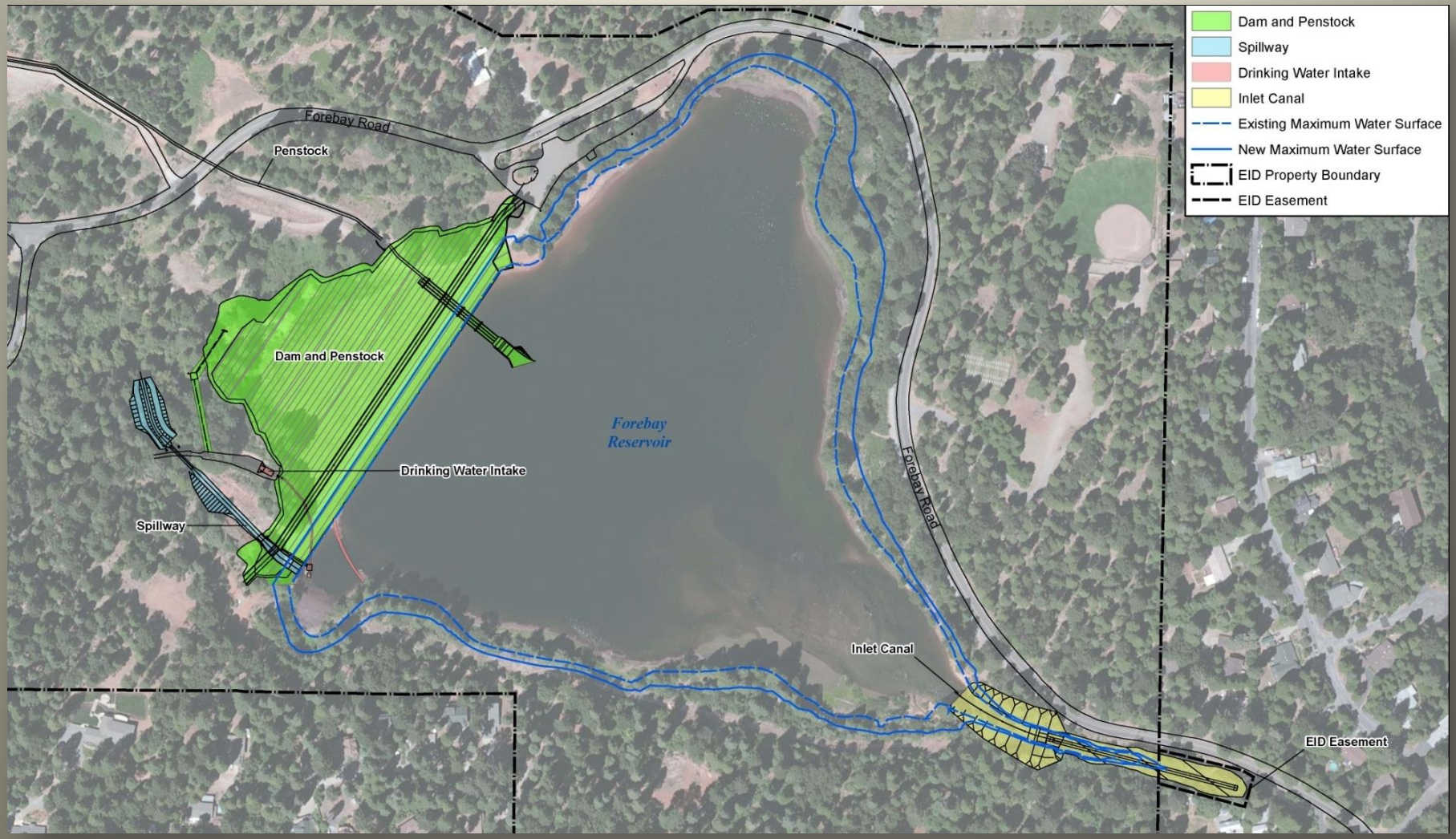
- Maintain public safety by protecting life and property residing below the dam
  - Comply with state and federal dam safety mandates
- Benefit existing customers
  - Improve reliability of the drinking water system
  - Optimize renewable hydroelectric generation

Deficient Stability and Freeboard

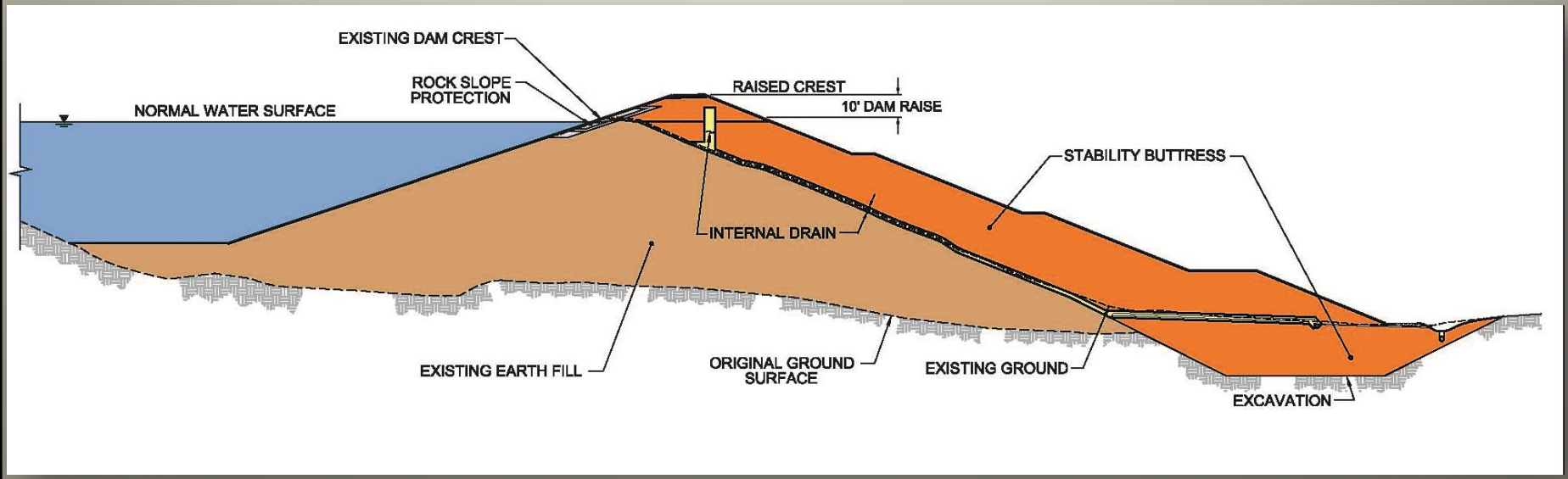


- Joint 2009 FERC/DSOD reservoir restriction
  - Reduces storage available to Reservoir 1 WTP
  - Reduces power generation revenue
  - Presents operational difficulties

Dam and Reservoir Modifications



Dam Stability Buttress



Project Milestone Summary

- 2003 – DSOD questioned stability of dam
- 2004 – District awarded a contract to GEI to conduct a geotechnical investigation/stability analysis
- 2006-2010 – Evaluated 5 project alternatives
  - The buttress & 10’ raise met all District objectives

Project Milestone Summary

- 2010 -2014 –FERC/DSOD project design reviews and approvals
  - √ 100% Approved for Construction P&S
    - 2014 DSOD approved enlargement application
    - 2014 FERC approved design

Project Milestone Summary

- Environmental review and permitting
  - √ 2012: Conduct resource studies
  - √ 2013 - 2014: California Environmental Quality Act
    - √ Environmental Impact Report adopted March 2014
  - √ 2013 -2016: FERC License Amendment
    - √ 3- stage consultation process
    - √ License amendment application filed June 2014
    - √ National Environmental Policy Act Environmental Assessment circulated for public review October 2015

USFWS Consultation

- USFWS – Despite initial concurrence of “not likely to affect”, later determined project “may adversely affect” California red-legged frog
- Proposed extensive construction-related and compensatory mitigation measures
- May 6, 2016 – Staff met with USFWS management
  - USFWS committed to work with EID to modify construction related mitigation
  - Reduce compensatory mitigation measures
  - Expedite consultation

Schedule

- USFWS consultation thru December 2016
- ACOE consultation thru December 2016
- License amendment anticipated to be issued early 2017 following completion of environmental review and permitting

Schedule

- Bond issuance 2016
- Contractor prequalification Oct 2016-Feb 2017
- Bidding Feb 2017-May 2017
- Award of contract May 2017
- Construction summer 2017-2019

Summary

- 12 District Board briefings and authorizations to date
- $4.4M spent to date on safety evaluations, design, and permitting
- Construction estimated at $20M
  - Financial impacts of USFWS requirements unknown

Questions

INFORMATION ITEM NO. 9
May 23, 2016

EL DORADO IRRIGATION DISTRICT

SUBJECT: Power mitigation project alternatives update.

Previous Board Actions:

- October 13, 2015 - The Board adopted the 2016 – 2020 CIP, which included this project, subject to funding availability.
- December 14, 2015 – The Board approved funding in the amount of $63,500 for feasibility analysis of power mitigation projects.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

BP 8010 Hydroelectric System Management – EID maintains and operates its hydroelectric generating facilities in a safe, efficient, and environmentally responsible manner, and in compliance with all applicable federal and permits and regulations, the terms of the Federal Energy Regulatory Commission - (FERC) license, and all related agreements. Hydroelectric power generation shall be compatible with the EID's consumptive water supply operations.

BP 8020 Additional Generation Opportunities - EID shall seek to augment its electric energy and capacity revenue stream, and/or reduce its operational energy expenses, by adding new generation facilities whenever they are economically viable.

It is the policy of EID that resources planning and infrastructure, including water and wastewater systems, emphasize renewable energy and energy efficiency toward a goal of energy independence for El Dorado County and its citizens.

Summary of Issue:

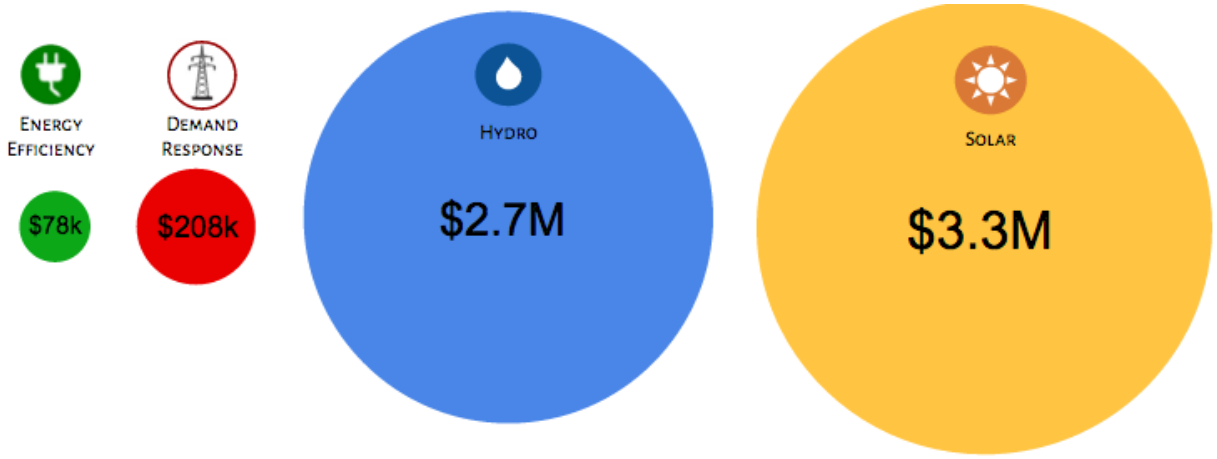
The District is one of the largest energy users in El Dorado County and is the largest water purveyor in the County with more than 40,000 water accounts and 21,000 wastewater accounts. Water delivery infrastructure includes approximately 1,298 miles of pipeline, 27 miles of ditches, 5 water treatment plants (WTP), 36 storage reservoirs, and 38 pump stations. Wastewater collection infrastructure includes 628 miles of sewer pipe, 61 lift stations, and 4 wastewater treatment plants (WWTP). Considering current and projected energy cost trends associated with the operation of these facilities, the District has considerable opportunity to mitigate future power costs by developing renewable energy sources at District facilities. The Board has recognized these trends and has taken action to become more energy self-sufficient by developing energy related policies, funding energy development and efficiency studies and dedicating capital improvement funding to implement renewable energy projects. This staff report updates the Board on projects that are currently being evaluated for future Board consideration and longer term opportunities for increasing generation and reducing energy use.

Staff Analysis / Evaluation:

Background

The Board has adopted various energy related policies that address the management of existing hydroelectric facilities and the development of new generation facilities. Of particular relevance to renewable energy development, Board Policy 8020, "Additional Generating Opportunities," emphasizes renewable energy and energy efficiency in infrastructure planning towards a goal of energy independence for El Dorado County and its citizens. Since its adoption, the District has participated in and funded various studies and project specific designs and implementation in support of achieving this goal.

In 2006, the District completed construction of a solar photovoltaic (PV) system at the El Dorado Hills Wastewater Treatment Plant (EHWWTP) to offset operating cost through PG&E's net metering program. The District participated in the El Dorado County Water Agency's (EDCWA) 2009 El Dorado County Hydroelectric Development Options Study that identified multiple hydroelectric opportunities within the County. In 2012, with California Energy Commission (CEC) grant funding, the District completed the El Dorado County Water Systems Energy Generation, Storage, Efficiency, Demand Management & Grid Support Study that further analyzed hydroelectric generation opportunities identified in the 2009 study and other efficiency and demand management projects. These studies identified the potential for over $6 million in annual renewable energy revenue and energy efficiency and demand management savings as shown below.



Currently, staff is working on the development of a Power Mitigation Opportunities Report that comprehensively reviews previous studies and work completed and identifies new opportunities to reduce current and future energy costs. It is envisioned to be a living document that will guide the systematic evaluation and implementation of the most promising projects over time.

Near and Long Term Renewable Energy Projects

Solar

In 2011, the District evaluated several facility sites for solar PV generation potential. The solar system options included ground mounted, roof mounted, parking structure units, and floating arrays on top of a reservoir surface. The analysis ranked each of the 10 proposed projects, recommending that the District move forward with an owner financed project. Due to limited capital, the solar project recommendations did not advance in the CIP process, but the District did pursue an in-line hydro project. In 2013, staff again worked with a consultant to analyze the cost benefit of installing a 1 megawatt (MW) solar array at the EDHWWTP and DCWWTPs. The 2013 analysis showed a very good return on investment for a power purchase agreement (PPA) installation of a solar array at the EDHWWTP. In 2015, the Board requested staff to revisit the solar analysis. Because solar incentive programs are often changing, staff contracted with a solar consultant in 2016 to conduct a site viability analysis for solar array installation and to estimate the return on investment for an owner financed or PPA solar installation.

Solar Programs – Net Energy Metering and Renewable Energy Self-Generation Bill Credit Transfer

Net Energy Metering (NEM) applies to solar projects that are installed behind an existing meter and can currently be a maximum of 1 MW in size. Net metering is a method of metering the energy consumed and produced by a utility customer that has a renewable resource generator (such as solar), and credits the customer with the retail value of the generated electricity onsite at the time of use. Effectively, the meter runs backwards, causing a credit with the utility. The benefit of net metering is the deferred cost of the electricity that the District does not have to purchase, providing the full retail value of the electricity produced. The District does not have to own the eligible renewable resource; however the output must be dedicated to offset the electricity used at that onsite meter. The solar array at the EDHWWTP is a 1 MW NEM project.

AB 2466 (codified as Section 2830 of the Public Utilities Code), was signed into law in September 2008 and allows a local government & special districts to install renewable generation of up to 5 MW at one location within its geographic boundary, and to generate credits that can be used to offset the generation charges at one or more (up to 50) other benefiting accounts within the same geographic boundary. This billing arrangement is called Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT). Unlike NEM, RES-BCT only credits the utility generation (UG) portion of the utility bill and the benefiting account will still pay the transmission and other utility fees. Therefore, the incentive rate is lower. The credit is calculated by multiplying the generation portion of the generating account bill ($/kWh) by the kWh produced by the system during applicable time of use (TOU) periods. To provide the greatest financial benefit, the rate schedule for the meter associated with the solar PV project (the generating account) could be changed to a higher TOU rate option to take advantage of higher peak TOU credit. In addition, it is recommended that the generating account meter have a small existing demand that is significantly less than the projected solar generation. The rate schedule for the benefitting account should remain on a lower peak TOU cost schedule to maximize the difference between the peak TOU generation credit and the peak TOU demand offset by the solar project.

Potential NEM and RES-BCT Solar Sites

There were four District sites identified for evaluation and comparison for a NEM project: two areas surrounding the EDHWWTP, one at the DCWWTP, and the storage pond at EDHWWTP. All of these sites have adequate energy consumption and space to accommodate a 1-2 MW ground-mounted or floating solar PV project. There are three potential sites for a 1 MW solar PV project at EDHWWTP: Site #1 is located to the north and east of the existing solar panels, Site #2 is directly to the south of the existing solar panels, and Site #3 would be a floating PV system on the existing secondary storage pond. Site #4 is located to the east of the aeration basins at the DCWWTP.

Solar PV has relatively few siting constraints. The most important site considerations are shading, site orientation, and constructability. To maximize the solar resource, the site should be unshaded and south-facing, and be relatively easy to build on. Other siting considerations may include: solar resource, size, location and use of land parcel, interconnection to transmission line, sensitive neighbors, and environmental considerations.

The siting criteria and metrics listed above were applied to each of the four potential sites. Once the scoring of the four sites was completed, a weighting was applied to each criterion to create a total score to identify the favorability of the sites. Table 1 presents the ranking of the four sites.

Table 1 – Net Energy Metering Site Ranking

Site	Total Score	Rank
Site #2 EDHWWTP (South)	4.6	1
Site #1 EDHWWTP (North)	4.1	2
Site #4 DCWWTP	3.7	3
Site #3 EDHWWTP Pond	3.6	4

Both of the EDHWWTP sites (#1 and #2) scored favorably and are good candidates for solar. EDHWWTP Site #2, which is south of District's existing solar project, is the most attractive option because it is bigger than Site #1, has good southern exposure, and has better constructability because it is relatively flat.

Site #4 at DCWWTP suffered slightly from being a west facing slope (rather than a south facing slope thereby limiting some solar exposure), constructability issues due to its steep slope and vegetation that would need to be removed, and since it is an undisturbed area the potential for environmental issues is unknown. However, the site should be looked into with more detail to determine if a NEM project is a good investment at the DCWWTP.

Site #3 at the EDHWWTP storage pond ranked last because of its impacts on operations, constructability issues and problems with volume and level fluctuations with the reservoir. Recycled water use leaves the pond near empty late in summer reducing the square footage of floatable space for the solar cells. Lastly, flotovoltaics have been installed on less than 20 ponds worldwide and is a fairly new technology.

As stated above, the District can build a solar PV project of up to 5 MW with the RES-BCT tariff. Based on a cursory assessment of the District's parcels with a PG&E account, it could be possible for the District to build an array of 2-3 MW in size and utilize the RES-BCT program.

The District can pursue a solar PV project through two different options:

- Own and Operate: The District would design and construct a solar PV system using its capital and utilize District staff to operate and maintain the system.
- Power Purchase Agreement (PPA): A third party would finance, own and operate the solar PV system, and the District would purchase the power generated from the third party. This could be an advantage for the District because upfront capital costs to construct the solar PV system are not necessary. The third party takes advantage of the tax credits.

The District used the own and operate structure enabled by a design/build contract to build the solar PV system at the EDHWWTP. The District received a 50% grant from the California Public Utility Commission's Self Generation Incentive Program (SGIP) to offset the cost of construction of the solar array. The SGIP had several incentive tiers built into the program, and each successive tier had a reduced incentive. Essentially, as more self-generation facilities were connected to the grid, the incentives were reduced. The District benefitted by getting in early and receiving maximum incentive on its solar project. The SGIP program is projected to sunset in 2016. Since the SGIP incentives for owner construction have been used up (there are projects in the queue that will utilize the remaining incentives), many agencies have been using the PPA structure to construct solar projects.

Table 2 – Solar Project Comparison

	DCWWTP (PPA)	EDHWWTP (PPA)	EDHWWTP (Owner Financed)	RES-BCT Site TBD (PPA)
Tariff	NEM 2.0	NEM 2.0	NEM 1.0	RES-BCT
Nameplate rating	2.5 MW	2.0 MW	1 MW	2.6 MW
Estimated annual generation (kWh)	3,895,000	3,177,000	1,504,000	4,142,000
Estimated District up-front costs	$0	$0	$2,500,000	$0
Annual O&M costs	$39,000	$32,000	$20,000	$41,000
Asset life	25 years	25 years	25 years	25 years
1st year earnings	$28,000	$104,000	$128,000	$83,000
25-year earnings	$5,625,000	$7,011,000	$2,600,000	$6,910,000

Both the NEM project sites and the RES-BCT project will require further investigation, analysis and evaluation to complete the project development and confirm, or change the assumptions made in the initial financial feasibility assessment. This work should include comprehensive engineering analysis at the NEM sites for both owner financed and PPA, plus sites under consideration for the solar RES-BCT project.

Cogeneration

The District's consultant recently completed a sludge handling and cogeneration analysis for the District's two main wastewater treatment plants. The sludge handing element includes transferring DCWWTP solids to the EDHWWTP which could reduce operations and maintenance (O&M) cost associated with solids handling. The transferred sludge could contribute biomass to a cogeneration system at the EDHWWTP that would use digester gas to

generate power. The option of a fats, oils and grease (FOG) and food waste (FW) receiving station has also been considered to increase the production of biogas.

The following four alternative project configurations were analyzed:

1. Transferring DCWWTP sludge to EDHWWTP
2. Transferring DCWWTP sludge to EDHWWTP and installing cogeneration
3. Transferring DCWWTP sludge to EDHWWTP adding FOG and installing cogeneration
4. Transferring DCWWTP sludge to EDHWWTP adding FOG and FW and installing cogeneration

Table 3 – EDHWWTP Cogeneration Project Comparison

Alternative	DC Solids to EDHWWTP	DC Solids to EDHWWTP with Cogen	DC Solids to EDHWWTP + FOG with Cogen	DC Solids to EDHWWTP + FOG + FW with Cogen
Gas Produced (CFD)	45,000	45,000	134,800	191,000
Generation (kWh)	0	441,000	1,764,000	2,646,000
Estimated Capital Cost	$1,008,000	$1,833,000	$4,693,000	$7,874,000
Potential incentives	0	$62,000	$247,000	$371,000
Net Capital	$1,008,000	$1,771,000	$4,446,000	$7,503,000
Net Savings ($/Yr)	$19,000	$49,000	$95,000	$104,000
Cumulative Lifetime Net Savings	$912,000	$1,375,000	$1,728,000	$1,829,000
Return on Investment	9.2%	8.9%	6.8%	5.8%

Alternate 1 thickens and hauls the DCWWTP wastewater solids to the EDHWWTP, and is the most financially attractive project with an estimated rate of return (ROI) of 9.2%. Alternative 2 consists of adding heat and recovery equipment to Alternative 1 and has an estimated ROI of 8.9%. Alternatives 3 and 4 add FOG and FW to the digestion process at EDHWWTP respectively. Because of the significant up-front capital investment for the construction of the receiving facility and cogeneration equipment, the ROI is less for these alternatives. If the District desires to pursue a cogeneration project at the EDHWWTP, then staff recommends that a basis of design analysis is performed on Alternatives 1-3 to refine project costs, the ROI and verify the assumptions made in the initial financial feasibility assessment.

Hydroelectric

The EDCWA 2009 Hydro Options Study investigated numerous hydroelectric generation opportunities within the District service area. In total, 22 in-conduit hydroelectric power projects were analyzed in detail and subsequently two projects have proceeded to design. The Tank 7 project has progressed through final design and a 10% design has been completed for the Tank 3 site. In addition, the Sly Park Intertie at Reservoir A, not evaluated in 2009, is currently being analyzed by NLine Energy for in-conduit hydroelectric feasibility.

Tank 7 and Tank 3 hydro station project capacity, generation estimates and capital cost are provided in the Table 4.

Table 4 – In-conduit Hydroelectric Project Data

Project Data	Res 7	Res 3
Nameplate rating	420 kW	385 kW
Estimated Annual Generation (kWh)	1,765,000	1,430,000
Estimated Project Costs	$2,042,000	$2,914,000

A financial analysis for the Tank 7 and Tank 3 projects is presented in Table 5. With a net present value of $1.5 million and a payback period of 13.7 years, the Tank 7 project is the most attractive alternative. The Tank 3 project could benefit from reoperation of the EDM 1 and 2 transmission mains and a system surge analysis that would answer questions regarding operational concerns associated with the project.

Table 5 – In-conduit Hydroelectric Project Financial Analysis

Financial Data	Res 7	Res 3
Tariff	RESBCT	RESBCT
District-financed or PPA?	District-financed	District-financed
25-year Net Earnings	$2,825,000	$835,000
25-year Net Present Value	$1,494,000	$211,000
25-year Levelized Cost of Energy (LCOE)	$0.0848	$0.1504
25-year ROI	38%	-71%
50-year Net Earnings	$11,434,000	$7,954,000
50-year Net Present Value	$3,442,000	$1,826,000
50-year Levelized Cost of Energy (LCOE)	$0.0749	$0.1371
50-year ROI	460%	173%
Simple Payback (years)	13.7	21.3

The Sly Park Intertie in-conduit hydroelectric project details are not yet available, but will be presented to the Board in early 2017, as part of a larger pipeline rehabilitation project.

Renewable Energy Funding Alternatives

Table 6 provides specific funding opportunities for the projects discussed in this agenda item. The incentive and financing programs include favorable tariffs, tax credits, favorable borrowing terms, and grant funding for renewable projects. Each will be investigated for potentially offsetting project costs.

Table 6 – Renewable Energy Project Incentives and Funding Opportunities

Programs	Source (Table/Pg #)	Initiatives			
		Hydro	Solar	Biomass	Energy Efficiency
Incentives					
CPUC Renewable Feed-In Tariff (FIT) Program	5/8	X	X	X	
Federal Government: U.S.IRS Renewable Electricity Production Tax Credit (PTC)	5/8	X		X	
Federal Government: U.S. IRS Federal Business Energy Investment Tax Credit	5/8		X		
Financing					
USDA Rural Development: Rural Energy for America Program Guaranteed Loan Program	6/9	X	X	X	
CEC: Energy Efficiency Financing - Interest Rate 1% Loans	6/9	X	X	X	X
PG&E Energy Efficiency Financing					X
Grants					
DWR: Water-Energy Grant Program	7/10	X	X		
BOR: WaterSMART program: Water and Energy Efficiency Grants	7/10	X	X		X
U.S. DOE: Energy Efficiency and Renewable Energy Technology Deployment, Demonstration and Commercialization	7/10	X		X	X
USDA: Renewable Energy for America Program	7/11	X		X	X
CEC: Water Energy Technology (WET) Program	7/11	X			
U.S. DOE: Regional Biomass Energy Program (RBEP)	7/12			X	
CalRecycle Organics Grants Program					X

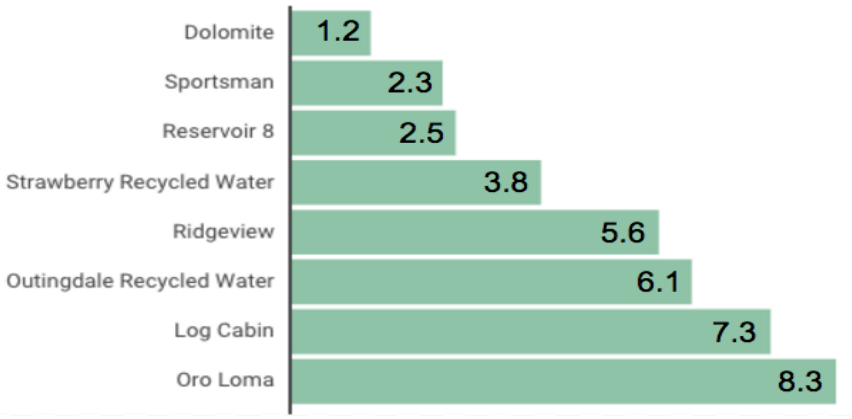
Energy Efficiency and Demand Management Projects

There are numerous opportunities for the District to implement energy efficiency improvements to facilities and operations. Energy efficiency measures often prove to be a cost-effective strategy, with shorter return on investments and lower project costs in comparison to energy generation projects.

As part of the 2012 CEC study, the District conducted an energy efficiency analysis of several existing pump stations. In total, if just the pumps that were studied were upgraded with efficient technology, approximately $80,000 in electricity costs would be saved each year. This equates to over $1,500,000 in potential lifetime energy savings, based on an average pump station lifecycle of 20 to 30 years.

The following chart shows the estimated payback periods for the pump stations that were analyzed in the 2012 CEC study. As a result of the study, the Sportsman's Hall pumps have been rebuilt and the Dolomite pump station is anticipated to be rehabilitated in 2016. In addition to those projects identified in the study, the Moose Hall pump station was rebuilt in 2015. The other projects are still being considered for replacement as funding and resources allow.

Pump Replacement Payback Period



As the analyzed pump stations were just a sampling of District equipment, a more thorough evaluation of all of District's pump stations will help identify which pumps to prioritize for retrofit.

Another savings strategy the District can and has implemented is energy demand management. Demand management involves reducing energy consumption during peak hours. In 2010, the District implemented demand management strategies at the Folsom Lake intake pump station and the El Dorado Hills Water Treatment Plant facilities. Demand management strategies are also employed at the Sportsman's Hall pump station. In addition, the El Dorado Hills water system has been re-operated to deliver gravity water to the Ridgeview tank via the Gold Hill Intertie instead of pumping to the tank. Staff will continue to look for efficiency and demand management opportunities.

Next Steps

Based on this analysis, staff plans to advance work on implementation of the EDHWWTP solar photovoltaic system and Tank 7 In-conduit hydroelectric projects.

The Tank 7 project will be bid in the next couple of months for Board consideration of award of a construction contract. The District has received multiple extensions of the FERC license exemption for this project; however construction must start by December 2016. It is unlikely any additional extensions of time will be granted.

Also, staff will return to the Board to request approval of funding to advance the planning, design and environmental work required for EDHWWTP solar.

Further analysis and evaluation is required for the DCWWTP NEM solar project, the RES-BCT solar project, and the Tank 3 In-conduit hydroelectric project to determine feasibility.

Board Decisions/Options:

No Action - Information Only

Tracey Eden-Bishop, P.E.
Associate Engineer

Elizabeth D. Wells, P.E.
Engineering Manager

Margaret Washko
WW/RW Operations Manager

Dana Strahan
Drinking Water Operations Manager

Brian Mueller, P.E.
Engineering Director

Mark Price
Finance Director

Tom McKinney
Operations Director

Jim Abercrombie
General Manager

POWER MITIGATION ALTERNATIVES UPDATE

May 23, 2016

Previous Board Actions

- October 13, 2015 - The Board adopted the 2016 – 2020 CIP, which included this project, subject to funding availability.

- December 14, 2015 – The Board approved funding in the amount of $63,500 for feasibility analysis of power mitigation projects.

Board Policy

- *BP 8010 Hydroelectric System Management* - EID maintains and operates its hydroelectric generating facilities in a safe, efficient, and environmentally responsible manner, and in compliance with all applicable federal and permits and regulations, the terms of the Federal Energy Regulatory Commission - (FERC) license, and all related agreements. Hydroelectric power generation shall be compatible with the EID's consumptive water supply operations.

Board Policy

- *BP 8020 Additional Generation Opportunities* - EID shall seek to augment its electric energy and capacity revenue stream, and/or reduce its operational energy expenses, by adding new generation facilities whenever they are economically viable.

  It is the policy of EID that resources planning and infrastructure, including water and wastewater systems, emphasize renewable energy and energy efficiency toward a goal of energy independence for El Dorado County and its citizens.

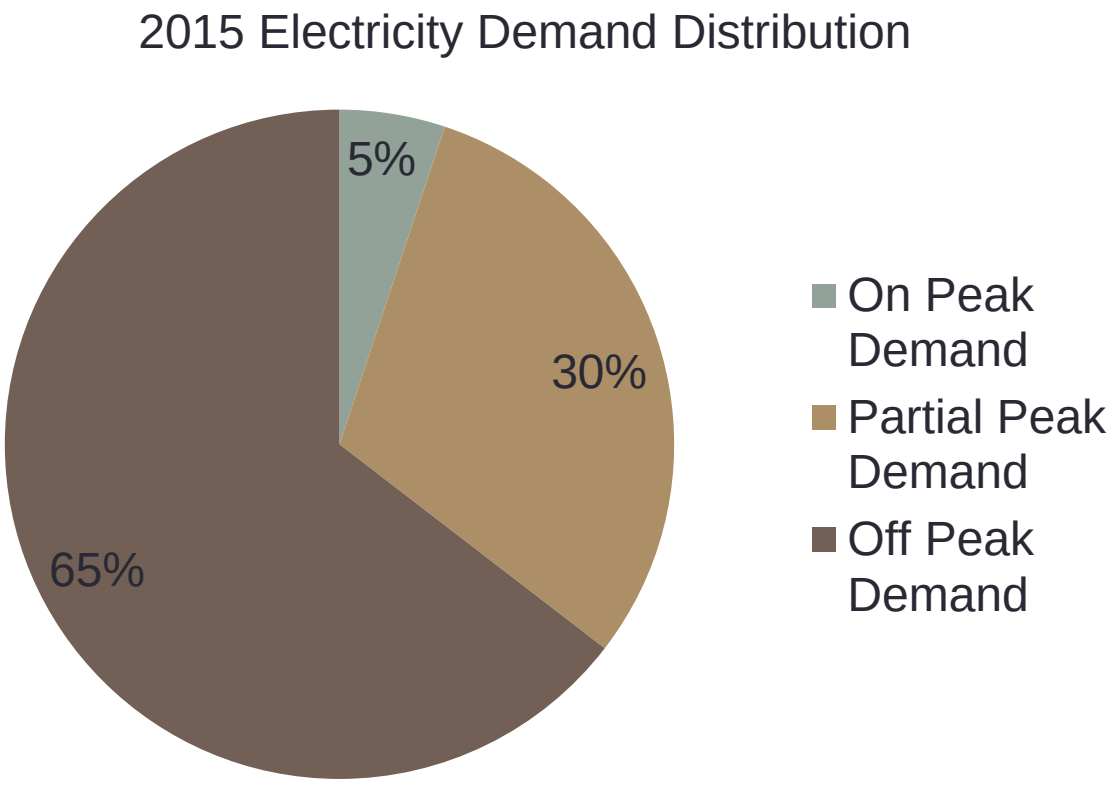
Summary of Issue

- EID one of the largest energy users in County
- Largest water purveyor in the County
  - 39,000 water accounts
  - 21,000 wastewater accounts
- Water delivery infrastructure
  - 37 pump stations
  - 5 water treatment plants
- Wastewater collection infrastructure
  - 61 lift stations
  - 4 wastewater treatment plants

Summary of Issue

Power use – 27,780 MWh

Power cost – $4,5000,000 (10% of Operating Budget)



Summary of Issue

- Increasing energy cost trends
- Mitigate costs with renewable energy sources
- Board actions taken to become energy self-sufficient
  - Developed energy related policies
  - Funded energy development and efficiency studies
  - Dedicated funding for renewable energy projects
- Board update
  - Projects currently being evaluated
  - Longer term opportunities for increasing generation and reducing energy use

Background

- Board has adopted various energy related policies
  - Management of existing hydroelectric facilities
  - Development of new generation facilities

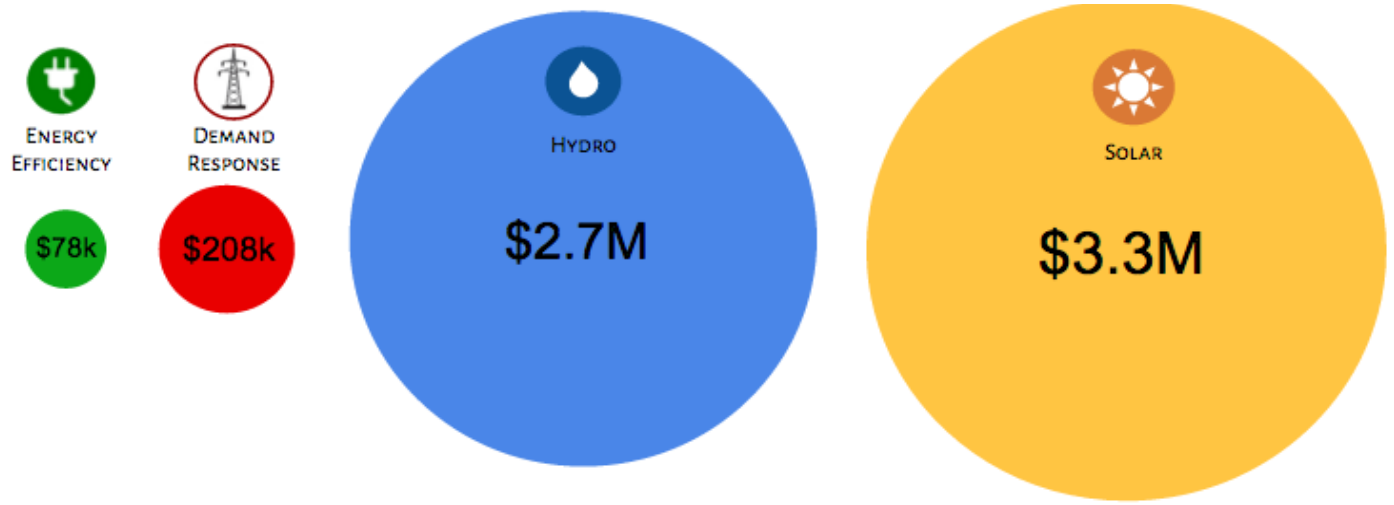
- Board Policy 8020, “Additional Generating Opportunities,”
  - Emphasizes renewable energy and energy efficiency in infrastructure planning
  - Goal of energy independence for El Dorado County and its citizens

Background

- Since BP 8020 adoption in 2006
  - EDHWWTP solar photovoltaic system
  - 2009 EDC Hydroelectric Development Options Study
    - Identified multiple hydroelectric opportunities within EID
  - 2012 California Energy Commission grant funded study
    - Further analysis of hydroelectric generation opportunities
    - Efficiency
    - Demand management

Background

- Studies identified potential for over $6 million in annual revenue/savings



Solar Discussion

Renewable Energy - Solar

- 2011 – Several sites evaluated for solar generation
  - Bass Lake ground mounted project
  - EDHWTP ground mounted project
- 2013 – EDHWWTP and DCWWTP evaluated
  - EDHWWTP favorable with Power Purchase Agreement (PPA)

Renewable Energy - Solar

- 2016 - EDHWWTP and DCWWTP reevaluated under current regulatory conditions
  - Three EDHWWTP sites
  - One DCWWTP site
- Tariff programs
  - Net Metering
  - Self Generation Bill Credit Transfer

El Dorado Hills Wastewater Treatment Plant

Potential Net Metering Sites

Deer Creek
Wastewater Treatment Plant

Potential Net Metering Site

Renewable Energy - Solar

Net Energy Metering Site Ranking

Site	Total Score	Rank
Site #2 EDHWWTP (South)	4.6	1
Site #1 EDHWWTP (North)	4.1	2
Site #4 DCWWTP	3.7	3
Site #3 EDHWWTP Pond	3.6	4

El Dorado Hills
Water and Recycled Water Tanks

Potential RES BCT Site

Renewable Energy - Solar

- Ownership Options
  - ***Own and Operate*** **-** EID would purchase install and operate solar PV system
  - ***Power Purchase Agreement (PPA):*** Third party would finance, own and operate the solar PV system, and EID would purchase the power generated from the third party

Renewable Energy - Solar

Solar Project Comparison

	DCWWTP (PPA)	EDHWWTP (PPA)	EDHWWTP (Owner Financed)	RES-BCT Site TBD (PPA)
Tariff	NEM 2.0	NEM 2.0	NEM 1.0	RES-BCT
Nameplate rating	2.5 MW	2.0 MW	1 MW	2.6 MW
Estimated annual generation (kWh)	3,895,000	3,177,000	1,504,000	4,142,000
Estimated District up-front costs	$0	$0	$2,500,000	$0
Annual O&M costs	$39,000	$32,000	$20,000	$41,000
Asset life	25 years	25 years	25 years	25 years
1st year earnings	$28,000	$104,000	$128,000	$83,000
25-year earnings	$5,625,000	$7,011,000	$2,600,000	$6,910,000

Cogeneration Discussion

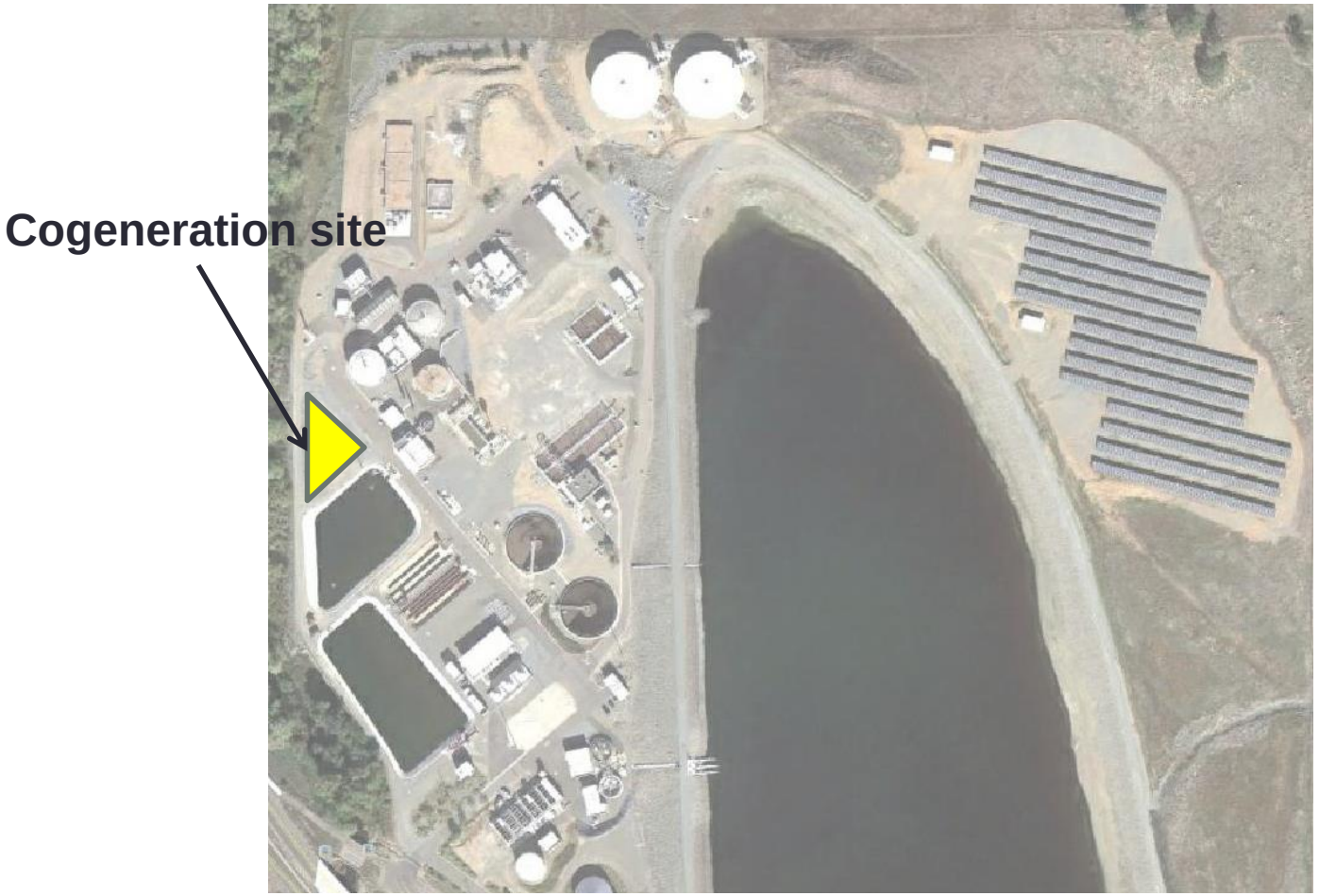
Renewable Energy - Cogeneration

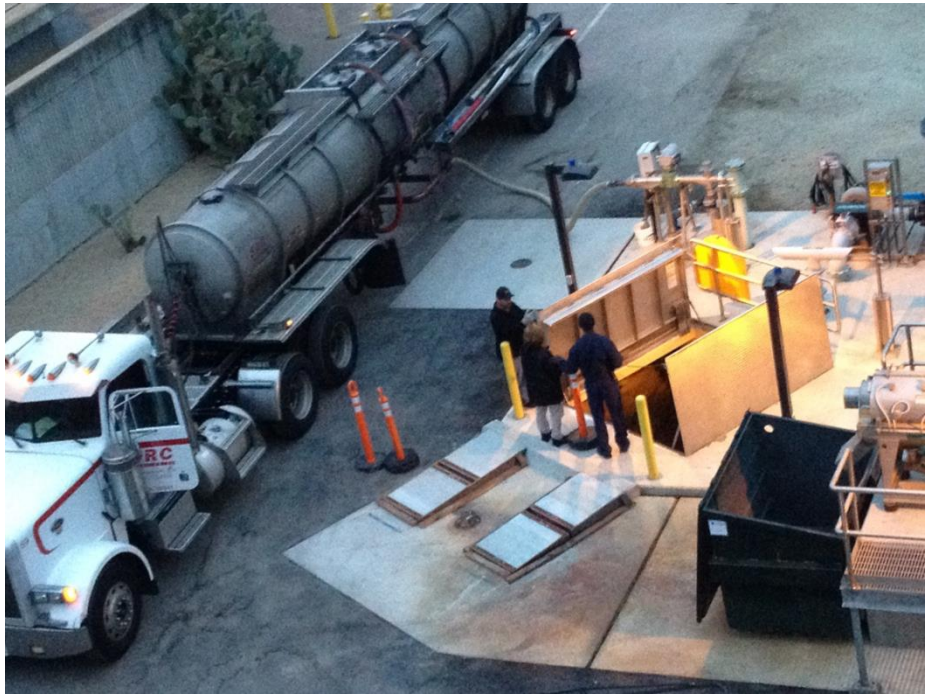
Sludge handling and cogeneration alternatives

1. DCWWTP sludge to EDHWWTP
2. DCWWTP sludge to EDHWWTP and installing cogeneration
3. DCWWTP sludge to EDHWWTP adding Fats, Oils and Grease (FOG) and installing cogeneration
4. DCWWTP sludge to EDHWWTP adding FOG and Food Waste and installing cogeneration

Renewable Energy - Cogeneration

El Dorado Hills Wastewater Treatment Plant





Fat, oil, grease and food waste receiving facilities

Cogeneration Alternatives

	DC Solids to EDHWWTP	DC Solids to EDHWWTP with Cogen	DC Solids to EDHWWTP + FOG with Cogen	DC Solids to EDHWWTP + FOG + FW with Cogen
Gas Produced (CFD)	45,000	45,000	134,800	191,000
Generation (kWh)	0	441,000	1,764,000	2,646,000
Estimated Capital Cost	$1,008,000	$1,833,000	$4,693,000	$7,874,000
Potential incentives	0	$62,000	$247,000	$371,000
Net Capital	$1,008,000	$1,771,000	$4,446,000	$7,503,000
Net Savings ($/Yr)	$19,000	$49,000	$95,000	$104,000
Cumulative Lifetime Net Savings	$912,000	$1,375,000	$1,728,000	$1,829,000
Return on Investment	9.2%	8.9%	6.8%	5.8%

Hydroelectric Discussion

Renewable Energy - Hydroelectric

- 2009 – EDC Hydro Options Study
  - Investigated 22 District sites
  - Tank 7 through final design
  - Tank 3 through 10% design
- Sly Park Intertie at Res A currently being analyzed

Renewable Energy - Hydroelectric

Hydroelectric Options

Project Data	Res 7	Res 3
Nameplate rating	420 kW	385 kW
Estimated Annual Generation (kWh)	1,765,000	1,430,000
Estimated Project Costs	$2,042,000	$2,914,000

Renewable Energy – Hydroelectric

Hydroelectric Alternatives

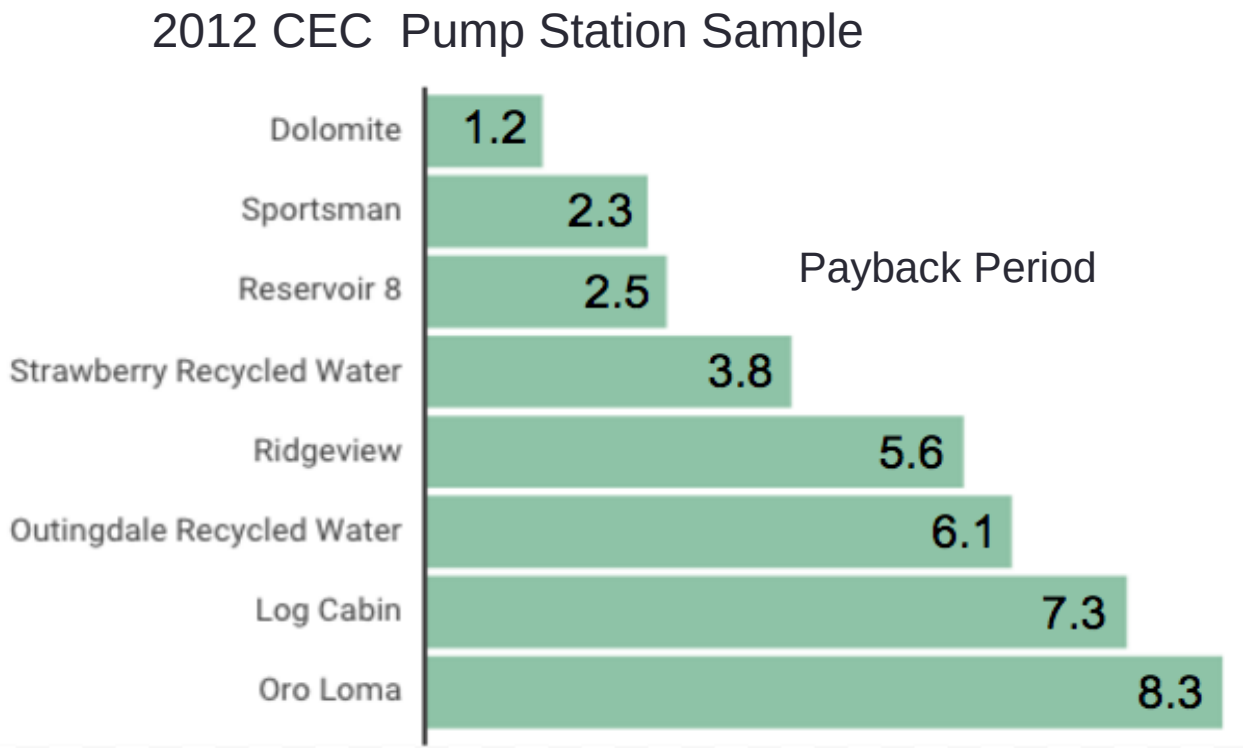
Financial Data	Res 7	Res 3
Tariff	RESBCT	RESBCT
District-financed or PPA?	District-financed	District-financed
25-year Net Earnings	$2,825,000	$835,000
25-year Net Present Value	$1,494,000	$211,000
25-year Levelized Cost of Energy (LCOE)	$0.0848	$0.1504
25-year ROI	38%	-71%
50-year Net Earnings	$11,434,000	$7,954,000
50-year Net Present Value	$3,442,000	$1,826,000
50-year Levelized Cost of Energy (LCOE)	$0.0749	$0.1371
50-year ROI	460%	173%
Simple Payback (years)	13.7	21.3

Renewable Energy Funding Programs	Initiatives			
	Hydro	Solar	Biomass	Energy Efficiency
Incentives				
CPUC Renewable Feed-In Tariff (FIT) Program	X	X	X	
Federal Government: U.S.IRS Renewable Electricity Production Tax Credit (PTC)	X		X	
Federal Government: U.S. IRS Federal Business Energy Investment Tax Credit		X		
Financing				
USDA Rural Development: Rural Energy for America Program Guaranteed Loan Program	X	X	X	
CEC: Energy Efficiency Financing - Interest Rate 1% Loans	X	X	X	X
PG&E Energy Efficiency Financing				X
Grants				
DWR: Water-Energy Grant Program	X	X		
BOR: WaterSMART program: Water and Energy Efficiency Grants	X	X		X
U.S. DOE: Energy Efficiency and Renewable Energy Technology Deployment, Demonstration and Commercialization	X		X	X
USDA: Renewable Energy for America Program	X		X	X
CEC: Water Energy Technology (WET) Program	X			
U.S. DOE: Regional Biomass Energy Program (RBEP)			X	
CalRecycle Organics Grants Program				X

Energy Efficiency / Demand Management

Energy efficiency improvements

- Shorter return on investment and lower project cost in comparison to energy generation projects



Energy Efficiency / Demand Management

Energy efficiency improvements

- Sportsman's Hall pumps rebuilt
- Moose Hall Pump Station was rebuilt in 2015
- Dolomite Pump Station anticipated in 2016
- Other projects considered in future CIP

- Additional Analysis
  - Other pump stations
  - Treatment plants

Energy Efficiency / Demand Management

Demand Management

- Reduces energy consumption during peak hours
- Demand management implementation
  - Folsom Lake In-Take Pump Station and EDHWTP
  - Sportsman's Hall Pump Station
  - EDH water system re-operated to deliver gravity water to Ridgeview Tank via the Gold Hill Intertie instead of pumping
- Staff will continue to look for efficiency/demand management opportunities

Next Steps

Power Mitigation Alternatives

Next Steps

- Implementation
  - EDHWWTP NEM Photovoltaic System
  - Reservoir 7 In-conduit Hydroelectric Project
- Additional Analysis
  - DCWWTP NEM Photovoltaic System
  - RES-BCT Photovoltaic System
  - Tank 3 In-conduit Hydroelectric Project
  - Sly Park Intertie In-conduit Hydroelectric Project
  - Pump station and WTP efficiency and demand management

Board Decisions/Options

None – information item

Questions?

EL DORADO IRRIGATION DISTRICT

SUBJECT: Consideration to award a construction contract to Syblon Reid General Engineering Contractors in the not-to-exceed amount of $532,985; and authorize total funding of $743,546 for the Reservoir A Water Treatment Plant Chemical Containment Improvements Project No. 14019.01.

Previous Board Actions:

- January 12, 2015 – The Board awarded a design contract to HydroScience Engineering Inc. for the Reservoir A Water Treatment Plant Improvements project.
- October 13, 2015 – The Board approved the 2016 – 2020 Capital Improvement Plan, which included the Reservoir A Water Treatment Plant Improvements project.

Board Policies (BP), Administrative Regulations (AR) and Board Authority:

BP 3060, Contracts and Procurement: AR 3061.04, contracts greater than $50,000 must be approved by the Board.

Summary of Issues:

The District chlorine conversion program was completed in 2014 including the changeover of the Reservoir A Water Treatment Plant (WTP) from gaseous chlorine to sodium hypochlorite and from quick lime slake to sodium hydroxide for pH control. Chemical containment and operational safety improvements are needed for the remaining two chemical feed systems at the Reservoir A WTP facility. The project incorporates chemical containment, metering pumps and controls replacement for the coagulant and orthophosphate feed systems. The improvements will include full secondary containment as required by Article 80 of the Uniform Fire Code. All work will be in accordance with the California Code of Regulations Title 22 governing design standards for surface water treatment facilities.

Staff Analysis/Evaluation:

Background

The purpose of the project is to construct chemical feed system improvements including three new chemical storage tanks (two for coagulant and one for orthophosphate), secondary containment, and feed pump replacement for the primary coagulant and orthophosphate (corrosion control treatment) chemical feed systems at the Reservoir A WTP. The system improvements will eliminate the liability of a leak event, risk associated with routine handling of totes via fork-lift, and improve reliability by replacing an aged storage tank and chemical metering pumps with new feed systems.

Spill containment for the existing 6,500 gallon bulk primary coagulant chemical tank has insufficient capacity to retain a catastrophic leak. The tank is beyond its life cycle and also has a small leak that has been patched to keep it in service. The original orthophosphate tank was removed from service approximately two years ago due to age and reliability concerns. The District since has been feeding this chemical out of small 270 gallon 'totes'. Due to their small capacity, the totes must be moved with a fork lift and the chemical manually transferred on a frequent basis, involving additional handling and consequential safety risk.

This project will bring the remainder of all chemical feed systems at the Reservoir A WTP into compliance with the California Drinking Water Regulations for reliability, including standby equipment availability to ensure continuous operation for the coagulation process; and the Uniform Fire Code requirements governing storage, dispensing, use and handling of hazardous materials.

Chemical Feed System Improvements

District staff continually evaluates primary coagulant chemicals to determine the most efficient and cost effective for treatment. Throughout the various seasonal changes in Jenkinson Lake, raw water quality characteristics change dramatically during the twice annual 'lake turn over' events. Staff has learned from bench scale testing and experience that no single coagulant is effective for the full range of water quality characteristics encountered. Installation of two coagulant storage tanks will allow staff to stage a second coagulant chemical to accommodate changing water characteristics and the ability to clean one tank while the other remains in service.

The existing coagulant storage tank is 24 years old and past the end of its originally anticipated useful life for reliable storage. The aluminum sulfate tank area previously provided secondary containment volume for the coagulant tank. Conversion of this room to the sodium hypochlorite storage and secondary containment room prevents separate containment of non-compatible chemicals if a catastrophic coagulant leak occurred. A second tank will provide compliance with the California Code of Regulations Section 64659 'Reliability Feature' to provide standby functionality ensuring continuous operation for the critical primary coagulation process.

Orthophosphate chemical is delivered in multiple 270 gallon capacity totes, and the contents are transferred as needed to one fixed tote set within a small block wall area serving as containment. Accessibility is difficult and the totes require frequent handling using a fork lift to bring them to the containment area for chemical transfer. The project will install a properly sized orthophosphate storage tank which will allow bulk transfer offloading directly from a supplier's truck. With this tank in place it then eliminates all manual material handling thereby reducing risk of accident and spillage. Additionally, a properly sized and lined secondary piped containment structure will be installed for any potential future spills.

Bidding:

On March 18th 2016, the project was advertised and bid documents were posted on the District website. A mandatory pre-bid site visit was held on April 12th 2016, which was attended by nine General A contractors. On April 27th 2016 four bids were submitted.

Name of Company	Total Bid
Syblon Reid	$532,985
TNT Industrial Contractors	$570,183
K.G. Walters Construction	$644,950
Koch & Koch	$758,900

Syblon Reid's bid was considered to be responsive, responsible, and less than the engineer's estimate of $587,000. District staff will perform construction management and general inspection. HydroScience Engineering designed the chemical containment project and will provide construction engineering services.

Environmental Review and Regulatory Permits:

The installation of the chemical containment within the existing Reservoir A property is categorically exempt from the California Environmental Quality Act (CEQA) as a minor alteration to the existing facility pursuant Class 1 (Existing Facilities (CCR, Title 14, Sec.15301 (a) (b)) and Class 3, New Construction of Small Structures (CCR, Title 14, Sec. 15303(d)). Upon Board approval of the project staff will file a Notice of Exemption from CEQA with the El Dorado County Clerk-Recorder's Office.

Consequences of Delaying the Project:

This project is included in the 2016-2020 CIP but was not slated to begin construction until 2017. However, the construction of other planned 2016 water-related projects such as the Monte Vista tank and flume replacement have been deferred until 2017, which allowed staff to advance this project in 2016.

The current primary coagulant tank is failing which could potentially cause a leak with no adequate containment. The original design of the treatment plant included the use of the septic system as the containment for the coagulant. This system also utilizes an overflow from the septic system to Clear Creek, which could increase the risk of discharge of any contained coagulant directly into a waterway if the septic tank is full. The containment system is out of compliance with Uniform Fire Code requirements, and is at risk of a tank failure based on tank age and current condition.

Funding:

The construction the Reservoir A WTP Chemical Containment Improvements Project No. 14019.01 would be funded through 100% water rates. Additionally, District crews will be purchasing the chemical feed pumps for this project, and will complete the installation including all metering and fabrication. District staff will also complete PLC and SCADA monitoring controls for the project. Both of these costs are reflected in the capitalized labor shown in the summary of funding needs as follows:

Funding Requirements

Syblon Reid General Engineering Contractors	$532,985
Capitalized labor – construction management and inspection	$102,686
Construction materials – pumps and bench material	$15,090
Construction engineering services- HydroScience Engineering	$25,190
Project contingency	$67,595
TOTAL FUNDING REQUESTED	**$743,546**

Board Decisions/Options:

Option 1: Award a construction contract to Syblon Reid General Engineering Contractors in the not-to-exceed amount of $532,985; and authorize total funding of $743,546 for the Reservoir A Water Treatment Plant Chemical Containment Improvements; Project No. 14019.01, Contract No. E15-09.

Option 2: Take other action as directed by the Board.

Option 3: Take no action.

Staff/General Manager's Recommendation

Option 1.

Support Documents Attached

Attachment A: Bid Summary
Attachment B: 2016 CIP

Patrick Wilson
Associate Engineer

Elizabeth Wells, P.E.
Engineering Manager

Dana Strahan
Drinking Water Operations Manager

Dan Corcoran
Environmental Division Manager

Brian Mueller, P.E.
Engineering Director

Tom McKinney
Operations Director

Mark Price
Finance Director

Jim Abercrombie
General Manager

EL DORADO IRRIGATION DISTRICT

RESERVOIR A WTP CHEMICAL CONTAINMENT IMPROVEMENTS

PROJECT NO. 14019.01; CONTRACT NO. E15-09

Bid Opening: April 27, 2016 @ 3:00 p.m. in the El Dorado Irrigation District's Board Room

SUMMARY OF BIDS RECEIVED

ITEM NO.	WORK OR MATERIAL	QUANTITY	UNIT	Syblon Reid Folsom, CA		TNT Industrial Contractors Sacramento, CA		K.G. Walters Construction Santa Rosa, CA		Koch & Koch Penn Valley, CA	
				UNIT PRICE (FIGURES)	AMOUNT (FIGURES)	UNIT PRICE (FIGURES)	AMOUNT (FIGURES)	UNIT PRICE (FIGURES)	AMOUNT (FIGURES)	UNIT PRICE (FIGURES)	AMOUNT (FIGURES)
1	Bonds and Insurance	1	LS	10,000.00	$ 10,000.00	8,424.00	$ 8,424.00	9,000.00	$ 9,000.00	16,000.00	$ 16,000.00
2	Mobilization / Demobilization	1	LS	7,500.00	7,500.00	3,201.00	3,201.00	55,000.00	55,000.00	20,000.00	20,000.00
3	Trench Sheeting, Shoring and Bracing	1	LS	5,000.00	5,000.00	1,256.00	1,256.00	500.00	500.00	7,000.00	7,000.00
4	Demolition of Existing Facilities	1	LS	21,000.00	21,000.00	21,033.00	21,033.00	20,000.00	20,000.00	30,000.00	30,000.00
5	1" SCH 80 PVC	230	LF	20.00	4,600.00	7.00	1,610.00	40.00	9,200.00	45.00	10,350.00
6	6" SCH 80 PVC	225	LF	170.00	38,250.00	56.00	12,600.00	150.00	33,750.00	70.00	15,750.00
7	8" SCH 80 PVC Above Grade	25	LF	735.00	18,375.00	128.00	3,200.00	500.00	12,500.00	900.00	22,500.00
8	Retaining Wall	135	SF	261.00	35,235.00	130.00	17,550.00	500.00	67,500.00	500.00	67,500.00
9	Secondary Containment Tank	1	EA	82,000.00	82,000.00	51,087.00	51,087.00	82,000.00	82,000.00	100,000.00	100,000.00
10	OP Tank	1	EA	19,500.00	19,500.00	33,995.00	33,995.00	30,000.00	30,000.00	35,000.00	35,000.00
11	Polymer Tank	2	EA	42,000.00	84,000.00	31,868.00	63,736.00	80,000.00	160,000.00	40,000.00	80,000.00
12	Chemical Containment Area Coating	900	SF	72.25	65,025.00	77.00	69,300.00	65.00	58,500.00	72.00	64,800.00
13	Mechanical Work	1	LS	62,500.00	62,500.00	67,004.00	67,004.00	25,000.00	25,000.00	140,000.00	140,000.00
14	Electrical Work	1	LS	70,000.00	70,000.00	88,110.00	88,110.00	67,000.00	67,000.00	110,000.00	110,000.00
15	All Remaining Work of Contract Documents	1	LS	10,000.00	10,000.00	128,077.00	128,077.00	15,000.00	15,000.00	40,000.00	40,000.00
	TOTAL				$ 532,985.00		$ 570,183.00		$ 644,950.00		$ 758,900.00

THIS TABULATION REPRESENTS A TRUE AND COMPLETE SUMMARY OF BIDS RECEIVED BY EL DORADO IRRIGATION DISTRICT

PROJECT NO. 14019.01; CONTRACT NO. E15-09

PREPARED BY: Lori Bazinet
District Contract Management

SUBMITTED BY:

Tracey Eden-Bishop, P.E., Senior Civil Engineer

2016 CAPITAL IMPROVEMENT PLAN Program: Water

Project Number: 14019

Project Name: Reservoir A WTP Chemical Feed Containment

Project Category: Reliability & Service Level Improvements

Priority: 2 **PM:** Rice **Board Approval:** 10/13/15

Project Description:

The District's chlorine conversion program was successfully completed in 2013 with the changeover from gaseous chlorine to liquid sodium hypochlorite. This project is for improvements to the remaining two chemical feed systems and includes replacement of a 26 year old polymer storage tank, installation of a new orthophosphate tank to replace one that failed two years ago, construction of secondary containment for compliance with Article 80 of the Uniform Fire Code concerning hazardous materials storage, and installation of replacement chemical feed equipment. The system improvements will eliminate the current practice of manually handling and transferring quantities of orthophosphate chemical and eliminate the liability of a leak event for orthophosphate and coagulant polymer.

This project will bring the remainder of all chemical feed systems at the Reservoir A WTP into compliance with both the drinking water regulations for reliability and the Uniform Fire Code requirements governing storage, dispensing, use and handling of hazardous materials. Proposed funding includes design of the chemical and secondary containment storage, construction, as well as procurement and installation of the new chemical feed systems by District operations and maintenance staff. Construction will occur during the winter/spring period of low plant demands and occur in early 2017.

Basis for Priority:

Replacement of aging chemical storage and feed equipment and compliance with regulatory requirements for safe storage of hazardous chemicals

Project Financial Summary:			
Funded to Date:	**$ 114,376**	**Expenditures through end of year:**	**$ 106,115**
Spent to Date:	**$ 86,115**	**2016 - 2020 Planned Expenditures:**	**$ 420,000**
Cash flow through end of year:	**$ 20,000**	**Total Project Estimate:**	**$ 526,115**
Project Balance	**$ 8,261**	**Additional Funding Required**	**$ 411,739**

Description of Work	**Estimated Annual Expenditures**					
	2016	**2017**	**2018**	**2019**	**2020**	**Total**
Study/Planning						**$ -**
Design						**$ -**
Construction		**$ 420,000**				**$ 420,000**
						$ -
TOTAL	**$ -**	**$ 420,000**	**$ -**	**$ -**	**$ -**	**$ 420,000**

Funding Sources	**Percentage**	**2016**	**Amount**
Water Rates	100%		$0
Total	**100%**		**$0**

Funding Comments: Project involves upgrade of existing facilities and no planned increase in capacity, therefore funding is 100% water rates.

Reservoir A Water Treatment Plant Chemical Containment Improvements

CIP 14019.01

Project No. 14019.01
May 23, 2016

El Dorado Irrigation District

Previous Board Action

- January 12, 2015 – Award for design contract to HydroScience Engineering Inc. for the Reservoir A Water Treatment Plant Improvements project, subject to funding availability

- October 13, 2015 - Board approved the 2016-2020 CIP, which included the Reservoir A Improvements project subject to funding availability

Board Policies /Administrative Regulations

BP 3060, AR 3061.04: A single contract or commitment shall not exceed $50,000 without approval by the Board of Directors

Summary Of Issue

- The completion of the Chlorine Conversion project at Reservoir A WTP reduced liability and enhanced safety
- Two remaining chemical feed systems at Reservoir A Water Treatment Plant:
  - Polymer
  - Orthophosphate
- Project includes new storage, metering pumps, and secondary containment for these two systems

Existing Polymer Storage Tank

- 6,000 Gallon Capacity
- In Service For 23 Years
- Slow Leaks
- Difficult To Clean

Existing Polymer Metering Pumps

- Short Life Cycle
- Install New Pumps Better Suited For High Viscosity Fluids

Orthophosphate System

- Previous bulk tank removed due to age
- Current tote requires additional handling of containers and liquid chemical

Secondary Containment

Project includes a separate containment structure

Bidding

- Advertisement
  - March 18, 2016
- Mandatory Pre-Bid Job Walk
  - April 12, 2016
- Bid Opening
  - April 27, 2016

Bid Results

Name	Total Bid
• Syblon Reid	$532,985
• TNT Industrial	$570,183
• K.G. Walters	$644,950
• Koch & Koch	$758,900
Engineer's Estimate	$587,000

District Involvement

- Project Management
- Project Inspection
- Construct
  - Pump bench
  - Metered pump plumbing
- Implement PLC/SCADA control modifications

Environmental

- The installation of the chemical containment within the existing Reservoir A property is categorically exempt from the California Environmental Quality Act (CEQA)
  - No additional permits required

Funding

Anticipated Project Costs

• Syblon Reid	$532,985
• Capitalized Labor (Inspection, CM, & Construction Labor)	$102,686
• Construction Material (To Be Installed By District Staff)	$15,090
• Construction Engineering Services (HydroScience Engineering)	$25,190
• Project Contingency (10% Contingency)	$67,595
TOTAL	$743,546

Board Decisions/Options

- **Option 1:** Award a contract to Syblon Reid General Engineering in the not-to-exceed amount of $532,985; and approve total funding of $743,546 for the Reservoir A Chemical Feed and Containment Project; Project No. 14019
- **Option 2:** Take other action as directed by the Board
- **Option 3:** Take no action

Staff and General Manager Recommendation

- Option 1

Questions