

# "Energizing" Contra Costa County Fire Protection District



OPTERRA  
ENERGY SERVICES



Board Presentation  
December 6, 2016

# Today's Agenda



- Partnership Vision
- Opportunity Statement
- Energy Use, Savings
- Pro Forma, Financial Benefits
- Energy Measures by Site Locations
- Solar PV Layouts
- Community Impact / Education Plan
- Alignment with Climate Action Plan
- Next Steps



# Program Vision and Objectives: “Energizing” CCCFPD



Improve CCCFPD facility equipment; address deferred maintenance needs



Model fiscally responsible environmental stewardship; leverage utility incentives, rate structures



Engage / educate community;  
Create local jobs for residents



Align with Contra Costa County  
Climate Action Plan (CAP)

# District-wide Fire Stations Heating & Cooling Deferred Maintenance Challenge



*48-year-old boiler at Fire District Headquarters  
has far exceeded operational life expectancy*

## **Challenge:**

End-of-life heating and cooling equipment at 12 sites; lack of funds

## **Solution:**

Project's utility savings pay for otherwise-capital-intensive equipment at all 12 sites

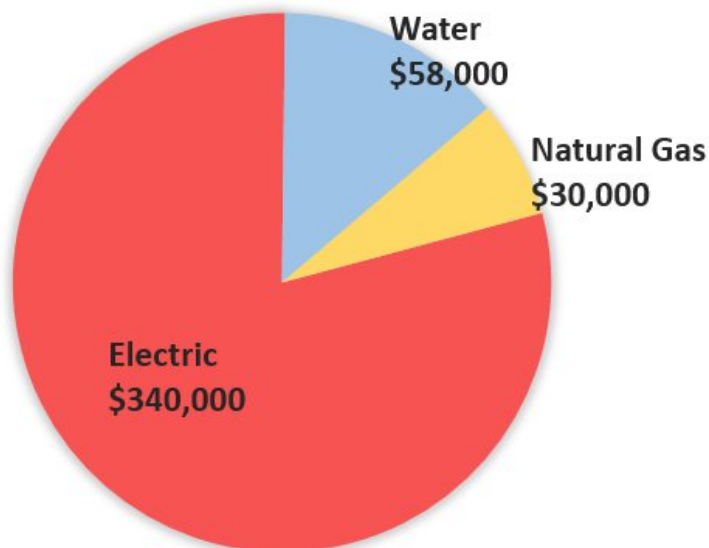
# BEFORE & AFTER

## Current Costs & Project's Future Savings (Annual)



BEFORE | AFTER

**CURRENT UTILITY EXPENDITURE:**  
**\$428,000 / YEAR**



**PROJECT UTILITY SAVINGS:**

- **Electric:**  
 \$192,000 (56%) | 1.1 MWh (69%)
- **Water:**  
 \$600 (1%) | 132,000 gallons (2%)
- **Natural Gas:**  
 \$1,200 (4%) | 1,100 therms (4%)

**GHG Emissions Reduction:**  
 214 MTCO<sub>2</sub>e\*  
 Equals 500 barrels of oil\*\*

\* PGE calculator (gas + electric)  
 \*\* EPA equivalences (per pg 41 CAP)

**CURRENT Operations & Maintenance, Capital Cost: \$72,000/year\***  
 \* For HVAC equipment being replaced

**Operations & Maintenance, Capital Cost Avoidance Project Savings: \$72,000/year**

**Total Annual Project Savings: \$266,000**

# Pro-Forma – Sterling National Bank Tax Exempt Municipal Lease Project Financial Benefit



Interest Rate: 2.47%

Annual Energy Escalation: 5%

Finance Term: 19 years

Scope:

- Solar Parking Canopies
  - 3 sites
- Ground Mount Solar utility bill offset
  - 1 ground mount solar site; 23 bill offset sites
- Water Conservation
  - 21 sites
- End-of-life HVAC replacements
  - 12 sites

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Year	Total Program Savings *	Payment to Lessor	O&M (Self-Generation)	Total Program Costs	Net Savings
1	\$265,751	\$201,580	\$0**	\$201,580	\$64,171
2	\$275,099	\$210,928	\$0	\$210,928	\$64,171
3	\$284,857	\$197,331	\$23,355	\$220,686	\$64,171
4	\$295,046	\$206,819	\$24,056	\$230,875	\$64,171
5	\$305,683	\$216,734	\$24,777	\$241,512	\$64,171
6	\$316,789	\$227,098	\$25,521	\$252,618	\$64,171
7	\$328,387	\$237,929	\$26,286	\$264,216	\$64,171
8	\$340,494	\$249,248	\$27,075	\$276,323	\$64,171
9	\$353,137	\$261,079	\$27,887	\$288,966	\$64,171
10	\$366,338	\$273,443	\$28,724	\$302,167	\$64,171
11	\$380,121	\$286,365	\$29,585	\$315,950	\$64,171
12	\$394,515	\$299,871	\$30,473	\$330,344	\$64,171
13	\$409,543	\$313,985	\$31,387	\$345,372	\$64,171
14	\$425,236	\$328,736	\$32,329	\$361,065	\$64,171
15	\$441,624	\$344,154	\$33,299	\$377,453	\$64,171
16	\$458,735	\$360,267	\$34,297	\$394,564	\$64,171
17	\$476,604	\$377,107	\$35,326	\$412,433	\$64,171
18	\$495,264	\$394,706	\$36,386	\$431,093	\$64,171
19	\$514,749	\$413,100	\$37,478	\$450,578	\$64,171
20	\$448,412	\$0	\$38,602	\$38,602	\$409,810
21	\$444,243	\$0	\$39,760	\$39,760	\$404,482
22	\$464,122	\$0	\$40,953	\$40,953	\$423,169
23	\$484,892	\$0	\$42,182	\$42,182	\$442,710
24	\$506,591	\$0	\$43,447	\$43,447	\$463,144
25	\$529,261	\$0	\$44,750	\$44,750	\$484,510
26	\$552,945	\$0	\$46,093	\$46,093	\$506,852
27	\$577,690	\$0	\$47,476	\$47,476	\$530,214
28	\$603,541	\$0	\$48,900	\$48,900	\$554,641
29	\$630,550	\$0	\$50,367	\$50,367	\$580,183
30	\$658,767	\$0	\$51,878	\$51,878	\$606,889
<b>Totals</b>	<b>\$13,028,985</b>	<b>\$5,400,483</b>	<b>\$1,002,648</b>	<b>\$6,403,131</b>	<b>\$6,625,853</b>

\* Includes Utility Savings, O&M Savings, & Capital Cost Avoidance

\*\* Years 1 & 2 of O&M, Monitoring, and Savings Guarantee included in capital cost

# Sites and Work Scopes



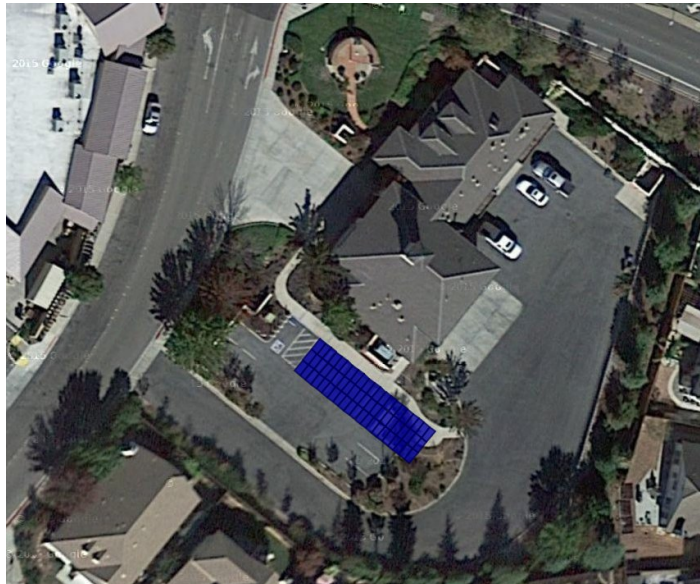
# Renewable Energy / Solar Sites



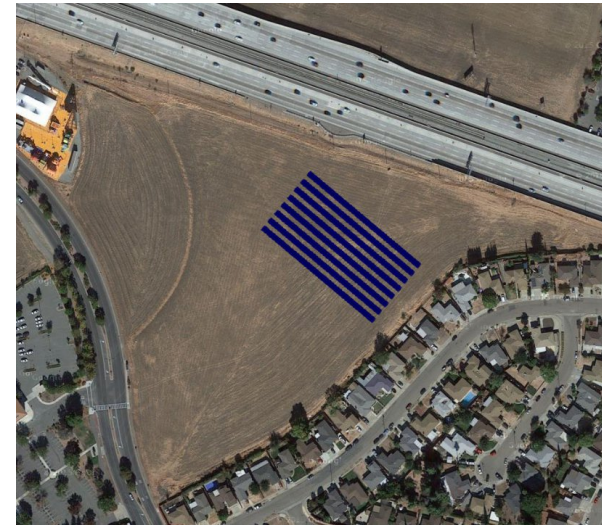
**Fire Station 10 &  
Training Campus  
Concord  
135 kW**



**Fire Station 84  
Pittsburg  
33 kW**



**Fire Station 11  
Clayton  
121 kW**



**Delta Fair Site  
Antioch  
562 kW**



# Community Impact / Education Activities



- October 29 Confire Open House – Solar Education
- Collaborate with District on media and targeted community outreach
- 2017 presentations alongside Battalion Chiefs to District-area City Councils on program’s fiscal and environmental benefits
- Program groundbreaking and ribbon cutting celebrations in 2017

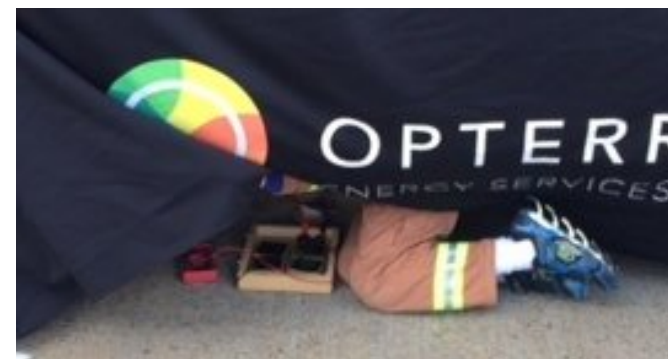


*60 local youth explore solar kits*

*Well over 100 families visit Confire Open House October 29*



*Junior firefighter experiments with solar panels under table drape*



# Alignment with County's Climate Action Plan Goals and Measures



Climate Action Plan* Alignment	
GOALS	MEASURES
GOAL 1: Energy Efficiency	EE2: Energy Efficient Retrofits – Nonresidential
	EE3: Energy Conservation Awareness
	EE5: Energy Efficiency Capacity Building
GOAL 2: Renewable Energy	RE2 Renewable Energy Facilities on Public Lands
	RE3: Renewable Energy Financing – Lower Barriers
GOAL 5: Water Conservation	WE1: Water Conservation / Efficiency
GOAL 6: Government Operations	GO2: Energy Efficiency
	GO3: Water Conservation

\* Contra Costa County Climate Action Plan adopted 12/15/2015

# Final Steps to Realizing Vision



Development Activity	Complete?	Date(s)
Feasibility Assessment	✓	2015
Board Approval of Program Development Agreement	✓	5/10
Site walks and existing condition audits	✓	5/26 – 7/8
Update Board	✓	7/19
Competitive Procurement Process: OpTerra/CCCYPD staff run transparent, competitive RFP-based procurement with multiple contractors on installation, equipment	✓	July
Working Group Scope Review and Feedback	✓	August
Issue Competitive RFP for Financing	✓	September
CCCYPD Approval of Funding Plan & Implementation Contract		Today
Groundbreaking Ceremony		Jan 2017
Construction/Implementation		Winter - Spring 2017

# Questions / Comments

