



OPTERRA
ENERGY SERVICES



Energy Services Feasibility Assessment: **Marysville Joint Unified School District**

Jeffery A. Prosswimmer
Carolyn Kiesner, CEM
Heather Benner, PE

Senior Business Development Manager
Program Development Manager
Lead Project Development Engineer

October 25, 2016

Agenda



1. Energy Consumption Analysis
2. Program Scope
3. Financial Overview
4. Program Benefits
5. OpTerra Capabilities and References
6. Roadmap for next steps



Marysville JUSD Electricity Expenditures



- Current Marysville JUSD PG&E Electrical Expenditures are **\$1.96 Million Per Year**
- Project Utility Expenditures For the Next Ten (10) Years = **\$28.37 Million***
- Project Utility Expenditures For the Next Twenty (20) Years = **\$71.32 Million***
- Project Utility Expenditures For the Next Thirty (30) Years = **\$141.28 Million***

***Based On 5% PG&E Rate/Tariff Escalation**

© 2016 OPTERRA ENERGY SERVICES

An **ENGIE** company

Program Components



- Vacant Land

- Alicia Site Perfect for Solar “Farm”

- PG&E RES-BCT Program

- RES-BCT = Renewable Energy Self-Generation Bill Credit Transfer
- Generate Electricity at One District Site to be Used District-Wide



- CREBS Bond

- CREBS = Certified Renewable Energy Bonds
- For Public Sector Entities Subsidized by the IRS From 65%-70%
- Financing for Solar Project From .85%-1.35% Annual Interest Rate
- Extended Financing Term if Desired...15-29 Years

Option #1



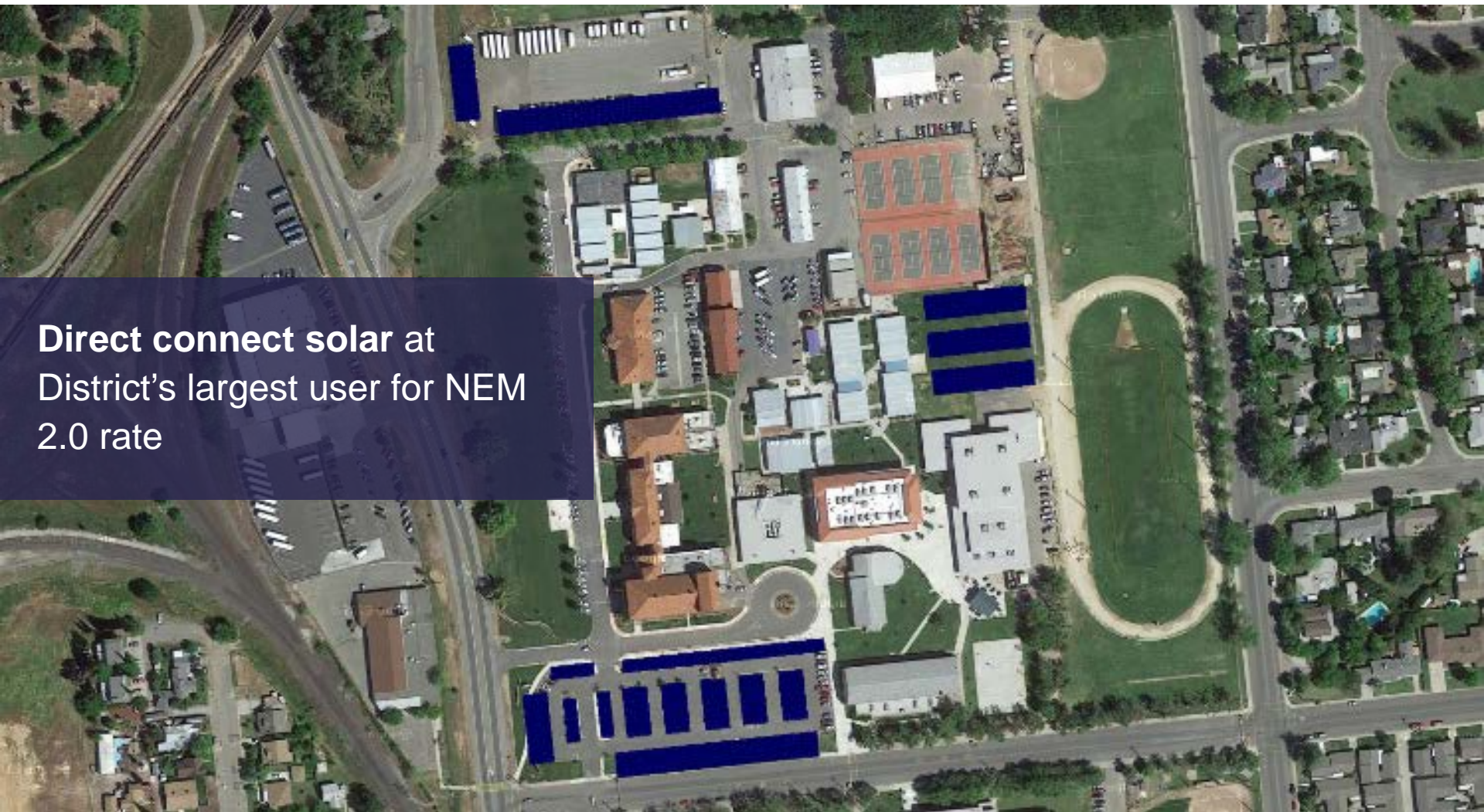
Ground-mount fixed-tilt solar project at Alicia site to generate district-wide solar energy

\$990,000 Per Year of Initial Solar Generation Utility Cost Offset

Option #2



**Direct connect solar at
District's largest user for NEM
2.0 rate**



Option #2: Continued



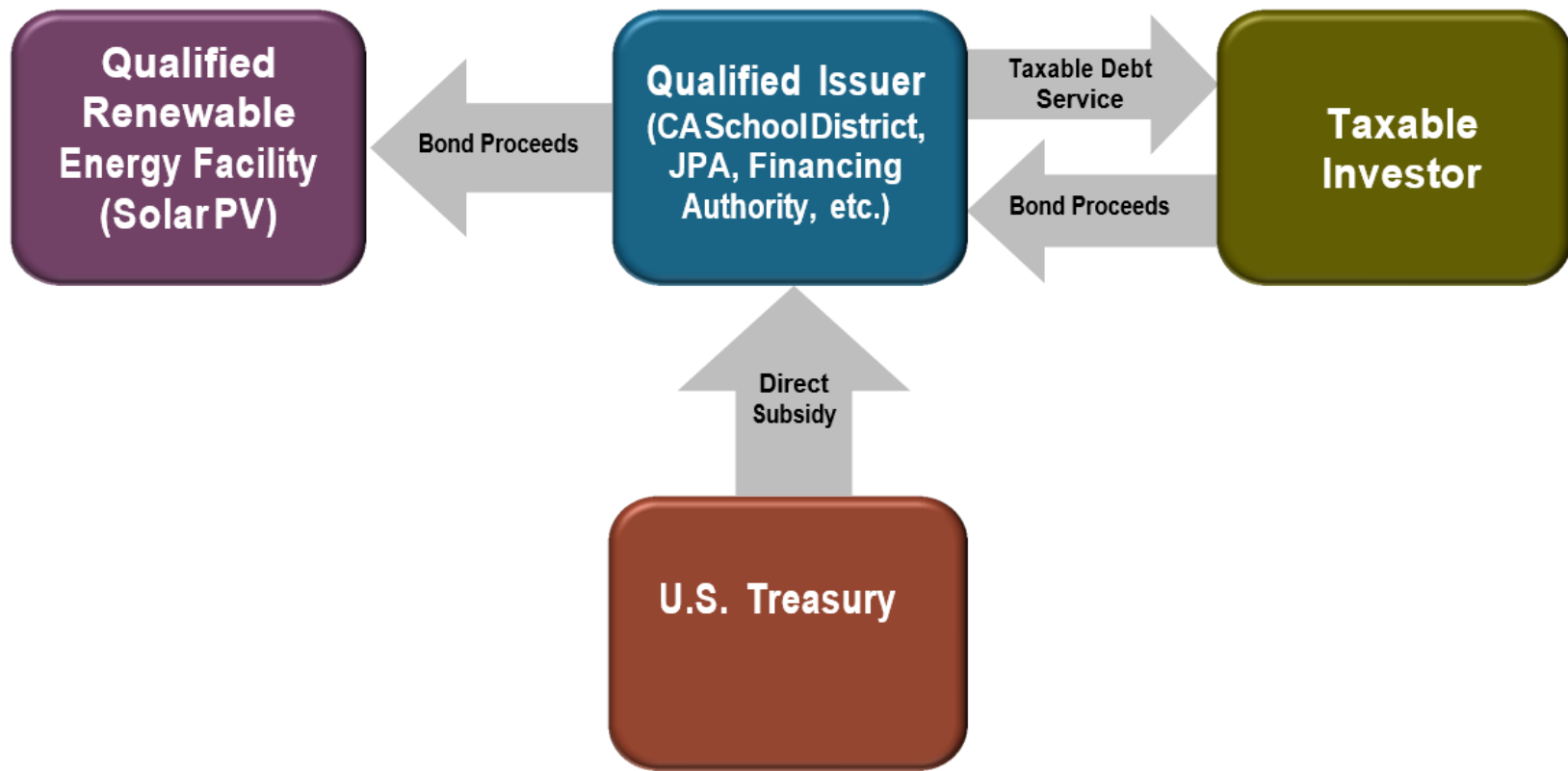
**Alicia and Marysville
HS direct connect: 25%
smaller solar farm with
NEM 2.0 program at
Marysville High School
Campus**

**Combined sites = \$1.25 Million
Initial Utility Offset**

Funding Pathways: CREBS Structure



NEW CREBS TRANSACTION STRUCTURE



Solar PV Benefits Based on Preliminary Engineering



- Create **\$60-\$94 Million in Total Energy Expenditure Savings** Over 30-Year Period
- **Reduce District Electricity Spend by 48%-72%**
- **Net Economic Impact and Positive Cash Flow** to the District of **\$40-\$70 Million** Over 30-Year Period



Example Calculation: Option #1

- **Average Yearly Utility Generation/Utility Savings = \$2.02 Million**
- **Average Yearly CREBs Payment + Maintenance Costs = \$679 K**
- **Average Yearly Positive Cash Flow to District = \$1.3 Million**
- **\$40M positive cash flow over 30 years***

Solar PV Project Benefits



- ✓ **Implement Solar Project Before Clean Renewable Energy Bonds (CREBs) Allocation is Exhausted**
- ✓ **Implement Solar Project Before the Renewable Energy Self-Generation Bill Credit Transfer (RES-BCT) Program Limit of 105 MW is Exceeded**
- ✓ **Ability to Fast Track District Energy Efficiency Plan to “Right Size” Solar Application**
- ✓ **Create District Energy Independence and Hedge Against Rising Energy Costs**
- ✓ **OpTerra Guarantees 95% of Energy Savings/Solar Generation**
 - **Continual Monitoring of Solar System and Generation**
 - **Annual Report to District and “True-Up” Reconciliation**



Solar PV Project Benefits



- ✓ **No Out of Pocket Costs For Program as all Costs For the Program Come From \$Dollars Currently Paid to PG&E**
- ✓ **Project Development and Implementation Utilize California Municipal Code 4217.10-4217.18**
- ✓ **Stimulate Local Economy and Provide Local Jobs**
- ✓ **Substantial Environmental Benefits**
- ✓ **Bring Technical Aspects of the Project Into the Classroom With Dedicated STEM Education Program**



Additional Benefits: Educational Opportunities



Professional Development

Empower teachers with energy industry content & instructional strategies.



Real World Data

Connect data and technology from real world energy projects to engage students in a 'living laboratory' on their campus.



STEM Instructional Materials & Programs

Provide supplemental materials to motivate and engage students in the STEM learning process.

Design and build a STEM Lab customized to your District's educational goals.



Bridging the gap between classrooms & careers

Inspire & train students to become Sustainability Ambassadors through job shadowing, classroom visits, mentorship & internship experiences, and more.

Recent Energy Savings Projects: Local References



- City of Marysville (In Final Design)
- Yuba County Phase I and Phase II (In Construction)
- Sutter County
- City of Yuba City Phase I and Phase II (Council Approved October 18, 2016)
- City of Grass Valley



Recent Energy Savings Projects: School Districts



- Burbank Unified School District
- Desert Sands Unified School District
- East Side Union High School District
- Fountain Valley School District
- Franklin-McKinley School District
- Huntington Beach Cty School District
- Jurupa Unified School District
- Jefferson Elementary School District
- Live Oak School District
- Los Angeles Unified School District
- Lucia Mar Unified School District
- Manhattan Beach Unified School District
- Milpitas Unified School District
- Morgan Hill Unified School District
- Monterey County Office of Education
- Oak Grove School District
- Orange Unified School District
- Nuview School District
- San Dieguito Union High School District
- Salinas City Elementary School District
- San Jose Unified School District
- San Lorenzo Unified School District
- Santa Ana Unified School District
- Santa Cruz County Office of Education
- South San Francisco Unified School District
- Temple City Unified School District
- Westminster School District

Our RES-BCT Projects



Customer	Utility	RES-BCT kW	Project Status
Yuba County (PH II)	PG&E	1,645	In Construction
Sutter County	PG&E	752	In Construction
City of Grass Valley	PG&E	769	Interconnected
City of Hanford (PH II)	SCE	2,333	Interconnected
City of Lemoore	PG&E	792	In Design
City of Salinas	PG&E	845	Interconnected
Indian Wells Valley Water District	SCE	915	In Design
Jurupa Unified School District	SCE	1,600	Interconnected
Lucia Mar Unified School District	PG&E	554	Interconnected
Riverside County	SCE	7,901	In Construction
City of Dinuba	PG&E	1,150	Interconnected
Antelope Valley-East Kern Water Agency	SCE	3,285	In Design

Yuba City, CA



PROJECT HIGHLIGHTS

- Reduced dependence on gas and electric utilities and hedged against rising energy costs
- Improved indoor air quality and lighting
- Reduces annual carbon emissions by 1,376 metric tons, equivalent to removing 290 cars from the road



\$5.8MM

in savings over the program life

Interior LED lighting at
11 facilities and outdoor LED
fixtures at 16 facilities
661 kW of solar PV at two sites
VFD and ultrasonic flow meter
on pumps at the Aquatic Park
pool
Ventilation system at City Hall

Yuba County, CA



PROJECT HIGHLIGHTS

- Will reduce the County's annual energy purchases by 50%
- Offsets nearly 2,087 metric tons of greenhouse gases annually, equivalent to removing 441 cars



\$11.2MM

in savings

1 MW of solar PV across two sites

Induction lighting retrofits at ten buildings and upgraded HVAC units at three sites

Replaced outdated emergency generator

High-efficiency magnetic drive chiller

Water conservation

Sutter County, CA



PROJECT HIGHLIGHTS

- Decreased electric utility purchases by 75%
- Avoids 1,659 metric tons of carbon emissions annually, equivalent to removing 520 cars from the road every year
- Savings from the upgrades allow the County to make critical investments in technology, equipment, and infrastructure

Achieved nearly
\$18.5MM

in net savings
1.46 MW of solar PV
across ten sites

Interior/exterior LED lighting
at 22 sites

New rooftop AC units at 19
sites

Upgraded County-wide energy
management system
Water conservation

Sutter County community members and the OpTerra team celebrate the program at a groundbreaking event on June 24th, 2014.

City of Grass Valley, CA



PROJECT HIGHLIGHTS

- Reduces City electricity spending by over 50%
- Reduces dependence on gas and electricity and hedges against rising energy cost
- Hired local contractors for construction, stimulating the local economy and providing local jobs



Saves **\$7MM**
over the program life

Retrofitted streetlights,
indoor/outdoor parking lot
lighting, and traffic lights
with LEDs

863 kW of solar PV

Solar hot water heating system,
pool pump controls, and cover
at Memorial Park Pool

New roof at City Hall

Sacramento County, CA



PROJECT HIGHLIGHTS

- Reduced CO₂ emissions by 980 metric tons, the equivalent to removing 190 cars from roadways each year
- Maximized energy solutions and minimized project costs by utilizing Government Code Section 4217.10-18

\$2.6MM

in net savings over a 20-year period

Exterior induction and Interior lighting retrofits

Mechanical system improvements including replacing HVAC units and a new water plant

New direct digital controls and energy management systems at four facilities

OpTerra Energy Services By the Numbers



40+ Years

Experience as an Accredited Energy
Service Provider

100+ MW

Installed Solar Projects for
Public Entities in CA

\$2 B+

in Customer Savings

1,000+

Satisfied Customers Nationwide

25+

U.S. Office Locations

300+

Employees, Including 150 Engineers
(ME, EE & CE PEs, CEMs, & LEED APs)

Roadmap for Next Steps



- **October 25th** – Board Update
- **November 15th** – Professional Development Agreement Approval
- **November 2016-March 2017** – Comprehensive Project Engineering and Development
- **April 2017** – Final Agreement Authorized
- **April 2017-December 2017** – Program Implementation

Demonstrating Progress to the Community:

Program Roll Out to District Staff and Community
May - 2017

Project Ground-Breaking in
Summer 2017

Formal Ribbon Cutting Ceremony
December 2017