



OPTERRA
ENERGY SERVICES

40
YEARS

A Proposal for Partnership: County of San Benito

Ashu Jain, P.E., Senior Manager
Tamra Cihla, P.E., Senior Project Director

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Agenda



1. Introducing OpTerra Energy Services

2. Case Studies of OpTerra Partnerships

3. Project Development and Procurement Process

4. Next Steps



OpTerra Energy Services

By the Numbers



40+ YEARS

Experience as an Accredited Energy Service Provider (NAESCO)

150 MW+

Installed Solar Projects for Public Entities in CA

\$2.5B

Of Completed Projects

1,000+

Satisfied Customers Nation Wide

\$300MM

Sales in 2016

300+

Employees, Including 150 Engineers (PE, ME, EE, Civil, CEM, LEED AP)

Owned by **ENGIE** – largest independent electricity producer in the world. ENGIE operates in the US through its subsidiary GDF SUEZ Energy North America and is the third largest retail electricity supplier in the US. Engie has over 150,000 employees and over \$75 billion in revenue

Recent County Energy Savings Projects



■ County of Alameda – Santa Rita Jail Phase 1	\$1.3 million
■ County of Alameda – Santa Rita Jail Phase 2	\$6.1 million
■ County of Alameda – Santa Rita Jail Phase 3	\$0.8 million
■ County of Alameda – Santa Rita Jail Phase 4	\$11.7 million
■ County of Kings Phase 1	\$3.0 million
■ County of Kings Phase 2	\$8.4 million
■ County of Kings Phase 3	\$4.1 million
■ County of Madera	\$10.0 million
■ County of Merced	\$11.8 million
■ County of Riverside	\$54.6 million
■ County of Sacramento	\$5.2 million
■ County of Sutter	\$10.5 million
■ County of Tulare	\$7.2 million
■ County of Yuba Phase 1	\$9.9 million
■ County of Yuba Phase 2	\$5.2 million

PROGRAM HIGHLIGHTS

- Country's largest Consortium for Electric Reliability Technology Solutions (CERTS)-based microgrid with renewable generation and large-scale energy storage
- Prevents disturbance through automatic detection and remote monitoring capabilities
- Enables potential for PV, fuel cell, and storage markets

TECHNICAL SCOPE

- Installed 1.2-MW rooftop solar PV system
- 1-MW fuel cell power plant with heat recovery for facility hot water and space heating
- Five 2.3-kW wind turbines
- Two 1.2-MW emergency backup diesel generators
- 2-MW advanced energy storage system
- 12-kV sub-cycle static disconnect switch
- "Islanding" capability
- Electric power export and import capability
- CERTS smart grid control logic

Designed and constructed by OpTerra, this first-of-its-kind Smart Grid project at Santa Rita Jail established Alameda County as a leader in sustainability.



PROGRAM HIGHLIGHTS

- Expected to deliver \$15MM in savings over the life of the project
- Reduces impact of utility rate hikes by cutting electricity bills almost by nearly 50% for affected facilities
- Utilizes savings to replace 40-year old mechanical systems at Library
- Avoids 2,230 metric tons of carbon emissions per year, equivalent to annual emissions from 469 cars

“As a result of our partnership with OpTerra, the County has improved comfort in public facilities, reduced the impact of utility rate increases, cut our electricity bills by half, and made critical investments in infrastructure to propel the County into a more sustainable, environmentally sound future.”

Rick Farinelli, Chairman of the Board, Madera County

TECHNICAL SCOPE

- Solar PV systems provide 1.6 MW of clean, sustainable energy annually
 - Installed 1.4 MW ground mount solar structure at Jail Complex, serving five sites
 - Installed 250 kW parking shade solar structure at Government Center
- New HVAC system for Madera County Library
- Upgraded building energy management systems



PROGRAM HIGHLIGHTS

- \$200MM in total energy savings
- Created 1,157 jobs over the lifetime of the program and 80% of local labor used
- Will offset 385,000 metric tons of CO₂, the equivalent to removing more than 81,000 cars from the road for one year

TECHNICAL SCOPE (in progress)

- 12 MW of solar PV will be installed at eight sites

“By harnessing the sun’s energy, we have been able to provide additional community benefits for our residents, our hardworking employees, and our taxpayers, even beyond the millions of dollars in guaranteed energy savings that this project is going to generate.”

Jay Orr, County of Riverside CEO



PROGRAM HIGHLIGHTS

- Will realize more than \$2.6MM in net savings after paying for all costs over a 20-year period
- Reduced CO₂ emissions by 980 metric tons, the equivalent to removing 190 cars from roadways each year

Sacramento County leaders worked with OpTerra to modernize 11 buildings which had outdated and inefficient systems. The low financial burden of the project allowed the County to address the needed improvements quickly, without straining its budget.

TECHNICAL SCOPE

- Interior lighting retrofits at two County facilities
- Induction lighting retrofit at seven County facilities
- Mental health facility mechanical system improvements including replacing HVAC units and a new water plant
- New direct digital controls energy management systems at four County facilities



PROGRAM HIGHLIGHTS

- Achieved nearly \$18.5MM in net savings
- Installed solar power, LED lighting, efficient air conditioning and developed water conservation measures
- Decreased electric utility purchases by 75%
- Reduced the County's carbon footprint – equivalent to taking 520 cars off the road every year

"This project will save us a considerable amount of energy and water, but more, it will save us money, now and into the future."

Stan Cleveland, Chairman,
Board of Supervisors

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TECHNICAL SCOPE

- Installed 1.46 MW solar power generating systems at ten sites
- Upgraded interior/exterior LED lighting at 22 sites
- New rooftop air conditioning units at 19 sites
- Upgraded County-wide energy management system to improve facility controls
- Water conservation measures at the County Jail



PROGRAM HIGHLIGHTS

- Will achieve \$11.2MM in savings to the County's General Fund
- Offsets nearly 2,300 tons of greenhouse gases annually
- Will reduce the County's annual energy purchases by 50%

"Yuba County was already dealing with the challenges of the economic downturn when it became necessary to confront long overdue repairs to some of our public buildings. We were able to partner with OpTerra Energy Services to install energy saving technology and leverage the future savings to immediately make much-needed repairs to our facilities."

Andy Vasquez, Chairman, Yuba County Board of Supervisors

TECHNICAL SCOPE

- Installed 1 MW PV solar systems at two sites
- Replaced outdated emergency generator
- Replaced HPS and MH lighting with induction lamp technology at ten County buildings
- Upgraded HVAC units at three sites
- Installed high-efficiency magnetic drive chiller
- Implemented water conservation measures



Success Story: Kings County

PROGRAM HIGHLIGHTS



- **\$9.7 million** net savings over the lifetime of the three phases
- Advances County's fiscal and environmental goals
- Leverages multiple advanced technologies
- Improves parking area lighting and daytime shade for vehicles

PROJECT SCOPE



- Installed Solar PV parking canopies at two sites
- Built energy-efficient central cooling and heating plants
- Thermal energy storage system
- Interior and exterior lighting retrofits
- Energy-efficient HVAC replacements
- Energy management system upgrades
- Roof replacement at four buildings
- 600 kW cogeneration system



FUNDING STRUCTURE



- Project total: **\$16 million**
- Three phases of work
- Paid through savings program

600-kW Cogeneration System at Kings County Government Center



Energy Efficient Lighting at Kings County Hanford Library



New Central Heating and Cooling Plant for Kings County Government Center



New Central Heating and Cooling Plant for Kings County Government Center



378-kW Solar Parking Canopies at Kings County Government Center



126-kW Solar Parking Canopies at Kings County Hanford Library



Competitive Procurement Process



- OpTerra ES runs a competitive procurement process for entire program including:
 - Equipment
 - Installations
 - Financing or Equity Partner
- No change orders except for explicit scope changes
- Prevailing wage and local subcontractors hired when possible
- Contracting process follows CA Government Code 4217
 - Allows public entities to procure energy services, similarly to professional services, without competitive bidding
 - Expedites project development – streamlined, proven design/build process
 - Faster realization of energy savings and other program benefits

Next Steps

1. OPPORTUNITY ASSESSMENT

- Engage critical stakeholders
- Identify sources of savings, revenue and possible financial solutions



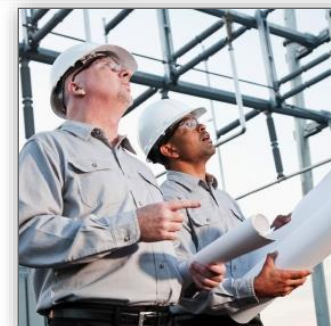
2. PROGRAM DEVELOPMENT

- In-depth program design and engineering
- Engage wider set of stakeholders to set program goals
- Establish finalized financial solution



3. IMPLEMENTATION

- Work closely with site-level staff during construction
- File for incentives
- Engage wider community and media to celebrate County leadership



Potential Energy Efficiency & Solar Opportunities at the County



- LED lighting at the Jail
- HVAC of the Jail?
- Solar project for the Jail
- Solar project at the Jail site to avoid electricity cost at other sites
- LED lighting at all County buildings
- HVAC replacement/upgrades Countywide
- Solar project for Monterey Bay Community Power at the Landfill
- Water conservation/recycling