



# County of San Benito

## A Proposal for Partnership

### **ENGIE Services U.S. (formerly OpTerra Energy Services)**

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# Agenda



1. Introduction to ENGIE Services U.S.

2. Program Scope

3. Financial Overview

4. Program Roadmap and Benefits



# ENGIE Services U.S. (formerly OpTerra Energy)

## By the Numbers



# 40+ YEARS

Experience as an Accredited Energy Service Provider (NAESCO)

# 250 MW+

Installed Solar Projects for Public Entities in CA

# \$2.5B

Of Completed Projects

# 1,000+

Satisfied Customers Nation Wide

# \$300MM

Sales in 2017

# 375+

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

Owned by **ENGIE** – largest independent electricity producer in the world. ENGIE is the third largest retail electricity supplier in the US. Engie has over 150,000 employees and over \$100 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 Kings Phase 4	\$11.9 million
▪ County of Madera Phase 1	\$10.0 million
▪ County of Madera Phase 2	\$6.5 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 Phase 1	\$7.2 million
▪ County of Tulare Phase 2	\$27.6 million
▪ County of Yuba Phase 1	\$9.9 million
▪ County of Yuba Phase 2	\$5.2 million

# Program Scope



San Benito County Energy Conservation Measure Matrix						Solar PV - Roof	Solar PV Canopy	Solar Ground Mount	LED Interior Lights	LED Exterior Lights	Lighting Controls	HVAC Upgrades	HVAC Controls	Streetlights	EV Charging	Window Treatment
Building Name	Address	Square Feet	Annual Energy Usage (kWh)	2016 Electric Bills	Site Efficiency (kWh/ sq.ft..)											
<b>County Buildings with Targeted ECMs</b>																
HHS& BHS	1111/1131 San Felipe Rd	52,000	580,700	\$138,000	11.17	X	X		X	X	X					
County Jail	710 Flynn Road	32,424	580,694	\$87,429	17.91			X	X	X	X					
County Jail - Extension	710 Flynn Road	25,634	NA	NA	NA			X								
County Juvenile Hall	708 Flynn Road	7,535	112,660	\$20,871	14.95			X	X	X	X	X	X			
County Yard	3220 Southside Rd	21,156	81,617	\$23,258	3.86		X		X	X	X					
Hall of Records	440 5th St	5,590	414,787	\$86,664	19.72	X	X		X	X	X	X	X			
Library	460 & 470 5th St	15,442				X	X		X	X	X	X	X			
Office of Emergency Services	471 4th St	2,760	144,038	\$25,788	52.19	X			X	X	X				X	
Administration Building	481 4th St	11,442	75,595	\$15,817	6.61	X			X	X	X	X	X			
Probation & District Attorney	419 4th St	9,460	66,382	\$15,059	7.02	X			X	X	X	X	X			
Sheriff's Office & RMA	2301 Technology Pkwy	42,269	316,833	\$60,178	7.50		X		X	X	X	X	X			X
Streetlights			12,566	\$2,049										X		
<b>Total</b>		225,712	2,385,872	\$475,113												

# Facility Indoor & Outdoor Lighting Retrofit



Retrofit the indoor and outdoor lighting at the following sites:

- County Yard
- Administrative Building
- Hall of Records
- HHS & BHS Building
- Library
- Probation & District Attorney
- Office of Emergency Services
- County Jail
- Juvenile Hall
- Sheriff's Office & Resource Management Agency

# Retrofit Indoor Lighting



- Replace older generation fluorescent 32W lamps and ballasts with new, more efficient, longer-lasting LED lamps
- Install wireless occupancy sensors with option to shut off interior lighting when rooms are unoccupied
- Benefits include:
  - Better quality lighting
  - Replaces old lamps and ballasts
  - Savings in energy cost
  - Longer life of lamps
  - Substantial reduction in maintenance cost



# Retrofit Outdoor Lighting

- Replace existing metal halide lamps with corresponding LED fixtures, controlled by photocells
- Benefits include:
  - Replaces old lamps and ballasts
  - Savings in energy cost
  - Longer life of lamps and ballasts
  - Reduces maintenance cost
  - Increases safety





# Retrofit County-Owned Streetlights



- Retrofit thirty-four (34) County-owned streetlights with LED streetlights
- Benefits include:
  - Savings in energy cost
  - Longer life of lamps
  - Substantial reduction in maintenance cost
  - Increases safety



# HVAC Upgrades at Various County Facilities



Building	Existing HVAC	Replacement HVAC	Retro-Commissioning	Qty	Tonnage
Juvenile Hall	Packaged Unit	Packaged Unit		1	2
Administration Building	Packaged Units	Packaged Units		5	66
Hall of Records	Central Chiller	Change existing HVAC from Constant Volume Air Distribution to Variable Volume Air Distribution	Yes	19	NA
Library	<ul style="list-style-type: none"> <li>Water Cooled Chiller</li> <li>Packaged Unit</li> </ul>	<ul style="list-style-type: none"> <li>Air Cooled Chiller</li> <li>Packaged Unit</li> </ul>	Yes	1 1	50
Probation & District Attorney	Packaged Units	Packaged Units		10	32
Sheriff's Office & Resource Management Agency	Packaged Units	Packaged Units		16	66

# HVAC Upgrades at the Library

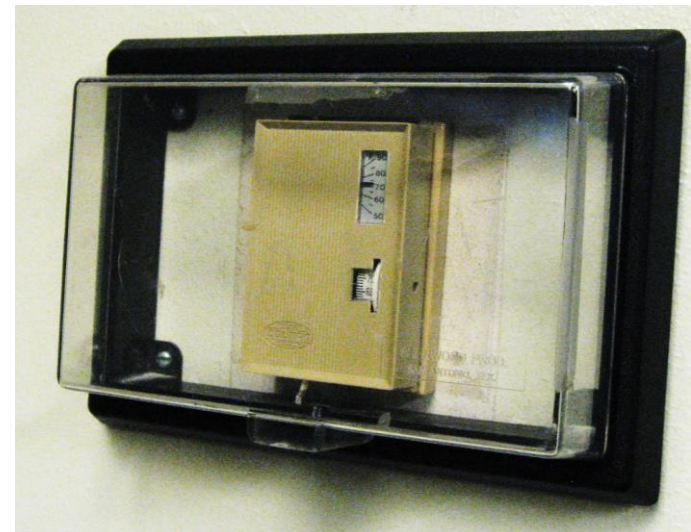
- Replace current water-cooled chiller with a 50-ton air cooled chiller with built-in chilled water pumps
  - Reduces maintenance requirements
  - Increases efficiency
  - Planned vs. emergency replacement
  - Increases comfort
- Replace one (1) 4-ton packaged unit with high efficiency unit



# HVAC Upgrades at the Hall of Records



- Retro-commission chiller to test performance to ensure systems are functioning properly to correct issues and identify further upgrades
- Replace nineteen (19) existing dual-duct constant volume mixing boxes to dual-duct variable air volume system
  - Increases comfort





# Energy Management System for all County HVAC Units



- Upgrade to smart Pelican thermostats with wireless mesh network gateway
- Allows centralized management of all upgraded buildings via web, including chillers at the Library and Hall of Records
- Allows for temperature controls of specific zones (e.g., events, conference rooms)
- Provide alerts to staff for HVAC issues
- Improves comfort
- Reduces maintenance staff time
- Reduces energy use

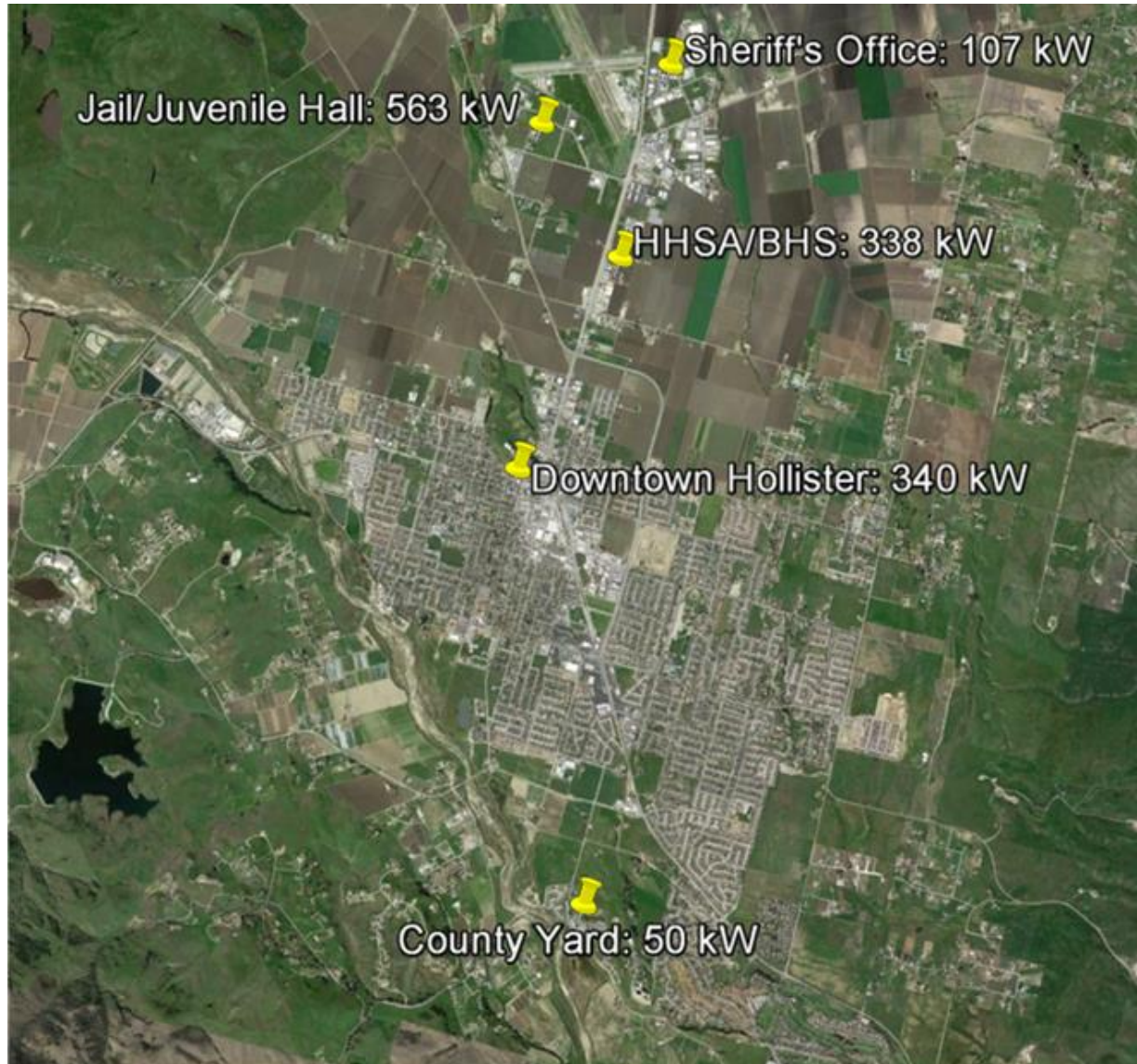


Old



New

# Solar Energy Systems for San Benito County Facilities – 1,400 kW

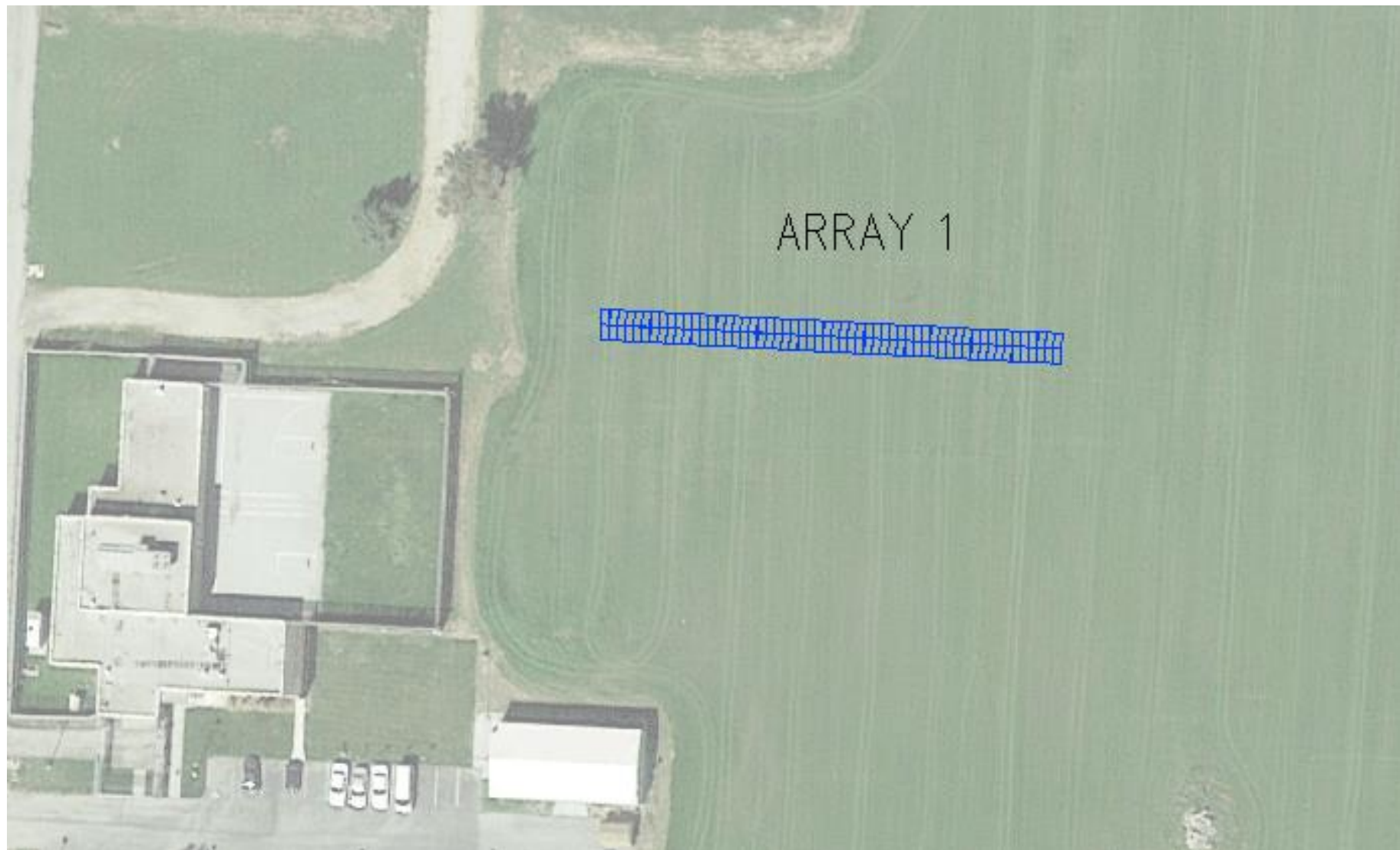




# Existing County Jail and Proposed Extension – 518.4 kW Ground-mounted Solar Energy System



# Juvenile Hall – 44.8 kW Ground-mounted Solar Energy System



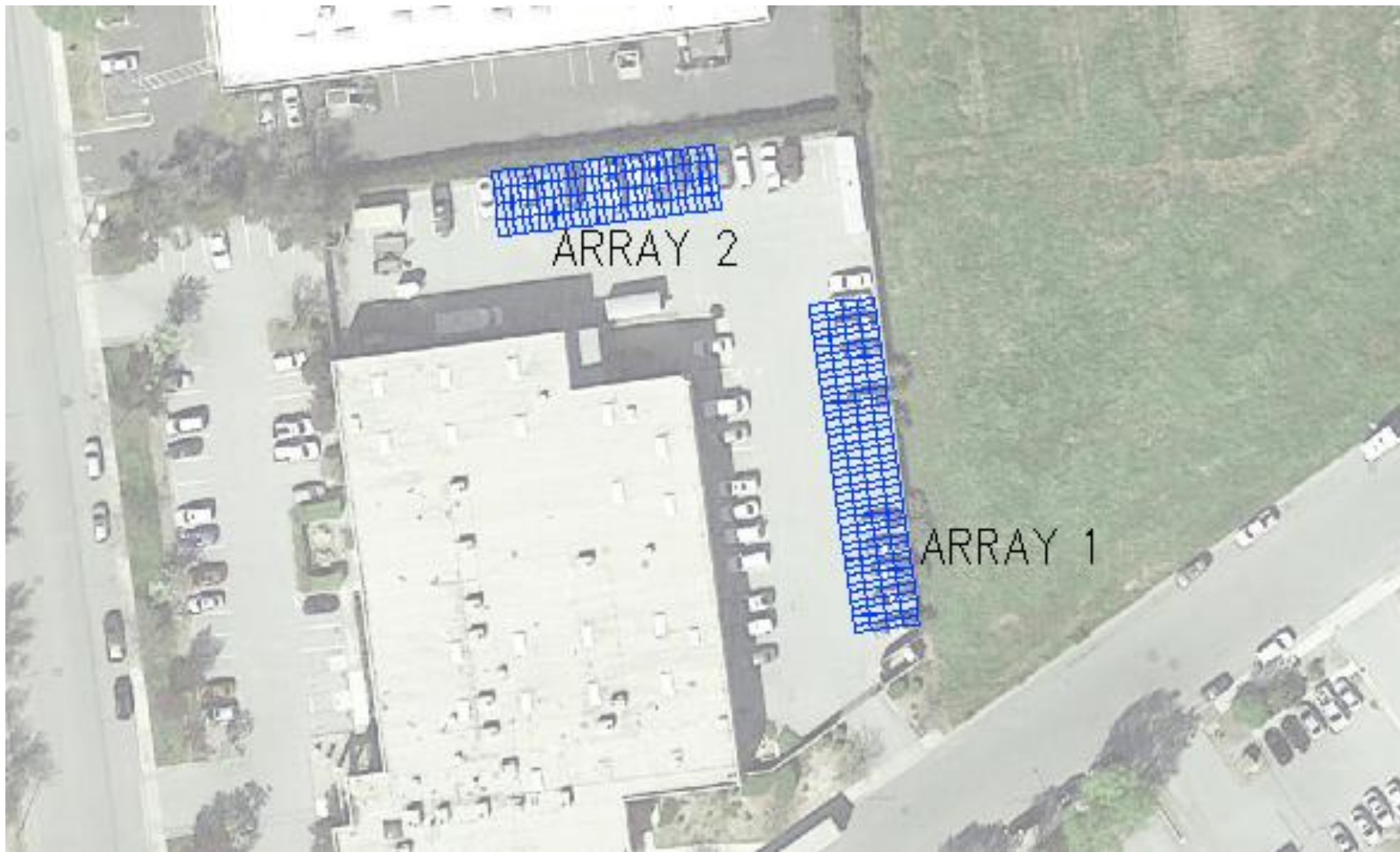


# ENGIE Services Solar PV Parking Canopy Examples





# Sheriff's Office & Resource Management Agency – 107.2 kW Parking Canopy Solar Energy System



# Administration, Probation, DA, OES – 157.6 kW Roof-mounted Solar Energy System



The solar arrays shown below feed the buildings mentioned in the title even though they are located elsewhere



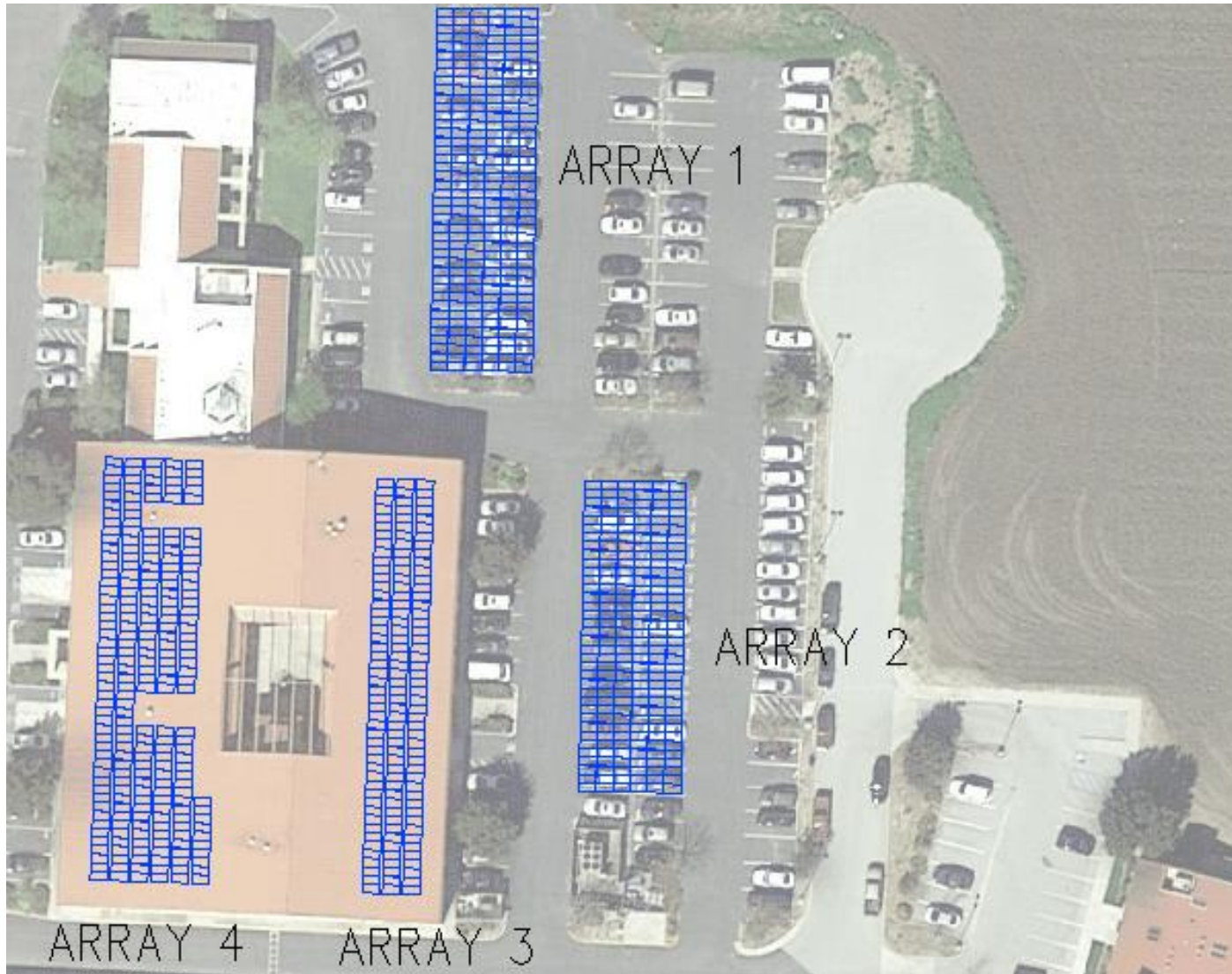


# Library and Hall of Records – 182.4 kW Parking Canopy Solar Energy System



**The solar arrays shown above feed the buildings mentioned in the title even though they are located elsewhere**

# HHSA & BHS – 338.4 kW Parking Canopy Solar Energy System





# County Yard – 50.4 kW Parking Canopy Solar Energy System



# Two (2) Electrical Car Charging Ports at Downtown County Buildings



# Window Film at the Sheriff's Office & Resource Management Agency



- Install window film on the west side of the Sheriff's Office/RMA Building
- Benefits include:
  - Reduced heat gain
  - Improved energy savings
  - Climate control
  - Protection from UV rays





# Awnings at the Sheriff's Office & Resource Management Agency



- Install awnings on the south side of the Sheriff's Office/RMA Building



# Project Financial Analysis



Project Cost												\$8,031,922
Annual Escalation of PG&E Electricity Cost												4.30%
Annual Escalation of O&M Cost												3.00%
Annual Solar Panel Degradation												0.50%
Year	Projected Electricity Savings	Projected O & M Savings	On-Bill Financing Payment to County	Estimated Rebate from AMBAG	Total Program Savings	On-Bill Financing Payment by County	Lease Payments	Inverter Replacement Cost	Measurement & Verification Cost	Solar Maintenance Cost	Total Program Costs	Net Savings Before Lease Payment
Year 1	\$500,862	\$55,049	\$401,698	\$85,075	\$1,042,684	\$40,170	\$479,848	\$0	\$13,153	\$21,350	\$554,521	\$488,163
Year 2	\$520,639	\$56,700		\$0	\$577,339	\$40,170	\$487,586	\$0	\$13,548	\$21,990	\$563,294	\$14,046
Year 3	\$541,200	\$58,401		\$0	\$599,602	\$40,170	\$500,254	\$0	\$13,954	\$22,650	\$577,028	\$22,574
Year 4	\$562,577	\$60,153		\$0	\$622,730	\$40,170	\$512,170	\$0	\$14,373	\$23,330	\$590,042	\$32,688
Year 5	\$584,801	\$61,958		\$0	\$646,758	\$40,170	\$528,240	\$0	\$14,804	\$24,030	\$607,243	\$39,515
Year 6	\$607,906	\$63,816		\$0	\$671,722	\$40,170	\$538,464	\$0	\$0	\$24,750	\$603,384	\$68,338
Year 7	\$631,927	\$65,731		\$0	\$697,658	\$40,170	\$552,842	\$0	\$0	\$25,493	\$618,505	\$79,154
Year 8	\$656,902	\$67,703		\$0	\$724,605	\$40,170	\$566,280	\$0	\$0	\$26,258	\$632,708	\$91,897
Year 9	\$682,867	\$69,734		\$0	\$752,601	\$40,170	\$583,684	\$0	\$0	\$27,045	\$650,899	\$101,702
Year 10	\$690,892	\$71,826		\$0	\$762,718	\$40,170	\$595,054	\$0	\$0	\$27,857	\$663,081	\$99,638
Year 11	\$717,994	\$73,981		\$0	\$791,974	\$0	\$610,390	\$0	\$0	\$28,693	\$639,083	\$152,892
Year 12	\$746,162	\$76,200		\$0	\$822,362	\$0	\$624,598	\$0	\$0	\$29,553	\$654,151	\$168,211
Year 13	\$775,439	\$78,486		\$0	\$853,925	\$0	\$642,584	\$0	\$0	\$30,440	\$673,024	\$180,901
Year 14	\$805,868	\$80,841		\$0	\$886,709	\$0	\$659,254	\$0	\$0	\$31,353	\$690,607	\$196,102
Year 15	\$837,497	\$83,266		\$0	\$920,763	\$0	\$674,608	\$0	\$0	\$32,294	\$706,902	\$213,861
Year 16	\$870,370	\$85,764		\$0	\$956,134	\$0	\$693,552	\$0	\$0	\$33,262	\$726,814	\$229,320
Year 17	\$904,539	\$88,337		\$0	\$992,876	\$0	\$706,086	\$0	\$0	\$34,260	\$740,346	\$252,530
Year 18	\$940,054	\$90,987		\$0	\$1,031,041	\$0	\$727,116	\$0	\$0	\$35,288	\$762,404	\$268,637
Year 19	\$976,969	\$93,717		\$0	\$1,070,686	\$0	\$746,454	\$0	\$0	\$36,347	\$782,801	\$287,885
Year 20	\$1,015,338	\$96,528		\$0	\$1,111,866	\$0	\$764,100	\$0	\$0	\$37,437	\$801,537	\$310,329
Year 21	\$751,803	\$0		\$0	\$751,803	\$0	\$0	\$227,407	\$0	\$38,560	\$265,968	\$485,835
Year 22	\$780,210	\$0		\$0	\$780,210	\$0	\$0	\$0	\$0	\$39,717	\$39,717	\$740,493
Year 23	\$809,690	\$0		\$0	\$809,690	\$0	\$0	\$0	\$0	\$40,909	\$40,909	\$768,782
Year 24	\$840,285	\$0		\$0	\$840,285	\$0	\$0	\$0	\$0	\$42,136	\$42,136	\$798,149
Year 25	\$872,035	\$0		\$0	\$872,035	\$0	\$0	\$0	\$0	\$43,400	\$43,400	\$828,635
Year 26	\$904,985	\$0		\$0	\$904,985	\$0	\$0	\$0	\$0	\$44,702	\$44,702	\$860,283
Year 27	\$939,179	\$0		\$0	\$939,179	\$0	\$0	\$0	\$0	\$46,043	\$46,043	\$893,136
Year 28	\$974,666	\$0		\$0	\$974,666	\$0	\$0	\$0	\$0	\$47,424	\$47,424	\$927,242
Year 29	\$1,011,494	\$0		\$0	\$1,011,494	\$0	\$0	\$0	\$0	\$48,847	\$48,847	\$962,647
Year 30	\$1,049,713	\$0		\$0	\$1,049,713	\$0	\$0	\$0	\$0	\$50,312	\$50,312	\$999,401
<b>Totals</b>	<b>\$23,504,864</b>	<b>\$1,479,178</b>	<b>\$401,698</b>	<b>\$85,075</b>	<b>\$25,470,815</b>	<b>\$401,698</b>	<b>\$12,193,164</b>	<b>\$227,407</b>	<b>\$69,831</b>	<b>\$1,015,731</b>	<b>\$13,907,832</b>	<b>\$11,562,983</b>

# Project Benefits



- Create \$11 million in net savings after paying for all costs
- Reduce County electricity spend by over 80%
- Hedge against rising energy costs
- Scope includes asbestos inspection and permits
- Change orders limited to a maximum of \$125,000
- Utilize savings to replace old mechanical equipment
- Save maintenance staff's time with long-life LED lighting and new HVAC equipment
- Improve employee productivity with better quality LED lighting
- Improve employee comfort by replacing old HVAC units
- Save administrative time by accomplishing multiple projects simultaneously
- Stimulate local economy and provide local jobs
- Substantial environmental benefits – equivalent to removing 450 cars off the highways annually

# Roadmap



**Program Development**

**Arrange Financing, Contract Approval**

**Implementation**

**Apr 2017 – Dec 2017**

**Jan 2018 – Jun 2018**

**Jul 2018 – Jun 2019**