

MARCH 28, 2018

ITEM E-1

ATTACHMENT B

Nipomo Community Services District

March 28, 2018

-
- Ashu Jain, P.E. Senior Manager
 - Jeff Woldhuis, P.E. Lead Project Manager
 - Adam Davis Project Manager
 - Ryan Rodriguez, CEM Lead Project Engineer

The ENGIE logo is displayed in white, lowercase letters. Above the letters is a stylized graphic of a globe or a sun with a gradient from light to dark, partially obscured by a white arc.

Agenda

- Introduction to ENGIE Services U.S.
- Program Scope
- Financial Overview
- Program Benefits
- Roadmap



ENGIE Services U.S.

(formerly Opterra Energy Services)

ENGIE is the largest independent electricity producer in the world, and the third largest retail electricity supplier in the United States. With more than 150,000 employees worldwide, ENGIE generates over \$80 billion in annual revenue.

40+ years

Experience as an Accredited Energy Service Provider

\$300MM

Sales in 2017

\$2.5B

Completed Projects

250MW+

Solar Projects for CA Public Entities

350+

Employees

2017 ENGIE Services U.S. Highlights



303,809

Metric Tons of GHG Reduced

~40MW

Solar Installed

7.8MW

of Cogen Built

~210,000

Interior/Exterior LEDs
Retrofitted

52,000+

Students Engaged



Activities Since Board Approval of Agreement

- Performed Investment Grade Audit level surveys for energy efficiency and renewable energy opportunities
- Completed detailed guaranteed savings calculations for all energy measures
- Developed preliminary Solar PV design drawings
- Performed study to evaluate glare due to the solar panels from the freeway
- Submitted two (2) Solar PV interconnection applications to PG&E to secure Time-of-Use period grandfathering
- Had PG&E complete a Supplemental Review for Solar PV interconnections to determine utility-side upgrades and associated costs
- Walked subcontractors to secure guaranteed maximum pricing
- Surveyed 10% of all water meters to determine challenges during replacement
- Assessed equipment options to include in the scope of work
- Regularly interacted with staff to finalize all technical details
- Worked with staff on documenting AMI system benefits and cost
- Bid project financing to 15 companies and received 4 proposals
- Presented draft proposal to staff first to seek input

Program Scope

Nipomo Community Services District						Solar Projects	HVAC Replacement	Interior LED Lighting	Exterior LED Lighting	Web-Enabled Thermostats
Building Name	Address	Square Feet	Annual Electric Usage (kWh)	Annual Electric Billing	Average Electric Cost \$/kWh					
Wastewater Treatment Facility	515 Southland St.	1,560	709,088	\$ 117,281	\$0.17	X		X	X	X
Southland Wastewater Shop	509 Southland St.	7,630	39,513	\$ 8,828	\$0.22	X		X		X
Sundale Well*	1604 Camino Caballo		305,893	\$ 75,859	\$0.25			X	X	
Via Concha Well (150HP Pump)*	796 Via Concha Rd.		338,218	\$ 72,392	\$0.21			X	X	
Blacklake Wastewater Facility*	1526 N Willow Rd.		226,012	\$ 34,481	\$0.15			X	X	
Blacklake Well #4 (75HP Pump)*	1598 Willow Rd.		223,177	\$ 47,901	\$0.21			X	X	
Knollwood Well (50HP Pump)*	891 Sundale Way		174,499	\$ 38,306	\$0.22			X	X	
District Office*	148 S Wilson St.	4,170	29,293	\$ 6,559	\$0.22		X	X	X	X
Eureka Well	795 Guadalupe Rd.		3,661	\$ 3,532	\$0.96			X	X	
	Total	-	2,049,354	\$ 405,139	\$0.20	2	1	9	8	3

*Site is a RES-BCT Solar Benefiting Account. Southland Wastewater Shop is the Generating Account.

Project scope includes Advanced Metering Infrastructure (AMI) for 4,392 water meters

Facility Interior & Exterior Lighting Retrofit

- Retrofit the interior and/or exterior lighting at the following sites:
 - District Office
 - Southland Wastewater Treatment Shop
 - Southland Wastewater Treatment Facility
 - Blacklake Wastewater Treatment Facility
 - Blacklake Well
 - Sundale Well
 - Eureka Well
 - Knollwood Well
 - Via Concha Well

Upgrade Interior Lighting and Controls

- Retrofit linear fluorescent T-8 fixtures with LED retrofit kits where possible. Install LED lamps and drivers in others
- Retrofit incandescent and CFL screw-in lamps with LEDs
- Replace CFL plug-in lamps with LED plug-in lamps
- Where not currently in place but where appropriate, install wireless vacancy sensors with option to shut off interior lighting when rooms are unoccupied
- LED lamps have a rated life of 75,000 to 100,000 hours leading to substantial savings and maintenance in addition to energy savings
- Benefits Include
 - Better quality lighting
 - Replaces old lamps and ballasts
 - Savings in energy cost
 - Longer life of system
 - Substantial reduction in maintenance cost
 - LEDs do not contain mercury



Upgrade Exterior Lighting and Controls

- Replace CFL and HID wall packs at exterior areas with new LED wall packs
- Replace HID pole light heads with new LED area lights
- Replace screw-in CFLs with new screw-in LEDs
- Where applicable, new LED fixtures will come equipped with occupancy sensors
- LED lamps have a rated life of 75,000 to 100,000 hours leading to substantial savings in maintenance in addition to energy savings
- Benefits Include:
 - Improved safety
 - Replaces old lamps and ballasts
 - Savings in energy cost
 - Longer life of system
 - Substantial reduction in maintenance cost
 - LEDs do not contain mercury



HVAC Equipment Upgrades – District Office

- Replace two (2) of the three (3) HVAC, split DX systems at the District Office with new, energy efficient units of similar size and type
- One (1) 2-ton and one (1) 4-ton unit and associated fan-coil units will be replaced for maximum product efficiency featuring new R410A refrigerant
- Benefits Include:
 - Increased energy savings
 - Improved comfort
 - Reduced maintenance
 - Planned vs. emergency replacement



Install Web-Enabled Thermostats

- Install Pelican Wireless web-enabled thermostats at the following sites:
 - District Office – Three (3)
 - Wastewater Treatment Shop - One (1)
 - Three (3) existing thermostats will be controlled by one (1) new thermostat
 - Wastewater Treatment Lab – one (1)
 - Wastewater Treatment Facility – one (1)
- Benefits Include:
 - Remote access from any web-enabled device
 - Multi-User access
 - Remote scheduling
 - Alerts and alarms
 - Analysis and reporting



Southland WWTF – Ground Mount Solar Structures (NEM) 345 kW & (RES-BCT) 648 kW



PV SYSTEM "A" (RES-BCT)

WWTF – 18 PANELS/STRING

ARRAY	PANELS	STRINGS	KWDC
A1	270	15	108.0
A2	270	15	108.0
A3	270	15	108.0
A4	270	15	108.0
A5	270	15	108.0
A6	270	15	108.0
TOTAL	1620	90	648.0

PV SYSTEM "B" (NEM)

WWTF – 18 PANELS/STRING

ARRAY	PANELS	STRINGS	KWDC
B1	162	9	64.8
B2	162	9	64.8
B3	180	10	72.0
B4	180	10	72.0
B5	180	10	72.0
TOTAL	864	48	345.6



Water Meter Changeout with Advanced Metering Infrastructure (AMI) System

- Supply and install 4,392 water meters with transducers of the following sizes:

<u>Size</u>	<u>Quantity</u>
– 5/8”	2,362
– 3/4”	833
– 1”	1,128
– 1.5”	39
– 2”	19
– 3”	6
– 4”	5

- Set-up, program, and commission AMI system
- Assist District with setting up database and linking the data to billing system

- Benefits:

- Monthly customer billing
- Eliminates meter reading cost
- Increases revenue due to accurate meters
- Enables leak detection
- More accurate billing
- Eliminates hard to read meter problems
- Eliminates non-scheduled readings for tenant turnover
- Minimizes inconvenience to residents to regularly access their property
- Customer portal allows City to engage, educate, inform, and protect customers
- Create GIS mapping of meters

Justification for Water Revenue Increase

- In the recent past, the District has been seeing an 8% water loss
- The District tested a small sample of meters and they showed a 12% water loss
- Here are the revenue increases that our past customers were comfortable with:
 - City of Greenfield assumed a 9% revenue increase because their water loss was 13%
 - Paradise Irrigation District went with a 10% revenue increase because their unaccounted water was 17.5%
 - In 2007, City of Delano went with a \$75,000 increase in revenue for approx. the same number of meters as Nipomo CSD
- We have assumed an extremely conservative 4% increase in water revenue due to the meter replacement

Project Financial Analysis – Entire Project

Project Cost															\$5,924,073
District Contribution															\$0
Financing Cost															\$0
Amount to be Financed															\$5,924,073
Finance Term															20
Estimated Annual Interest Rate															4.18%
Annual Escalation of Electricity Cost															4.50%
Annual Escalation of Water Cost															9.00%
Projected Water Revenue Increase															4.00%
Annual Escalation of O&M Cost															3.00%
Annual Solar Panel Degradation															0.50%
Year	Projected Electricity Savings	Projected O & M Savings	Projected Water Revenue Increase	Meter Reading Cost Savings	Meter Replacement Budget	Incentives & Recycling Credit	Total Program Savings	Lease Payment	Solar Maintenance Cost	Meter Replacement Cost	Annual AMI Software Hosting, Analytics and O&M	Sensus Customer Portal System Subscriptions	Total Program Costs	Net Savings	
1	\$249,912	\$4,996	\$126,320	\$40,000	\$35,000	\$54,451	\$510,680	\$363,138	\$15,653	\$0	\$22,058	\$6,475	\$407,324	\$103,356	
2	\$199,013	\$5,146	\$137,689	\$41,200	\$36,050	\$0	\$419,098	\$270,231	\$16,123	\$0	\$22,719	\$6,669	\$315,742	\$103,356	
3	\$198,978	\$5,301	\$150,081	\$42,436	\$37,132	\$0	\$433,927	\$283,695	\$16,606	\$0	\$23,401	\$6,869	\$330,571	\$103,356	
4	\$206,941	\$5,460	\$163,588	\$43,709	\$38,245	\$0	\$457,943	\$306,305	\$17,105	\$0	\$24,103	\$7,075	\$354,587	\$103,356	
5	\$215,222	\$5,623	\$178,311	\$45,020	\$39,393	\$0	\$483,570	\$330,483	\$17,618	\$0	\$24,826	\$7,288	\$380,214	\$103,356	
6	\$223,836	\$5,792	\$194,359	\$46,371	\$40,575	\$0	\$510,932	\$356,354	\$18,146	\$0	\$25,571	\$7,506	\$407,577	\$103,356	
7	\$232,794	\$5,966	\$211,851	\$47,762	\$41,792	\$0	\$540,165	\$384,050	\$18,691	\$0	\$26,338	\$7,731	\$436,810	\$103,356	
8	\$242,111	\$6,145	\$230,918	\$49,195	\$43,046	\$0	\$571,414	\$413,716	\$19,251	\$0	\$27,128	\$7,963	\$468,059	\$103,356	
9	\$211,129	\$6,329	\$251,701	\$50,671	\$44,337	\$0	\$564,167	\$404,838	\$19,829	\$0	\$27,942	\$8,202	\$460,811	\$103,356	
10	\$219,590	\$6,519	\$274,354	\$52,191	\$45,667	\$0	\$598,320	\$437,313	\$20,424	\$0	\$28,780	\$8,448	\$494,965	\$103,356	
11	\$228,390	\$6,715	\$299,045	\$53,757	\$47,037	\$0	\$634,944	\$452,565	\$21,037	\$19,641	\$29,643	\$8,702	\$531,588	\$103,356	
12	\$237,543	\$6,916	\$325,959	\$55,369	\$48,448	\$0	\$674,236	\$489,487	\$21,668	\$20,230	\$30,533	\$8,963	\$570,880	\$103,356	
13	\$247,063	\$7,124	\$355,296	\$57,030	\$49,902	\$0	\$716,414	\$529,223	\$22,318	\$20,837	\$31,449	\$9,232	\$613,059	\$103,356	
14	\$256,965	\$7,337	\$387,272	\$58,741	\$51,399	\$0	\$761,715	\$572,009	\$22,987	\$21,462	\$32,392	\$9,509	\$658,359	\$103,356	
15	\$267,264	\$7,557	\$422,127	\$60,504	\$52,941	\$0	\$810,393	\$618,096	\$23,677	\$22,106	\$33,364	\$9,794	\$707,037	\$103,356	
16	\$277,977	\$7,784	\$460,118	\$62,319	\$54,529	\$0	\$862,727	\$667,762	\$24,387	\$22,770	\$34,365	\$10,088	\$759,371	\$103,356	
17	\$289,119	\$8,018	\$501,529	\$64,188	\$56,165	\$0	\$919,019	\$721,305	\$25,119	\$23,453	\$35,396	\$10,390	\$815,663	\$103,356	
18	\$300,708	\$8,258	\$546,667	\$66,114	\$57,850	\$0	\$979,597	\$779,053	\$25,872	\$24,156	\$36,458	\$10,702	\$876,241	\$103,356	
19	\$312,763	\$8,506	\$595,867	\$68,097	\$59,585	\$0	\$1,044,818	\$841,358	\$26,648	\$24,881	\$37,551	\$11,023	\$941,462	\$103,356	
20	\$325,300	\$8,761	\$0	\$0	\$0	\$0	\$334,062	\$203,258	\$27,448	\$0	\$0	\$0	\$230,706	\$103,356	
21	\$317,895	\$0	\$0	\$0	\$0	\$0	\$317,895	\$0	\$28,271	\$0	\$0	\$0	\$28,271	\$289,624	
22	\$330,539	\$0	\$0	\$0	\$0	\$0	\$330,539	\$0	\$29,119	\$0	\$0	\$0	\$29,119	\$301,420	
23	\$343,687	\$0	\$0	\$0	\$0	\$0	\$343,687	\$0	\$29,993	\$0	\$0	\$0	\$29,993	\$313,693	
24	\$357,357	\$0	\$0	\$0	\$0	\$0	\$357,357	\$0	\$30,893	\$0	\$0	\$0	\$30,893	\$326,464	
25	\$371,570	\$0	\$0	\$0	\$0	\$0	\$371,570	\$0	\$31,820	\$0	\$0	\$0	\$31,820	\$339,751	
26	\$386,350	\$0	\$0	\$0	\$0	\$0	\$386,350	\$0	\$32,774	\$0	\$0	\$0	\$32,774	\$353,576	
27	\$401,717	\$0	\$0	\$0	\$0	\$0	\$401,717	\$0	\$33,757	\$0	\$0	\$0	\$33,757	\$367,959	
28	\$417,695	\$0	\$0	\$0	\$0	\$0	\$417,695	\$0	\$34,770	\$0	\$0	\$0	\$34,770	\$382,925	
29	\$434,309	\$0	\$0	\$0	\$0	\$0	\$434,309	\$0	\$35,813	\$0	\$0	\$0	\$35,813	\$398,496	
30	\$451,584	\$0	\$0	\$0	\$0	\$0	\$451,584	\$0	\$36,888	\$0	\$0	\$0	\$36,888	\$414,696	
Totals	\$8,755,320	\$134,255	\$5,813,052	\$1,004,675	\$879,090	\$54,451	\$16,640,842	\$9,424,237	\$744,705	\$199,537	\$554,015	\$162,632	\$11,085,126	\$5,555,716	

Project Financial Analysis – AMI Water Meters

Project Cost											\$2,913,806
District Contribution											\$0
Financing Cost											\$0
Amount to be Financed											\$2,913,806
Finance Term											20
Estimated Annual Interest Rate											4.18%
Annual Escalation of Water Cost											9.00%
Projected Water Revenue Increase											4.00%
Annual Escalation of O&M Cost											3.00%
Year	Projected Water Revenue Increase	Meter Reading Cost Savings	Meter Replacement Budget	Recycling Credit	Total Program Savings	Lease Payment	Meter Replacement Cost	Annual AMI Software Hosting, Analytics and O&M	Sensus Customer Portal System Subscriptions	Total Program Costs	Net Savings
1	\$126,320	\$40,000	\$35,000	\$50,000	\$251,320	\$121,025	\$0	\$22,058	\$6,475	\$149,558	\$101,762
2	\$137,689	\$41,200	\$36,050	\$0	\$214,939	\$83,788	\$0	\$22,719	\$6,669	\$113,177	\$101,762
3	\$150,081	\$42,436	\$37,132	\$0	\$229,648	\$97,616	\$0	\$23,401	\$6,869	\$127,886	\$101,762
4	\$163,588	\$43,709	\$38,245	\$0	\$245,543	\$112,602	\$0	\$24,103	\$7,075	\$143,780	\$101,762
5	\$178,311	\$45,020	\$39,393	\$0	\$262,724	\$128,848	\$0	\$24,826	\$7,288	\$160,962	\$101,762
6	\$194,359	\$46,371	\$40,575	\$0	\$281,305	\$146,465	\$0	\$25,571	\$7,506	\$179,542	\$101,762
7	\$211,851	\$47,762	\$41,792	\$0	\$301,405	\$165,574	\$0	\$26,338	\$7,731	\$199,643	\$101,762
8	\$230,918	\$49,195	\$43,046	\$0	\$323,158	\$186,305	\$0	\$27,128	\$7,963	\$221,396	\$101,762
9	\$251,701	\$50,671	\$44,337	\$0	\$346,708	\$208,802	\$0	\$27,942	\$8,202	\$244,946	\$101,762
10	\$274,354	\$52,191	\$45,667	\$0	\$372,212	\$233,221	\$0	\$28,780	\$8,448	\$270,449	\$101,762
11	\$299,045	\$53,757	\$47,037	\$0	\$399,839	\$240,090	\$19,641	\$29,643	\$8,702	\$298,077	\$101,762
12	\$325,959	\$55,369	\$48,448	\$0	\$429,777	\$268,289	\$20,230	\$30,533	\$8,963	\$328,015	\$101,762
13	\$355,296	\$57,030	\$49,902	\$0	\$462,228	\$298,948	\$20,837	\$31,449	\$9,232	\$360,466	\$101,762
14	\$387,272	\$58,741	\$51,399	\$0	\$497,412	\$332,287	\$21,462	\$32,392	\$9,509	\$395,650	\$101,762
15	\$422,127	\$60,504	\$52,941	\$0	\$535,571	\$368,545	\$22,106	\$33,364	\$9,794	\$433,809	\$101,762
16	\$460,118	\$62,319	\$54,529	\$0	\$576,966	\$407,982	\$22,770	\$34,365	\$10,088	\$475,204	\$101,762
17	\$501,529	\$64,188	\$56,165	\$0	\$621,882	\$450,881	\$23,453	\$35,396	\$10,390	\$520,120	\$101,762
18	\$546,667	\$66,114	\$57,850	\$0	\$670,630	\$497,552	\$24,156	\$36,458	\$10,702	\$568,868	\$101,762
19	\$595,867	\$68,097	\$59,585	\$0	\$723,549	\$548,331	\$24,881	\$37,551	\$11,023	\$621,787	\$101,762
20	\$0	\$0	\$0	\$0	\$0	-\$101,762	\$0	\$0	\$0	-\$101,762	\$101,762
Totals	\$5,813,052	\$1,004,675	\$879,090	\$50,000	\$7,746,817	\$4,795,389	\$199,537	\$554,015	\$162,632	\$5,711,573	\$2,035,243

Project Financial Analysis – Entire Project Less AMI

Project Cost								\$3,010,267
District Contribution								\$0
Financing Cost								\$0
Amount to be Financed								\$3,010,267
Finance Term								20
Estimated Annual Interest Rate								4.18%
Annual Escalation of Electricity Cost								4.50%
Annual Escalation of O&M Cost								3.00%
Annual Solar Panel Degradation								0.50%
Year	Projected Electricity Savings	Projected O & M Savings	Incentives	Total Program Savings	Lease Payment	Solar Maintenance Cost	Total Program Costs	Net Savings
1	\$249,912	\$4,996	\$4,451	\$259,360	\$242,113	\$15,653	\$257,766	\$1,593
2	\$199,013	\$5,146	\$0	\$204,159	\$186,443	\$16,123	\$202,566	\$1,593
3	\$198,978	\$5,301	\$0	\$204,279	\$186,079	\$16,606	\$202,685	\$1,593
4	\$206,941	\$5,460	\$0	\$212,401	\$193,702	\$17,105	\$210,807	\$1,593
5	\$215,222	\$5,623	\$0	\$220,846	\$201,635	\$17,618	\$219,252	\$1,593
6	\$223,836	\$5,792	\$0	\$229,628	\$209,888	\$18,146	\$228,034	\$1,593
7	\$232,794	\$5,966	\$0	\$238,760	\$218,476	\$18,691	\$237,167	\$1,593
8	\$242,111	\$6,145	\$0	\$248,256	\$227,411	\$19,251	\$246,663	\$1,593
9	\$211,129	\$6,329	\$0	\$217,458	\$196,036	\$19,829	\$215,865	\$1,593
10	\$219,590	\$6,519	\$0	\$226,109	\$204,092	\$20,424	\$224,515	\$1,593
11	\$228,390	\$6,715	\$0	\$235,104	\$212,474	\$21,037	\$233,511	\$1,593
12	\$237,543	\$6,916	\$0	\$244,459	\$221,198	\$21,668	\$242,865	\$1,593
13	\$247,063	\$7,124	\$0	\$254,187	\$230,275	\$22,318	\$252,593	\$1,593
14	\$256,965	\$7,337	\$0	\$264,302	\$239,722	\$22,987	\$262,709	\$1,593
15	\$267,264	\$7,557	\$0	\$274,822	\$249,551	\$23,677	\$273,228	\$1,593
16	\$277,977	\$7,784	\$0	\$285,761	\$259,780	\$24,387	\$284,167	\$1,593
17	\$289,119	\$8,018	\$0	\$297,137	\$270,425	\$25,119	\$295,543	\$1,593
18	\$300,708	\$8,258	\$0	\$308,967	\$281,501	\$25,872	\$307,373	\$1,593
19	\$312,763	\$8,506	\$0	\$321,269	\$293,027	\$26,648	\$319,675	\$1,593
20	\$325,300	\$8,761	\$0	\$334,062	\$305,020	\$27,448	\$332,468	\$1,593
21	\$317,895	\$0	\$0	\$317,895	\$0	\$28,271	\$28,271	\$289,624
22	\$330,539	\$0	\$0	\$330,539	\$0	\$29,119	\$29,119	\$301,420
23	\$343,687	\$0	\$0	\$343,687	\$0	\$29,993	\$29,993	\$313,693
24	\$357,357	\$0	\$0	\$357,357	\$0	\$30,893	\$30,893	\$326,464
25	\$371,570	\$0	\$0	\$371,570	\$0	\$31,820	\$31,820	\$339,751
26	\$386,350	\$0	\$0	\$386,350	\$0	\$32,774	\$32,774	\$353,576
27	\$401,717	\$0	\$0	\$401,717	\$0	\$33,757	\$33,757	\$367,959
28	\$417,695	\$0	\$0	\$417,695	\$0	\$34,770	\$34,770	\$382,925
29	\$434,309	\$0	\$0	\$434,309	\$0	\$35,813	\$35,813	\$398,496
30	\$451,584	\$0	\$0	\$451,584	\$0	\$36,888	\$36,888	\$414,696
Totals	\$8,755,320	\$134,255	\$4,451	\$8,894,026	\$4,628,848	\$744,705	\$5,373,553	\$3,520,473

Program Benefits

- Hedge against rising energy costs and create significant savings
 - Over **\$100,000** in annual net savings
 - **\$5.5 million** over project life after paying for all costs
 - Cut down District electricity spend by nearly 50%
- Utilize savings to replace old mechanical equipment
- Save maintenance staff's time with long-life LED lighting, changing out old water meters, replacement of old mechanical equipment using savings
- Increase revenue, eliminate meter reading cost, and conserve water with new AMI water meters
- Stimulate local economy and provide local jobs
- Establish District as a regional technology leader
- Substantial environmental benefits equivalent to removing 267 cars from the road annually
- **ENGIE guarantees 95% of energy savings**

Roadmap



Opportunity Assessment
Program Development
Implementation

Mar 2017 – May 2017
Sep 2017 – Mar 2018
May 2018 – Jun 2019