

TO: FACILITIES AND WATER  
RESOURCES COMMITTEE

REVIEWED: MARIO IGLESIAS  
GENERAL MANAGER

DATE: APRIL 6, 2018

**AGENDA ITEM**

**2**

**APRIL 9, 2018**

**REVIEW ENGIE (PREVIOUSLY OPTERRA)  
ENERGY SAVINGS PROPOSAL**

**ITEM**

Review Engie Energy Company proposal for technology integrity and viability. [RECOMMEND EVALUATE AND DISCUSS THE MERRITS OF THE TECHNOLOGY TO DEVELOP A RECOMMENDATION FOR THE BOARD OF DIRECTORS]

**BACKGROUND**

At your Honorable Board's March 28, 2018 Board Meeting, Engie presented its Development Program Report ("Report"). Engie was authorized by the Nipomo Community Services District ("District") to complete the Report at your Board's October 25, 2017 Board Meeting.

The Report as presented generated a host of questions from the Board of Directors. Not all questions could be addressed at the Board Meeting so the Board President directed the Facilities and Water Resources Committee to hold a public meeting in order to better understand the elements being proposed for installation.

In particular:

- The solar technology choice – how was this technology evaluated and determined to be superior to other manufacturers
- Meter Accuracy
- Guarantee of reading every meter
- Workflow of getting project completed with minimal disruption to operations and customers

Additional detail will be provided by Engie representatives.

**FISCAL IMPACT**

The program is funded by savings it generates. There should be little impact on the cash flow. There will be a lease payment that will show on the District's budget as an expenditure.

**STRATEGIC GOAL**

Goal 6. GOVERNANCE AND ADMINISTRATION. Conduct District activities in an efficient, equitable and cost-effective manner.

- 6.2 Utilize technology to maximize productivity and communications.
- 6.3 Provide excellent customer service.

**RECOMMENDATION**

Staff recommends your committee review and discuss details of Engie's Development Program Report and prepare a recommendation for the District's Board of Directors on the viability of the technology being proposed.

**ATTACHMENTS**

- A. Development Program Report

APRIL 9, 2018

ITEM 2

ATTACHMENT A

# Nipomo Community Services District

March 28, 2018

Ashu Jain, P.E.

Senior Manager

Jeff Wolthuis, P.E.

Lead Project Manager

Adam Davis

Project Manager

Ryan Rodriguez, CEM

Lead Project Engineer

The ENGIE logo features the word "ENGIE" in a bold, white, sans-serif font. The letters are slightly shadowed, giving them a three-dimensional appearance as if they are floating above a dark, reflective surface. The background of the entire slide is a high-angle photograph of a vast solar farm with rows of blue photovoltaic panels stretching towards the horizon under a clear blue sky.



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# Agenda

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- 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

Building Name	Address	Square Feet	Annual Electric Usage (kWh)	Annual Electric Billing	Average Electric Cost \$/kWh	Solar Projects	HVAC Replacement	Interior LED Lighting	Exterior LED Lighting	Web-Enabled Thermostats
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 Carrino 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



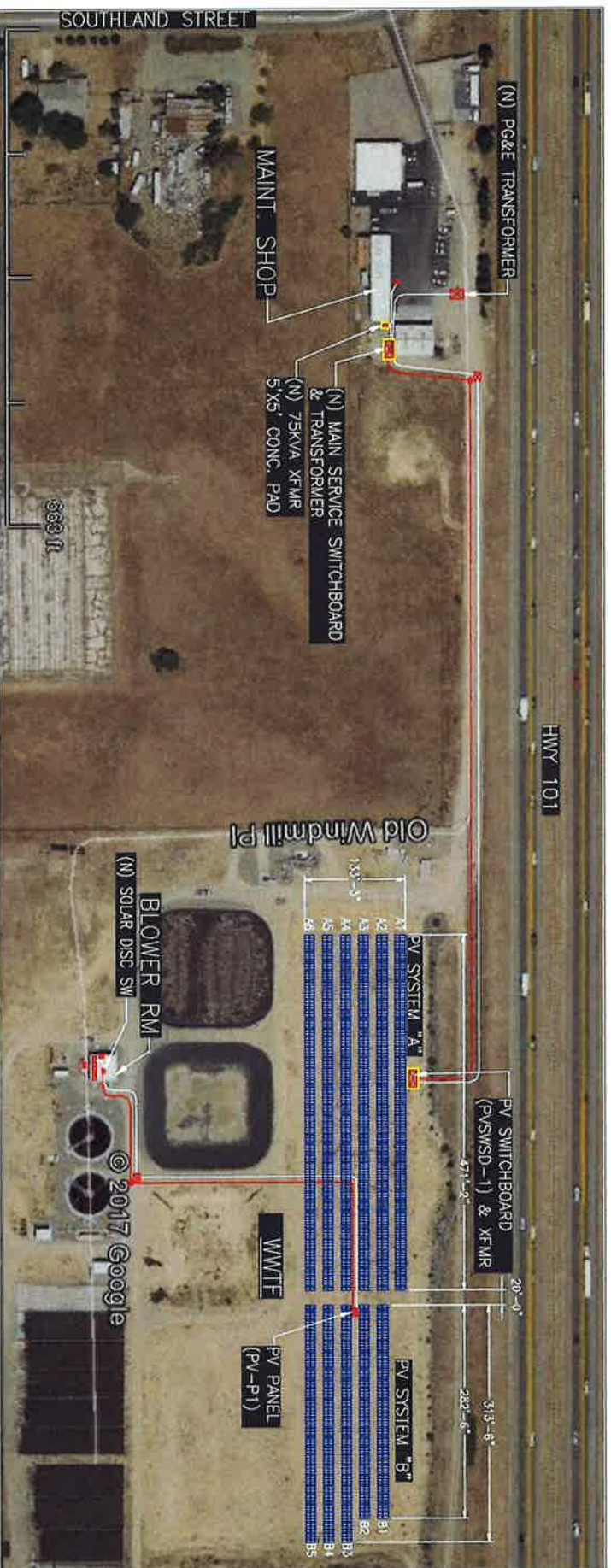
## Install Web-Enabled Thermostats

- 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)

ARRAY	PANELS	STRINGS	KWDC
WWTF – 18 PANELS/STRING			
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
<b>TOTAL</b>	<b>1620</b>	<b>90</b>	<b>648.0</b>

PV SYSTEM "B" (NEM)

ARRAY	PANELS	STRINGS	KWDC
WWTF – 18 PANELS/STRING			
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
<b>TOTAL</b>	<b>864</b>	<b>48</b>	<b>345.6</b>



## 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

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	\$510,660	\$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	\$6,813,052	\$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



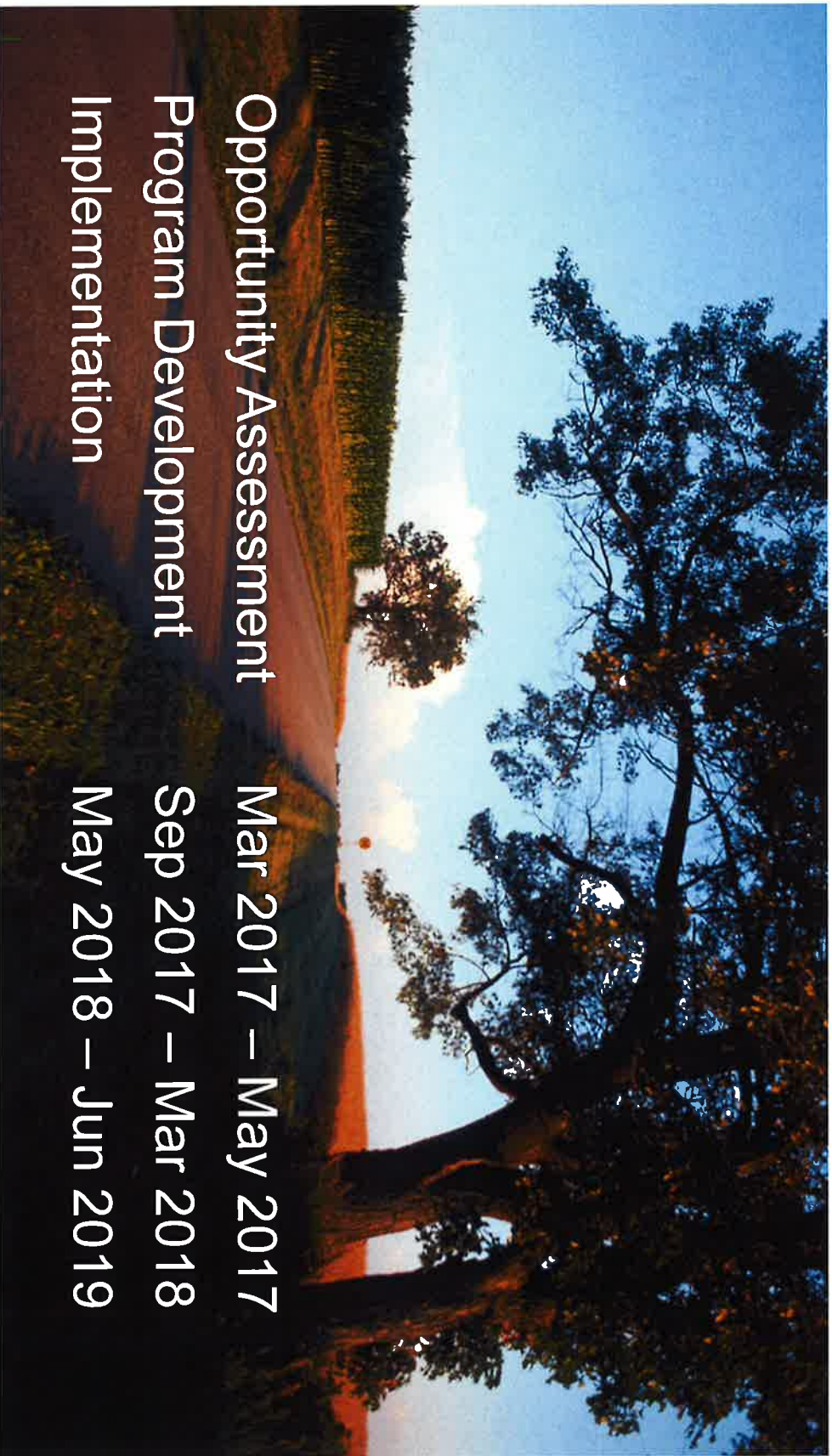




## Program Benefits

- 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	Mar 2017 – May 2017
Program Development	Sep 2017 – Mar 2018
Implementation	May 2018 – Jun 2019

TO: FACILITIES AND WATER  
RESOURCES COMMITTEE

REVIEWED: MARIO IGLESIAS  
GENERAL MANAGER



DATE: APRIL 6, 2018

## AGENDA ITEM

### 3

APRIL 9, 2018

## AQUA-METRICS – DISCUSSION ON PROJECT RECOMMENDED AUTOMATED METERING INFRASTRUCTURE ELEMENT

### ITEM

Review and discuss project recommended Automated Metering Infrastructure (“AMI”) element.  
[RECOMMEND EVALUATE AND DISCUSS THE MERITS OF THE TECHNOLOGY]

### BACKGROUND

Sensus FlexNet wireless automated metering technology is the recommended AMI system and is being proposed by Engie Energy Company as part of an energy resource savings program. At your Honorable Board’s March 28, 2018 Board Meeting Engie representatives provided information about Sensus, their wireless system, and the water meters Sensus produces.

The Sensus manufacturing representatives have presented their technology and metering system to your Board in early 2017. There were no Sensus representatives at the March 28, 2018 Board Meeting and some questions came up that the Engie representative could not answer.

In particular:

- Meter accuracy guarantee (what % accurate for the life of the meter)
- Testing the meters to ensure they remain accurate (2-inch and above testing options)
- Problems and possible solutions for meters unable to be read due to placement

In addition to getting technical questions answered, questions about implementing the program were asked. Here again Engie representatives were unable to provide answers.

- How much experience does the contractor have putting in the meters?
- How long will it take to implement 95% of the meter changes (4,360 meters)?
- What happens if a large meter doesn’t fit in the existing meter box?
- Maintaining good customer service is important to the District. The District will need a SOP from the contractor to review and concur the meter change-outs are managed with customer convenience considered.

Additional detail will be provided by Aqua-metrics and Sensus representatives.

### FISCAL IMPACT

The program is funded by savings it generates. There should be little impact on the cash flow. There will be a lease payment that will show on the District’s budget as an expenditure.



**STRATEGIC GOAL**

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**RECOMMENDATION**

Staff recommends your committee review and discuss details of Engie's Development Program Report, discuss with Sensus representatives issues in question and prepare a recommendation for the District's Board of Directors on the viability of the technology.