

ENERGY OPTIMIZATION PLANS

An aerial night photograph of a wastewater treatment plant. The image shows several large rectangular aeration basins arranged in rows. The water in the basins is illuminated from below, creating a bright green glow. To the left of the basins, there are several large, light-colored rectangular structures, likely part of the plant's infrastructure. The surrounding area is dark, with some streetlights visible on the right side.

Climate Action Subcommittee

October 13, 2021

Tasha Wright, Energy & Sustainability Coordinator

BACKGROUND

- Aug 2013 – BPU approved contract with Kennedy Jenks (K/J) Consultants to develop EOPs
- Jan 2014 - BPU approved Amendment No. 1 to the K/J contract
- Sept 2014 - BPU approved Amendment No. 2 to K/J contract
- May 2015 - BPU approved Amendment Part 2 to K/J contract to include investigation into 5 potential projects for Subregional EOP
- Aug 2019 – Provided update on the findings in the EOPs and received direction from BPU on measures to pursue

EOP GOALS

1. Roadmap to strategically and systematically optimize energy use in Santa Rosa Water's systems
 - Reduce energy usage, energy costs, and GHG emissions
 - Move towards energy independence
2. Support City Council Goals – Promote Environmental Sustainability: Santa Rosa protects and improves the environment through its policies and actions.

EOP PROCESS

Memorialize

Energy efficiency and renewable energy projects completed to date

Evaluate

Current water systems and practices

Identify

Cost-effective measures to:

- Enhance energy efficiency
- Reduce energy demand
- Increase renewable energy generation

Sonoma Clean Power

EverGreen

EverGreen service is 100% Renewable*

- 81% Geothermal
- 19% Solar



CleanStart

CleanStart service is 93% carbon-free*

- 49% renewable electricity (wind, solar, geothermal, etc.)
- 44% carbon-free large hydroelectric power
- 7% general system power

*Rounding may cause these percentages to adjust beyond 100%.

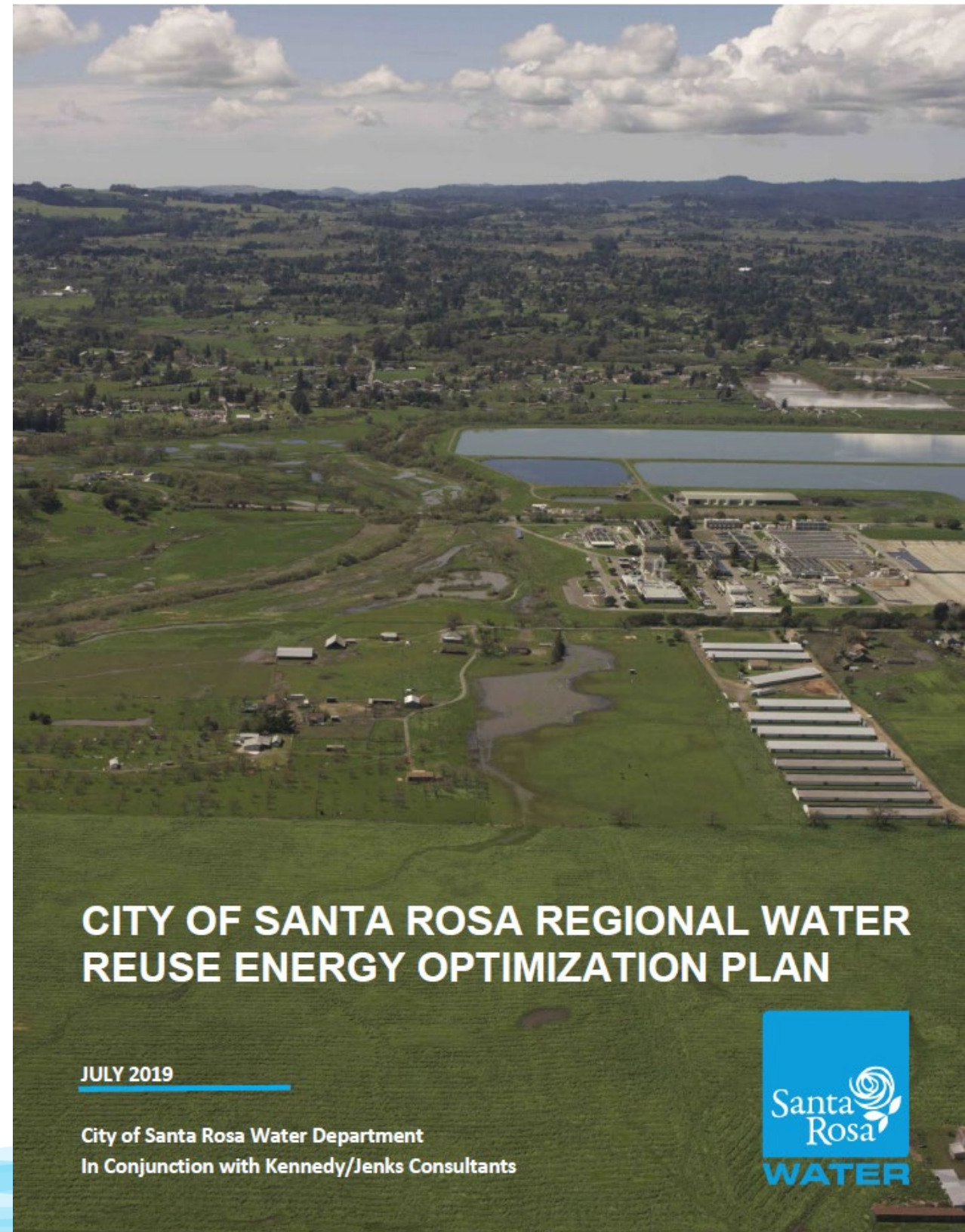
REGIONAL WATER REUSE

4 System Audits

- LTP
- Biosolids/Compost
- Reclamation
- Geysers

5 Deeper Investigations

- Measures:
 - 6 – Pursue
 - 9 – Complete or in Planning
 - 25 – Not Pursue at this Time
 - 21 – Not Recommended



CITY OF SANTA ROSA REGIONAL WATER REUSE ENERGY OPTIMIZATION PLAN

JULY 2019

City of Santa Rosa Water Department
In Conjunction with Kennedy/Jenks Consultants



Regional Water Reuse EOP

Complete or In Progress

	<i>Category: “Complete or In Progress”</i>	Status
EEM 1-2	Replace Ultraviolet (UV) Disinfection	IN PROGRESS
EEM 1-6	Run Idle Cummins Engines on Natural Gas to Generate Electricity	IN PROGRESS
EEM 1-10	Implement Building and Lighting Energy Efficiency Measures	IN PROGRESS
EEM 4-4	Reduce Operation of the Air- handling Unit	COMPLETE
PI 7-1	SCADA Screens and Instruments to Facilitate Energy Management	COMPLETE
PI 7-2	Monitor Time-of- Use (TOU) Rate Change	COMPLETE/ONGOING
PI 7-3	Use the Flow Equalization Basin (FEB) for Peak Shaving	COMPLETE/ONGOING
EEM 8-11	Continue Pump Testing Program	COMPLETE/ONGOING

Regional Water Reuse EOP

Measures to Pursue

EOP Project No.	Project Title
EEM 1-6	Run Idle Cummins Engines on Natural Gas to Generate Electricity
EEM 4-1	Restore Pipeline Capacity in portion of Geysers Pipeline
EEM 8-12	Upgrade Delta Pump #2
REM 9-4	1 MW Floating Solar Photovoltaic (PV) Installation, Power Purchase Agreement
REM 9-5	Pond Lease for 1 MW Floating Solar Installation
Other	Measures Recommended by Consultant: <ul style="list-style-type: none">• Evaluate Additional Uses of Waste Heat• Mechanical Digester Mixing• Irrigation System Optimization

CITY OF SANTA ROSA WATER OPERATIONS ENERGY OPTIMIZATION PLAN

JULY 2019

City of Santa Rosa Water Department
In Conjunction with Kennedy/Jenks Consultants



WATER OPERATIONS

System Audit

- Water and Wastewater

7 Investigations

- Measures
 - 10: Pursue
 - 4: Complete or in Planning
 - 4: Not Pursue at this Time
 - 20: Not Recommended

Water Operations EOP

Complete or in Progress

	<i>Category: “Complete or In Progress”</i>	Status
	Planned SCADA/PLC Upgrades	COMPLETE
EEM 6-4	Add Software Flow Totalizers for Pump Stations	COMPLETE/ONGOING
EEM 9-1	Heating at UFO	COMPLETE
EEM 9-2	Cooling at UFO	COMPLETE
EEM 9-3	HVAC Equipment - OFO	COMPLETE
EEM 9-4	Window Blinds – Operational Changes UFO	COMPLETE
EEM 9-5	Natural Lighting – Investigation - UFO	COMPLETE
EEM 9-7	Staff Education - UFO	COMPLETE
OTHER	Measures Recommended by K/J for Further Investigation: <ul style="list-style-type: none">• Pump Efficiency Testing• Variable Frequency Drives (VFD)• Optimizing Time of Use Rates	COMPLETE

Water Operations EOP

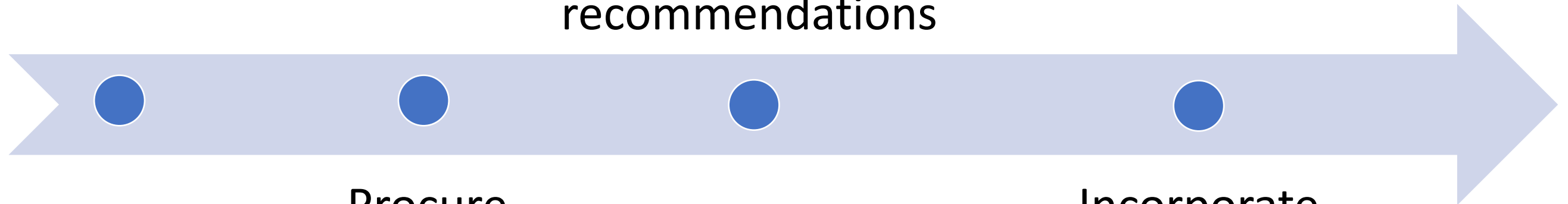
Measures to Pursue

EOP Project No. Project Title	
REM 7-1	Own and Operate 134 KW solar system
REM 7-2	Own and operate 320 KW solar system
EEM 7-5	Power Purchase Agreement (PPA) for 320 KW solar system
REM 7-6	PPA for 1257 KW solar system

STEPS



Return to BPU with
findings and
recommendations



Procure
Consultant

Incorporate
Measures into
CIP Process

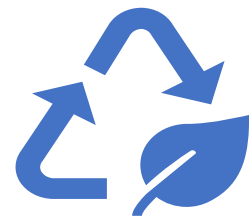
FURTHER INVESTIGATION



Next: Procure engineering consultant to further evaluate feasible projects



Fiscal: Estimated costs associated with consultant are included in FY21-22 Water budget. Estimated to be complete by Summer of 2022.



Environmental: List of final projects to Pursue. Progress toward Council Goals and Carbon Neutrality by 2030.



QUESTIONS?