



Potable Reuse and Energy Self-Generation at NapaSan

Napa County Board Of Supervisors Meeting
November 12, 2024



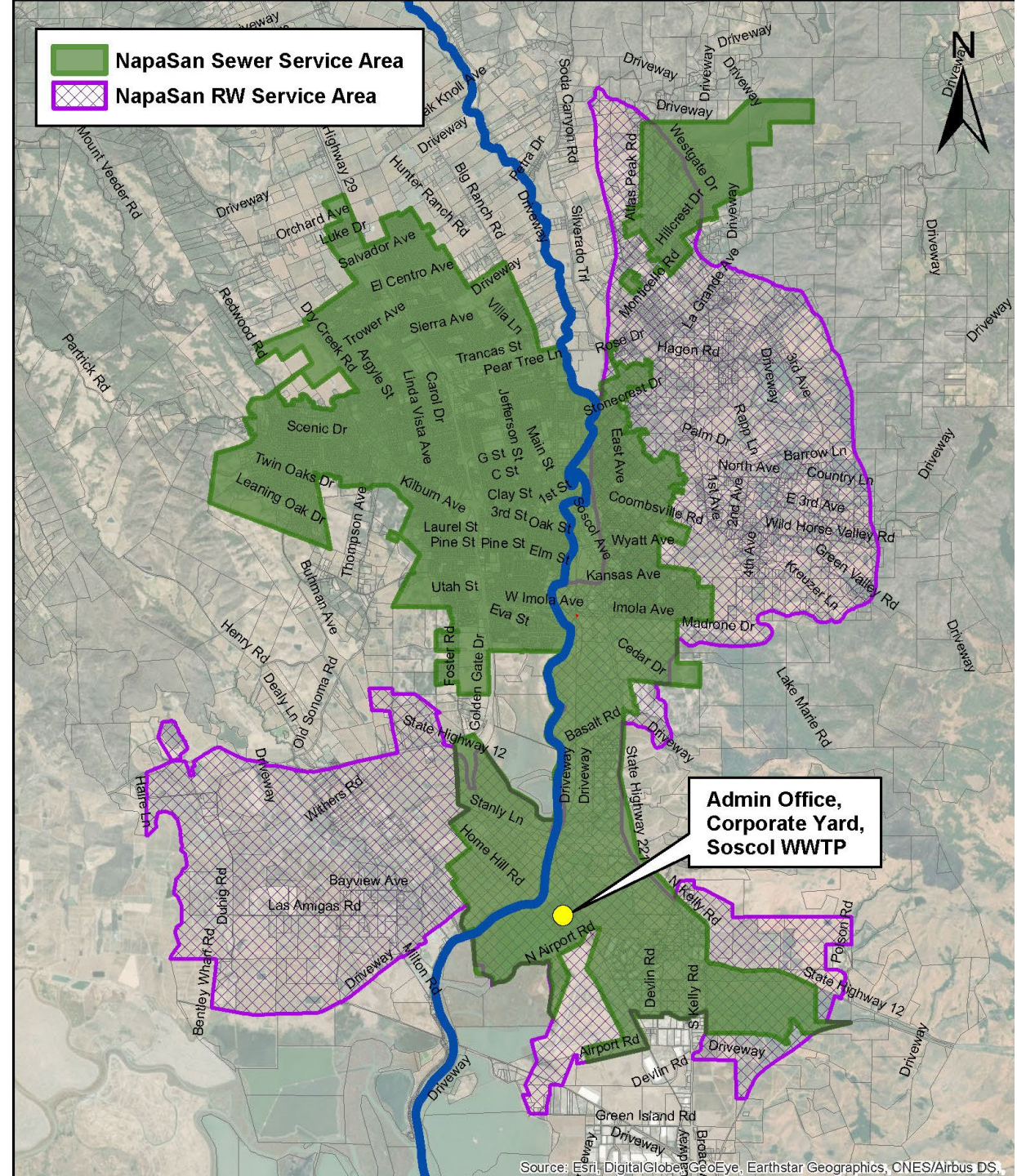
The Basics

- **Founded in 1945**
- **Serves 83,300 customers**
- **Average flow of 8 mgd**
- **270 miles of sewer mains**
- **27 miles of recycled water mains**
- **38,000 service connections**



Service Areas

- 21 mi² sewer service area
- 26 mi² recycled water service area



What We Do

Wastewater



Recycled Water



Biosolids



Purified Water Feasibility Study

- **Goal of NapaSan's 2023 Strategic Plan**
- **Part of the Drought Contingency Plan**
- **Began in February 2023**
- **Performed by Carollo Engineers**
- **Partnership between City of Napa and NapaSan**

Study Summary

Source Water Flows

- Available water volume

Source Water Quality

- Inform system design

Regulatory Requirements

- Direct Potable Reuse regulations- TWA/RWA

Alternatives Analysis

- System size, location, and costs

Residuals Management

- NPDES compliance

Governance Framework

- Interagency partnership

Implementation Roadmap

- Timeline

Conclusions

- **Technically feasible, but not cost-effective at this time**

Future actions for City and NapaSan

- **Monitor cost comparison of alternate water supplies**
- **Monitor regulatory requirements**
- **Monitor costs and public acceptance of other projects**
- **Evaluate dry weather stormwater augmentation to benefit recycled water customers**

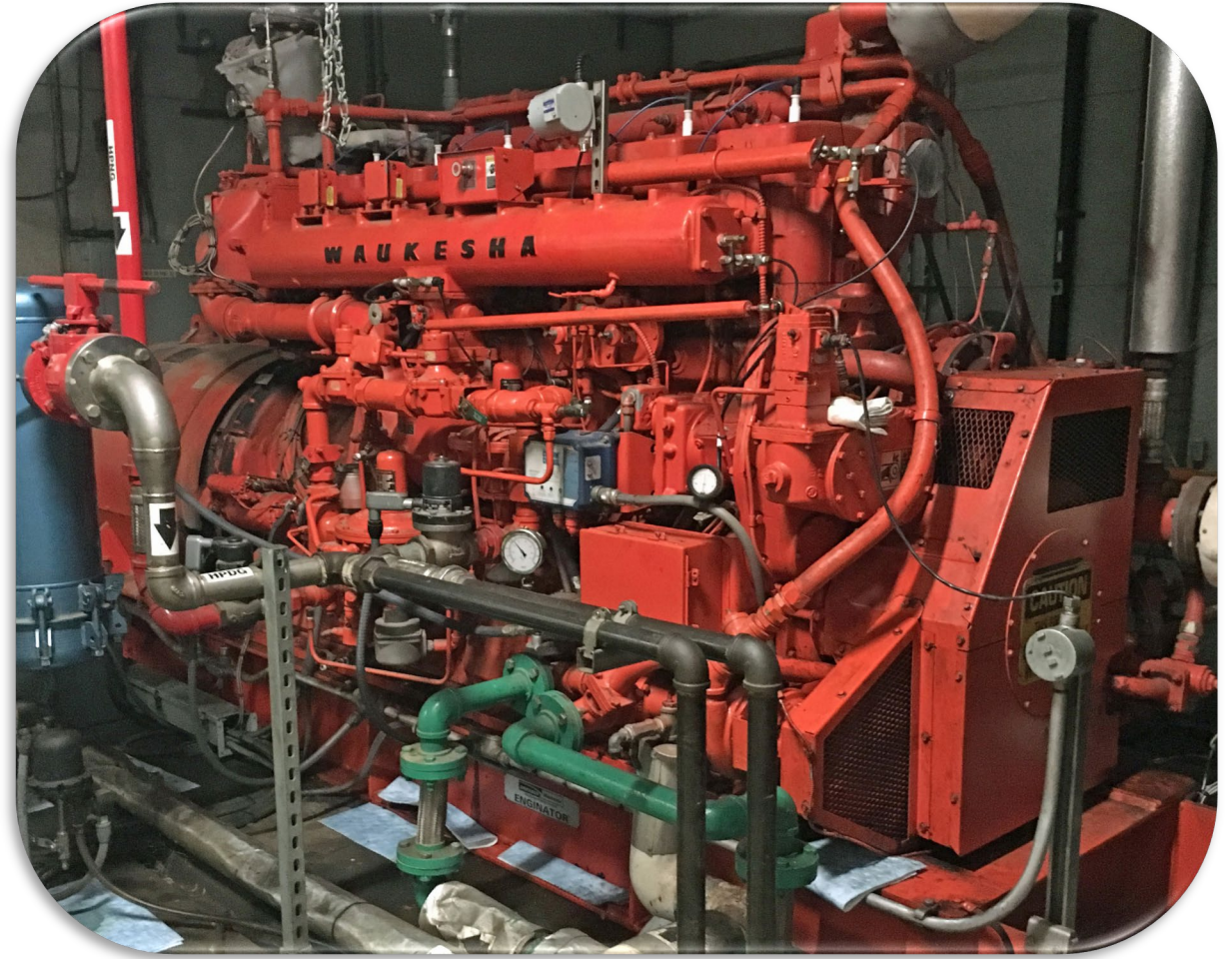
But wait!
There's more!

Did You Know?

Approximately 65% of the power needed to operate the facility is self-generated.

Biogas

- Capture methane from anaerobic digester
- Co-gen system installed with digester in 2001
 - 40% of operational needs
- FOG receiving station
 - Increased gas production by 38%



Solar Power

- **1 MW solar array**
- **Installed in 2016**
- **Brings energy generation on-site to 50%**



Linear Generator

- **Mainspring linear generator**
- **Runs on biogas**
- **GHG emission reduction**
- **High efficiency**
- **Allows NapaSan to accept more high-strength waste**
- **Brings self-generated energy to 65%**



Floating Solar

- Partnering with Ciel et Terre
- 20 MW solar array
- Floats on wastewater ponds
- ~100 acres of pond surface





Questions?

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