



Expanding Biogas Utilization to Generate Renewable Energy and Revenue

Board of Directors Meeting
November 9, 2022



TRANSFORMING WASTEWATER TO RESOURCES

Background





“Transforming Wastewater to Resources”

- District reduces local potable water demand via **water recycling**, **generates onsite renewable energy** via biogas utilization, and **recovers valuable nutrients** via land application to improve soil health via biosolids reuse
- Renewable energy is produced via biogas utilization at onsite Cogeneration Engine Facility at District’s WWTP
 - Biogas (~65% methane, 35% carbon dioxide, trace contaminants) is produced through anaerobic digestion of primary/secondary sludge
 - District typically meets **50-55% of WWTP power demand**
 - Reduces operating costs by avoiding electricity purchase from PG&E

 **14** million gallons of wastewater treated each day

 **7.6** million gallons of recycled water produced each day

 **55%** of plant power needs met via on-site renewable energy production

 **38** tons of biosolids produced each day
100% beneficial use of biosolids

Leveraging Key Regulatory Drivers and Funding Opportunities



Senate Bill 1383

Requires **diverting organics from landfills to mitigate climate change impacts** from methane emissions at state level
CalRecycle grants are available

Senate Bill 1440

Requires PG&E to **increase portfolio of renewable natural gas (RNG)** in supply pipelines

RNG Incentives

Significant, volatile **financial incentives** are available at the state (LCFS credits) and federal (RINs) level for RNG production

Inflation Reduction Act

Incentivizes cogeneration projects (e.g., tax credits for up to 30% of capital costs)—require start of construction by 12/31/24 and specific sourcing of domestic materials

Air Permitting (BAAQMD)

Likely triggers **Best Available Control Technology** requirements for cogeneration engine replacement projects

Opportunity to Expand Renewable Energy and Revenue Generation

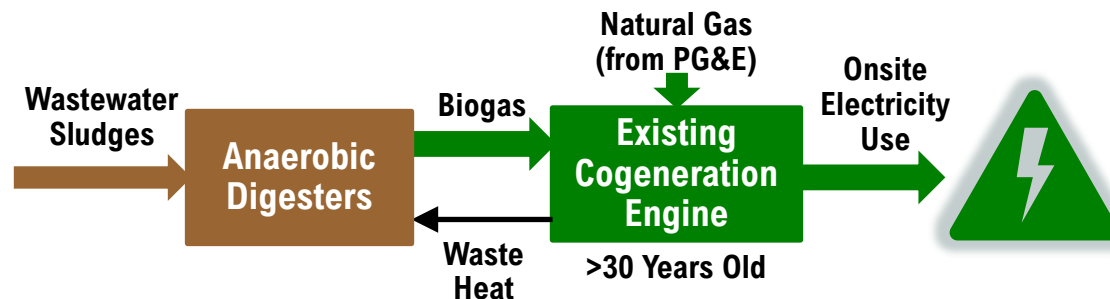
- District's 5-year Capital Improvement Program includes **\$5.0 million** for Cogeneration System Improvements Project over next three years (FY22/23-FY24/25)
- Staff is engaging to develop recommended project approach that supports District's Sustainability Policy No. 1060 and key Strategic Plan goals (**Infrastructure Investment, Environmental Stewardship, Fiscal Responsibility**)
- District constructed trucked waste receiving station in 2013 that is currently not utilized and likely requires upgrade
 - Fats, oils, and grease (FOG) deliveries only with single hauler
- Recent master planning work indicated significant trucked waste volumes are available in reasonable WWTP proximity



Phased Project Approach

Initial Phase – Cogen Engine Replacement

- Focus on replacing existing cogeneration engine, and supporting biogas conditioning equipment and control systems; completing PG&E and BAAQMD permitting approval processes
- Develop request for proposals (RFP) for evaluation of project alternatives, funding availability, and economics analyses, and completion of detailed design services (Mar/Apr 2023 Board award)
- Maintain focus on December 31, 2024 date in Inflation Reduction Act and navigate domestic materials sourcing requirements to maximize available funding
- Update upcoming 5-year CIP cost estimate (\$5M is likely low, may be **\$8M-\$10M** based on similar project bid results at other WWTPs)



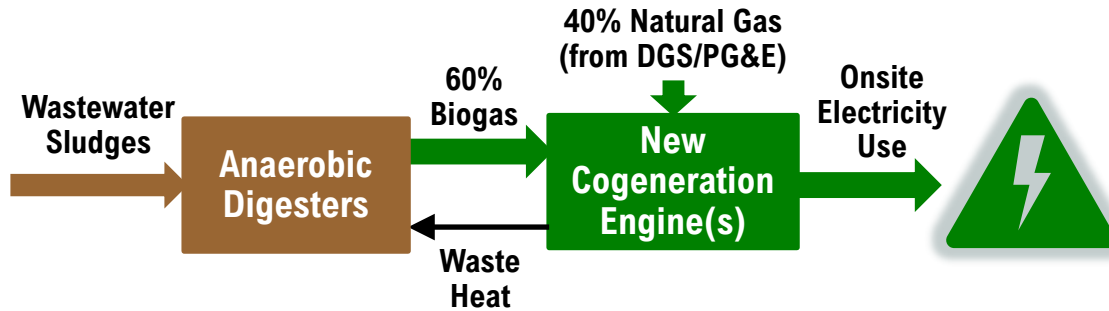
Phased Project Approach

Second Phase – Expand Biogas Utilization



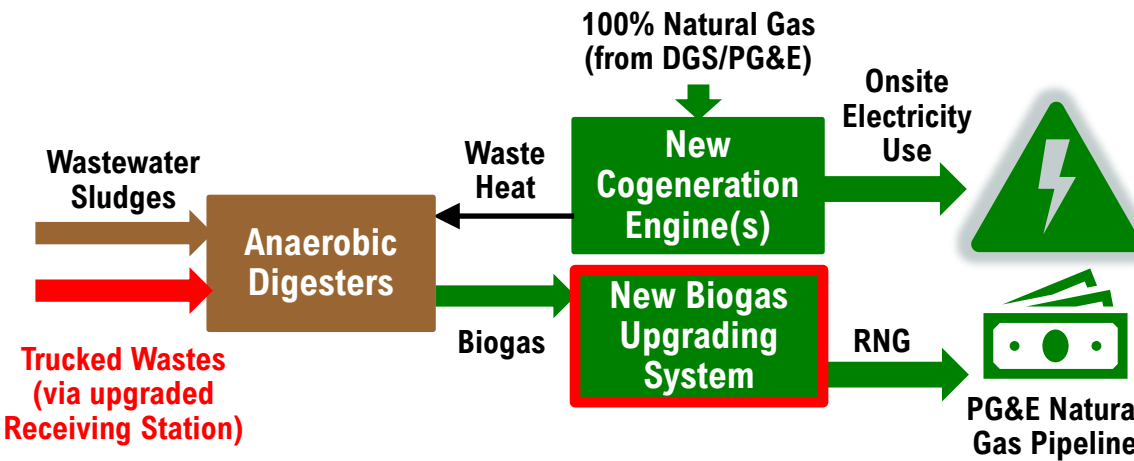
- Consider development of public-private partnership (P3) and/or alternative project delivery (e.g., design/build):
 - Upgrade existing trucked waste receiving station and procure additional trucked waste volumes to increase renewable energy production and meet **>100% of WWTP power demand**
 - Add gas conditioning and pressurization system to convert biogas to RNG for injection into PG&E pipeline (no longer used for onsite cogeneration), utilizing financial incentives (LCFS, RINs)
 - Negotiate and execute interconnection agreement with PG&E
 - Add “sidestream treatment” process to reduce baseline nutrient loading and offset additional loading associated with trucked wastes
 - Maintain compatibility with future MDRR food waste co-digestion project (similar to East County Bioenergy Project)
- Maintain as separate from Initial Phase, working in parallel; issue future Request for Qualifications for potential P3

Biogas Utilization “Roadmap”



- Meet **55-60%** of WWTP demand (0.46 MW of 0.8 MW)
- Gross annual operating cost savings = **>\$560k**
- Requires Cogeneration System Improvements Project (\$8M-10M) to renew existing infrastructure

Near-term Biogas Utilization Approach



- Meet **>100%** of WWTP demand
- Exporting RNG to PG&E pipeline w/LCFS-RINs financial incentives
- Pursue potential public-private partnership w/revenue sharing, capital contributions
- Significant initial capital investment, including nutrient management in sidestream (TBD)

Future Expanded Biogas Utilization and Approach

Next Steps

- Continue staying apprised of key regulatory drivers and funding opportunities
- Accelerate Cogeneration System Improvements Project to ensure potential federal funding requirements are met (Initial Phase)
 - Restore existing aging infrastructure and reliably generate 55-60% of WWTP power demand via biogas utilization
- Actively pursue expansion of biogas utilization at the District's WWTP via increased trucked waste deliveries and future public-private partnership (Second Phase)
 - Significant potential for long-term financial benefits and reducing future rate increases