

Lewiston Auburn Water Pollution Control Authority (LAWPCA)

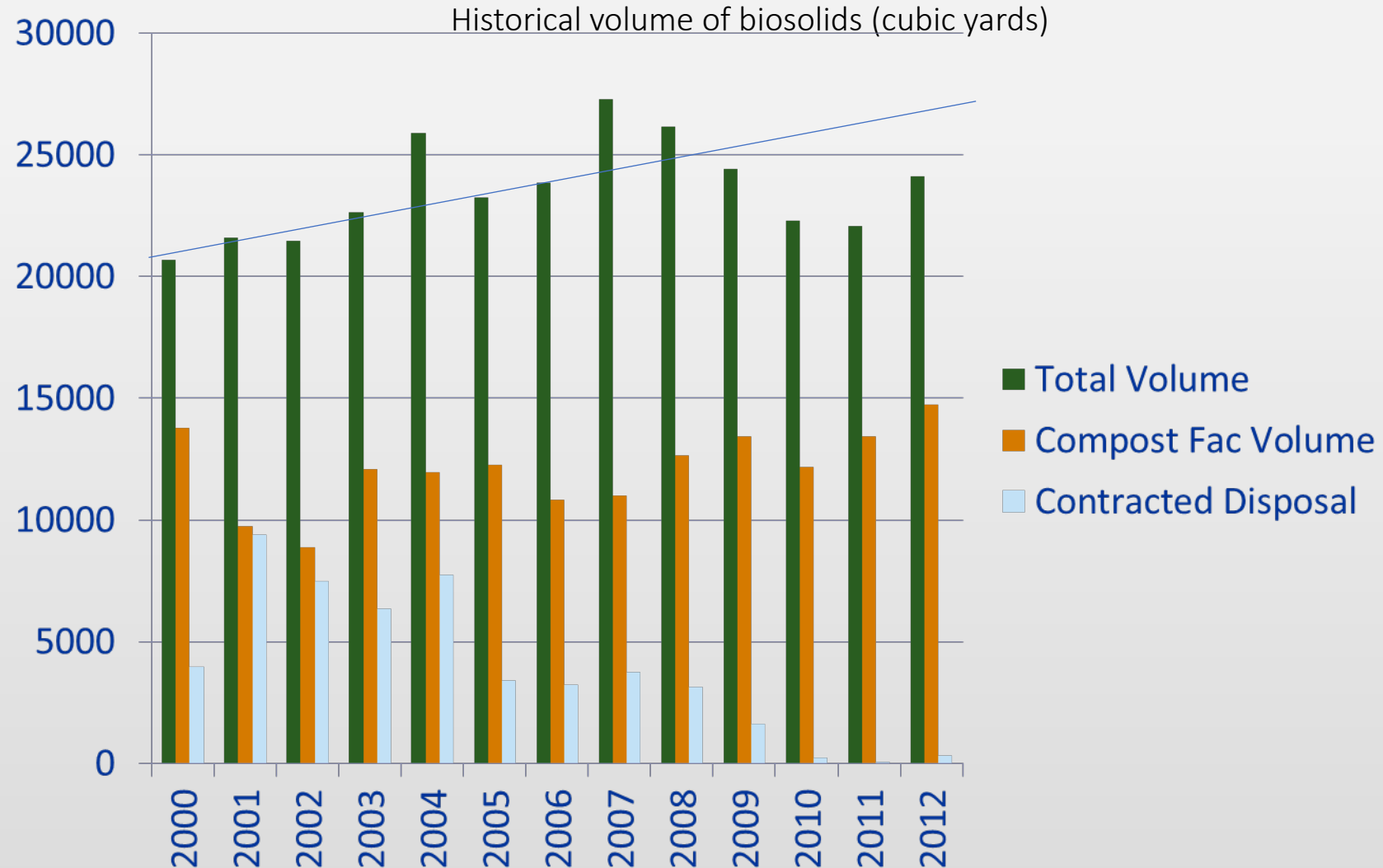


Travis Peaslee, P.E.
General Manager

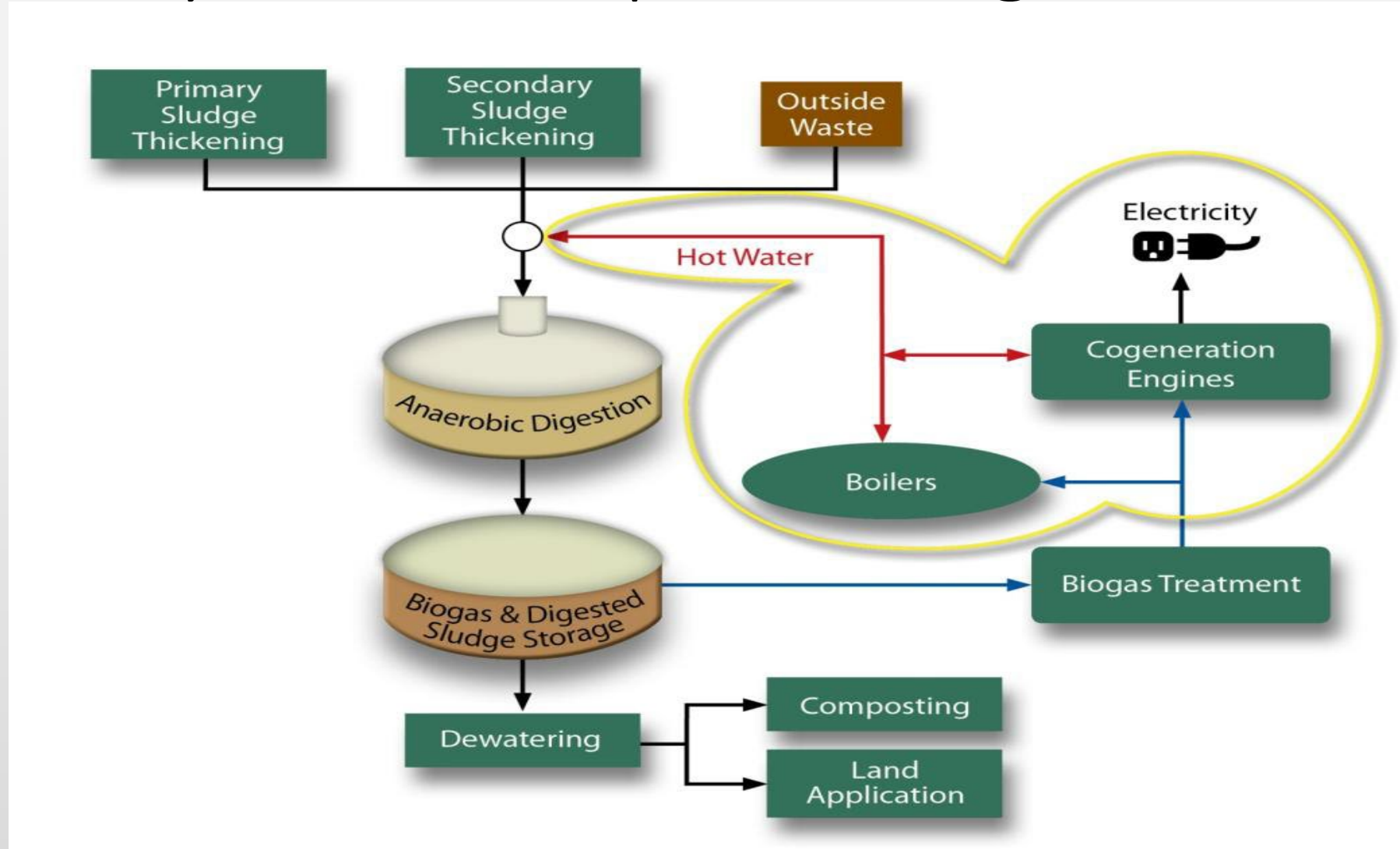
LAWPCA Snapshot

- Operating since 1974
- Receive flow from Lewiston and Auburn
- Mission: “to protect public health and the environment by treating the residential, commercial, and industrial wastewaters of our communities and returning clean water to the Androscoggin River”.
- Treatment
 - 38 million gallons per day (MGD) facility peak capacity
 - 12 million gallons per day (MGD) average daily flow
 - 35,000+ domestic users
 - 20 significant Industrial users
 - 25+ septic & holding tank waste communities
 - 6,200 tons of biosolids produced
- Closed Sludge Landfill
- Compost Facility in Auburn since 1992
- Biosolids land application since the late 1980’s

Why Add Anaerobic Digestion?



Feasibility and Conceptual Design



2010: Design Begins



- 200+ year old technology that can be operated on a farm with much less resources
- Volume reduction
- Improved biosolids quality for land application
- Potential to better control future biosolids management and electricity cost

Mesophilic Digestion



1.38 Million Gallons

Biogas Treatment



45 million cubic feet of biogas/year

Biogas Utilization



1.5-2.0 million KwH



20-25,000 MBTU heat equivalent

Biogas Storage

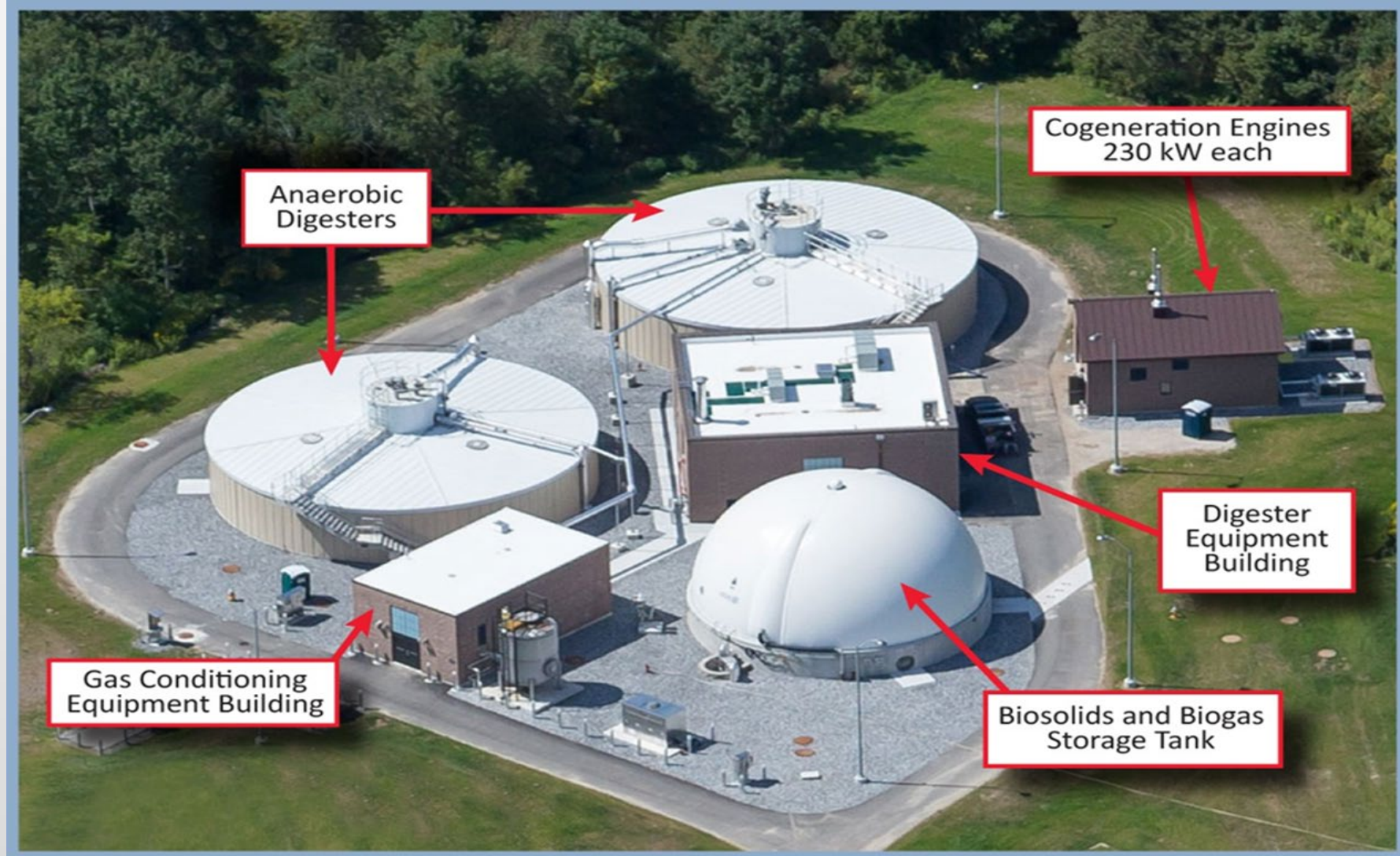


33,000 ft³

Waste Gas Burner



2013: Facility Operational



Feedstocks

- 1.5-2.0 million gallons per year of food slurry, FOG, deicing fluid, whey, milk, alcohol, seafood, septage, brewery waste
- Additional capacity for feedstocks- high strength low solids preferred
- Anaerobic Digestion is great for handling hard to treat wastes, produces biogas used to generate electricity and heat, and also helps with landfill diversion initiatives



“As Built” Financial Picture

- Total Construction Cost: \$12,732,570
- Total Engineering Cost: \$2,799,694 (17.7% of total project cost)
- Total Project Cost: \$15,532,264
- 20 year, \$7,000,000 bond paid off in 2013
- 1% SRLF Loan with 5.96% Principal Forgiveness
- \$330,000 Efficiency Maine Grant for Co-Gen Units
- Renewable Energy Certificates (\$50,000/year)
- Outside Wastes accepted to digester (\$32,000)
- Solids from other WWTPs for Composting (\$40-50,000)
- No additional staff required
- Long term capacity and user rate stability
- **NO NET INCREASE IN SEWER RATES!**

Financial picture now...

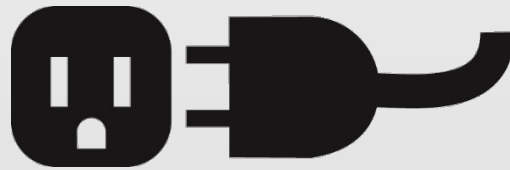
- Renewable Energy Certificates (\$50,000/year)
- Outside Wastes accepted to digester (\$32,000)
- Electrical rates more than doubled in 2023 > generation valued at \$225,000/year
- Biosolids management cost increased from \$35/ton to \$125/ton and likely to increase further > assumed AD savings \$775,000/year
- Annual savings estimated to be \$1.1M/year

Why Anaerobic Digestion and Energy Recovery?

REC's
Demand Response
Emergency Power



Plant-wide purchased power



Biosolid Management Costs



AD is well established technology

Thousands of operating installations



GHG Emissions



Benefits check a lot of boxes

✓ **Green Energy**

- Produces biogas for combined heat and power
- Potential to use gas or heat for biosolids drying
- Potential for natural gas production

✓ **Accept hard to treat waste such as FOG and Food**

- Need infrastructure for any landfill organic diversion initiatives

✓ **Biosolids quality improvement**

- Class A/B- significantly reduce odor, pathogens, and vector attraction making land application program and even landfilling more acceptable
- Eliminates the need to add lime to biosolids prior to land application
- If allowed to land apply digested solids = maintain soil health by providing (affordable) nutrients needed for farming
- AD solids are better for solids drying

Benefits Continued...

✓ **Biosolids volume reduction**

- Reduces total solids by approximately 50% (less dewatering, polymer consumption, staffing, landfilling, etc.)
- Eliminated transportation and tipping fees to haul biosolids to distant landfills
- Addresses landfill capacity and need for bulking agents (wet waste)
- Aligns with state study recommendations to reduce the volume of solids needing transport and landfilling ASAP

✓ **GHG emission reduction**

- Combustion of biogas and less material processing energy necessary
- Less organics landfilled = less CH₄
- Reduced trucking = less CO₂

Questions?

