

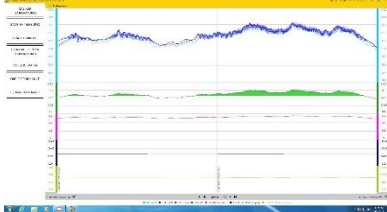





Biosolids Incinerator



<p>Case Inputs: Location: United States - Tennessee - Lebanon - Aries Clean Technologies</p> <p>Industry: Human waste Biosolids (treated sludge) from Sewers and related sources.</p> <p>Energy Source: Thermal Oxidizer exhaust stream.</p> <p>Challenge: Safely eliminate biowastes reducing landfill use and minimize fossil fuel use.</p> <p>Financials: Biosolid producers pay to dispose of their waste. Oxidizer produces syngas, biochar and heat for use</p>	<p>Solution: Aries Clean Technologies has developed a treatment and thermal oxidizer system, that converts biosolids (treated sludge) to syngas, biochar and heat. Biosolid producers pay contracted "tipping" fees to Aries to eliminate the waste rather than paying landfill transport and tipping fees. Aries has partnered with CETY to include Clean Cycle II (CCII) in their system to produce green electricity that offsets their plant demand. They also utilize the green syngas produced in their plant to minimize natural gas demand.</p> <p>The plant produced +2800 kWth. Pressurized hot water transferred the heat to 3 CCII units Producing from 200-300 kW of green electricity. The site utilized plant reserve cooling water as the heat sink.</p>	<p>Pictures:</p>  <p>Lebanon Plant.</p>  <p>ORC Unit.</p>
	<p>Performance: The CCII units operated for about 24,000 hours at 12% thermal efficiency. They demonstrated an availability of 92%. The maintenance costs ran about 1650\$/year. The CCII's operated along with the plant for years, until the city decommissioned the site to make way for a larger operation.</p>	 <p>3 units running together.</p>
	<p>Economics Due to the high costs of biosolid disposal, Aries can operate successfully without incentives; however, there have been incentives available per kW of green electricity produced in addition to the primary operating path. The plant paid for themselves in less than X years according to conversations with the customer.</p>	 <p>Visitors at open house.</p>