



NJ 2011 DRAFT ENERGY MASTER PLAN

Written Comments

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- Why is Biogas from sewage sludge/wastewater treatment facilities been left out of the picture? According to the definition of Class 1 Eligible renewables – anaerobic digestion (AD) is listed, however, sewage sludge is specifically singled out to not qualify.

By broadening the scope of the Class 1 renewables, the state would be able to impact 2 -3 of the 5 overarching goals of the EMP – (1) diversify the portfolio of clean, in-state generation from renewable technologies, (2) promote improved energy efficiency at facilities that are often the most demanding of energy consumption in a municipality.

Some worthwhile facts regarding energy demands of wastewater treatment plants and the opportunity for improved efficiency are:

- o Wastewater treatment plant operators could reduce energy consumption by 25 percent by optimizing process efficiency and greatly improving energy recovery with available technologies.
- o Wastewater treatment accounts for 30 to 40 percent of municipal energy usage. In a wastewater treatment plant, energy costs are the second largest operations and maintenance (O&M) expense after labor.

Wastewater treatment plants bring a unique opportunity to the table when it comes to renewable energy production, as there is a steady supply of the source, and there is great potential with existing infrastructure. Yet only a handful of plants are utilizing the gas they generate as a normal part of the treatment process in the state of NJ.

We know that nationally there are approximately 16,000 public wastewater treatment plants. 3,500 of those are estimated to use anaerobic digestion in their process, which is required for gas generation. Of that, 545 are 5MGD or above and estimated to be big enough that investing in a CHP system would be worthwhile. It's estimated that only 200 of those plants utilize CHP to convert the gas they produce into heat/electricity. That's only 1.25% of all public wastewater treatment plants.

According to a report published by the EPA CHP Partnership on CHP Opportunities in Wastewater Treatment, if all 545 plants were to employ CHP systems, approximately 340 megawatts (MW) of clean electricity could be generated, offsetting 2.3 metric tons of carbon dioxide emissions annually. That is equivalent to planting approximately 640,000 acres of forest, or the emissions of approximately 430,000 cars.

In New Jersey, we know there are approximately 230 public WWTPs. Using the above numbers as a conversion, we estimate that 22% of plants have AD. This translates to 50 AD systems in NJ. Yet only 8 NJ WWTPs employ CHP and capture the energy others are letting go to waste. Although the MW and carbon emissions are presented on a national scale above, one can see there is great opportunity for NJ to take advantage of the many benefits this renewable energy source can bring to the state. We know that facilities that do not utilize the methane gas they create instead have to flare it off. For every kilogram of methane burnt, 2.74 kg of carbon dioxide is produced. Thus 2.75 more carbon dioxide is emitted into the air when methane is flared than when CO₂ enters the atmosphere.

So, why is biogas from sewage sludge overlooked as a renewable resource?

Industry professionals have suggested policy options for facilitating CHP Development at WWTPs:

- Finance development of new or expansion of existing digesters & CHP systems to support co-digestion and increase CHP installed capacity in the USA.
- Fund development and demonstrations of technologies that improve digester gas yields and gas cleaning systems.
- Develop methods to accurately measure & validate carbon and other emission reduction for CHP systems.
- Support air emission regulations that will stop penalizing WWTPs who want to change from flaring to electric generation.

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