

DAILY NEWS

OPINION

Turning waste gas to clean energy: Brooklyn's Newtown Creek wastewater plant converts harmful methane to renewable natural gas fuel

By Joanna Underwood
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One of the miraculous things the NYC Department of Environmental Protection (DEP) does to make life possible for the 8.8 million residents of this city is to process 1.3 billion gallons of sewage daily across its 14 wastewater plants. But they can do even more for New York by harnessing a byproduct of the wastewater treatment process and using it for renewable energy. This enables wastewater plants to fight climate change, divert waste from landfills, and improve air quality and respiratory health.

The [Newtown Creek plant](#) in Greenpoint, the city's largest wastewater treatment plant, is already demonstrating how this works. Its [iconic egg-shaped tanks, called anaerobic digesters](#), process sewage sludge and food waste and capture the methane biogases emitted as the waste decomposes. In the past, you would have also seen a flame atop a tall stack, where excess methane that wasn't used to heat the plant was "flared," i.e., lit on fire.



Newtown Creek Wastewater Treatment Plant in Brooklyn. (Gardiner Anderson/for New York Daily News)

Flaring these gases is a common practice at wastewater treatment plants nationwide, but it's a waste of their potential as a renewable energy source. The flaring is done because unburnt methane is 86 times more powerful a global

warming agent than carbon dioxide over a 20-year period, so releasing it into the atmosphere unflared would be much worse for the climate.

But there is a better alternative to flaring. Wastewater methane biogases are a valuable clean energy resource that should be put to productive use, not burned off a stack. They can be refined instead into a fuel called renewable natural gas (RNG) which can displace fossil natural gas and lower greenhouse gas emissions. On a lifecycle basis (including production, transportation, and end-use) RNG is the lowest-carbon fuel available today.

Newtown Creek is pioneering an innovative way to make use of its methane. A new facility there has started purifying all the methane biogases captured in the plant's digesters. It removes carbon dioxide, water, and other impurities from the biogases, converting them into pipeline-grade RNG, which is chemically almost the same as fossil natural gas. It can be injected directly into existing gas pipelines and used the same ways that fossil natural gas is used.

But RNG is radically different from fossil gas, since it involves no drilling or fracking and has dramatically lower greenhouse gas emissions. In fact, producing it captures more greenhouse gases than are ever emitted when the fuel is used, so it's a net gain for the climate.

Newtown Creek has the capacity to produce enough RNG to heat more than 5,200 homes, in addition to meeting the plant's heating needs — all from local wastewater and food scraps. Harnessing wastewater methane this way is known as the "biogas to grid" strategy. It's a clean energy model that could be replicated by wastewater treatment plants across the city and the nation.

According to a [new study](#) by Energy Vision, if more of DEP's 14 wastewater treatment plants did what Newtown Creek is doing, collectively they could generate enough RNG to displace up to 27% of the natural gas the city agencies currently purchases, or the equivalent of 25 million gallons of diesel fuel.

That much RNG could power all 6,000 heavy-duty trucks in New York City's municipal fleet which now burn diesel fuel (assuming those trucks switched to natural gas-powered engines). Running them on RNG would eliminate the 175,000 tons of the carbon pollution, 90% of the nitrogen oxide, and 60% of the particulates these trucks emit each year running on diesel. Diesel exhaust harms New Yorkers' health — especially the health of children and the elderly — and diesel traffic is concentrated in overburdened environmental justice communities like the South Bronx. This is a [key reason](#) for the sky-high rates of asthma and lung disease there.

The study finds that upgrading more of the city's wastewater plants to produce more RNG could cut greenhouse gas emissions from city operations 15%, generate \$80 million a year in cost savings and new revenue, and provide a way to process 30% of the 1.2 million tons of food waste New Yorkers generate each year, keeping it out of landfills.

That could go a long way toward meeting New York's critical climate and zero-waste goals while improving our air quality, health, and bottom line. Upgrading DEP wastewater plants would qualify for funding and tax credits from the federal Inflation Reduction Act, and DEP is looking for private sector partners to make beneficial use of wastewater biogas. The sooner we start, the sooner New Yorkers will be able to reap the environmental and economic benefits of RNG.

Underwood is founder and trustee of the environmental nonprofit Energy Vision, which researches and promotes strategies necessary for a low-carbon, sustainable future.