



GTA

Toronto to create renewable natural gas from green bin waste to help heat city buildings, power vehicles

By Irelyne Lavery Staff Reporter
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Toronto will soon be using green bin waste to produce renewable natural gas to help fuel the city and cut down on greenhouse gas emissions.

The city announced Tuesday it would soon begin capturing biogas from green bin waste to combine with purchased natural gas, in order to heat city-owned buildings and power city vehicles in early 2022.

Working with Enbridge Gas Inc., and starting with the Dufferin Solid Waste Management Facility — with plans to expand the program to other

facilities in the future — the city will begin full operation in the coming weeks.

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How it works is, at the beginning of the process, materials put into green bins are sent to a processing facility where they are broken apart from plastic bags and other contaminant materials, according to Matt Keliher, general manager of solid waste management services at the city. What's left is a "slurry" of material that goes into big containers called anaerobic digesters. Micro-organisms break down the organic compound and produce the biogas called methane.

"In our system (green bin waste) is broken down in containers and that methane gas is captured," said Keliher. "Because it's captured, we can then convert it into renewable natural gas."

The gas will eventually be blended with the natural gas the city buys and injected into the city's natural gas grid. The plan is to have a fuel blend that is 7 per cent renewable natural gas.

The process cuts down on greenhouse gas emissions as the biogas is captured rather than being flared (or burned off), which is currently done at the anaerobic facilities in the city.

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The process also differs from composting and dumping in a landfill, as both of those means of disposal release biogas into the atmosphere.

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By capturing the biogas instead of flaring it at the Dufferin facility, the city will avoid releasing 9,000 tonnes of carbon into the environment each year, according to Tamara Staranchuk, strategic communications at the City of Toronto.

Avoiding releasing this carbon into the environment at Dufferin is equal to taking 2,000 cars off of the road in the city per year, according to Gordon Lau, manager of renewable gas energy at Enbridge.

“What we’re doing here has a direct impact on climate change,” said Lau.

Besides being better for the environment, Keliher said this process also generates less odour at the Dufferin site.

“When you get there, you wouldn’t know that 55,000 tonnes of green bin material get to that facility a year because there’s very little odour,” he said, adding the process also takes up less land space, leaving more room for other developments.

Financially, there is an upfront investment to this model, Keliher said, but it will exempt the city from paying carbon tax for the renewable natural gas. Instead, they'll actually get credits back from the federal government and pipeline distribution companies.

“Overtime from a financial perspective, there’s a lot of different variables that dig into it but from a social and environmental aspect, it’s definitely something that’s extremely important to the strategy and planning for the city,” Keliher said.

Charles Jia, a professor in the department of chemical engineering and applied chemistry at the University of Toronto, said that although this concept isn’t new as it’s been around in other countries for a long time, Canada has typically stuck to using landfills for waste as they are the easiest solution given the amount of land mass in the country.

“There’s an advantage of utilizing an energy component and reducing the amount of waste,” Jia said.

Other facilities have also been identified by the city for potential biogas and landfill gas upgrading including at Disco Road. The anaerobic system has already been built on site at this second site but the cleaning component still needs to be added, according to Keliher.

The process is estimated to be completed by 2023. Other facilities being reviewed include the Green Lane landfill and the Keele Valley landfill.

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