Staff Report

To	General Committee
Subject	Agreement with BioFlight Fuels for Biogas Upgrading Pilot Project
Date	June 11, 2025
Ward	2
From	S. Diemert, P. Eng., Director of Infrastructure
Executive Member Approval	B. Araniyasundaran, P. Eng., PMP, General Manager of Infrastructure and Growth Management
CAO Approval	M. Prowse, Chief Administrative Officer
Staff Report #	INF003-25

Recommendation(s):

1. That the General Manager of Infrastructure and Growth Management (General Manager) be authorized to negotiate a Pilot Program Agreement with BioFlight Fuels Inc. (BioFlight) for the installation, operation, and evaluation of a modular biogas upgrading system at the City of Barrie (City) Wastewater Treatment Facility (WwTF), in a form approved by the Director of Legal Services, the Director of Infrastructure, and the Director of Finance and Treasurer.

2. That the General Manager be authorized to amend the agreement as necessary to reflect evolving project requirements, provided that such amendments do not create financial obligations or operational risks for the City.

3. That the Mayor and City Clerk be authorized to execute a Pilot Program Agreement with BioFlight Fuels Inc.

Executive Summary:

BioFlight, a Barrie-based developer of Sustainable Aviation Fuel (SAF), have proposed a collaborative pilot project with the City to demonstrate a biogas-to-Renewable Natural Gas (RNG) upgrading system at the WwTF. This aligns with the City's climate action and economic development priorities, leveraging local infrastructure to support the transition to low-carbon energy while attracting clean technologies investment and workforce development opportunities.

Key Findings:

BioFlight is a clean energy SAF company based in Barrie, Ontario. It was founded in

2023 with a goal to help reduce aviation emissions by producing SAF. SAF is better for the environment because it is made from renewable sources like biogas instead of fossil fuels. SAF is a drop-in solution that is mixed with jet fuel and used in existing aviation infrastructure.

BioFlight plans to use biogas from several municipal sources and turn it into fuel that can power airplanes with up to 80% fewer greenhouse gas emissions than traditional jet fuel. Biogas from several municipal sources will be upgraded to RNG and injected into the existing natural gas pipeline to be removed at the site of the commercial facility. This process utilizes existing energy infrastructure creating long term sustainability for the system. Supporting the energy pipeline grid with renewable energy solutions is innovative and economical.

The initiative reflects a shared commitment to environmental innovation, infrastructure efficiency, and long-term sustainability. The project involves the installation of a Biostream unit, developed by Ivys Adsorption, to upgrade raw biogas produced during the anaerobic digestion process into RNG. This RNG will be used by BioFlight to create SAF as part of a federally supported clean energy initiative. Key features of the pilot include:

- No cost to the City: All capital, operational, and maintenance costs will be covered by BioFlight Fuels Inc.
- Five-year term: The pilot will run for an initial period of five (5) years, with provisions for early termination or extension upon mutual agreement.
- Modular and movable: The Biostream unit is skid-mounted, self-contained, and easily removable at the end of the pilot. No permanent modifications to WwTF infrastructure are required.
- Minimal risk to City operations: The system will operate independently of core treatment processes. In the event of any conflict or disruption, municipal operations will take priority.
- The City retains control and rights: All existing WwTF systems remain under the City's full control. Carbon credits generated from methane capture will be owned by the City, with an option for BioFlight to manage them on the City's behalf for a nominal administration fee.
- BioFlight owns and operates the unit: BioFlight will be solely responsible for installing, operating, and maintaining the Biostream system throughout the project term.
- Collaboration and transparency: BioFlight will provide regular reporting to City staff on system performance, volumes of biogas processed, and greenhouse gas reductions achieved.
- Supports long-term planning: Data and insights from the pilot will be shared with the City to help inform future decisions on biogas use at the WwTF, particularly as Barrie plans for population growth and wastewater facility expansion, including the addition of new anaerobic digesters.

Financial Implications:

There are no anticipated capital or operating costs to the City. All installation, operation, and decommissioning costs will be borne by BioFlight. Any incremental utility costs to the City resulting from the biogas diversion will be reimbursed by BioFlight.

Alternatives:

The following alternatives are available for consideration by General Committee:

Alternative #1 – General Committee could decline to enter into a pilot agreement. This alternative is not recommended as it would forgo an opportunity to evaluate emerging clean technologies on City infrastructure, forego potential capital costs avoidance, and miss positioning Barrie as a leader in municipal participation in Canada's green energy economy.

Strategic Plan Alignment:

Affordable Place to Live		
Community Safety		
Thriving Community	X	Promoting green jobs and workforce development.
Infrastructure Investments	X	Leveraging City infrastructure for clean energy innovation.
Responsible Governance	X	Minimizing taxpayer risk while evaluating next-generation utilities planning.

This project supports Barrie's economic development strategy by positioning the City as a leader in green energy innovation. It aligns with the City's economic development goals of attracting clean technologies investment and building capacity in the low-carbon economy. It also presents opportunities for collaboration with Lakehead University and Georgian College in applied research, carbon lifecycle analysis, and climate solutions—all aligned with Barrie's vision for an innovative, sustainable future.

Additional Background Information and Analysis:

This study focused on using biogas, which is produced by breaking down food and waste in places like wastewater treatment plants, source separated organics facilities, and landfills. BioFlight has completed a detailed engineering study to show that its SAF production plan works.

The company's long-term plan includes expanding across North America and helping Canada become a leader in clean aviation fuel. To do this, BioFlight is working with partners like Ivys Adsorption and Bright Spot Climate, to make sure its fuel is safe, clean, and effective.

Consultation and Engagement:

No public consultation was required in relation to this staff report.

Environmental and Climate Change Impact Matters:

The project directly supports Barrie's climate action targets by reducing methane emissions, one of the most potent GHGs, and by enabling renewable fuel production that could displace fossil-based aviation fuels.

The BioFlight biogas upgrading pilot project aims to stop the flaring of excess methane at the Barrie WwTF. Instead of burning the excess gas, BioFlight will capture and clean all of the biogas generated at the plant, turning it into RNG. This cleaned gas can be used to make SAF, a clean fuel for airplanes that helps reduce pollution from air travel and aiding the Canadian Government in meeting its net zero 2050 targets.

Appendix:

Not Applicable

Report Author:

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File #:

C11 - AGR

Pending #:

Not Applicable