

To: Zero Waste Committee

From: Brent Kirkpatrick, Lead Senior Engineer, Solid Waste Services

Date: June 8, 2023 Meeting Date: June 15, 2023

Subject: **Waste-to-Energy Facility 2022 Financial Update**

RECOMMENDATION

That the Zero Waste Committee receive for information the report dated June 8, 2023, titled "Waste-to-Energy Facility 2022 Financial Update."

EXECUTIVE SUMMARY

This report provides the annual financial update for the Metro Vancouver Waste-to-Energy Facility. The facility continues to be an environmentally sound, cost effective disposal option. In 2022 the Waste-to-Energy Facility processed 233,052 tonnes of municipal solid waste at an overall at a net unit cost of \$74.59 per tonne for operation and maintenance. The Waste-to-Energy Facility net cost per tonne of waste processed increased in 2022 as compared to 2021, primarily due to increased consumable costs (e.g., chemicals and natural gas), ash management costs, and lower throughput tonnage. Waste-to-Energy Facility unit costs are comparable to the cost of managing waste at the Vancouver Landfill and roughly half the cost of managing waste through Metro Vancouver's contingency disposal contracts. Waste-to-Energy Facility costs are funded through garbage tipping fees paid by all solid waste system users.

PURPOSE

The purpose of this report is to provide the Zero Waste Committee with the annual financial update for the Metro Vancouver Waste-to-Energy Facility located in Burnaby.

BACKGROUND

Annually, results of the operation of the Waste-to-Energy Facility and contract with Covanta Burnaby Renewable Energy, ULC (Covanta), including tonnages, expenditures, revenues, service level and performance, and unit costs, are provided to the Zero Waste Committee for information.

2022 WASTE-TO-ENERGY FACILITY FINANCIALS

Table 1 provides the past three years of expenditures for the Waste-to-Energy Facility. Total expenditures include operations and maintenance of the Waste-to-Energy Facility and ash management. Ash management costs increased in 2022 due to higher fly ash and bottom ash disposal costs which increased with inflation. A small amount of bottom ash was managed at the Coquitlam Landfill in 2021, reducing costs compared to 2020.

Metro Vancouver has entered into a contract with Birco Environmental Ltd. to conduct a pilot project to process bottom ash for beneficial use as an input material to a local cement plant. If the process is successful it will result in a disposal reduction of approximately 40,000 tonnes per year of bottom ash, or nearly 5% of all of the municipal solid waste requiring disposal in the region. The initiative will also reduce greenhouse gas emissions through reduced mining and transportation of raw materials for the cement plant. The pilot trials are currently underway and scheduled for completion by early 2024.

Table 1: 3-Year Expenditures for the Waste-to-Energy Facility

	2020	2021	2022
Operating Cost	\$19,292,506	\$19,283,850	\$20,226,031
Fly Ash Disposal Costs	\$1,256,519	\$1,465,739	\$1,455,891
Bottom Ash Disposal Costs	\$2,016,633	\$1,560,862	\$1,767,871
Total Expenditure	\$22,565,658	\$22,310,451	\$23,449,793
Tonnage	244,362	241,531	233,052
Unit Cost / Tonne	\$92.35	\$92.37	\$100.62

Table 2 outlines Metro Vancouver's portion of offsetting revenues. Electrical revenue in 2020 was reduced due to scheduled turbine generator maintenance which occurs every six years. In 2021 and 2022 electrical revenues returned back to normal levels. Metal revenue includes revenue from the non-ferrous metals recovery system that was installed in the fall of 2018 and commissioned in 2019. Metals revenue has remained high reflective of high recycled metals prices.

Table 2: Metro Vancouver's Portion of Electrical and Metal Revenues for the Waste-to-Energy Facility

	2020	2021	2022
Electrical Revenue	\$5,308,843	\$5,778,816	\$5,705,028
Metals Revenue	\$191,800	\$436,187	\$360,428
Tonnage	244,362	241,531	233,052
Unit Revenue / Tonne	\$22.51	\$25.73	\$26.03

Table 3 shows net cost per tonne for the Waste-to-Energy Facility from 2020 to 2022. An approximate \$5 per tonne increase in net costs was observed between 2020 and 2022. This increase is primarily due to consumable costs (e.g., chemicals and natural gas), ash management costs, and lower throughput tonnage. The Waste-to-Energy Facility annual tonnage processed is impacted by waste quality, equipment availability, and boiler outages. Over the two past years, approximately 15% of the unscheduled downtime at the facility was due to tube leaks in the primary economizers. This has a direct impact on the waste processing capacity and electricity production of the facility. One boiler was upgraded during the 2023 spring outage and the remaining two boilers will be upgraded during the 2023 fall outages.

Table 3: 3-Year Net Unit Cost for Operation and Maintenance of the Waste-to-Energy Facility

	2020	2021	2022
Unit Cost / Tonne (from Table 1)	\$92.35	\$92.37	\$100.62
Unit Revenue / Tonne (from Table 2)	\$22.51	\$25.73	\$26.03
Net Unit Cost / Tonne	\$69.84	\$66.64	\$74.59

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The Waste-to-Energy Facility net unit cost/tonne increased in 2022 relative to 2021 primarily due to increased consumable costs (e.g., chemicals and natural gas), ash management costs, and lower throughput tonnage. Metro Vancouver continues to work with Covanta to minimize facility costs and, overall, the Waste-to-Energy Facility continues to be a cost-effective regional disposal option. Unit costs are comparable to managing garbage at the Vancouver Landfill and approximately half the cost of managing garbage through contingency disposal contracts where garbage is shipped to remote landfills for disposal. Both Waste-to-Energy and the Vancouver Landfill are operated to their maximum annual capacity. Waste-to-Energy Facility costs are funded through garbage tipping fees paid by all solid waste system users.

CONCLUSION

Expenditures in 2022 for the Waste-to-Energy Facility totaled \$23.5 million, resulting in an expenditure of \$100.62 per tonne. Metro Vancouver's portion of electrical and metals revenues totaled \$6.1 million or \$26.03 per tonne. Based on the plant processing 233,052 tonnes of municipal solid waste in 2022, expenditures of \$100.62 per tonne less revenue of \$26.03 per tonne resulted in a net unit cost of \$74.59 per tonne for operation and maintenance of the Waste-to-Energy Facility. Tipping fee revenues are accounted for separately and are not included in this analysis.

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