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SERVICES AND SOLUTIONS FOR A LIVABLE REGION

To: Zero Waste Committee

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

Date: August 28, 2024 Meeting Date: September 5, 2024

Subject: **Waste-to-Energy Facility 2023 Financial Update**

RECOMMENDATION

That the Zero Waste Committee receive for information the report dated August 28, 2024, titled "Waste-to-Energy Facility 2023 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 2023 the Waste-to-Energy Facility processed 236,278 tonnes of municipal solid waste at an overall net unit cost of $92.18 per tonne for operation and maintenance. The Waste-to-Energy Facility net cost per tonne of waste processed increased in 2023 as compared to 2022, primarily due to increased ash management costs and debt servicing costs. Waste-to-Energy Facility revenues in 2023 were reduced compared to 2022 due to a generator failure in September. The generator was back on-line as of July 2024. Insurance claims related to the generator failure are still being resolved with insurance providers.

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.

2023 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, ash management costs, and capital project debt service costs. Ash management costs increased in 2023 due to higher fly ash and bottom ash disposal costs which increased due to inflation. Capital project debt service costs have increased as a result of new capital projects. The majority of the capital

costs from the past three years have been associated with the feed hopper construction project and the primary economizer replacement project.

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

	2021	2022	2023
Operating Cost	$19,283,850	$20,226,031	$21,932,040
Fly Ash Disposal Costs	$1,465,739	$1,455,891	$1,514,159
Bottom Ash Disposal Costs	$1,560,862	$1,767,871	$2,219,025
Capital Project Debt Service Costs	$831,723	$859,075	$1,021,203
Total Expenditure	$23,142,174	$24,308,868	$26,686,427
Tonnage	241,531	233,052	236,278
Unit Cost / Tonne	$95.81	$104.31	$112.95

Table 2 outlines Metro Vancouver's portion of offsetting revenues. Electrical revenue in 2023 was reduced due to the generator failing in September 2023. The generator has now been repaired and back in service as of early July 2024. Insurance claims related to the generator failure are still being resolved with insurance providers. Metal revenues are tied to the commodity value of the metal at any given time.

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

	2021	2022	2023
Electrical Revenue	$5,778,816	$5,705,028	$4,597,068
Metals Revenue	$436,187	$360,428	$309,482
Tonnage	241,531	233,052	236,278
Unit Revenue / Tonne	$25.73	$26.03	$20.77

Table 3 shows net cost per tonne for the Waste-to-Energy Facility from 2021 to 2023. An approximate $22 per tonne increase in net costs was observed between 2021 and 2023.

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

	2021	2022	2023
Unit Cost / Tonne (from Table 1)	$95.81	$104.31	$112.95
Unit Revenue / Tonne (from Table 2)	$25.73	$26.03	$20.77
Net Unit Cost / Tonne	$70.08	$78.28	$92.18

Comparative Disposal Costs

Garbage is disposed primarily at the Waste-to-Energy Facility or the Vancouver Landfill. Garbage in excess of the local disposal capacity is managed through contingency disposal contracts where garbage is shipped to remote landfills. Table 4 shows disposal costs associated with the three disposal options. Each of the costs include disposal along with recycling and waste centre and transportation costs. Recycling and waste centre and transportation costs are different for each option because of the differences in the relative amount of garbage initially received at a recycling and waste centre. Waste-to-Energy has the lowest relative cost because the Waste-to-Energy Facility is located close to the urban core, and a large portion of the garbage received at that facility

is direct hauled there. Comparatively, all garbage sent to contingency disposal is initially received at a recycling and waste centre.

Vancouver landfill costs include all operating and capital costs allocated to Metro Vancouver, estimated closure and post closure costs, and royalties along with recycling and waste centre and transportation costs. The Waste-to-Energy Facility costs are noted above with the addition of recycling and waste centre and transportation costs. Contingency disposal costs are average contingency disposal contract costs plus recycling and waste centre costs.

Looking into the future, Waste-to-Energy Facility capital projects over the next five years are expected to add approximately $24 per tonne in debt service costs by 2029, resulting in an increase of approximately 20% compared to current costs. District energy and biosolids capital are not included in that calculation given those projects will be funded through new revenues.

Table 4: Metro Vancouver Disposal Costs

	Vancouver Landfill	Metro Vancouver Waste-to-Energy Facility	Contingency Disposal
Net Costs / Tonne	$129	$120	$249

ALTERNATIVES

This is an information report. No alternatives are presented.

FINANCIAL IMPLICATIONS

The Waste-to-Energy Facility net unit cost per tonne increased in 2023 relative to 2022 primarily due to reduced electricity revenue during the turbine generator failure and increased ash management and capital debt service costs. 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 Facility and the Vancouver Landfill are operated to their maximum annual capacity. The Waste-to-Energy Facility costs are funded through garbage tipping fees paid by all solid waste system users.

CONCLUSION

Expenditures in 2023 for the Waste-to-Energy Facility totaled $25.7 million, resulting in an expenditure of $112.95 per tonne. Metro Vancouver's portion of electrical and metals revenues totaled $4.9 million or $20.77 per tonne. Based on the plant processing 236,278 tonnes of municipal solid waste in 2023, the net unit cost was $92.18 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.

ATTACHMENTS

1. Presentation re: Waste-to-Energy Facility 2023 Financial Update

Photo: Waste-to-Energy Facility

Waste-to-Energy Facility 2023 Financial Update

Chris Allan, P.Eng.

Director, Solid Waste Operations

Zero Waste Committee Meeting – September 5, 2024

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2023 SUMMARY – 3 YEAR EXPENDITURES

	2021	2022	2023
Operating Cost	$19,283,850	$20,226,031	$21,932,040
Fly Ash Disposal Costs	$1,465,739	$1,455,891	$1,514,159
Bottom Ash Disposal Costs	$1,560,862	$1,767,871	$2,219,025
Capital Project Debt Service Costs-	$831,723	$859,075	$1,021,203
Total Expenditure	$23,142,174	$24,308,868	$26,686,427
Tonnage	241,531	233,052	236,278
Unit Cost / Tonne	**$95.81**	**$104.31**	**$112.95**

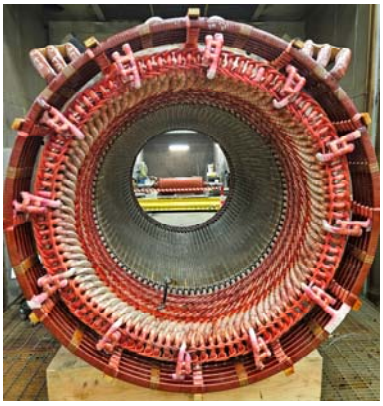
- Costs increased from 2021 to 2023 due increased ash management and debt costs.
- Economizer replacement project has reduced unscheduled boiler outages and increased waste throughput.

Economizer Replacement Project

2023 SUMMARY – ELECTRICAL AND METAL REVENUES

	2021	2022	2023
Electrical Revenue	$5,778,816	$5,705,028	$4,597,068
Metals Revenue	$436,187	$360,428	$309,482
Tonnage	241,531	233,052	236,278
Unit Revenue / Tonne	**$25.73**	**$26.03**	**$20.77**

- Electrical revenue was reduced in 2023 due to failure of the generator.
- The generator has been repaired and was returned to service in July 2024.
- Metal revenues have decreased due to lower recycled metal prices.



Repaired Generator Stator

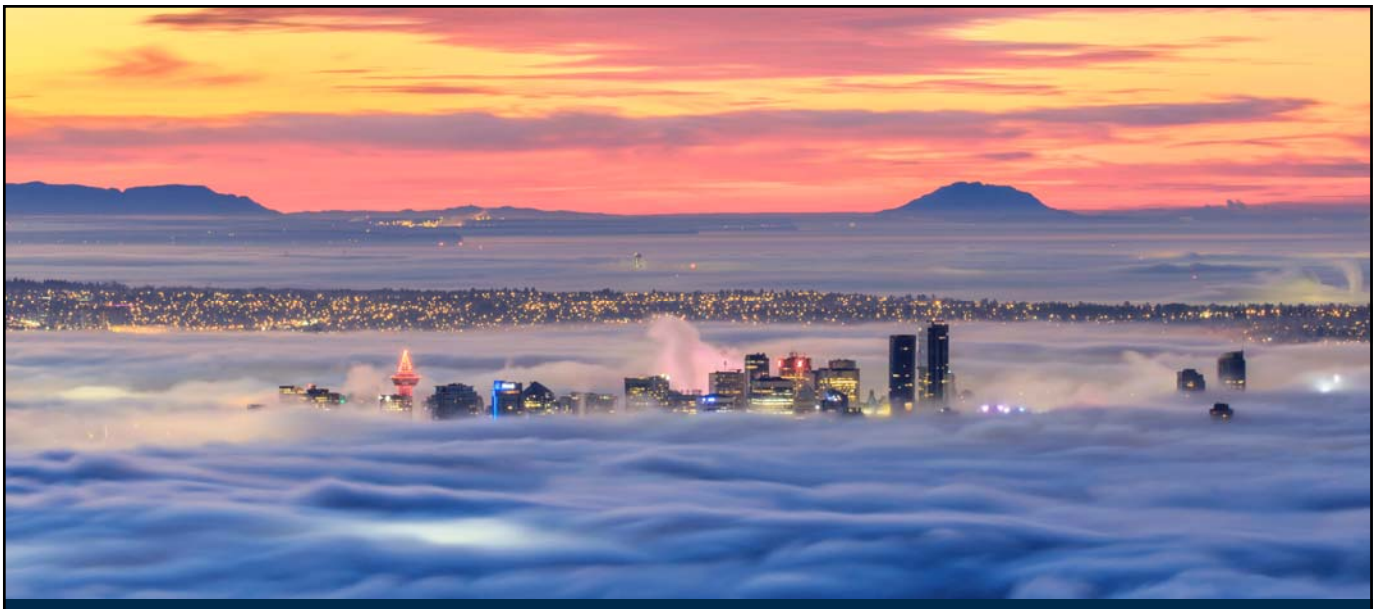
2023 SUMMARY – NET UNIT COST

	2021	2022	2023
Unit Cost / Tonne (from Table 1)	$95.81	$104.31	$112.95
Unit Revenue / Tonne (from Table 2)	$25.73	$26.03	$20.77
Net Unit Cost / Tonne	$70.08	$78.28	$92.18

METRO VANCOUVER DISPOSAL COSTS

	Vancouver Landfill	Metro Vancouver Waste-to-Energy Facility	Contingency Disposal
Net Costs / Tonne	$129	$120	$249

- Each cost includes disposal along with recycling and waste centre and transportation costs.
- Recycling and waste centre costs are different for each option due to the differences in the relative amount of garbage initially received at a recycling and waste centre.



Thank you

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