

COUNCIL REPORT

TO: CITY MANAGER **DATE:** 2019 July 10

FROM: DIRECTOR CORPORATE SERVICES **FILE:** 33000 02
DIRECTOR ENGINEERING
DIRECTOR PLANNING AND BUILDING

SUBJECT: METRO VANCOUVER WASTE-TO-ENERGY – DISTRICT ENERGY SYSTEM

PURPOSE: To seek Council approval for staff to work with Metro Vancouver on district energy system business analysis and ownership model using the heat source from Metro Vancouver Waste-to-Energy Facility based on the proposed guiding principles.

RECOMMENDATION:

1. **THAT** Council endorse the District Energy guiding principles as outlined in Section 3.0 in this report.
2. **THAT** Council authorize staff to work with Metro Vancouver on district energy system business analysis and ownership model using the heat source from Metro Vancouver Waste-to-Energy Facility based on the proposed guiding principles.
3. **THAT** A copy of this report be sent to Carol Mason, Chief Administrative Office, Metro Vancouver Regional District.

REPORT**1.0 INTRODUCTION**

Metro Vancouver's Waste-to-Energy Facility (the "Facility") is located in the Big Bend Area in Burnaby and is operated by Covanta Burnaby Renewable Energy, ULC. Since its opening in 1988, the Facility has been responsible for the environmentally safe disposal of over 25% (approximately 285,000 tonnes) of waste per year of the Region's waste. The Facility produces approximately 100MW of waste heat but due to the low energy efficiency conversion process, it is converted to 20MW of electricity only and the generated electricity is sold to BC Hydro. Metro Vancouver's contract with BC Hydro expires in 2025 and Metro Vancouver is looking at using all available waste heat for thermal needs of neighbouring residents and businesses which is more efficient than

To: City Manager
From: Director Corporate Services, Director
Engineering, Director Planning and Building
Re: METRO VANCOUVER WASTE-TO ENERGY
– DISTRICT ENERGY SYSTEM

2019 July 10 Page 2

producing electricity. Where thermal energy is supplied by natural gas and other fossil fuels, waste heat provides a significant opportunity for greenhouse gas (GHG) reduction to offset a high carbon heating source.

The purpose of this report is to outline the guiding principles for planning district energy systems in Burnaby in the future and to seek Council approval for staff to work with Metro Vancouver on district energy system business analysis and ownership model using the heat source from Metro Vancouver Waste-to-Energy Facility based on the proposed guiding principles.

2.0 POLICY SECTION

The Waste-to-Energy district energy project is aligned with the City of Burnaby's Corporate Strategic Plan by supporting the following goals and sub-goals of the Plan.

Goal

- A Connected Community
 - Partnership –
Work collaboratively with businesses, educational institutions, associations, other communities and governments.
- A Healthy Community
 - Healthy environment –
Enhance our environmental health, resilience and sustainability.
- A Dynamic Community
 - Economic opportunity –
Foster an environment that attracts new and supports existing jobs, businesses and industries.
 - Community development –
Manage change by balancing economic development with environmental protection and maintaining a sense of belonging.
 - City facilities and infrastructure –
Build and maintain infrastructure that meets the needs of our growing community.
- A Thriving Organization
 - Financial viability –
Maintain a financially sustainable City for the provision, renewal and enhancement of City services, facilities and assets.
 - Reliable services, technology and information.

To: City Manager
From: Director Corporate Services, Director
Engineering, Director Planning and Building
Re: METRO VANCOUVER WASTE-TO ENERGY
– DISTRICT ENERGY SYSTEM
2019 July 10 Page 3

- Technology and innovation –
Support technology development and innovation to empower staff and to advance community objectives.

Burnaby's Environmental Sustainability Strategy (ESS) and Community Energy and Emissions Plan (CEEP) include the following goals and strategies of relevance to this project.

- Breathe – a community resilient to climate change, with clean air and low carbon emissions.
 - 3.1 Reduce community GHG emissions, including in the areas of transportation, buildings, district energy and waste.
 - 3.4 Reduce dependence on fossil fuels such as oil and gas.
- Build – Buildings and infrastructure that have a positive impact on the environment.
 - 6.6 Encourage a shift to renewable energy for buildings where possible.
 - CEEP C3.5 Investigate district and energy sharing opportunities and encourage their development in appropriate locations.

3.0 DISTRICT ENERGY BUSINESS CASE AND OWNERSHIP MODEL

In May 2019, the GVS&DD Board authorized Metro Vancouver staff to prepare a business case including a recommended ownership model for a District Energy system using heat as its primary source from the Metro Vancouver's Waste-to-Energy facility in Burnaby.

In response to direction from the GVS&DD Board, Metro Vancouver established Waste-to-Energy Facility District Energy Project Municipal Advisory Committee (the "Committee") to provide technical guidance and advice to Metro Vancouver staff on the study. In addition to having City of Burnaby and City of Vancouver as members of the Committee, Metro Vancouver extended a general invitation to any other municipalities that were interested in sitting on this Committee. The municipalities currently represented on the Committee include: City of Burnaby, City of Vancouver, City of North Vancouver, District of North Vancouver, City of Richmond, City of Surrey, and City of Coquitlam.

For Council's information, the Committee is currently working to commission a study to outline a business case, including an evaluation of different ownership model options. The study will examine service areas in the Cities of Vancouver and Burnaby. This work is expected to start in early September with recommendations available by early 2020.

To: City Manager
From: Director Corporate Services, Director
Engineering, Director Planning and Building
Re: METRO VANCOUVER WASTE-TO ENERGY
– DISTRICT ENERGY SYSTEM
2019 July 10 Page 4

In parallel, Burnaby has met with Metro Vancouver and Vancouver staff to discuss the general guiding principles of the business case study. Metro Vancouver has also been asked to reach out specifically to New Westminster in case they might want to be involved in the project.

The potential District Energy ownership models are expected to include, but are not necessarily limited to, Burnaby ownership, Metro Vancouver ownership, third party private ownership, and a public-private-partnership (P3). Since the supply of thermal energy is provincially regulated by the BC Utilities Commission (BCUC), the different ownership models include varying degrees of regulation by the BCUC. The study being commissioned by the Committee will outline the pros, cons, and applicable regulation for each of the options.

As Council is aware, in November 2018 Council approved green building requirements for large (Part 3) buildings, which include improved energy efficiency standards as outlined in the provincial Energy Step Code (enacted in 2017), and a low carbon energy system (LCES) policy. This policy provides flexibility in the required energy efficiency standard if implementing an LCES, which may include a utility owned system at the building, site or neighbourhood/district scale (e.g. geo-exchange system at Solo District; biomass system at SFU), or a user owned building scale system (e.g. air source heat pumps).

Subject to further evaluation to demonstrate alignment with Burnaby's approved policies including the ESS, CEEP and green building policy, staff participation in the District Energy system business case analysis and ownership model will allow the City to have an opportunity to determine the potential for District Energy to further reduce community emissions, improve energy efficiency, and provide stable energy costs through the smart utilization of the waste heat resource. Staff recommend the following guiding principles be used in reviewing this project:

1. Maximizing the conservation of primary energy sources in Burnaby through the exploitation of the waste heat resource;
2. Optimizing the reduction of Burnaby GHG emissions and supporting the objectives and specific goals of the CSP, ESS, CEEP and green building policy;
3. Supporting resilience to climate change and adaptability to future technology changes;
4. Providing thermal energy to Burnaby residents and businesses at reasonable and competitive rates compared to business-as-usual alternatives;

To: City Manager
From: Director Corporate Services, Director
Engineering, Director Planning and Building
Re: METRO VANCOUVER WASTE-TO ENERGY
- DISTRICT ENERGY SYSTEM

2019 July 10 Page 5

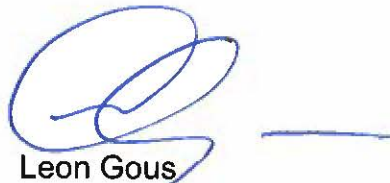
5. Maximizing the use of the available thermal energy produced by the Waste-to-Energy facility for Burnaby homes and businesses; and
6. Creating a financially sustainable model for the district energy system(s) in the City.

4.0 CONCLUSION

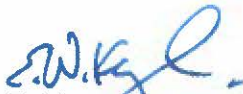
The City has undertaken a number of initiatives to address climate change. Staff participation in Metro Vancouver's Waste-to-Energy District Energy system business case analysis and ownership model will allow the City to have an opportunity to determine the potential for District Energy to further reduce community emissions, improve energy efficiency, and provide stable energy costs through the smart utilization of the waste heat resource.



Dipak Dattani
DIRECTOR CORPORATE SERVICES



Leon Gous
DIRECTOR ENGINEERING



Ed Kozak
DIRECTOR PLANNING AND BUILDING

Copied to: Director Finance
City Solicitor
City Clerk