

TO: MAYOR & COUNCILLORS
FROM: GENERAL MANAGER LANDS AND FACILITIES AND GENERAL MANAGER ENGINEERING
SUBJECT: **BURNABY DISTRICT ENERGY UTILITY PROJECT**
PURPOSE: To provide Council an update on the Burnaby District Energy Utility (BDEU) project.

RECOMMENDATION

THAT the report titled “Burnaby District Energy Utility Project” dated April 15, 2024, be received for information.

1.0 POLICY SECTION

The Burnaby DEU aligns with the following City plans and policies:

- Burnaby District Energy Policy (2023);
- Corporate Strategic Plan (2022);
- Climate Action Framework (2020);
- Green Building Policy (2018);
- Environmental Sustainability Strategy (2016);
- Community Energy and Emissions Plan (2016);
- Metrotown District Energy Prefeasibility Study (2013); and
- Economic Development Strategy (2007).

2.0 BACKGROUND

Elsewhere in the council meeting agenda, there is a report to award Planning and design of the Burnaby District Energy Utility (BDEU).

The Burnaby District Energy Utility project will provide Burnaby with safe, reliable, sustainable, resilient, and cost-competitive thermal energy. The project will help the City meet our greenhouse gas (GHG) emissions reduction targets and integrate with our Green Building strategy for reducing building emissions.

Following a four-month public engagement period, Council adopted the Burnaby DE Policy at the September 11, 2023 Council meeting. To continue progressing with the BDEU project, we adopted the Integrated Project Delivery (IPD) approach given some of the benefits below:

- Shared risk and reward for all members of the BDEU project team;
 - Continuous adaptation to meet changing needs and timelines;
 - Extensive experience to craft informed customer contracts and financial models;
- and

- Collective incentive for successful project delivery.

Since September 2023, we have been working with Metro Vancouver to align the DE piping, negotiate the heat supply agreement and negotiate the agreements to use the city streets for Metro Vancouver infrastructure.

The next phase of the project is the Pre-Validation Phase to lay out the robust groundwork for the project's success. We expect to accomplish the following in the pre-validation phase: 1) onboard the IPD Advisor, Prime Consultant Team, and Owner, 2) assess organizational readiness and team management, 3) customize the IPD framework including key performance indicators and preliminary project schedule, 4) determine co-location strategies and 5) develop a key stakeholder engagement plan to ensure comprehensive integration of all project participants from the outset.

Based on our preliminary feasibility study, as the customer and distribution systems will continue to grow in the Metrotown and Edmonds Service Areas Phases 2 and 3, Burnaby’s greenhouse gas (GHG) emissions reduction will grow and align with our sustainability strategy, as shown in the table below.

	Development Phase 1 (2025-2030)	Development Phase 2 (2030-2040)	Development Phase 3 (2040-2050)
<i>Total Energy Sales [MWhth/yr]</i>	66,000	117,000	273,000
“Business As Usual“ (BAU) GHG Emissions [tonnes CO2e/yr]	14,000	17,700	27,400
DES GHG Emissions [tonnes CO2e /yr]	600	1,100	5,000
GHG Savings with DES [tonnes CO2e /yr]	13,400	16,600	22,400
% GHG Savings over BAU	96%	94%	82%

*Feasibility phases only, based on projected demand in Burnaby

We are now seeking approval to proceed with the IPD validation phase for Phase 1 which involves a detailed design and construction of the Burnaby District Energy Utility project and the selection of the full IPD project team.

3.0 GENERAL INFORMATION

3.1 Next Steps

The BDEU must prioritize cost-efficiency, self-sufficiency, and reliability, starting with a comprehensive understanding of new customer-building developments. This investigation will guide design and implementation while maintaining flexibility for future expansion.

The next steps in the Phase 1 Validation stage of the DES IPD project are as follows:

- Confirm the project's alignment with its intended goals;
- Complete IPD team selection;
- IPD onboarding (review of project parameters, background information including existing reports, GIS data, and infrastructure drawings);
- Establish the Conditions of Satisfaction & Validation as a fundamental step for project alignment and success;
- Design and plan the initial build-out of the Metrotown and Edmonds District Energy nodes, including a Neighbourhood Energy Centres (NEC) and Distribution Piping System (DPS);
- Develop execution strategy to design and construct DES elements to service customer buildings ahead of occupancy;
- Update the customer connection schedule and determine NECs locations;
- Evaluate new buildings loads and determine needs to employ temporary energy centres to bridge any gaps of thermal energy delivery from the Metro Vancouver DE system;
- Investigate provision of service to existing buildings and incorporate where possible to expand the DEU's customer base and benefits of district energy.
- Conduct Level Setting workshops, utilizing Lean Tools and Simulations to enhance value delivery, alongside setting a Master Milestone Schedule;
- Create the IPD Framework and Validation Plan (such as early procurement strategies and risk opportunity registers);
- Validate the business case and refine distribution piping system in service areas Metrotown and Edmonds District Energy nodes, where initial customers are concentrated;
- Finalize the agreements with Metro Vancouver;
- Present council a package that will be submitted to the Inspector of Municipalities for incorporation of the district energy corporation;
- Prepare an application to the BC Utilities Commission for an exemption from the Utilities Commission Act for the DEU Corporation; and
- Finalize the Validation Report to council and establish a target cost and budget for Phase 1.

Completion of these critical steps should maximize the potential for successful implementation and operations in all three phases of Burnaby DEU.

4.0 COMMUNICATION AND COMMUNITY ENGAGEMENT

City staff launched a Burnaby District Energy Utility webpage on March 28, 2023, that provides information for the community and developers. Any questions related to the DE project can be submitted on the project webpage.

A DE Communication Plan will be developed by the team to address communications and community engagement in detail during the next stages of the project. This will

include coordination of a more extensive outreach and engagement effort with First Nations during the validation stage of the project.

5.0 FINANCIAL CONSIDERATIONS

Based on the feasibility study's positive results, \$25.5 million of the total estimated capital costs have been included in the 2024-2028 Financial Plan.

The IPD team will continue working to develop a comprehensive financial model for the Burnaby District Energy Utility. This process includes confirmation and inclusion of detailed profiles for customers targeted in phase 1 of the Project. Results from this model will provide the basis for creating the Project's business plan, an application to the Inspector of Municipalities for creation of a wholly owned municipal corporation, and future financial plans. Further details and requests for Council direction will be forthcoming in future reports.

Respectfully submitted,

James Lota, General Manager Lands and Facilities and May Phang, General Manager Engineering

ATTACHMENTS

Not applicable.

REPORT CONTRIBUTORS

This report was prepared by Kameliya Hristova, Senior Project Manager, Civic Building Development, and reviewed by Charles Allen, Director Civic Building Projects.