

BURNABY DISTRICT ENERGY UTILITY

Draft District Energy Policy

WHAT WE HEARD REPORT

March to July 2023

Version: August 22, 2023, 12:10 pm

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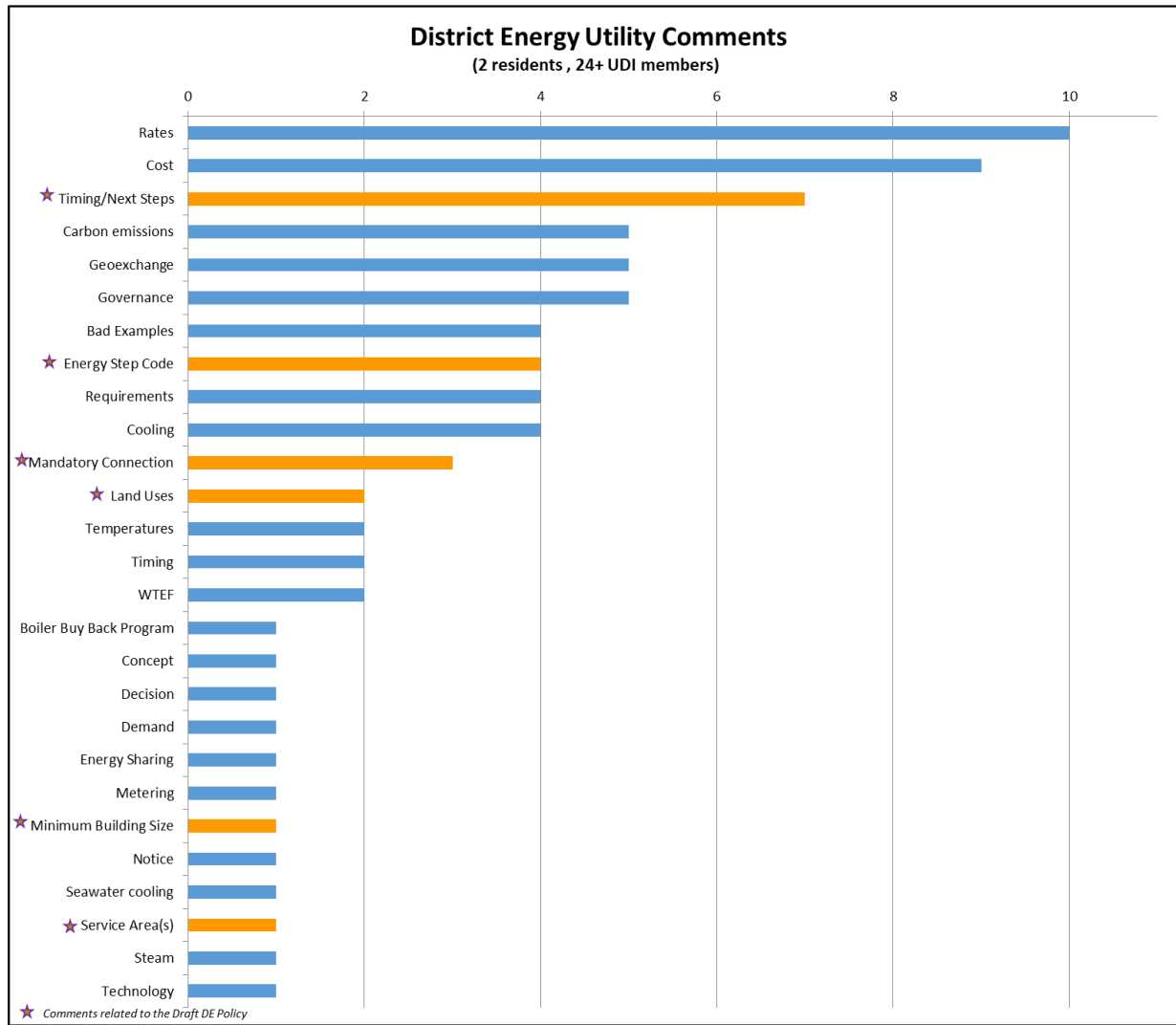
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PURPOSE

The purpose of this document is to provide a summary of public input collected following the release of the Draft District Energy (DE) Policy for public engagement from March to July 2023.

KEY HIGHLIGHTS

- The communications and engagement approach used for the Draft DE Policy provided community-facing information in combination with follow-up meetings with interested parties.
- The public engagement for the Draft DE Policy was a little over 4 months long running from March 27, 2023 to July 31, 2023.
- There was exposure to over 16,700 potential points of contact with the public.
- There were also more than 60 points of direct contact and over 3,000 potential points of indirect contact with interested parties.
- Over 50 people sought information on the project.
- Public comment was minimal with only three members of the public reaching out to the project team with questions and concerns.
- Input from interested parties was stronger, but modest. The exception was the Urban Development Institute (UDI) who participated in three meetings on the District Energy Utility (DEU):
 - A question and answer session.
 - A presentation.
 - A follow-up discussion on outstanding issues.
- There was considerable interest from and information sharing with UDI.
- In total, as shown in the graph on the next page, some 80 questions and comments were received.
 - 62 (or 78%) being related to the overall District Energy Utility project and only 18 (or 23%) being related to the Draft DE Policy itself.
 - The top three comments (“rates”, “cost”, and “timing/next steps”) represent about one third (or 33%) of the total comments.
 - Only one DE Policy related issue of “timing/next steps” landed in the top half of total comments in the third most popular issue with 7 references behind “rates” (with 10) and “cost” (with 9).
- During the course of the dialogue with UDI many questions were answered directly. However some critical issues identified by UDI remain that are still being considered and addressed and the City has committed to continue to work with UDI on these remaining outstanding issues.



- These outstanding issues are listed below grouped by the themes of communication, lead time and clarity.

Communication

- Coordination (continue to meet and work on outstanding issues)
- Resolving concerns (early decision point in the rezoning process)
- Concerns with other, existing DE systems (return temperatures, bond release, timing of installation and hook-up, additional equipment in mechanical rooms, high cost of meeting design requirements, peer review process)

Lead Time

- Effective date/grandparenting (the more time, the better)
- Active rezonings (direct notification)

Clarity

- Cooling (benefits, more future need/requirements, high cost of building retrofits)
- Zero Carbon Step Code (interim boiler requirements)
- Energy Step Code (Green Building Policy applicability to ESC, reduced heat demand, connection fees, regional DE working group)
- Expansion areas - B1 and B2 (Royal Oak Urban Village Community Plan review process, connection distance, clarify expectation from both sides – City and developers)
- Boiler buy back program (temporary external boilers)
- Rate structure and connection fees (same rates for non-residential and residential)

BACKGROUND

The City of Burnaby is committed to climate action and is currently developing a district energy utility (DEU) to serve space heating¹ and domestic hot water needs of buildings in south Burnaby. Burnaby's DEU is a City-led project that will help meet Burnaby's greenhouse gas (GHG) emissions reduction targets and will integrate with the City's Green Building Policy for reducing building emissions.

The Draft DE Policy outlines building requirements for future DE system connections and readiness in Burnaby. Although it is anticipated that most of the heat from the Burnaby DEU will be supplied to new buildings, the Draft DE Policy outlines both:

- future opportunities for existing buildings to connect to the Burnaby DEU, and
- future requirements for new buildings to connect to the Burnaby DEU.

The policy framework contained within the Draft DE policy is a key implementation tool that was developed to support the proposed future implementation of a Burnaby DEU.

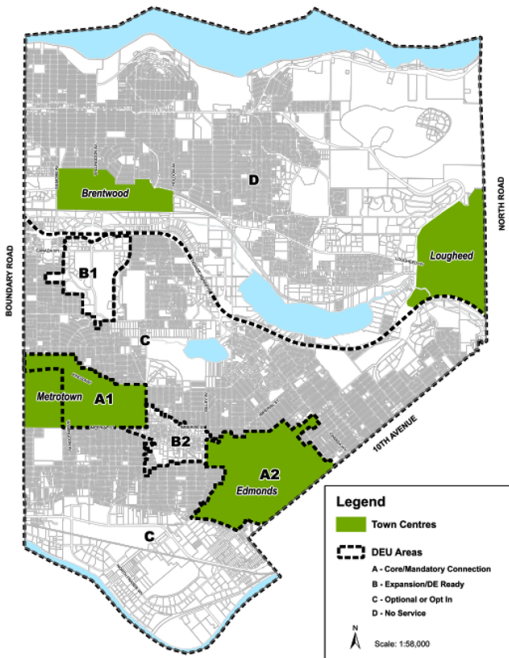
The Draft DE Policy described:

- Background information for context
- The purpose of the policy
- The legislative authority on which the policy was created
- Qualifying buildings
 - DE policy framework
 - Four service areas
 - 23 land use zones within five land use districts
 - Building size
- DEU compatibility requirements
 - Rezoning
 - Building design
 - DEU service is available
 - DEU service is not available
 - Process and procedures

¹ The City is investigating cooling, but cooling is not currently part of the DEU service concept.

- For connecting existing buildings
- For connecting new buildings

DE Policy Framework



Service Areas	A	B	C	D
Type	Core	Expansion	Optional	No Service
System Status ⁵	Feasibility	Concept	Concept	Not applicable
Location(s)	<ul style="list-style-type: none"> Metrotown Edmonds 	<ul style="list-style-type: none"> Willingdon from Trans Canada Highway to Metrotown Kingsway from Metrotown to Edmonds 	<ul style="list-style-type: none"> South of Trans Canada Highway excluding service areas A and B 	<ul style="list-style-type: none"> North of the Trans Canada Highway
DE Connection: Existing Buildings	Optional (Opt In) ⁶			No Service
DE Connection: New Buildings	Mandatory DE Connection	DE Ready	Optional (Opt In)	No Service
DE Connection: Expected Service	2026	TBD	TBD	No Service
DE Connection: Timing	When and where service is available.			Not applicable
Building Use Categories ⁷	<ul style="list-style-type: none"> Multiple Family Residential (RM) – RM3, RM4, RM5 Commercial (C) – C2, C3, C4, C8, C9 Industrial and Business Centre (M and B) – M1-5, M8, B1, B2 Public and Institutional (P) – P2, P3, P5, P6, P7, P11 Comprehensive Development (CD) – CD 			Not applicable
Building Size	≥ 100,000 sq. ft. ⁸			Not applicable
Process	<p><i>Existing Buildings:</i></p> <ul style="list-style-type: none"> DE Application Form Review for Burnaby DEU system compatibility <p><i>New Buildings (part of the rezoning process):</i></p> <ul style="list-style-type: none"> DE Application Form Suitable Plan of Development (SPoD) Rezoning requirements Tentative Approval Letter Conditions of DE readiness¹⁰ Covenant (commitment to connect to the DEU in future) 			Not applicable



APPROACH

The communications and engagement approach used for the Draft DE Policy was providing community-facing information in combination with follow-up meetings with interested parties.

METHODS

The following is a summary of the methods used.

Community-Facing Information

Table 1: Community Facing Information – Methods and Results

Method	Results
Burnaby DEU project website and infographic <ul style="list-style-type: none"> www.burnaby.ca/districtenergy² 	571 page views 368 unique visitors
Link to Council report on the draft Burnaby DE Policy	52 views

² Please see Appendix A for the website content.

Method	Results
Social media posts <ul style="list-style-type: none"> FaceBook (March 29, 2023) Twitter (March 29, 2023) 	15,000+ followers, 6 likes 776 views, 3 likes, 1 retweet
Media release	2 media articles ³ , 4 comments ⁴
Project contact information <ul style="list-style-type: none"> 604-297-4518 districtenergy@burnaby.ca 	1 phone call 2 emails 1 follow-up phone call
TOTAL POINTS OF CONTACT	16,700+ points of contact

Interested Parties

Table 2 : Outreach to Interested Parties – Methods and Points of Contact

Method	Direct Contact	Indirect Contact
Shared copies of March 27, 2023 Council Report , Draft DE Policy and Draft Connection Guidelines.	7 organizations <ul style="list-style-type: none"> Association of Community Organizations for Reform Now (ACORN) BC Co-op Association (BCCA) Burnaby Board of Trade (BBOT) Burnaby Schools – School District 41 Condominium Home Owner Association (CHOA) Landlords BC Urban Development Institute (UDI) 	
Follow-up emails	8 emails to 7 organizations	
BBOT member email newsletter (June 27, 2023) <ul style="list-style-type: none"> Introduction to the project Link to www.burnaby.ca/districtenergy 		3,000+ BBOT members
Follow-up phone calls	4 phone calls to 4 organizations	
Meetings	3 meetings with UDI <ul style="list-style-type: none"> Question and answer session (17+ UDI members) Presentation (24 UDI members) Follow-up discussion on outstanding issues (2 UDI staff) 	
TOTAL POINTS OF CONTACT	60+ points of direct contact	3000+ points of indirect contact

³ <https://burnabybeacon.com/p/burnaby-district-energy-utility-metrotown-edmonds>

⁴ https://www.burnabynow.com/local-news/burnaby-moves-closer-to-garbage-powered-hot-water-heating-6779828?itm_source=parsely-api

INPUT

Interested Parties

Four of the eight organizations contacted provided specific responses. The following section is a high-level summary of their comments.

ACORN

- Appreciated being notified.
- This isn't an issue we're focusing on.
- We don't have any questions or comments.

Burnaby Schools – School District 41

- Received and have reviewed the Council Report, Draft DE Policy, and Draft Connection Guidelines.
- We do not have any questions or require a follow-up meeting at this time.
- We are excited to see this draft policy develop!

Landlord BC

- Landlord BC will support whatever position UDI takes in relation to the Burnaby District Energy Utility.

Concerns

- Additional requirements of District Energy need to be sensitive to the demands on our sector and the delivery of affordable housing.
- Highlighted the need for significant financial supports/incentives for the rental housing sector.

UDI

- November 15, 2022 meeting (questions and answers)
 - 24 questions posed at meeting (these are included in **Table 3** below).
- May 2, 2023 presentation
 - 11 questions posed (these are included in **Table 3** below).
- August 10, 2023 discussion.
 - Follow-up with UDI staff on outstanding issues in the three theme areas of communications, lead time for policy implementation, and clarity on policy and program elements.

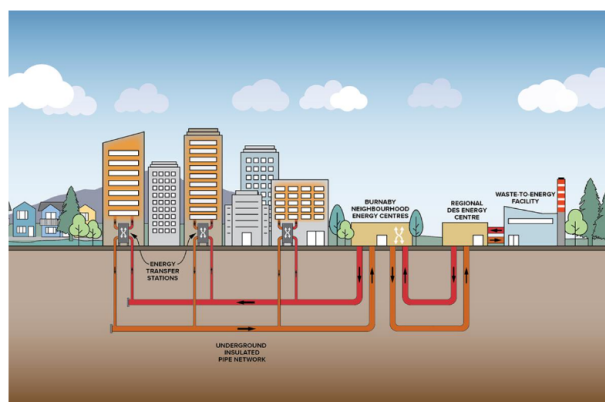
Project or Policy?	No.	Rolling Total	% of Total	Issues (2 residents, 24+ UDI members+*)	Response
project	10	10	13%	Rates - higher rates, overhead or upcharge, unfair pricing, affordable energy is a good thing, revenue source for the City, financing, additional fees, cost/benefit for buildings, fixed or variable rates, insurance costs for water risk	Energy provided by Metro Vancouver would be low-cost. Rates will be at or below market rates.
project	9	19	24%	Cost - building capital costs (water-based heating systems are more expensive), high cost of infrastructure, serious financial risk, piping long distances, capital costs can't be sustained by rate payers, others (like north Burnaby) will also have to pay, affordability (capital costs), connection fees	The District Energy Utility (DEU) would generate revenue for the City like other City services to recover capital costs. The City will seek grants from other levels of government. Financial benefits for all - users, developers, City.
policy	7	26	33%	Timing/Next Steps - proposal, what are the next steps, policy effective date, timing of building tie-in, designing for one or two buildings, building connectable before the system is in place, temporary boilers, impact to in-stream projects	The project will be going to Council soon to seek capital funding. Agreements with MV are being finalized. Lead time will be provided in advance of the policy effective date. Buildings will need to be hydronic. There may be a temporary period where interim boilers will be required. The City sees benefit to starting the system early to serve the existing base load in Metrotown.
project	5	31	39%	Carbon emissions - burning garbage, carbon trade-off, electric heat is already low-carbon, will DEU be zero carbon	The project aims to meet climate action goals at both the regional and city level. The DEU would use surplus waste heat from the Waste to Energy Facility (WTEF). Industrial waste heat is considered low-carbon. Space heating is a more effective use of waste heat. It would also displace other heat sources including natural gas. About 80% of heat will come from WTEF. 20% will be natural gas. We are looking for other low-carbon options.
project	5	36	45%	Geoexchange - more sustainable local options (geoexchange), can be used for cooling too, city has huge land mass - huge potential for geoexchange, summer cooling heat recharges the ground, system at Burnaby Mountain Secondary meets 60-70% of base heating load	Other low-carbon heat sources could be added in future.
project	5	41	51%	Governance - who will manage/deliver the heat (MV, City, third party), bypass strata corporations, BCUC regulation, ownership	Metro Vancouver would own and operate the transmission pipes. The City would then distribute the heat using neighbourhood district energy systems. Burnaby's DEU will deliver energy to the customer. The ownership of Burnaby DEU is still to be determined. The City is exploring the role of the DEU with the BCUC. Rates likely regulated by the City.
project	4	45	56%	Bad examples - fixed loop systems (hard to mange and meet heat demand), False Creek and Lonsdale (high rates), UBC and YVR have trouble regulating heat, Creative Heat has lost their condensate (steam return) line, Burrard Thermal could not compete with hydro-electric power generation	The project team has reviewed and considered these concerns.
policy	4	49	61%	Energy Step Code - reduced requirements for buildings connected to DEU future step code requirements, province-wide DE exemption, coordinate with the City of Vancouver, new building in future will require less heat	The City will be coordinating Energy Step Code with the DEU.
project	4	53	66%	Requirements - smaller building energy systems, FAR exemptions, two layers of requirements, reduced costs for BC Hydro upgrades	Less building mechanical equipment will be required. Space and statutory rights of way would be required so the DEU piping could connect to and serve the buildings. The City wants to avoid using natural gas for top-up and will seek low carbon energy sources wherever possible.
project	4	57	71%	Cooling - more heat events in future, heat inversions too, multi-family buildings offer limited natural cross-ventilation (single wall of windows) and many do not have cooling systems, incremental costs of adding cooling to hydronic systems is low, will DEU also provide cooling	There is a large heat supply available. Absorption chilling is being looked at.
policy	3	60	75%	Mandatory Connection - connection optional or mandatory, new buildings, existing buildings, common space, unit space	Mandatory for new buildings. Looking to incent existing buildings.
policy	2	62	78%	Land Uses - which land uses, commercial in mixed use	In town centres, mostly high-density development. High temp, high quality heat could also connect to industrial customers along the way. Residential connection would likely be mandatory.
project	2	64	80%	Temperatures - what are the inbound and outbound temperatures, Lonsdale return temp is hard to achieve	The draft connection guidelines provide outbound and inbound target temperatures.
project	2	66	83%	Timing - why now, long-term energy solution	
project	2	68	85%	WTEF - emission exempted, use waste heat to serve industrial customers	
project	1	69	86%	Boiler Buy Back Program - benefits stratas not developers	
project	1	70	88%	Concept - hard to follow (scale and cost)	
project	1	71	89%	Decision - referendum	Agreements are being negotiated between Metro Vancouver and the City of Burnaby. Burnaby DEU project approval will be decided by Council. The regional distribution system would be approved by Metro Vancouver's Board. There will not be a referendum.
project	1	72	90%	Demand - space heat demands hard to predict and difficult to serve, DEU's need load (demand) to make the business case work, current or future plan area boundaries	The biggest customers are existing customers. About half the future load exists today. Demand estimates are based on current plan area boundaries. Additional future demand could be meet from other sources, if needed.
project	1	73	91%	Energy Sharing - sharing heat between uses	Energy sharing will be encouraged. The City's intention is conservation.
project	1	74	93%	Metering - individual units	
policy	1	75	94%	Minimum Building Size	Minimum building size would be 100,000 sq. ft. and the City will consider providing service to smaller buildings on a case-by-case basis.
project	1	76	95%	Notice - buyer-beware clause	
project	1	77	96%	Seawater cooling - Canada Place cooled with seawater	
policy	1	78	98%	Service Area(s) - what areas	The DEU will start serving Metrotown and Edmonds. There are plans to expand beyond these two service areas.
project	1	79	99%	Steam - steam is more efficient to use than hot water	
project	1	80	100%	Technology - outdated	

*Input collected from the November 15, 2022 question and answer meeting with UDI is also included.

project	62	78%
policy	18	23%
TOTAL	80	100%



Burnaby District Energy Utility



THIS IS CLIMATE ACTION >>>

The City of Burnaby is committed to strengthening our commitment to climate action and resilience, and the Burnaby District Energy Utility (BDEU) project is an important part of this commitment. The BDEU will provide Burnaby with safe, reliable, sustainable, resilient and cost-competitive thermal energy. This project will help the City meet our greenhouse gas (GHG) emissions reduction targets and integrate with the City's Green Building strategy for reducing building emissions.

Contact

districtenergy@burnaby.ca

604-297-4518

About this project

The City is planning to develop a district energy utility that would receive thermal energy from Metro Vancouver's district energy system and supply it to high density residential, commercial, industrial, healthcare and institutional buildings in Burnaby neighbourhoods.

Thermal energy will be captured from heat from Metro Vancouver's waste-to-energy facility in south Burnaby. In the future, additional low-carbon sources could be integrated into the system as district energy systems are more flexible to changes and developments in energy sources. This energy will be used by Metro Vancouver's district energy system for regional distribution, and by the Burnaby District Energy Utility for neighbourhood distribution. The heat will be distributed through a network of connected underground pipes that will deliver heat to buildings for space heating and domestic hot water heating.

District energy is a versatile, proven technology used in cities across the world and is at the forefront of efforts to transition buildings to a low carbon, sustainable future. Rather than each building having its own furnaces or boilers, a district energy system can provide thermal energy to multiple buildings—or even entire neighbourhoods—through a central energy plant. Hot water produced at the plant is transmitted 24/7 through highly insulated underground network of thermal piping. The thermal energy is transferred directly to the building's heating system, simplifying building operations.

What are benefits of Burnaby's District Energy Utility?

Benefits to the community

- **Climate action:** significant reduction in the amount of Green House Gas (GHG) emissions—estimate 82% reduction or 22,400 tonnes of CO₂e (annually) when compared to business as usual.
- **A low-carbon energy source:** multiple buildings can connect to a system that uses a more sustainable energy source—the heat from an existing waste-to-energy facility. This provides a long-term, consistent, and low-carbon energy supply for the community.
- **Flexibility:** different heat sources can be used to supply heat to the district energy system (DES), allowing the City to consider the use of many different heat sources both now and in the future.
- **Local economic development:** the development and operation of a local DEU supports local 'green' job creation.
- **Resilience and adaptation benefits:** when designed correctly, the building-scale mechanical equipment required to connect to DEU are less prone to encountering issues such as flooding associated damage.
- **Reduced demand on Power Grid:** the electrical power grid faces the challenge of meeting increased demands. The DEU will reduce demand on the power grid.

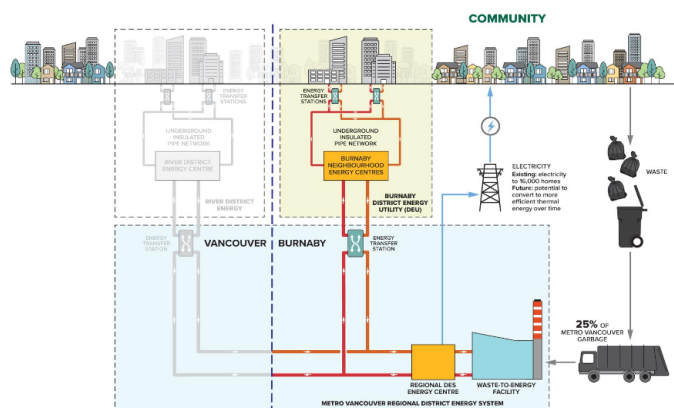
Benefits to customers

- **Affordable energy:** DEU can deliver energy at competitive rates to connected buildings.
- **Competitive or reduced life-cycle costs:** because thermal energy is delivered to buildings in a ready-to-use form, buildings connected to a DEU need to invest less in equipment such as boilers.
- **Fuel flexibility and adaptability:** DES can switch to different fuel systems, taking advantage of future opportunities for affordable fuel and lower costs.

- **Simplified building operations:** connected buildings have simplified building operations, allowing customers precise control over heating and providing flexibility to adapt as occupant needs change or building efficiency improves.

Benefits for developers

- **Free up roof tops:** mechanical equipment may be relocated from the roof to the building's basement. This can free up space for other high demand uses like community rooms or penthouse apartments, amenity space, or additional residential units. In addition, the energy transfer stations (ETs) located in each building require less space than boilers freeing up space in the basement.
- **Reduce capital costs:** removing the need for building components like a heat source and domestic hot water storage tanks can save up front design and capital costs.
- **Expand marketing opportunities:** a reliable, stable and resilient energy system can be marketed as insurance against future climate impacts, while a low-carbon system can be promoted to people looking to reduce their environmental footprint without impacting their lifestyle.



What is happening now?

At the March 27, 2023 Council meeting, City Council supported the [draft DEU policy](#) and directed staff to proceed with the next steps to advancing the DEU policy.

Questions and answers

Collapse all

What is a district energy system (DES)?

District energy systems are efficient and cost-effective ways of distributing thermal energy to high density residential, commercial and institutional buildings in a neighbourhood using clean, renewable energy sources.

By connecting many buildings into a single network, district energy systems have the advantage of being able to provide low carbon thermal energy across an entire neighbourhood. This results in reduced greenhouse gas emissions for all buildings connected to the system, faster and with less cost than if each building had to accomplish this on its own.

What is Thermal energy and how is it transported?

Thermal energy is usable heat that can be produced from various sources, and is transferred by a medium (e.g., water) through a change in temperature. In the case of the DES, the thermal energy produced by the waste to energy process will be used to increase the temperature of the water contained within the DES, which will then flow through the distribution piping system to the connected buildings, in turn transferring this energy to the buildings' space and domestic water heating systems.

Are there existing district energy systems in Burnaby?

There are already district energy systems in operation in Burnaby including the Burnaby Mountain District Energy Utility at Simon Fraser University, British Columbia Institute of Technology (BCIT), Solo District and Burnaby Central Secondary School.

Where will energy come for the Burnaby District Energy Utility (BDEU) come from and how will it be used?

BDEU will provide space and domestic hot water heating for connected buildings. The main heat source is clean, thermal energy captured from Metro Vancouver's existing waste-to-energy facility, which is planned to service buildings in south Burnaby, with capacity to expand into additional service areas.

How are the environmental impacts being reduced? How is burning waste considered low carbon?

How carbon?

Metro Vancouver's waste-to-energy facility in south Burnaby is an industrial waste heat source that exists regardless of the BDEU and the BDEU will take advantage of the available waste heat from the facility. The BDEU will displace other heat sources, including natural gas, and will provide additional efficiencies due to economies of scale resulting in GHG reductions.

Why this project? Why now?

Recognizing the dangers posed by climate change, Burnaby City Council declared a Climate Emergency in 2019. This emergency declaration set new carbon reduction targets for the City with carbon neutrality in 2050.

The BDEU will provide safe, reliable thermal energy that ensures resiliency, and will provide space heat that is three times more energy efficient than the current use of the facility (current is electricity).

Does the City consider the DEU as a long-term solution for energy supply?

Yes. The City of Burnaby is committed to strengthening our commitment to climate action and resilience, and the District Energy Utility (DEU) project is an important part of this commitment. The City is making policy changes to support our climate action objectives.

What is the energy currently being used for?

Currently, the thermal energy is used to produce electricity that powers nearly 16,000 homes, with significant waste heat still available. Furthermore, using additional waste-to-energy heat directly for heating purposes is three times more efficient than converting it to electricity.

Would the BDEU only provide heating, or would it also provide cooling?

There is a large heat supply from the waste-to-energy facility available which is currently planned for district heating and domestic hot water. District cooling is currently being explored.

What will this do to our heating rates?

The BDEU will provide energy at or below market rates. The rates will be determined in a similar manner as sewer and water rates—the City will provide the capital funding to develop the distribution and connections and will recover costs through rates.

Would connecting to the BDEU be mandatory or optional?

Existing buildings would have the option to connect to the BDEU within areas served by the BDEU where it is feasible and cost effective to do so. If new buildings are within the designated service areas:

- there will be mandatory connection in the core service areas of Metrotown and Edmonds
- they will have to be DE ready in the expansion service areas along Willingdon Avenue south of the Trans Canada Highway and Kingsway between Metrotown and Edmonds
- connection will be optional in other areas south of the Trans Canada Highway

For more information, please see the [Draft DE Policy](#).

With a new DEU, would builders be able to downsize their conventional building energy systems?

Yes, there would be less equipment required in the buildings due to energy transfer stations requiring less space than conventional building energy systems.

Will the City be consulting with the Urban Development Institute (UDI) and other stakeholders?

Yes. We have already begun consultation with UDI and we will continue outreach with impacted stakeholders, including UDI.

When will the DEU be completed?

Plans are currently underway for the DEU to be operational in 2026 with potential for further expansion to additional service areas.

Project

Burnaby District Energy Utility (<https://www.burnaby.ca/node/5896>)

Full name *

First *

Last *

Ask a question *

I would like to get a response by *

☐ Phone☐ Email

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