

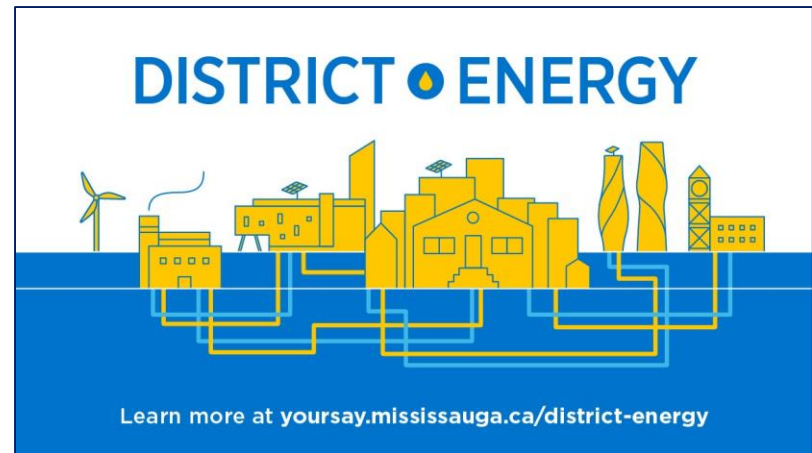
District Energy in Mississauga's Downtown

CAP Webinar
November 2, 2023



Overview

1. Background on District Energy in Mississauga
2. Summary of Feasibility Study
 - ❖ Results
3. Recommended Next Steps
4. Lessons Learned



DE in Mississauga

2013

DE Screening Study completed,
identifying top nodes for DE in
Mississauga

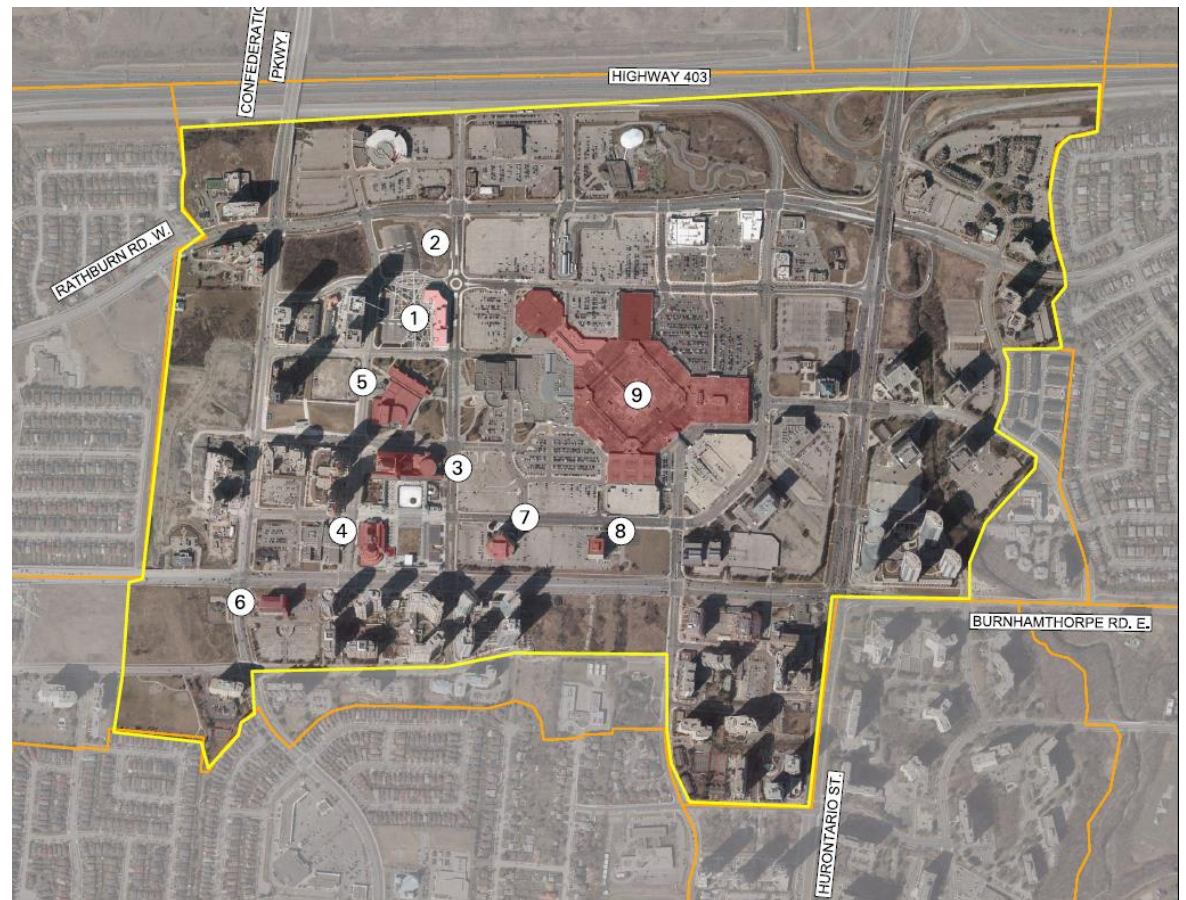


2009

DE included in “Strategic
Actions for Future
Consideration” in Strategic
Action Plan

DE Screening Study

- Completed in 2013
- Identified top candidates for district energy
- Downtown ranked first



DE in Mississauga

2013

DE Screening Study completed

Dec 2019

Council approves Climate Change Action Plan

2009

DE included in “Strategic Actions for Future Consideration” in Strategic Action Plan

August 2021

Feasibility study starts

OBJECTIVES OF STUDY

- Develop the heating and cooling **demand and energy profile** of the DE system
- Create the **conceptual design for the DE system**
- Analyze the **DE system business case**
- Outline different **ownership models** and the City's role in supporting the DE system

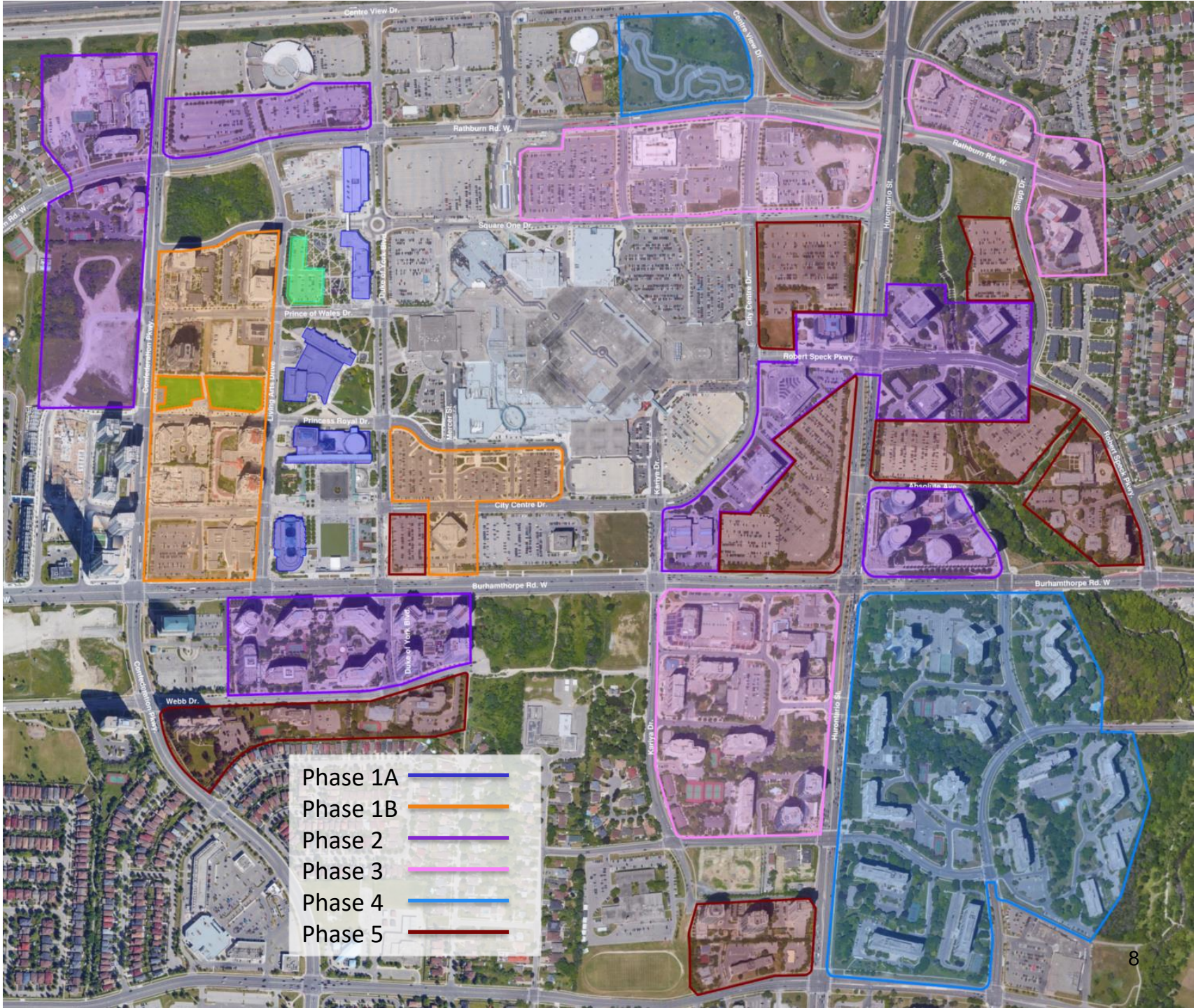


PROPOSED SYSTEM OVERVIEW

- DE system built over six phases
- First phase (Phase 1A) to include City & Sheridan buildings
- For Phase 1, low carbon energy from geoexchange
- Future phases will also include sewer heat recovery

Mississauga DE Study	Full Phased Buildout	
Low Carbon DES Class D Preliminary (-25%/+50%)	Installed Capacity	Total (2022\$)
Heating Plants	138.0 MW	\$ 113.7 million
Cooling Plants	31,400 tons	\$ 144.8 million
Energy Transfer Stations	85 ETSSs	\$ 65.7 million
Distribution Piping System	10,840 tm	\$ 57.6 million
Total DES Capital Cost		\$ 381.8 million

Table 1: Capital Cost Summary



- Phase 1A —
- Phase 1B —
- Phase 2 —
- Phase 3 —
- Phase 4 —
- Phase 5 —

RESULTS

- Low carbon DE system **decreases greenhouse gases ~90%** compared to business-as-usual, standalone systems.
- Low carbon DE system has a positive business case

DES Pre-Feasibility Highlights	Financial (Unescalated)		Financial (Escalated)		Reduction in GHGs vs. BAU Standalone @ Full Build-Out (%)
	Annual Expenses (\$/yr) 2022	Annual Revenue (\$/yr) 2022	Projected IRR 25 Years (%)	25-Year NPV 3.0% (\$)	
Description					
Low Carbon DES	\$ 24 million	\$44 million	8.3%	\$300 million	88%

Table 2: Summary of Financials & GHG Benefits

IRR: Internal Rate of Return NPV: Net Present Value

RECOMMENDED NEXT STEPS

- Explore the development of a City of Mississauga standard for new buildings to be “DE Ready”
- Further develop the Phase 1A design
- Develop a detailed drawing of the DE corridor for municipal roads and rights of way
- Continue engagement with all relevant stakeholder group(s)

DE in Mississauga

2013

DE Screening Study completed

Dec 2019

Council approves Climate Change Action Plan

March 2023

Feasibility study ends

Early 2024

Complete next phase of work

2009

DE included in “Strategic Actions for Future Consideration” in Strategic Action Plan

August 2021

Feasibility study starts

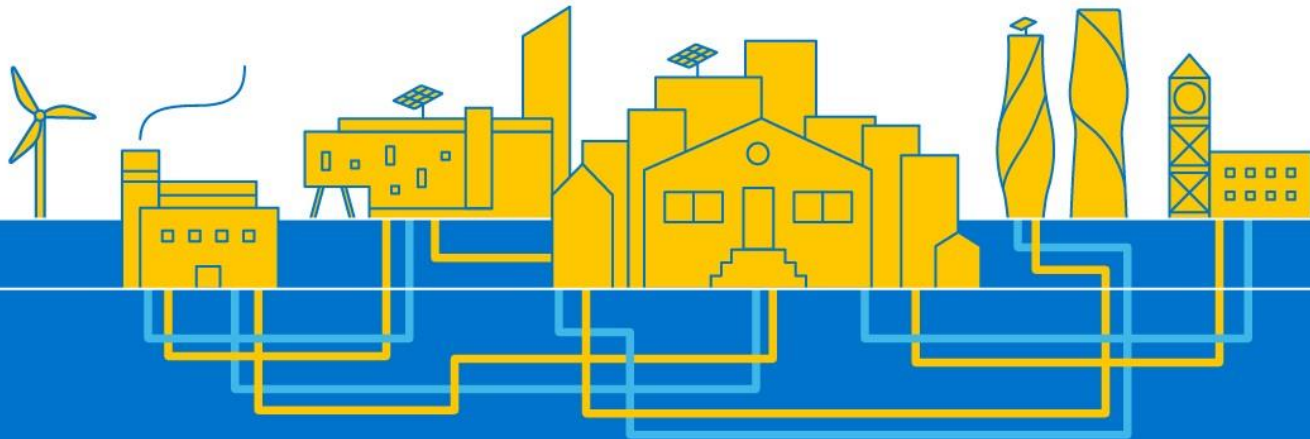
July 2023

Next phase of work begins

Lessons Learned To Date

- DE will help decrease GHGs significantly: it will help the City meet its climate targets
- City involvement is needed to move DE forward in the Downtown
- Need to get everyone on board: this includes internal and external folks, each with their own priorities & concerns
- Effective outreach takes time and a variety of approaches
- Continued education is needed: DE is a new concept for many
- Learn from other municipalities who have done this before

DISTRICT ENERGY



Learn more at yoursay.mississauga.ca/district-energy

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