Micro Credential

Decarbonising Heat – An Introductory Course

Module 1

Opportunity – *Why Decarbonising Heating & Cooling Matters*

2026-11-12







A Time for Doers

Peter Anderberg - pa@heatnetglobal.com
www.heatnetglobal.com

Module 1 - Opportunity – *Why Decarbonising Heating & Cooling Matters*

Date	November 12th
Time	9.00am EST 2pm UK 15.00 CET
Link	https://teams.microsoft.com/meet/3668404607892237?p=cG0vRPehXWzQfzL3MS

Focus

Explore the role of heating and cooling in greenhouse gas emissions, energy security, affordability, and climate resilience. Understand why thermal energy systems are a critical part of Canada's net-zero transition.

Agenda

Introduction – Scope, structure and objectives
Why Heating – Drivers to decarbonise heating
Options – What can we do about it
Opportunities – Harvesting the benefits
Action – How do we do it. In practice.
Mindset – A Time for Doers
Case HCE – Decarbonising heat in Hamilton



Speakers

Amanda Smiths – Climate Education Leader | Associate Dean, Mohawk College
Peter Anderberg – Founder, Heatnet Global
Ryan Rogers – HCE, VP Corporate Development
Julien Marquant – Sympheny, CPTO

Background Reading

1 - District Heating & Cooling – Introduction *(page 3)*
2 - Hamilton Community Enterprises (HCE) – Introduction *(page 4)*
3 - Case HCE – Expansion of existing heat network *(page 5)*
4 - Video – Decision support platform by Sympheny - Link to Video
5 - Introduction of Speakers *(page 6-7)*



For questions and registration, please contact

Ellinor Anderberg
Heatnet Global
ea@heatnetglobal.com
+46 70 287 90 46
www.heatnetglobal.com

1 - District Heating & Cooling – Introduction

DHC networks, also known as district energy systems or district energy networks, are centralised systems that produce and distribute thermal energy (heat or cold) to residential, commercial, and industrial buildings, through a network of insulated pipes, within a specific geographic area, such as a city or neighbourhood.

A DHC network is composed of one or several heat sources from which heating is distributed to connected customers for space heating, hot water, or cooling, depending on the season and the needs. These networks offer an efficient and sustainable way of meeting the heating and cooling needs of buildings compared to individual, decentralised heating and cooling systems. They enable tapping into sustainable heat resources that would otherwise not be possible to exploit at a large scale. Hence, they foster more renewable, circular, and energy-efficient energy systems.

DHC networks are unique in their ability to leverage locally available renewable and waste heat sources such as:

- *Recovered heat or 'excess/waste heat':* Capturing and reusing heat from industrial processes or tertiary buildings such as metro stations, data centres or supermarkets to provide heating or cooling.
- *Geothermal Energy:* Utilising heat from the Earth's core through geothermal wells or ground-source heat pumps.
- *Solar Thermal Energy:* Capturing heat from the sun using solar thermal collectors.
- *Sustainable biomass:* Using organic materials like wood chips, agricultural and forestry residues, or biodegradable waste to produce heat.
- *Power-to-Heat:* Using excess renewable electricity to upgrade heat from a low-temperature source to a higher-temperature one with a heat pump or utilising excess renewable electricity in an e-boiler to be consumed or stored for later use in a thermal storage unit.

The choice of heat source depends on local conditions, available resources, and the economic and technical viability of projects. Efficient DHC systems prioritise the utilisation of clean heat sources, such as renewable and recovered heat, to gradually reduce greenhouse gas emissions and the reliance on fossil fuels towards climate neutrality by 2050.

District heating and cooling networks (DHC) will significantly contribute to achieving a more flexible, integrated, and renewable-based energy system. They are an environmentally friendly, ready-to-deploy solution for densely populated areas such as cities.

District Heating is about implementing a system solution addressing an entire community. The pathway to decarbonising heat follows a three-step process which can be summarised in 4 Cs – Conserve – Control – Connect – Convert

Conserve	Control	Connect	Convert
Building efficiency to reduce heat demand	Digital solutions to optimise comfort	Pipe networks to distribute heating	Step by step replace fossil-based heating



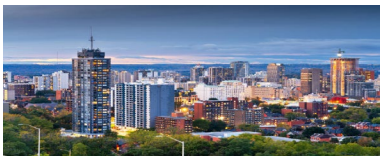



Sources: European Commission and Heatnet Global

2 - Hamilton Community Enterprises (HCE) – Introduction

Hamilton Community Enterprises (HCE) is the commercial operating entity of Hamilton Enterprise Holding Corporation (HEHCo), providing integrated utility solutions across the Energy sector since the deregulation of Ontario's electricity market in 2000. Wholly-owned by the City of Hamilton, HCE is dedicated to delivering transformative community-based energy solutions throughout the Greater Toronto Hamilton Area, with capabilities extending beyond its facilities-based footprint.

www.hce.net



With expertise spanning thermal, electrical, and data infrastructures, HCE is uniquely positioned to design and operate innovative services that enhance broadband and energy efficiency, resiliency, and sustainability. Our goal is to empower communities and businesses to achieve optimal performance.

Since 2002 HCE has operated a district energy system in downtown Hamilton, delivering sustainable, efficient and reliable heating and cooling to our community. Our district energy system provides energy to a diverse range of buildings in downtown Hamilton, leveraging innovative technologies and advanced operational procedures to provide cost effective energy.

HCE's district energy system spans two square kilometres in downtown Hamilton, and serves a variety of institutional, commercial and residential clients located within the downtown core:

- *Institutional*

Includes buildings like the David Braley Health Sciences Centre, Hamilton City Hall and Hamilton Police ISF, which serve educational, governmental, and public safety purposes.

- *Commercial*

Key entertainment facilities such Hamilton Convention Centre, FirstOntario Concert Hall, and Art Gallery of Hamilton as well as a variety of office buildings.

- *Residential*

Includes over 250 multi-unit residential suites across three buildings.

Hamilton Community Enterprises (HCE) offers significant value creation through its district energy system. By connecting with HCE, you benefit from substantial energy savings, with heating and cooling costs reduced by up to 20% when compared to traditional systems.

Additionally, HCE's turnkey delivery model eliminates the high upfront capital costs associated with the installation of traditional HVAC systems, with the potential to reduce the lifetime ownership costs by up to 40%. This reduced cost of ownership also translates to significantly lower operational and maintenance and costs, as clients no longer need to maintain their own HVAC systems or invest in reserve funds for end-of- life replacements.

Throughout the integration process, HCE handles all aspects of the district energy system, from design and construction to ongoing maintenance and utility metering, ensuring seamless integration and reliable service. Connecting with Hamilton Community Enterprises means partnering with a leader in innovative energy solutions, committed to enhancing efficiency and cost-effectiveness for the community.

Sources: HCE

sympheny | HEATNET GLOBAL

Hamilton's $250 million heat decision

HCE Energy plans to heat downtown Hamilton with waste heat from its industrial bayfront.

WHAT HCE'S PLAN AIMS FOR

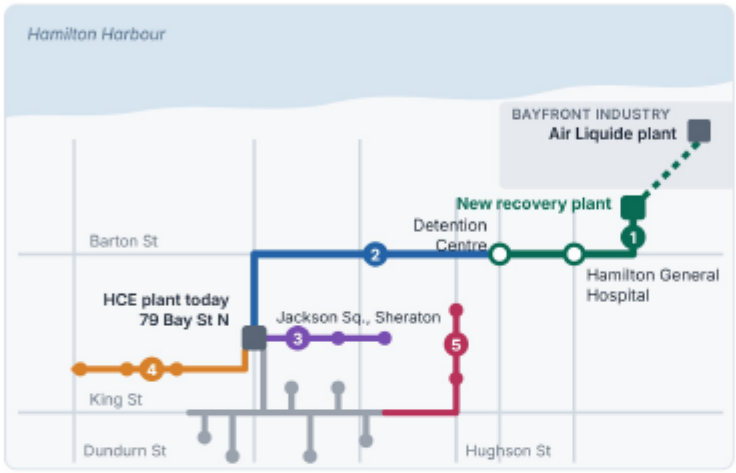
$250M
infrastructure over 10 years

15.7 → 51 MW
contracted heat today vs. peak at full build-out

−80%
GHG vs. fossil heat, 27,000 t CO_2/yr

$247M
grid investment avoided in 10 years

1 HCE and its expansion plans



Today's network · Connected building · New, by phase · Schematic, not to scale

TODAY · SINCE 2002

One gas plant (boilers + CHP) heats **14 downtown properties**, 2.5M sq ft, at up to 90 °C.

PLANNED · ~10 YEARS

Bayfront waste heat via heat pumps and storage, gas for peaks. Grows to **10.5M sq ft**.

THE BUILD-OUT

Groundwork · yr 0–2
Project company, customers, capital

1 · Bayfront to the hospital
yr 2–4.5 · recovery plant, pipe to the hospital and Detention Centre

2 · Link to downtown
yr 4.5–6 · on to the 79 Bay St plant
65,000 MWh/yr · 18 MW

3 · Grow the core
yr 6–7 · Jackson Square, Sheraton, new builds

4 · Downtown West
yr 7–8.5 · out to Dundurn St

5 · Downtown East
yr 8.5–10 · out to Hughson St
143,000 MWh/yr · 51 MW

Timing from the study's phase durations

2 The questions HCE faces

3 How Sympheny answers them

Which heat sources, in what mix? Waste heat, heat pumps, gas peaking, storage, and at what heat price?	**Optimised supply mix.** Waste heat, heat pumps, CHP, gas, storage and solar, each sized for all 8,760 hours of the year, on lifecycle cost and CO_2.
How large should Phase 1 be? It must serve Phases 2–5 without loading the early tariff.	**All five phases in one model.** Phase 1 is sized for what Phases 2–5 will need: build larger now or wait.
At what network temperature? Below today's 90 °C opens more low-carbon heat but needs retrofits.	**Temperature as an option.** HCE's model compares 40 and 90 °C links against retrofit costs: a number, not a debate.
What will the returns be? The study's unlevered return sits slightly below a regulated utility's.	**The business case for each variant.** LCOH, NPV, required tariff, and the gas and power prices where it turns viable.
How to keep the plan current and win support? Estimates already moved 32% between stages.	**A digital twin of HCE's network.** 10 hubs on the real downtown map. Rerun in minutes when inputs change; one set of results for engineers, board, council and public.

More Sympheny projects, from utility strategies to thermal networks: sympheny.com/case-studies
More about Heatnet Global, decarbonising heating and cooling in practice: heatnetglobal.com

Figures: HCE, *Hamilton Energy Harvesting Study* (2025), feasibility stage. Sympheny's HCE modelling is ongoing; its outputs are not HCE decisions.

5 – Introduction of Speakers

Amanda Smiths

**Climate Education Leader |
Associate Dean, Mohawk College**

www.mohawkcollege.ca



Climate action is ultimately a people challenge. While technology and policy are essential, meaningful progress depends on equipping people with the knowledge, skills, and leadership needed to drive change.

As Associate Dean of the School of Climate Action, I am passionate about advancing climate education and helping prepare learners, organizations, and communities for a more sustainable future.

Throughout my career, I have worked at the intersection of sustainability, higher education, research, and community engagement. Today, my work focuses on creating pathways that connect education, industry, government, and communities to accelerate climate action and sustainability leadership. I am particularly interested in how institutions can support workforce transformation and equip current and future generations with the competencies needed to address complex environmental challenges.

I believe education has a unique role to play in accelerating climate action by helping individuals, organizations, and communities navigate an increasingly complex and rapidly changing world. Through collaboration, innovation, and lifelong learning, we can empower people to drive meaningful change in their organizations, communities, and beyond.

Peter Anderberg

**Founder and CEO - Heatnet Global |
Leading DHC Academy VET**

www.heatnetglobal.com



Peter is the Founder and CEO of Heatnet Global, an international advisory and capacity building service in the sector of decarbonising heating and cooling. With local presence in 20 markets, Heatnet Global has established a broad international network of well experienced industry partners – suppliers of technologies and services, operators, training providers, investors, and public institutions. By leveraging on this network Heatnet can offer a broad range of solutions and services on short notice with the aim of reducing costs and risks while increasing speed-to-market, performance, and ROI.

Peter is also engaged in the DHC Academy initiative, led by Euroheat & Power and cofounded by the EU Commission. Heatnet is responsible for the work package addressing Vocational Education and Training.

Peter has 25 years of experience in the DHC sector. Prior to that he has a military background and has also worked in other industry sectors. Peter lives in Stockholm and Paris.

5 – Introduction of Speakers

Ryan Rogers
VP Corporate Development
HCE

www.hce.net



Accomplished energy systems architect and executive leader with a focus on product development and IT strategies
Deeply passionate about advancing sustainable energy solutions and climate resilience
Extensive research and industry expertise through influential consulting roles across the Greater Toronto Hamilton Area
Focused on providing strategic guidance and implementing innovative solutions that empower communities in Hamilton and beyond.

Julien Marquant
CPTO, Co-founder Sympheny

www.sympheny.com



With over ten years of experience in product development and strategic planning, Julien leads Sympheny's vision as CPTO and co-founder, driving innovation in technology and product ecosystems. Focused on sustainable energy solutions.

At Sympheny, I contribute to strategic product vision, operational management, and data governance initiatives while enhancing UI/UX and marketing roadmaps. My work supports the development of partnerships and customer acquisition, enabling the organization to deliver cutting-edge solutions in sustainable urban energy systems.

Sympheny optimizes energy infrastructure for the future, but it is essential to stress-test across many potential scenarios. The demand profile used to develop today's energy plans may differ significantly from the realities that infrastructure will face in 10 years.