



Hamilton Community Energy®

A Hamilton Utilities Company

Single Source Provider of Integrated Energy Solutions

Hamilton Community Energy's (HCE) district energy system (DES), located on the grounds of a Hamilton public school, is a clean-burning, natural gas-fired facility that supplies electricity and hot-water heating to customers through combined (cogeneration) heat and power.

Under the Hood

HCE produces nearly 50 percent of the system's total thermal requirements through natural gas-fired reciprocating engine which is connected to a generator. Exhaust heat is captured and used to produce 3.2 MW of additional thermal capacity. Three separate gas-fired 4 MW boilers are used for peak and standby heating demand. A heat exchanger and control valve at each customer site circulates thermal energy in a closed heating loop. The DES also produces 3.5 MW of electrical power that is either sold directly to the grid or provide standby power for City buildings.



Environmental Leadership

HCE proudly wears the Terrachoice EcoLogo® by adhering to stringent eco-standards and minimal ecological impact while demonstrating environmental leadership. Since commissioning, HCE has reduced its carbon footprint emissions by more than 28,000 tonnes. More than just a provider of DES thermal heating services and turnkey energy solutions, HCE is also home to a public visitor and educational centre for school and college students, an ongoing part of HCE's commitment towards educating and developing compact sustainable communities.



History, Then and Now

A district energy system was first proposed in the early 1990's, but it was not until 2000 when interest was again revived during the City of Hamilton's long-range planning exercise (known as Vision 2020: Strategies for a Sustainable Community).

An encouraging City of Hamilton pre-feasibility study was conducted where district energy, apart from the idea of using residual or waste heat from local steel plants and other industries to provide heating for residents and businesses and reduce greenhouse gas emissions, was also viewed as a catalyst to encourage compact development and attract investment in the City core. Hamilton Community Energy was formed.

Although local industries were enthusiastic, an economic downturn affecting steel companies, and uncertainties in the emerging deregulated energy market in Ontario sidelined major capital projects.

Hamilton Community Energy however, saw an opportunity to pursue a smaller \$11 Million combined heat and power (CHP) project and in 2002, opened its first plant on the grounds of Sir John A. MacDonald High School.

Today, HCE provides heat energy for thermal heating and domestic hot water to approximately 2.0 million square feet of institutional, commercial, and multi-residential space, and provides a standby source of electricity for key downtown customers, including City Hall. A pioneering satellite operation provides thermal energy, chilled water and domestic hot water to the Atrium@MIP and the CANMET Materials Laboratory, integrating conventional DES with geo exchange and solar thermal technologies.

HCE Innovation in Action

In 2010, HCE formed a strategic partnership with McMaster Innovation Park in Hamilton, completing an on-site satellite operation to become one of the first in Ontario to combine conventional DES with renewable technology—connecting and interfacing district heating and cooling equipment with a geo exchange system of eighty-one 500 ft. geo wells and the CANMET Materials Laboratory solar thermal technology.



In cooling mode, the district energy system is expected to provide 85% of the facilities' requirements and is designed to utilize excess captured solar energy to charge the geo exchange well field that can be for when the geo system is in heating mode.

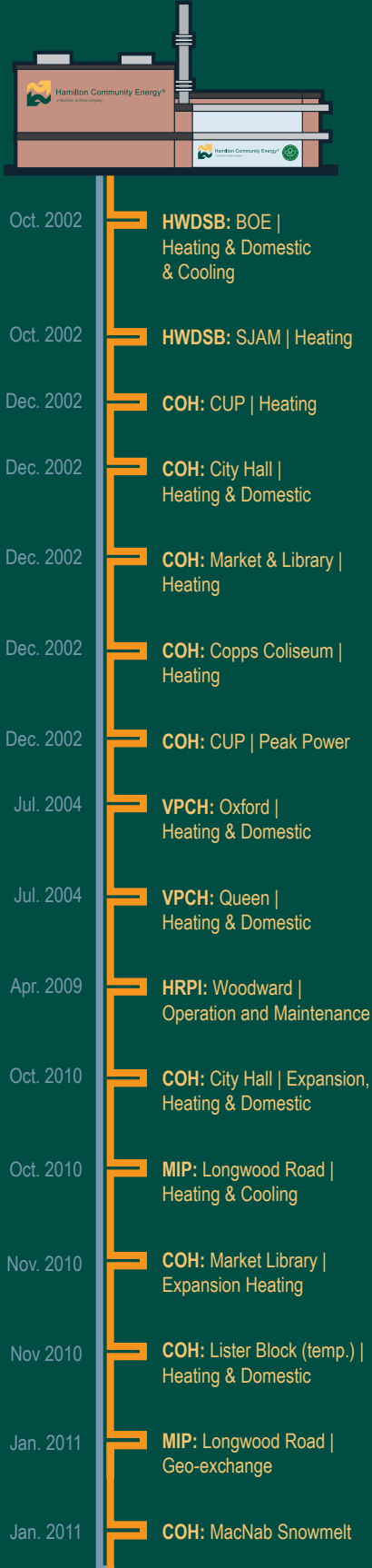
In heating mode, domestic hot water and heating loads are served first by an installed solar thermal system, with incremental heating then being supplied by the heat pumps and geo field, Heating peak and heating supply redundancy will be supplied by the hot water boilers.

This project is one of a very few employing a hybrid of renewable, green and conventional technologies in a district energy concept, and where HCE is at the forefront of innovative technology partnerships.



HCE Timeline

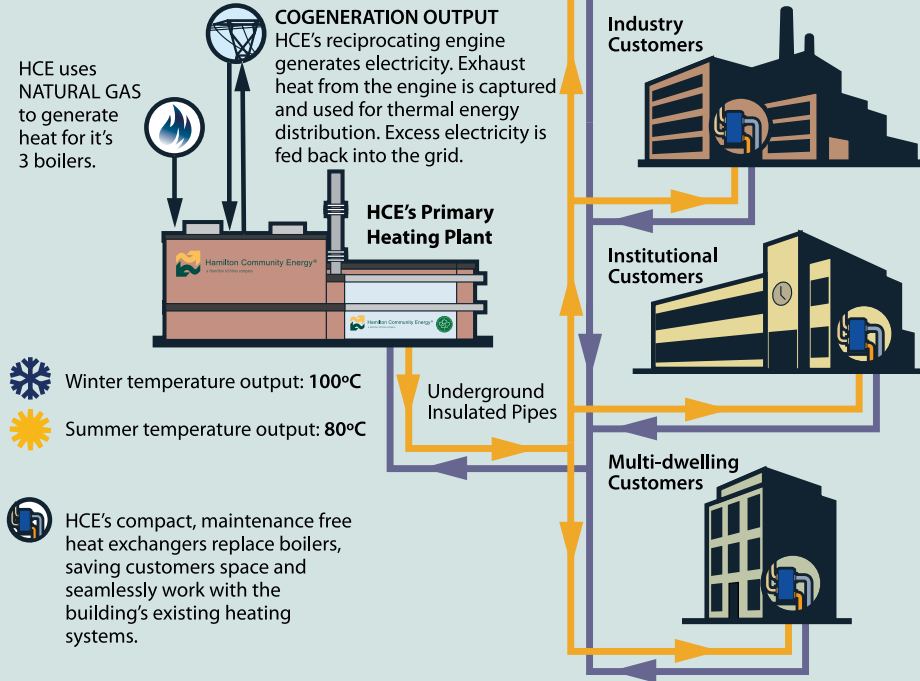
HCE has established a proud record of service, having achieved significant customer milestones since 2002.



DISTRICT ENERGY

Hamilton Community Energy

District heating is a reliable, green and cost effective investment for both the environment and for business. HCE's clean-burning, natural gas-fired facility supplies electricity and hot-water heating to customers through combined (cogeneration) heat and power and eliminates the need for boilers and smoke stacks or chimneys on downtown buildings because it is a closed system.



HCE Location Benefits for Our Customers and Community

- 99.9% Reliability
- Landmark Energy Centre is designed to blend in and enhance community skyline.
- Quiet, "invisible" operation servicing a multitude of commercial, institutional, multi-residential and municipal government buildings.
- Close proximity to customers means better efficiency and less energy transfer loss.



Educating Our Future

HCE's Energy Centre has teaching in mind. Pipes and circulating systems are colour-coded and easily seen from windows along the main street. Display areas and a seminar room provide on-site learning opportunities and HCE regularly hosts local high school tours and renewable energy courses for college students as part of their energy programs. Students at Sir John A. MacDonald Secondary School have incorporated aspects of district energy into their science curriculum with HCE actively participating in the development of the school's energy curriculum. Students from St. Mary Catholic Secondary School's energy co-op program gain hands-on training and knowledge working with conventional and renewable technologies, an experience that is rarely available at the high school academic level.



Contact Us:

79 Bay Street North, Hamilton, ON L8R 3P8 | Tel: 905-317-4595
www.hamiltonnce.com | Email: contact@hamiltonnce.com