

**Houghton College Community
Heat Pump Systems Category
A Feasibility Study
NYSERDA PON 4614**

Allegany County

Technical Lead: EMCOR
Services Betlem

Anticipated completion of
study/availability of final
report: June 2023



The Site & Beneficiaries

Houghton College (Houghton) is investigating the design and installation of a **community heat pump system on the Houghton campus in the town of Caneadea, New York**. Houghton is a nationally ranked Christian liberal arts and sciences college with various building types including academic, student services, athletics, dormitories, and faculty offices. Houghton focuses on responsible energy management and sustainability and recognizes that a community heat pump system could contribute to their sustainability goals and move away from fossil fuel consumption. Seven buildings at the center of campus are the focus of the analysis. These buildings include Houghton Library, Chamberlain Center, Reinhold Campus Center, Gillette Hall, Center for the Arts, Wesley Chapel, and Luckey Building.

Potential Thermal Resource

Due to the space constraints and the high building loads, the system will require multiple sources to provide both a heat source and heat sink. The study will explore air source and ground/water source heat pumps, heat pump water heaters, wastewater/sewer heat recovery, cooling towers (supplemental as necessary), building waste energy recovery (Data Centers, others), solar thermal and emerging technologies such as thermal storage technologies that can be integrated with ambient temperature loops.

Potential Configuration

This study will assess the viability of an ambient loop connecting the seven buildings and installed in the greenspace between buildings. The greenspace offers area for a test well and future ground source bore holes. Sanitary sewers run through the greenspace providing a source for sewer heat recovery. The project hopes to create a proof of concept to justify expansion of the loop to other buildings on campus, including a blueprint for electrifying buildings with aging, fossil fuel-reliant infrastructure and can be replicated by other campuses. The project provides an opportunity for student/faculty engagement on electrification and decarbonization efforts, including teaching on the importance of heat pumps, solar, and other renewable energy sources.