

Community Heat Pump System for Ithaca Southside Category A Feasibility Study NYSERDA PON 4614

Tompkins County

Technical Lead: Taitem Engineering

Anticipated completion of study/availability of final report: December 2022



Renewable Energy Service Centers (RESC)



The Site & Beneficiaries

As part of Ithaca's Green New Deal initiative to transition the entire city to renewable energy, HeatSmart Tompkins and City of Ithaca stakeholders have partnered with Taitem Engineering, The GreyEdge Group, Labella Associates, and Aztech Geothermal to develop the city's first community-scale geothermal heat pump system. The candidate 46-acre site is located along Route 13. The scope includes two blocks of predominantly LMI single-family homes, mixed-use blocks with business buildings, a low-rise apartment complex, two high-rise public housing apartment buildings, and a one-block shopping mall with a total of approximately 600,000 sq ft of conditioned space.

Potential Thermal Resource

To scale up renewable heating and cooling, the team envisions replicable, modular renewable energy building blocks that enable existing neighborhoods to be transformed into Sustainable Renewable Energy Communities. To achieve this goal, all available local renewable energy sources must be tapped for heating, cooling, thermal storage, electric power generation and storage, and vehicle charging energy services. In addition to thermal energy recycling, a networked system of modules enables significant reduction in the amount of higher-cost geothermal heat exchange by adding other thermal technologies including solar thermal, wastewater thermal, surface water thermal, and thermal storage where feasible.

Potential Configuration

This study will demonstrate that a modular networked heat pump system solution can be expanded incrementally throughout Ithaca's Southside neighborhood. Phases 2 and 3 show how energy capacity using commercial properties along Meadow Street can be used to incrementally provide heating and cooling for nearby residential areas via a high-capacity central ambient temperature loop. After the scoping study, investment funding for the design and construction phases has already been identified through Ithaca's Energy Efficiency Retrofitting and Thermal Load Electrification Program.