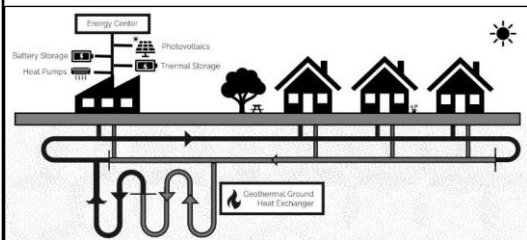


# White Hawk Ecovillage District Geothermal System Category A Feasibility Study NYSERDA PON 4614

Tompkins County

Technical Lead: LaBella Associates

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



## The Site & Beneficiaries

LaBella Associates, The GreyEdge Group, and Aztech Geothermal have partnered with HeatSmart Tompkins and White Hawk Ecovillage Community Inc. to undertake a geothermal system scoping study for a small expanding rural community south of Ithaca, New York. The study will evaluate a transition from a variety of existing heating and cooling technologies to a central ground-source district heating and cooling loop. The solution needs to be resilient, carbon neutral, and affordable for the broad ranges of income levels within the community, and ideally allow NYSEG to eventually disconnect the community from gas distribution in accordance with state and local climate goals. White Hawk Ecovillage is located on approximately 120 acres of hillside agricultural land off Route 96B in Danby, NY, and includes 15 existing high efficiency houses, with additional lots for a planned 30 residences and Common House, in total 42,000 sq ft of conditioned space.

## Potential Thermal Resource

Ambient-loop ground source heat pumps will be the primary technology for thermal energy production. Supplemental thermal production and storage using water-source, solar thermal, and phase change materials will be evaluated, as well as solar and hydropower electricity production and storage in a networked microgrid. Many houses already support solar photovoltaic panels, and the parking area is planned to have solar canopies and electric vehicle charging stations. Options for hydropower and thermal storage that also improve flood and stormwater management will be evaluated, in combination with solar photovoltaics and battery banks.

## Potential Configuration

This study will develop models for implementing a community geothermal heat pump system, powered primarily by on-site solar photovoltaics, in a cost-effective manner for a mixed-income rural setting where individual geothermal systems are financially out of reach for most. Overall system cost could be reduced, and efficiency increased, by installing a common shared thermal loop that includes multiple locally available thermal energy exchange sources (e.g., geothermal and solar) and incorporates renewable electricity generation and storage. The project will pursue a creative renewable energy utility model and companion business model to make the services affordable for underserved and under-resourced communities.