Watchtower Campus
Category B Design Study
NYSERDA PON 4614

Rockland County

Technical Lead: BR+A Consulting Engineers

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

V1 2/2022

The Site & Beneficiaries

The Watchtower Bible and Tract Society of New York is proposing to build a new Audio and Video Production Facility consisting of 16 buildings totaling 1.7 million square feet of new construction on a carbon neutral ready campus in Sloatsburg, NY. The facilities will include a media production center, offices, residences, and dining areas serving up to 1,200 residents. This design study follows on a scoping study that determined a centralized, community heat pump with heat recovery would reduce the overall system size and maintain the campus' Carbon Neutral Ready goal.

Potential Thermal Resources

The planned geothermal field will serve as the thermal hallmark for this new campus. Sitting atop solid gneiss rock, this field will seasonally store thermal energy for near constant use by 262 bores at 800 feet in depth. The size of the geothermal field places it among the largest of geothermal projects in the State. This field will serve an ultra-efficient Central Energy Plant (CEP) consisting of four 400-ton centrifugal heat recovery chillers and six 60-ton modular heat pumps. The CEP will prove exceptionally flexible by allowing each piece of equipment to provide simultaneous heating and cooling or utilize the geothermal field or cooling towers as a heat source/sink. Coupled with an extensive heat recovery strategy, this operation is expected to serve the entire domestic hot water and space heating and cooling needs for the campus. This is made possible through aggressive heat recovery strategies employed throughout the campus which include the use of CO_2 refrigerant-based equipment, a natural refrigerant with zero ozone depletion potential.

Potential Configuration

Several lessons from the proposed project will benefit the advancement of community-style heat pumps in New York State. Building energy models, hydraulic studies, and the ground heat exchanger model will combine to form a complete picture for the design basis of implementing large-scale, electrified district energy.