Mount Vernon District Geothermal Category A Site-Specific Scoping Study NYSERDA PON 4614

Westchester County

Technical Lead: Endurant

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The Site & Beneficiaries

Endurant is leading the assessment of a district geothermal system for a proposed new mixed-use building known as 20 South 2nd Square, a joint development between Comrie Enterprises and Direct Invest Development, in Mount Vernon, NY. The building will include parking, 340,000 square feet of mixed-use development space, and up to 18,000 square feet of non-residential space. The development is in a New York State Disadvantaged Community. Surrounding buildings interested in connecting to a district geothermal system include the public library, a church, the county office building, the post office, and Westhab, an affordable housing non-profit.

Potential Thermal Resource

The quantity of new and existing buildings in the area that are interested in participating in a district geothermal system would provide significant heating and cooling load diversity and an energy-efficient system. New buildings would include energy piles, or geothermal piping installed within structural foundations. Existing buildings would include vertical closed-loop geothermal boreholes installed in available open areas and beneath parking or grassed areas. The local sewers are in desperate need of repair and will be replaced, so wastewater heat recovery will be examined and incorporated to the district energy system as well, if feasible.

Potential Configuration

The participants will be able to move from gas fired heating to renewable heating while leveraging public sewer infrastructure upgrades to create cost efficiencies. The new construction elements will seek to achieve all-electric Passive House standards, while the existing facilities seek to exceed code compliance with mechanical and envelope upgrades. The team expects that this project will pioneer new methods including incorporation of sewage heat exchange to the community system, the first of its kind in the local area, and integrating multiple heat sources and sinks into one system – for example having one district system that incorporates energy piles in the new building foundations, vertical closed loop geothermal installed in available spaces, and sewage heat exchange installed along the new sewer system. Both could set the standard for new and existing construction on a community scale.