Chicago Sustainable Geothermal

PRIME RECIPIENT: BLACKS IN GREEN

Summary. A Chicago-based coalition of community, city, labor, and energy leaders is seeking to evaluate and demonstrate an equitable and just transition to building decarbonization in dense, urban environments in cold climates.

The coalition seeks to work with the community of West Woodlawn, a disadvantaged community on the South Side of Chicago, to further the community's goals to generate local energy and create local wealth.

The project is part of the community's Sustainable Square Mile effort, launched in 2010, and centered around the effort to build a local living economy where most core neighbor needs are met within walking distance and where visitors are grounded in local currency, culture, energy, goods, and knowledge.

Goals/Key Takeaway. The project will deploy a shared community geothermal network across four city blocks, containing more than 100 multi-family and single-family residential buildings. The community geothermal system seeks to demonstrate the Better Heat model, a new carbon-free, modular, community-focused heat utility that can decarbonize the city's residential and small commercial building sectors. The Better Heat model will position the City of Chicago as a global leader in fighting climate change, and demonstrate to the world how the use of community geothermal loops can empower communities on the path to a carbon-free future.

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CHICAGO

CITIZENS UTILITY BOARD CUB Fighting for Illinois Consumers

CLIMATE JOBS ILLINOIS

THE ACCELERATE GROUP | LLC

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

ILLINOIS GEOTHERMAL COALITION

DATA BASED+ db|HMS

GEO GEOEXCHANGE®

The Geothermal Exchange Organization

AFL CIO ILLINOIS

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Project Footprint

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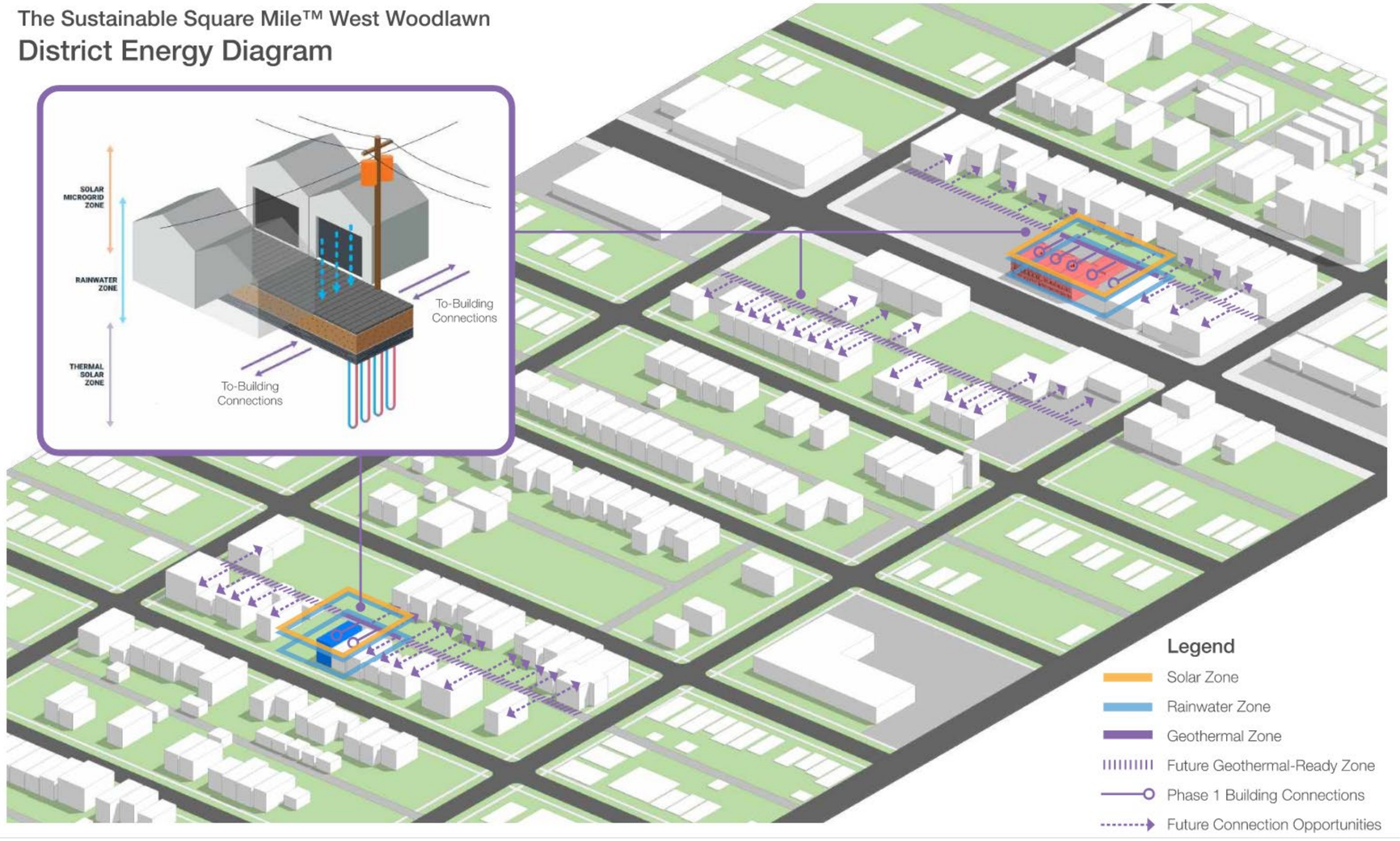
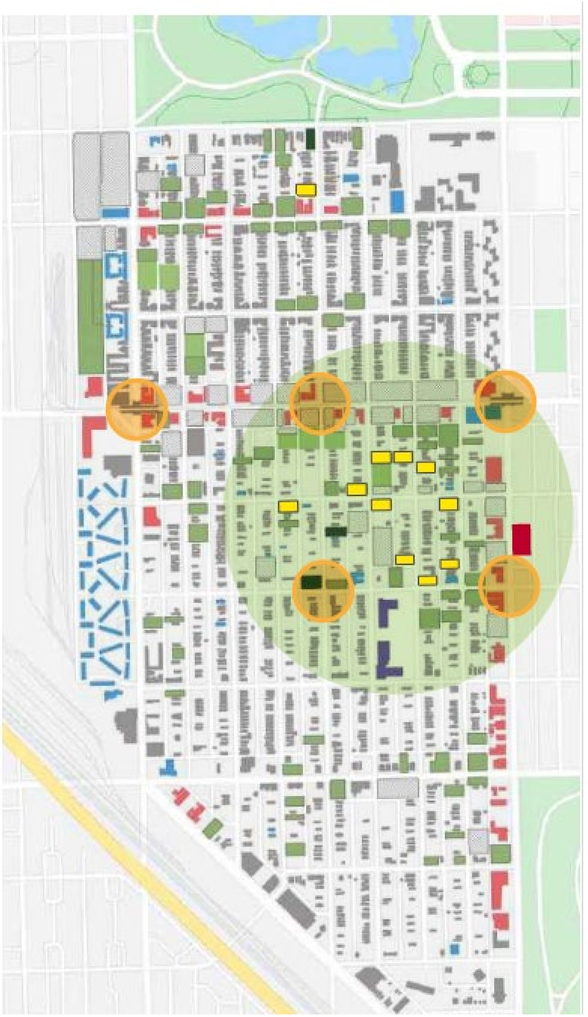
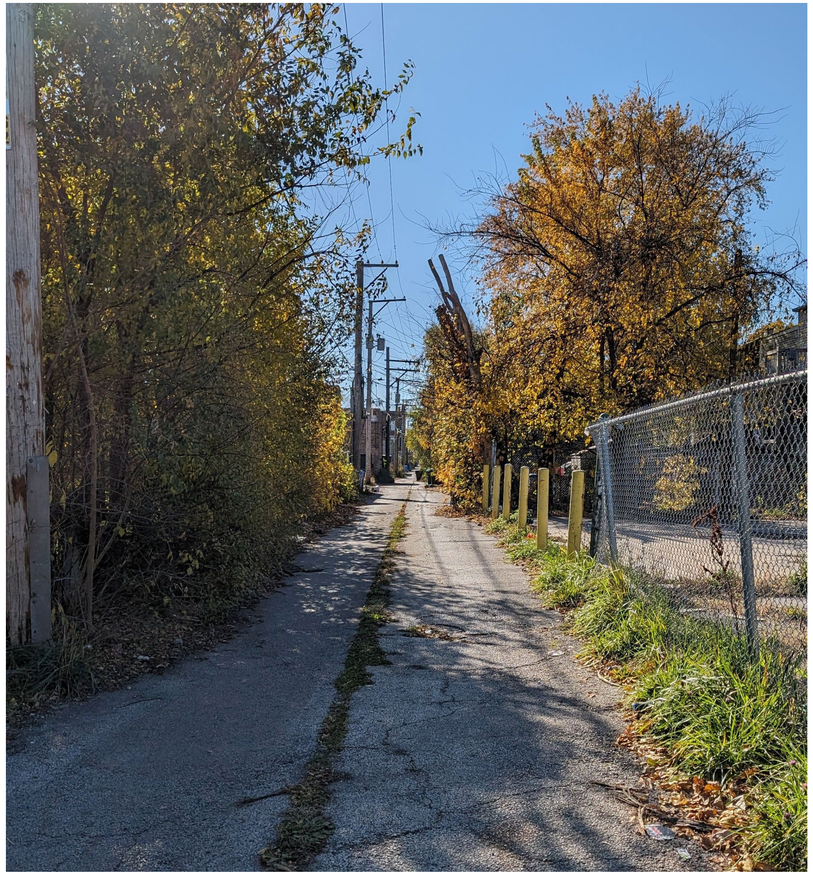




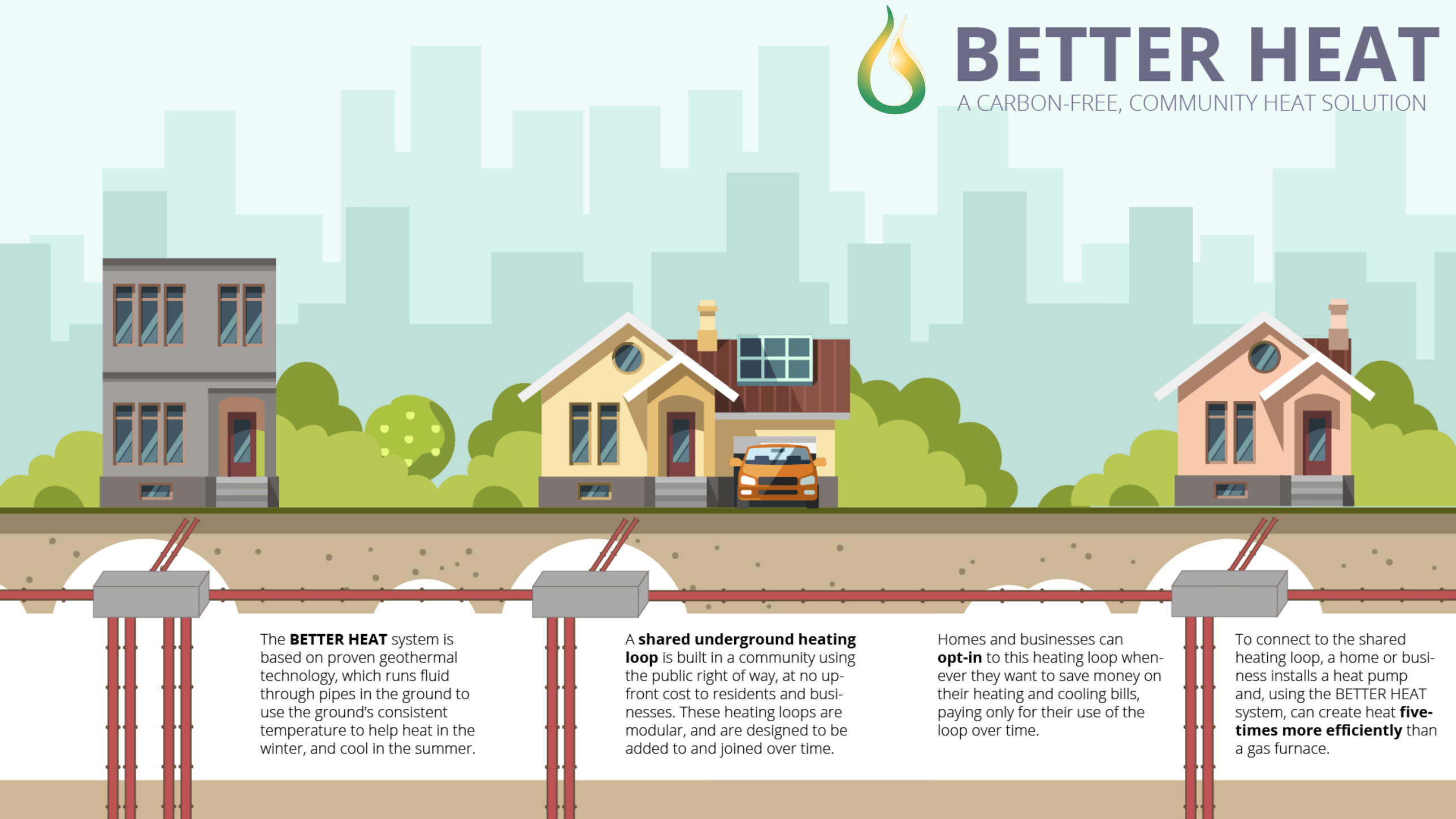


West Woodlawn

SUSTAINABLE CHICAGO GEOTHERMAL

BETTER HEAT

A CARBON-FREE, COMMUNITY HEAT SOLUTION



The **BETTER HEAT** system is based on proven geothermal technology, which runs fluid through pipes in the ground to use the ground's consistent temperature to help heat in the winter, and cool in the summer.

A **shared underground heating loop** is built in a community using the public right of way, at no up-front cost to residents and businesses. These heating loops are modular, and are designed to be added to and joined over time.

Homes and businesses can **opt-in** to this heating loop whenever they want to save money on their heating and cooling bills, paying only for their use of the loop over time.

To connect to the shared heating loop, a home or business installs a heat pump and, using the BETTER HEAT system, can create heat **five-times more efficiently** than a gas furnace.

DOE Federal Grant Tasks & Timeline

1. **Community Foundation.** Convening community conversations and conducting a foundational study.
2. **Initial System Design & Technical Analysis.** Determine geothermal resource potential, finalize site footprint, create physics-based model, create assessment tool for project replication, develop customer-side package design.
3. **Economic Assessment.** Based on geothermal system cost analysis, customer-side cost analysis.
4. **Ownership and Rate Structure.** Design-focused process to determine options for ownership of geothermal system, interconnection points, rate options, and bill impact analysis.
5. **Workforce Analysis.** Skills mapping of existing jobs, and workforce training pathways.
6. **Community Design Review.** Presentation of final plan for community review.

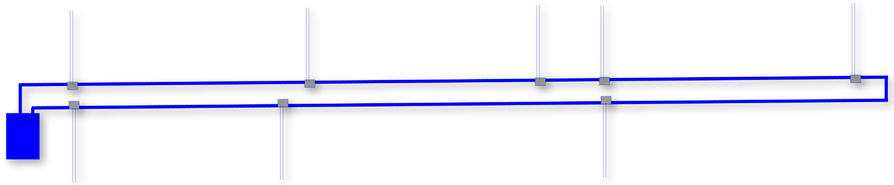
SUSTAINABLE CHICAGO GEOTHERMAL

Opt-In Approach

Initial Loop.

An initial Shared Community Loop can be developed with as little as 4-8 households on a block.

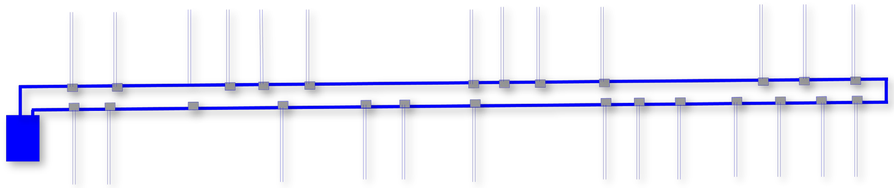
INITIAL LOOP



Opt-in and Growth.

Residents can update their systems at their own pace, when their gas heating appliances or air conditioning systems are at the end of their lives, or when they have the funding or financing to do so. A new connection container would be installed underground outside the home to connect the house to the main loop and house any new vertical wells.

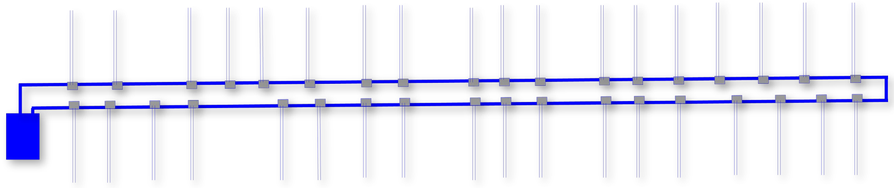
OPT-IN AND GROWTH



Most Efficient.

When every home in a neighborhood connects to the Shared Community Loop, the system will be at its highest operational efficiency, able to balance loads more easily across homes based on needs.

EVERY HOME CONNECTED



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Neighborhood-Scale Expansion

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Combining Loops.

As adoption of the BETTER HEAT systems grow in communities, additional efficiency, lower costs and system balancing can be achieved by connecting adjacent shared community loops to each other,