

Community Driven Decarbonization and Resiliency: Exploring Minneapolis' Geothermal Future

Building a Clean Energy Investment Pipeline in Minneapolis, Minnesota

AT A GLANCE

Investment Priorities

Geothermal & Ground-Source Heat Pumps; Geothermal Networks (also referred to as Thermal Energy Networks); On-Site Solar; Building Energy Efficiency

Pipeline Value

~\$17.4M for near-term capital investment across ten community projects, ranging between \$100K–\$5M, within a broader pipeline that also includes a 10-acre redevelopment and an institutional conversion.

Key Partners

City of Minneapolis Sustainability Office; Great Plains Institute (GPI); Metro Clean Energy Resource Teams (CERTs); Small Business Equitable Energy Decarbonization Initiative (SBEEDI); Minnesota Climate Innovation Finance Authority (MnCIFA); and local CDFIs/CBOs.

Community Impacts

- ~1,051 MTCO₂e/year reductions identified
- ~26,275 over 25 years
- 733,000+ sq ft of geothermal-conditioned space across the identified pipeline

Strategic Role

Market Builder and Facilitator

The Path Forward

The City of Minneapolis, along with coalition partners, will continue to shepherd community-led energy and cost-saving building projects throughout the city. The City will conduct a Thermal Potential Study to map network geothermal opportunities city-wide and support project development with baseline technical details. The coalition will continue to identify and aggregate small projects into financeable portfolios with MnCIFA and local CDFIs. The City is also assessing existing service programming, such as the Green Cost Share program, to support geothermal development and extending eligibility to small-business energy-efficiency projects.

THE BIG PICTURE

In a cold-climate city, fossil gas heats most buildings, accounting for over 60% of Minneapolis' building emissions. Geothermal heating and cooling offers an alternative low-carbon heating and cooling solution, drawing on the earth's steady temperature to handle both very cold winters and hot, humid summers. Coupled with electricity derived from distributed energy resources, such as solar, geothermal technology offers an innovative and clean pathway forward to meet building needs while also reducing Minneapolis' greenhouse gas (GHG) emissions. But the price of simply finding out whether a building is a good candidate—a feasibility study that can run \$30,000 or more—is one barrier preventing more widespread understanding of geothermal compatibility and adoption.

The Challenge: Geothermal adoption stalls on high upfront assessment/engineering/equipment costs, an aging building stock, lack of familiarity with the technology, permitting complexity, and a limited geothermal-drilling workforce. Multi-party, public-private thermal energy networks pose questions around ownership and operation, and smaller clean energy projects are unable to meet capital thresholds to be eligible for financing.

The Solution: A City-convened, whole-community coalition that builds an accessible geothermal technology adoption market inclusive of low-cost screening assessments to de-risk early decisions, project aggregation to clear financing thresholds, shared cost and ownership policy research, and workforce development, stacked with public support (such as the Green Cost Share Program and Climate Legacy Initiative programming) and partners like MnCIFA, CDFIs, and community-based organizations.

Through the Municipal Investment Fund (MIF), the City of Minneapolis and the Great Plains Institute (GPI) conducted broad engagement with nonprofits, small businesses, financial intermediaries, and other mission-driven organizations, along with clean energy experts, engineers, developers, labor representatives, and building owners to develop and strengthen a pathway forward for geothermal technology adoption that supports building resilience while also reducing GHG emissions.

The City of Minneapolis and GPI convened six workshops, conducted twelve interviews, and identified ten high-potential geothermal projects sites. In addition, GPI facilitated, and the City funded, seven free geothermal technical assessments, which provided each building owner estimated energy, carbon, and cost savings using a comparable building model and energy use and cost gathered from customer utility bills. Most of these assessments demonstrated that geothermal would result in energy, cost, and carbon savings. Furthermore, the engagement through MIF highlighted the strength of demand from faith communities drawn to geothermal by a combination of mission-driven values and the chance to cut energy costs in old buildings, several of whom now meet as an ongoing cohort.



"We are proud to partner with the Great Plains Institute (GPI) to scale collaboration with neighborhood organizations, local leaders, and business owners to develop decarbonized energy hubs where they are needed most. Communities in Minneapolis are not simply participants in this effort; they are driving the transition to a cleaner, more equitable future."

— Patrick Hanlon, Deputy Commissioner, City of Minneapolis Health Department

LAYING THE FOUNDATION: BUILDING A GEOTHERMAL MARKET IN A COLD-CLIMATE CITY

Minneapolis used MIF to develop upstream project catalysts. This included building out resource information and targeted engagement to scale clean energy project adoption and identifying financing pathways and workforce barriers to overcome challenges across the city. Engagement was prioritized in two designated environmental justice communities—the Northside and Southside Green Zones.

Coalition and Partnership

The lead partner was the City of Minneapolis Sustainability Office, anchored by its 2023 Climate Equity Plan, which commits the city to community-wide net-zero emissions by 2050 and net-zero municipal operations by 2040. As a partnership co-lead, the Great Plains Institute brought applied research, analysis, facilitation, and stakeholder engagement expertise. The coalition intentionally engaged underserved communities through Metro CERT's SBEEDi (the Small Business Equitable Energy Decarbonization Initiative) partners, as well as other community-based organizations and local CDFIs (Community Development Financial Institutions). The team established resources to connect with capital from the MnCIFA, utility programs with Xcel Energy and CenterPoint Energy, and City-funded programming.

Market Building: Workshops, Interviews, and a Low-Cost Assessment

The initiative strove to meet stakeholders “where they were”. Workshops reached distinct audiences—faith and spiritual communities, small businesses, environmental justice communities, real-estate developers and architects, and workforce and labor representatives. Concurrently, the team ran twelve one-on-one interviews and offered free screening-level geothermal assessments. The \$3,500 assessment was a significant development. Replacing traditional geothermal assessments at a fraction of the cost, the assessment was able to provide initial feasibility of a geothermal system and justify either the cost for a more extensive technical assessment or recommend customers seek other means of decarbonization. These assessments identified ten high-potential projects for the pipeline.

Financing Pathways and New Tools

The coalition focused on identifying and connecting potential projects to local public and private capital resources. The City's Green Cost Share program grants \$5,000–\$500,000 to projects that reduce air pollution or GHG emissions via its Climate Legacy Initiative and utility franchise fee revenue. MnCIFA lends \$250,000–\$5,000,000 to clean energy projects, with a requirement to direct at least 40% of its total clean energy and greenhouse gas reduction project benefits to environmental justice and historically underserved communities. Coalition members are developing support for project portfolio aggregation to enhance eligibility for large capital investment, while also directing projects towards CDFI products from local lenders. The coalition also highlights financing and funding opportunities provided through MinnPACE (Minnesota Property Assessed Clean Energy), Xcel and CenterPoint Energy rebates, and the Investment Tax Credit.

Building the Enabling Environment

Minneapolis is also using procurement as a lever. The city's recent 10-acre public-land sale of the "New Nicollet Site" incentivized gas-free or nearly gas-free development. The City's upcoming Thermal Potential Study will provide citywide technical details on public and private site potential for geothermal and water-exchange technologies to identify high-potential future geothermal projects.

An equally challenging frontier is thermal energy networks (TENs): interviews surfaced unresolved questions about financing a shared system, ownership of shared equipment, how tax credits are split, and operations and maintenance responsibility. The coalition proposes further research on ownership and operating models, convening Minnesota stakeholders, and tracking the Minnesota Public Utilities Commission working group recommendations on utility-owned TENs as pathways forward to address barriers and identify solutions.

Regarding workforce, a roundtable convening of representatives from labor organizations and construction identified barriers of too few well drillers and an aging workforce, compounded by slow permitting and a lack of a career pipeline for the incoming workforce. Two focused strategies arose: leverage high school counselors and vocational teachers to reach students who may be a good fit for the industry; and work with partners to expand education and programming that exposes the incoming workforce to the well-drilling industry and geothermal technologies. The City's Green Careers Exploration program and the Climate Equity Plan's goal of training 1,000 residents in green careers by 2030, along with other industry, business, and nonprofit programming could pursue these strategies.



UPLIFTING A PIPELINE OF 10 COMMUNITY-LED CLEAN ENERGY PROJECTS

The market-building activities conducted during the MIF grant period identified ten high-potential clean energy projects seeking to leverage geothermal technology, spanning city-led redevelopment, faith- and community-based resilience hubs, and developer-led neighborhood networks. Most sit at the feasibility and predevelopment stage, with some projects at the finance-ready level.

A Finance-Ready Large Institutional Conversion

A confidential large institution (more than 250,000 square feet of conditioned space) is replacing its aging HVAC system with a more efficient geothermal-source hot-water system, expected to meet nearly all of the building's heating and cooling needs. This technology upgrade is part of a much larger capital improvement campaign that the institution is undertaking. The institution adopted a "total-cost-of-ownership" model that ties its mission-driven values and financial feasibility to achieve emissions reductions.

- **Available Capital Stack:** Green Cost Share; Utility Rebates; MnCIFA loans; federal Investment Tax Credit (ITC); philanthropic capital; other to-be-determined local and national lending institutions.
- **Revenue / Benefit:** Near-complete heating and cooling from geothermal, replacing aging steam; lower long-term operating costs and carbon.
- **Investment Readiness:** Finance-Ready.

New Nicollet: City-Led Redevelopment

The City of Minneapolis is leading redevelopment of a 10-acre site on Nicollet Avenue and Lake Street. The solicitation and selection prioritized gas-free or nearly gas-free bids. The City supplied site-specific technical details in the form of a geothermal viability report, a feasibility study, and a geotechnical report. This helped lower developers' upfront costs and risks associated with pre-development activities. Both submitted bids proposed geothermal. In April 2026, the City Council awarded exclusive development rights with earliest construction beginning in 2028.

- **Available Capital Stack:** Federal ITC; Green Cost Share; Utility Rebates; MnCIFA loans; CGC, and other local and national CDFIs and lending institutions.
- **Revenue / Benefit:** Mixed-use affordable housing and ground-floor commercial with gas-free heating and cooling and lower tenant utility costs.
- **Investment Readiness:** Pre-Development & Feasibility to Finance-Ready.



Faith-Based & Community Resilience Hubs

A church located within the Southside Green Zone, is seeking funding to close a feasibility-study gap on a large geothermal-and-solar project, with a long-term vision to become a climate resilience hub. The church's community-serving nonprofit entity is also pursuing a geothermal system within a larger supportive housing development project, and could share the geothermal system with the adjacent church. Another church identified the need to replace an 80-year-old boiler and add a cooling system, exploring aquifer-based geothermal as a potential replacement system, but at a significant capital cost. A North Minneapolis mosque is exploring a geothermal system which could also contribute to a network system with neighbors consisting of commercial properties, a grocery store, and a food manufacturer. An active building rehabilitation development into a carbon-neutral workforce-training hub and potential geothermal network anchor with rooftop solar estimates a seven-figure capital investment need. Another nonprofit pursuing a comprehensive building renovation is exploring a closed-loop geothermal system paired with solar to future proof for a possible network connection.

- **Available Capital Stack:** Green Cost Share; MnCIFA loans (green-zone preference); CDFI lending products (Neighborhood Development Center, MCCD, LISC Twin Cities); MinnPACE; federal ITC; philanthropic capital; and CGC predevelopment funding for feasibility studies.
- **Revenue / Benefit:** Lowers operating costs so that nonprofits and faith-based institutions may redirect and prioritize dollars towards mission-driven programming and services; resilience for community-serving facilities especially in environmental justice areas; potential anchors for thermal energy networks.
- **Investment Readiness:** Early Concept/Scoping to Pre-Development & Feasibility.

Networked Geothermal (Thermal Energy Networks)

Sabathani Community Center, which has its own geothermal system expected to be operational in 2026, may serve as an anchor site to neighboring buildings interested in pursuing geothermal, namely a neighboring grocery store. In Minneapolis' Longfellow neighborhood, a community developer in partnership with a local engineering firm are exploring a geothermal network system, leveraging several buildings and sites that have or will undergo development and redevelopment as part of an extensive post-2020 revitalization effort in the community. The team estimates a ~\$2M initial capital investment to begin TENs development in the area.

- **Available Capital Stack:** Single-building system costed first, with full-network costs not yet estimable; MnCIFA, CDFIs, CGC, Green Cost Share, and private capital.
- **Revenue / Benefit:** Shared underground loops let one anchor feed a whole block or corridor, decarbonizing heating and cooling for clusters of commercial and residential buildings.
- **Investment Readiness:** Pre-Development to Finance-Ready

IMPACT & NEXT STEPS

Minneapolis used MIF to make geothermal technology assessments a more affordable option. With demand for these assessments across a wide spectrum of clients, including institutions, non-profits, developers, faith communities, and small businesses, the challenge becomes developing these \$3,500 screening assessments into financed projects.

The Strategic Gaps: Upfront feasibility and engineering costs (\$30,000+) stop projects before they start; small projects qualifying for the MnCIFA \$250,000 minimum loan; an aging and undersized drilling workforce; and ownership, financing, and operations questions for third-party thermal energy networks remain unresolved.

The Last Mile: A finance-ready institutional conversion proves geothermal works at scale, and the city-funded screening assessment model enables interest to translate into a real pipeline.

The Multiplier Effect: Predevelopment funding is the step that moves faith- and community-based sites from feasibility into design. Aggregation allows small LIDAC projects to clear financing thresholds, and networked geothermal lets one anchor seed a whole neighborhood.

A Replicable Model: Aging HVAC and boilers are failing now, and each replacement is a fork in the road toward geothermal or another gas cycle. Minneapolis used MIF to establish a city-wide coalition that de-risks geothermal by (1) identifying public and private financing tools such as Green Cost Share, MnCIFA loans, CDFI capital, and the federal ITC; (2) providing low- to no-cost geothermal screenings; (3) aggregating small project into financeable portfolios, and (4) identifying important ownership model questions to move the needle forward on networked geothermal. Coalition members specifically asked for a case-study database and guidebook; this case study is a step toward that.

This case study was funded through the Municipal Investment Fund, a partnership between ICLEI USA and CGC to support local governments, tribes, and their partner not-for-profit organizations develop public-private partnership plans that can accelerate the deployment of capital to clean energy projects.

