

CLEER: Scaling Rural Geothermal Infrastructure

Building a Clean Energy Investment Pipeline in Western Colorado

AT A GLANCE

Investment Priorities

Single building and campus ground source heat pumps, District Scale Thermal Energy Networks (TENS), and Geothermal Power and Storage.

Pipeline Value

\$494,000,000

Key Partners

Clean Energy Economy for the Region (CLEER), Garfield Clean Energy (GCE), Colorado Geothermal Council, Colorado Energy Office, National Lab of the Rockies, Geothermal Drillers Association, Holy Cross Energy, and Xcel Energy

Community Impacts

100% of projects serving critically impacted communities; Improving energy reliability and improved indoor air quality for rural schools and municipal facilities; Supporting local workforce development. Focus on rural, small and impacted communities.

Strategic Role

Market Enabler- lowering development friction, increasing customer demand, and reducing project costs / Technical Assistance Provider

The Path Forward

Seeking \$3 million or more in predevelopment capital to finalize geotechnical drilling and subsurface modeling for anchor sites.

THE BIG PICTURE

Clean Energy Economy for the Region (CLEER) is developing "Western Geo," a partner-based energy initiative focused on unlocking the geothermal potential to drive new energy opportunities. Over 60 communities, local government districts and private developers in Colorado are pursuing district scale Thermal Energy Networks (TENS), single building and campus ground source heat pump retrofits, and community geothermal gardens and or geothermal small scale generation projects. Projects are working through pre-development towards construction financing with a collective large portfolio of geothermal infrastructure, by leveraging State and local funding, support from national programs like the Municipal Investment Fund (MIF) and high-level utility-scale interest.

The Challenge: Rural geothermal deployment is hindered by addressable gaps: high soft costs, a lack of lower cost project screening and available technical assistance. These barriers prevent diverse projects—ranging from private power and hybrid systems to campus and municipal assets—from connecting with the large-scale investors and patient capital required for long-term infrastructure.

The Solution: The approach can lower risk, lower pre-development costs, and create investment portfolios, by providing early project coaching, screening, technical and policy support. By bringing a "Geothermal Drilling Center of Excellence" and a "Geothermal Resource Center" to the region, costs can be reduced and projects fast tracked. As a result, thermal assets can be fast tracked for placement with investors.



CREATING THE FOUNDATION

Leveraging support from the Municipal Investment Fund (MIF), the Western Geo partnership will develop a geothermal toolkit and project screening services for local governments, districts and developers. It will i) expand drilling and contractor capacity by sponsoring Geothermal Drilling Center of Excellence services (a partnership with the Geothermal Drillers Association); pursue bulk contracting for test wells to reduce costs ii) reduce pre-development and design soft costs by providing a dynamic knowledge database (line-item cost information, design best practices, heat pump manufacturers/partnerships, SOW and RFP templates by project type) and iii) offer an application based cohort, including a cost match grant, to lead a critical mass of local jurisdictions through a supported engagement and design process to dramatically increase the number of viable thermal energy network projects in Colorado.



FEEDING THE PIPELINE

With this foundation, Western Geo is building a project portfolio capable of attracting institutional capital. Supported by the Municipal Investment Fund (MIF), the partnership aggregates geothermal projects to serve as a central resource for school districts, local governments, and multi-family developers. This hub reduces the technical and financial hurdles of pre-development to move projects toward capitalization. At the heart of this strategy is a cohort-based model. By clustering buildings and campuses into coordinated groups, we move away from isolated development. Using thermal asset mapping within these community cohorts, we identify shared infrastructure opportunities that allow smaller projects to achieve the scale and risk profile required for major financing.

EARLY INDICATORS

Pueblo Fire Stations Geothermal: A multi-site installation of ground-source heat pump systems at Fire Stations #6, #8, and #11 to reduce operational costs and enhance facility resilience.

Karval & Liberty K-12 School Geothermal: Installation of ground-source VRF and Energy Recovery Ventilators systems for rural school districts to reduce heavy heating costs.

Rico Geothermal Direct Use District: Municipal-wide development of a high-temperature hydrothermal resource into district heating and cooling and a "cascading" energy system to support agricultural greenhouses, commercial hot springs, and diversified economic development.

Identified capital and debt opportunities for these projects include:

- ESCo services/ EPC contacts
- Private market financing
- Revenue and general obligation bonds
- ITC Direct Pay
- State of Colorado and utility grants and tax credits
- Rate recovery and usage fees
- Avoided capital costs and energy savings



"In rural communities like Rico, a high-temperature geothermal resource isn't just potential—it's a real opportunity to support a shared heating system. Getting there takes building local understanding, furthering research, and building the right partnerships. Support from programs like MIF are helping us position our region and community to move projects forward while keeping local priorities front and center."

— Teal Stetson-Lee, Rico Geothermal Coalition [Rico, Colorado]

PROVEN IMPACT & NEXT STEPS

The Western Geo partnership can expand rural energy landscapes into institutional-grade investment opportunities. By growing thermal energy networks, commercial GSHP heat pumps, and geothermal power projects, the initiative can demonstrate that sustainable infrastructure can also be a primary driver of economic resilience. Thermal heating and cooling represents a fundamental shift in infrastructure, capable of achieving 40% GHG reductions at the project level while offering a commercially viable "off-ramp" from natural gas. Beyond immediate decarbonization, these projects transform utility delivery, create new opportunities for drilling and labor, and stabilize operating budgets.

Currently, CLEER and its partners have identified over a \$494 million pipeline of geothermal loan transactions and close to \$1 billion dollars of total project costs across Colorado. The focus is now on securing strategic pre-development capital to unlock this portfolio. Because these infrastructure projects are highly capital-intensive, every dollar of philanthropic or pre-development support acts as a critical force multiplier—leveraging federal incentives and "pulling through" the private debt necessary to ensure these transformative projects break ground on schedule. Working within a rigorous framework of data and committed local actors, this early-stage capital provides the essential de-risking that allows institutional-scale investment to flow into rural communities.

This case study was funded through the Municipal Investment Fund (MIF) to support local governments and their partner not-for-profit organizations in developing public-private partnership plans that accelerate the deployment of capital to energy and infrastructure projects.

