# Case Study: Geothermal Drilling
# Field Technician Intensive, MA, Spring 2026

The Geothermal Drillers Association (GDA), with prize funding from the U.S. Department of Energy, led a geothermal drilling intensive ("the Intensive") in Framingham, MA, that provided 2 weeks (80 hours) of geothermal drilling training to one Brooklyn, NY, and six Greater Boston residents, shepherding new entrants to family-sustaining drilling careers and addressing a key geothermal workforce challenge.

*Students in GDA's Spring 2025 Geothermal Drilling Intensive learn from expert trainer Brock Yordy about the equipment, crew, and activity they are witnessing on the active drill site of Skillings & Sons.*

***Driller Shortage***

States across the country are increasingly turning to geothermal technologies for local heating and cooling supply and utility-scale geothermal networks, driving demand for an expanded and increasingly specialized drilling workforce. Yet, the industry widely agrees that the current workforce is inadequate to meet this demand. (Geothermal Market Capacity White Paper, Department of Energy Geothermal Liftoff Report, Department of Energy Geothermal 2025 Market Report, Bureau of Labor Statistics 2023 Workforce/Construction and Drilling.)

The geothermal drilling workforce is constrained by several factors, including high upfront capital costs and the shortage of appropriately tooled drill rigs. Many drillers are now aging into retirement, and International Union of Operating Engineers (IUOE) leaders likewise are uncertain that geothermal drilling will offer consistent employment to their members and so have not yet invested in geothermal training as a core component of their apprentice programs. Technical and vocational colleges are interested in training students for emerging opportunities in the geothermal industry, but confront barriers to entry, including the cost and availability of drill rigs, training insurance, technical expertise, and permitting. New programs (MassCEC, NEHPA) partially address barriers to entry by supporting the broader clean heating and cooling industry but do not explicitly include the civil construction component. These incentives are being designed without the specialty equipment that drill-rig training or geothermal heat-exchanger-installation training would require.

Meanwhile, promising legislation allowing third-party ownership — an arrangement where, for a fixed monthly fee, a company installs, owns, and maintains the geothermal system for property owners, eliminating upfront installation and maintenance costs — and the involvement of gas utilities, universities, data center cooling, and state environmental mandates position the industry to boom. Thirteen states have laws promoting thermal energy networks — geothermal loops serving entire neighborhoods — and 11 utility companies nationwide are developing about 30 projects (Building Decarbonization Coalition). Thermal networks and individual installations can deliver clean heating *and* cooling, save consumers money, and provide new business opportunities for natural gas companies in states trying to transition away from fossil fuels.

A workforce initiative led by the GDA and cooperatively conceived by equipment manufacturers, geothermal energy organizations, and academic institutions aims to harness the boom to engage newcomers to geothermal drilling and local tax-paying and family-sustaining jobs. The vision is to create a nationwide network of Geothermal Drilling Centers of Excellence that will conduct training and research to develop the geothermal drilling workforce. Each center offers programming tailored to meet the location's specific needs, with the first center set to launch within a year in Framingham, Massachusetts, home of the country's first utility-owned, neighborhood-scale thermal network and the location of GDA's most recent Intensive.

To scale our driller training program and actualize a center of excellence, an adequately resourced, industry-recognized training facility with its own appropriately specified training rig, required insurance, and drill site is necessary. A recent Climate Critical Workforce

Training, Equipment, and Infrastructure grant from the Massachusetts Clean Energy Center (MassCEC) will support GDA's procurement of training-dedicated equipment in the second half of 2026. In the short-term as project numbers increase, a regionally mobile drill rig and training platform would allow flexible scaling and deployment at various locations where active projects and related hiring are underway. Geothermal drilling schools are being explored in various locations in addition to Massachusetts.

***Preparing the Next Generation of Geothermal Drillers***

Brock Yordy, co-founder of the GDA with over 25 years of drilling and construction experience, refined a rigorous two-week (80-hour) curriculum for students with no prior knowledge or experience in geothermal drilling. Traditionally, new hires in the drilling industry learn through firsthand repetition in the field over three to five years. With expanded use of geothermal in cooling data centers and the promise of thermal energy networks and third-party ownership models, a key training goal has been to recruit and develop new geothermal drillers to offset existing workforce bottlenecks and prepare for industry growth. The Intensive's "pre-apprenticeship" curriculum covers construction site safety (OSHA 1926) and hazard analysis, drill team roles and responsibilities, geothermal standard operating procedures, technical field documentation, and project lifecycle fundamentals in geothermal borehole drilling, fluids, looping, grouting, and fusing. The entry-level curriculum also weaves in conversation and reflection on professionalism, applications and employment, and entrepreneurship.

The Intensive curriculum combines classroom instruction with practical drilling lab exercises to equip students with real-world skills. This cohort's practicum was achieved through visits to the active drill sites of several GDA-member companies, including Skillings & Sons LLC, Phoenix Foundation, and Rototec, as well as participation in a Climate Week event hosted by geothermal partner HEET discussing the evolution of the thermal utility including a focus on workforce development. Classes were held in a complementary room accessible by public transportation at Framingham State University.

***The Drilling Students***

GDA reached out to local job programs, technical and vocational schools, community colleges, labor unions, and our members and partners, and led "teaser" site tours at two active drill sites at Franklin Field (Boston Housing Authority) and in Newton, where prospective students could meet the driller/instructor. Interested candidates were selected through a qualifying process including interviews with GDA and HEET staff.

In total, GDA received 51 expressions of interest, with 16 candidates advancing to the screening phase. Note, this qualification rate reflects GDA's thorough vetting of

candidates (for traits such as being outcome-focused, team-oriented, preferring outdoor work, and willing to travel) to ensure their likelihood of sustaining a role in drilling. The program design also emphasizes these qualities. After interviews, ten students were selected, with seven joining the Intensive after one withdrew due to another job offer and two others opted out at the last minute. The cohort included a recent high school graduate, several mid-career workers looking to transition to the field, a prospective drilling trainer, and an HVAC business owner interested in upskilling to deliver geothermal systems. One student traveled from out of state.

***Field Technician Readiness***

To earn their certificate in Field Technician Readiness, the geothermal drilling students completed classroom instruction on key topics, including subsurface geology, worksite safety, drill technology, wastewater management, and construction & fluids mathematics. Students participated in four supervised field visits (24+ hours) to two active and one completed drill sites, to observe different drilling techniques and worksite conditions firsthand. Mr. Yordy and senior staff of Skillings & Sons walked students through the drilling, loop installation, and grouting processes for a state university. While on site, students also spoke with an alumnus of the GDA training program about his experience, trajectory, and plans for homeownership. Finally, Mr. Yordy and geothermal leaders at Phoenix Foundation reviewed lateral tie-ins, fusing, and teaming inside the Laborers International Union (Laborers). (Note, future Massachusetts drilling intensives will feature local hands-on field work using GDA's own training-dedicated drilling equipment thanks to a Climate Critical Workforce Training, Equipment, and Infrastructure grant from MassCEC awarded in June 2026.)

*After three days in the classroom, students adorn PPE for their drilling lab at an active drill site at Salem State University.*

To enhance understanding of the geothermal industry, students heard presentations from three geothermal industry leaders and drillers, who shared insights into company culture, career paths, and job opportunities. In addition to HEET's Climate Week educational event, the Intensive included a tour of Boston University's Center for Computer and Data Science, one of Massachusetts' most advanced geothermal buildings where 1500-foot boreholes were drilled. GDA also supported students in preparing and submitting job applications to geothermal drilling companies. Successful students received a Certificate of Geothermal Field Technician Readiness, officially marking the end of their training. The Intensive developed "field technicians" capable of safely mastering their project responsibilities, to propel them into future roles as assistant drillers and ultimately lead drillers or business owners.

***Student Placement***

GDA has a vast membership, including 42 US and Canadian geothermal drilling companies, and approached these organizations to explore internships or job placements for graduates of the training program. Some caution by employers due to the novel nature of the training program was replaced by growing interest as companies learned about the program's goals and curriculum, employer/advisory involvement, and recruitment and screening processes. Increased visibility from academic, workforce, and industry partners as well as recent media coverage has also generated interest in our training pipelines.

Eight companies requested applications from our successful students, with many jobs involving travel (a key screening criterion). One student lacked transportation, which was a known barrier before entering the program. As of June, 2026, the graduates are at various stages of employment, including hired, interviewing, and in one case, expanding business service offerings. Members may visit GDA's Member Portal to access available candidates (currently two entry-level Field Technicians) in our Trained Candidates database.

***Summary of Learnings from the 2026 MA Geothermal Drilling Intensive***

- To scale a driller training program, an adequately resourced, industry-recognized training facility with its own appropriately specified training rig, required insurance, and drill site is necessary.
- In the short-term as project numbers increase, a regional mobile drill rig and training platform would allow flexible scaling and deployment at various locations where active projects and related hiring are underway. In addition to Massachusetts, geothermal drilling schools are being explored in Appalachia, New York, Connecticut, Oklahoma, and North Carolina.
- Achieving a standard cohort group of 15-20 students requires significant recruitment (upwards of 100 interested parties) and lead-time to share training opportunities and identify potential trainees.
    - The ground-source geothermal industry must strategically articulate its growth trajectory and the massive opportunity for new career-seekers. As several students shared, "This class should have been bigger."
    - The mix of student perspectives given their varying career stages and personal goals for the training made for more robust and collaborative learning.
    - GDA will explore alternative payment strategies that encourage turnout of candidates that have committed to the course (which is free for many students), such as a small deposit that is returned upon completing the course.
    - Recruitment efforts yielded interest in weekend or evening training, given the financial challenge of stepping away from necessary daytime work. Though limited during this offering, GDA is partnering with sending organizations and a community-based organization to offer wraparound support services including potential wage reimbursement for time spent in a GDA Intensive.
- GDA, HEET, and Climate Jobs MA conducted outreach to local chapters of the International Union of Operating Engineers (IUOE) to explore opportunities for collaboration around geothermal drilling workforce development. While interest and engagement have varied, these conversations have provided an opportunity to better understand union priorities and the questions that remain around the scale and consistency of future geothermal employment.

    - GDA remains committed to continuing this dialogue and exploring pathways to support the upskilling of union members as the geothermal market develops. Outreach with Laborers Union members—including vocational school presentations and drill-site educational exchanges—generated meaningful engagement and enthusiasm among participating students. GDA also brings established relationships with IUOE partners in other states and several union-signatory drilling company members, including representation on GDA's Board, providing a strong foundation for continued collaboration as geothermal opportunities expand.
- The program demonstrated several technical aspects crucial for ensuring safety, rigor and desired outcomes in geothermal drilling, including use of air quality monitors and 4-5 gas meters to ensure environmental safety, geological logging during drilling, use of thermal sensors (DFOS technology) to accurately predict thermal productivity and conductivity, and water impact and mitigation techniques. These elements are not yet standardized in the industry but are essential for achieving precise and effective results, as well as safe, predictable, and successful outcomes for all projects.
- The industry has no universal consensus on an entry-level title. This intensive continued use of 'Field Technician' as a more encouraging alternative to historic terms ‘worm’, ‘helper', and 'tool pusher'.

The 2026 Massachusetts Geothermal Drilling Intensive demonstrated that targeted, industry-led workforce development can successfully address one of the geothermal industry's most pressing challenges: preparing qualified drilling professionals fast enough to meet rapidly growing demand. In just two weeks, participants with little or no drilling experience gained foundational technical knowledge, safety training, exposure to active job sites, and direct connections to employers. The strong employer response—with multiple companies requesting applications from graduates—validated both the curriculum and GDA's rigorous recruitment and screening process.

The Intensive also confirmed that workforce development extends beyond technical instruction. Recruiting candidates who understand the realities of drilling careers, providing mentorship, connecting students with employers, and building professional identity are equally important to long-term success. Lessons learned regarding recruitment timelines, student supports, training infrastructure (equipment), and standardized technical competencies provide a clear roadmap for refining and expanding future offerings.

Perhaps most importantly, the Intensive demonstrated the value of bringing together industry, educators, employers, labor organizations, and public partners to solve

workforce challenges collaboratively. As geothermal deployment accelerates nationwide through thermal energy networks, building electrification, and large-scale institutional projects, the need for trained drilling professionals will only intensify. Without a deliberate investment in workforce capacity, labor shortages risk becoming a significant constraint on project delivery and industry growth.

The Massachusetts Intensive serves as a proven model that can be replicated in regions where geothermal markets are emerging. With dedicated training equipment, regional training centers, and mobile instructional capabilities, GDA is positioned to expand this approach while continuing to refine industry standards, strengthen partnerships, and develop nationally recognized training pathways. Continued support for additional Intensives and regional Centers of Excellence will not simply produce more graduates—it will build the skilled workforce, professional standards, and sustainable talent pipeline needed to ensure the geothermal industry can meet the nation's clean energy and economic development goals.

***Collaborators***

Empowering and developing a new generation of geothermal drilling professionals involves the whole industry. The Intensive achieved meaningful breadth and depth of instruction thanks to the industry champions involved, including:

- Roger Skillings, Jared Mullen, Gabe Chase, and Corey Dickerson of Skillings & Sons LLC, as well as Tyler Dickson and Matt McCann of United Civil Construction, welcoming the Intensive class on multiple occasions.
- Steve Hinterneder and Michael Fleming of Phoenix Foundation Company welcoming the Intensive class on "Construction Safety Day."
- Robert Meyer, The Redicool Company and GDA co-founder, emphasizing the difference between "working in the business or on the business"
- Soren Soe, Coil-Rig and GDA Board member, discussing industry nuances and job opportunities
- Donovan Gordon, Director Emeritus at the New York State Energy Research & Development Authority and GDA Board member, hosting a question and answer on the future of geothermal and thermal energy networks
- Angie Alberto Escobar of HEET coordinating a drilling site visit at the Boston Housing Authority, supporting screening interviews, and networking
- The GDA Team also collaborated with professionals at IGSHPA, in the Geothermal Market Capacity Coalition, and throughout the drilling industry to create and champion the pilot's vision from recruitment through to graduation.