Geothermal Technologies Office

Quarterly Stakeholder Script (December 19, 2024)

Slide 1: Sign-on period

Lauren: Welcome

Slide 1: Hello everybody and welcome to the GTO Quarterly Webinar! I'm GTO's director, Lauren Boyd.

On behalf of the entire team, I'd like to thank you for joining us today. We enjoy our quarterly webinars so much, and they are an important opportunity for us to share updates about GTO research, news at the Department of Energy, information about funding, and news in geothermal energy—including exciting things many of you are doing, too. We know how busy everyone is, especially as we come up on the holidays and end of the year. Thank you for taking the time to be here.

Also, I just wanted to note that we don't record our quarterly webinars, but we will distribute the slides, including all links, and a transcript with the information we cover.

Lauren: Agenda

Slide 2: Here is our agenda for today. We'll start with updates from the Department of Energy and its Office of Energy Efficiency and Renewable Energy, which is where GTO sits within DOE. Then I'll go over some GTO updates including a number of terrific recent events GTO has joined, then some news articles about GTO and geothermal overall. Then our program managers will join us for project and funding updates.

We'll finish off with a question-and-answer session. You can enter any questions you have throughout the webinar using the Q&A tab on your screen.

Lauren: DOE/EERE Title Slide

Slide 3: Okay, let's get into it with our updates from the Department of Energy and EERE.

Lauren: New DOE Website

Slide 4: First, a very cool update from DOE: The Department of Energy logo and website have gotten a facelift!

What you are looking at here is the new home page for Energy.gov, DOE's main website. In the top left corner is the new DOE logo, and the site itself is newly organized. Going to the home page is a good way to learn more about DOE's mission and its cutting-edge research in many areas—including some you might not know about, like supercomputing, space exploration, and biotechnology. Elisabet is going to share a little more about this home page and GTO's updated site in a few minutes, but I encourage you to check out the new energy.gov when you have a chance!

Lauren: DOE/EERE Updates

Slide 5: First, I'm happy to share that EERE has welcomed a new Deputy Assistant Secretary for Renewable Energy, Dr. Sydney Lienemann. Dr. Lienemann comes to us with more than a decade of experience in renewable energy and environmental policy, including work leading Arctic energy diplomacy at the U.S. Department of State. She was most recently the Deputy Cabinet Secretary at the New Mexico Environment Department, where she oversaw programs focused on air and water quality, waste management, national lab oversight, and climate change. We're pleased to have Dr. Lienemann on board and grateful to Becca Jones-Albertus for nearly two years of leadership acting in the role.

Next, I wanted to note that EERE just released its 2024 investment snapshot, which details successes in delivering energy innovations to communities, companies, and industries across the country. The snapshot includes multiple project updates, including for geothermal, to highlight how EERE's investments in applied R&D and technical assistance are driving innovation, technological breakthroughs, jobs, and more energy choices for communities.

EERE also recently opened applications for a Partnership Intermediary Agreement that complements the Connected Communities 2.0 funding opportunity from July. Connected Communities aims to validate innovative technology, such as thermal energy networks, at the grid edge—where electricity distribution transitions between utilities and end users—to help ensure the grid is ready for load growth. The new opportunity will support that goal by accelerating collection, analysis, and reporting of performance data, especially from electric and gas distribution systems working with utilities. Applications are due January 9 and you can get more information via the link on the slide.

Last week, DOE and EERE announced leaders from 38 entities that will join one of three Clean Energy to Communities, or C2C peerlearning cohorts. These selected participants include county and local governments, Tribes, community-based organizations, and utilities across 23 states and Tribal entities. These new cohorts will start convening monthly in 2025 to share strategies and best practices, learn from national laboratory experts, and discuss policy and program proposals relating to local energy choices.

Next, the 2025 EnergyTech University Prize, or EnergyTech UP! is now open for submissions. Led by DOE's Office of Technology Transitions, the competition offers more than \$500,000 in funding, including a bonus prize sponsored by GTO. Participants can compete in either the student track or faculty track. Students develop and present a business plan for emerging energy technologies, while faculty work on educational activities to engage more students in energy technology commercialization and entrepreneurship topics. There's a recording of the informational webinar available via the link on the slide, and submissions are due January 13.

And, finally, DOE's Office of Science has released the Small Business Innovation Research (SBIR) Fiscal Year 2025 Phase I Release 2 topics. They include GTO topics related to geothermal heating and cooling as well as enhanced geothermal systems data utilization. You can read more about the topics and get updated about when the full funding opportunity will release on the SBIR website.

Lauren: Signing Up for DOE/EERE Updates

Slide 6: The DOE and EERE updates I just covered are only a sampling—to get more, you can sign up for regular DOE updates in the middle of the energy.gov home page, and for EERE's Weekly Jolt through the link on this slide when you receive it. Another good way to stay updated is to follow DOE and EERE channels on social media using the info here.

Individual technology offices like GTO don't have separate social media, so you'll get our updates that way, too. And use GTO's hashtag when you post your news—#GeothermalEverywhere—so that we can stay connected.

Lauren: GTO Updates Title Slide

Slide 7: Ok, let's move on to updates from GTO!

Lauren: GTO and Geothermal News

Slide 8: First, a quick rundown of recent news for GTO and geothermal energy. Here are just a handful of the many geothermal stories media have featured since our last quarterly webinar. Nature Magazine did a feature on next-generation geothermal energy, and we were excited to see updates about EGS in the Journal of Petroleum Technology, which is the flagship magazine of the Society of Petroleum Engineers. We also saw features recently about our EGS pilot demonstration at Oregon's Newberry Volcano, and a GTO-funded project at Sandia, where the team analyzed drilling records from Utah FORGE to understand the performance of polycrystalline diamond compact bits. We're really glad to see media interest in these crucial projects. We've also included a link to Bloomberg Odd Lot's podcast episode discussing geothermal financing, which they recorded at DOE's Deploy24 in early December.

Again, these are just a few of the news stories we've captured lately. We always feature several in our monthly Drill Down newsletter, so you can subscribe to get the latest.

We also wanted to take a moment to mention two new geothermal studies. The first is an issue brief from the World Resource Institute on next-generation geothermal. The brief looks at EGS, closed-loop, and superhot—including current industry developments, environmental impacts, and policy options. Though it's called a "brief," it's a relatively detailed report that adds to the body of knowledge on how to advance next-generation technologies.

The second item is the International Energy Agency's report on the future of geothermal energy. The report is a global look at geothermal across the technology and resource spectrum, and offers a comprehensive look at how innovation can drive a truly

worldwide expansion of geothermal energy. Both reports are linked on this slide and are available free of charge, so please check them out if you're interested.

Lauren: GTO Events

Slide 9: Now for recent events. This slide features some of the events GTO has attended just since our last webinar in September. I won't go through all of these, but, as you can see, it's continued to be busy. One event that I will mention is the annual Geothermal Rising Conference. It was a full schedule throughout the conference, with many GTO staff and project leads presenting in technical sessions, plus special events like the Indigenous Geothermal Symposium. And thanks to the many of you who stopped by the GTO booth to ask questions, learn about our R&D, or grab one of our amazing punny geothermal stickers! We look forward to seeing you again next year, when the conference returns to Reno.

GTO staff have also participated in numerous webinars and conference panels in recent months, including events with the National Academies, NARUC, NY-GEO, MIT, Infocast Mountain West, and a joint event of the Geological Societies of America and Africa.

And earlier this month, several of our team members attended and presented at DOE's second Demonstrate Deploy Decarbonize 2024 gathering—known as Deploy24—in Washington. The event included a keynote on the Next-Generation Geothermal Power Liftoff Report and two Deploy Dialogues about geothermal—one for power and one for heating and cooling. The Deploy events provide a unique opportunity to convene public and private stakeholders to discuss accelerating the deployment of critical energy technologies and supply chains in the United States, and we enjoyed being part of the event.

Now we're in the typical holiday and mid-winter slowdown in events, but already gearing for 2025 events. We'll share more about what's coming in our early 2025 *Drill Down* newsletters and next quarterly webinar, but one event I do want to mention is the 50th anniversary of the Stanford Geothermal Workshop. This long-standing event is a pillar in the geothermal R&D community, and the 2025 event will feature topics on EGS, reservoir engineering, exploration, drilling, and more. We congratulate the Stanford team on this milestone conference and look forward to celebrating with you.

Lauren: Transition to Elisabet

Slide 10: Now I'll turn things over to Elisabet Metcalfe to tell us about some new resources and activities we're working on to get the word out about geothermal energy.

Elisabet: GHP Case Studies

Slide 11: Thanks, Lauren. I'd like to start with an update on our collection of geothermal heat pump case studies. If you were here for our September webinar, we previewed these studies and they are now available on GTO's website.

We know many organizations and communities are interested in GHPs and want to know more about how and where systems are used. To help address this, we partnered with NREL to write 19 case studies featuring a range of systems, from entire neighborhoods to single buildings and in locations around the country. The photo here is from one of these studies, highlighting the GHP system at The Century Center in Bismarck, North Dakota. For more than 20 years, that system has been heating and cooling more than 112,000 square feet in a building that houses multiple state agencies—and a climate that can reach winter temperatures of 40 below zero! The case study discusses why the Center chose GHPs, funding and the payback period, and benefits from the system.

This is a good example of what all 19 studies provide—reasons system owners chose GHPs, what the installation processes were like, technical specifications, and more. The case studies are available on our website as both web pages and downloadable PDFs, and they include contact information if you want to know more about any particular system. We hope you'll take a look and learn more about GHP technology and the many innovative ways it can be used.

Elisabet: Success Stories

Slide 12: Next, I want to focus on GTO's success stories. Our success stories discuss recent achievements in GTO-funded projects helping to illustrate the impact of our R&D funding and celebrate the dedicated work of our research partners. Earlier in 2024, we developed a plan to publish these stories monthly. Our most recent stories feature a societal impact award for Lawrence Berkeley National Lab research on lithium in the Salton Sea region, the GTO-NSF Intern program, and the Geothermal Data Repository. Our program managers will talk a little more about these specific stories shortly, and this full 2024 list with links will be included with the slides we distribute.

We hope you'll read these interesting stories and sign up for our email updates so you can receive our future success story releases. You can find them on the About GTO or Geothermal Everywhere pages on our website. And if you're working on a GTO-funded project, we encourage you to read through these to get a feel for them, and talk to your GTO project officer if you think your project has a recent success we should consider for a story.

Elisabet: New GTO Home Page

Slide 13: As Lauren mentioned, DOE has recently updated its branding and website, so I'm going to dive into that a little more. First, I want to note that if you search geothermal from the energy.gov home page Lauren shared a few minutes ago, the resulting page is a DOE page about geothermal energy broadly—it does include links to GTO's site, but it is not a direct route to our home page. The best way to find GTO directly is to just type **geothermal.energy.gov** into your web browser—if that doesn't work or you forget it, Googling "Geothermal Technologies Office" will get you directly to our home page link.

This slide is what you'll see when you open GTO's home page on a laptop or desktop. The mobile view is similar, except that the top portion is the DOE logo and not a menu bar. One thing I wanted to be sure to call attention to is that the menu on our home page (at the top of the desktop view or the top left on mobile) is for the main DOE pages; it won't help you navigate GTO's site.

Elisabet: New GTO Home Page

Slide 14: To help ensure you know how to get around the new GTO site, I'm going to briefly walk you through our home page. If you scroll down from the main photo and menu, the first thing you'll see is our mission—GTO's role within DOE—and links to some of our primary pages, including more about the office, links to our news and initiatives, and our funding page. Below that is a content block about the benefits of geothermal energy and then links to our most recent highlights, like this webinar and the release of our GHP PATHs prize, which you'll hear more about later.

As you scroll further on the home page, you'll get to our Geothermal Basics links, including pages for geothermal energy basics, electricity generation, GHPs and related incentives and technical assistance, our FAQs, and geothermal heating and cooling. These pages are a good place to start if you are new to geothermal energy, and there are lots of links within them to get you to other places on our website. After the Geothermal Basics link is our program areas section. You'll find links here for our four R&D program area pages, plus applicable reports, projects, and resources. Last but not least, you can subscribe to the Drill Down. At the bottom of the page are links to opportunities for students and communities, as well as multiple resources including GTO presentations, reports, and FAQs.

This is just a quick snapshot of the new home page to help you navigate it. We hope you'll go in and check out the updated site in more detail.

Elisabet: GCC Deadline

Slide 15: Shifting gears from web content now and turning to the Geothermal Collegiate Competition, which invites teams of college students to participate in one of two tracks—technical or policy—to design or analyze a proposed geothermal system for a community of their choice. It's a great way for students to gain real-world experience—and some extra spending money. Submissions for the fall 2024 competition are due tomorrow, so if you or someone you know is competing this year, be sure to get those entries in by the deadline. We look forward to reading the project submissions and announcing the winners in early 2025!

Elisabet: Geothermal Cultural Exchange

Slide 16: This week, NREL launched the GTO-funded 2025 Indigenous Geothermal Cultural Exchange. The exchange program aims to connect Native Hawaiians with the Māori people of New Zealand, who have demonstrated leadership in successfully developing geothermal projects benefitting native peoples. Indigenous knowledge is vital to inform geothermal development, and we want this exchange to recognize and elevate this knowledge early in the geothermal development process, and to uplift indigenous leadership in energy development. The project will accomplish this by creating and delivering a virtual learning program on topics like land rights and ownership, cultural perspectives on geothermal, and timelines, technology, and permitting, followed by a second phase directly between project participants and the Māori people.

Applications are now open through January 17 for Native Hawai'ians to be considered for the exchange.

Elisabet: GeoBridge

Slide 17: For my final update, I wanted to highlight the newly launched GeoBridge portal on OpenEI. Supported by GTO and developed by NREL, the portal offers a centralized repository for geothermal information, covering everything from home geothermal heat pump (GHP) installation to careers in geothermal, educational tools, and cost savings opportunities for businesses. Our goals for GeoBridge include expanding and diversifying the pool of geothermal stakeholders by making information accessible to everyone from entrepreneurs and industry to young professionals, students, teachers, and policy makers. The portal can also bolster the geothermal community by facilitating easy access to knowledge and information. I encourage everyone to check out the site and see the depth of resources available. You can also watch the recording of the informational webinar NREL hosted on GeoBridge.

Elisabet: Transition to Alex

Slide 18: Okay, now I'll turn things over to Alex Prisjatschew, our acting program manager in data, modeling, and analysis.

Alex: Geothermal Data Repository Success Story

Slide 19: Thanks, Elisabet. I'll actually start by tagging onto one of the topics you covered, which is the GTO success stories. Our November success story highlighted an important initiative for the DMA team, which is the Geothermal Data Repository. The GDR provides free, universal access to all relevant data generated from GTO-funded projects and fills an important need for more and better quality data about geothermal. Our success story discusses the overall features and benefits of GDR, including how it accommodates huge datasets without the need for high-performance computing—but particularly hones in on the system's new "AskGDR" feature, a virtual research assistant that allows users to ask questions and be guided to datasets beyond simple keyword searches. You can learn more in the success story and by checking out GDR. The link for the success story will be here on the slides you receive, or, as Elisabet mentioned, you can find all GTO success stories on the About GTO or Geothermal Everywhere pages on our website.

Alex: GTO GRID Funding Opportunity Update

Slide 20: Next, a quick update on DMA's first funding opportunity announcement back in June, called GTO GRID, short for Geothermal Resources' Value in Implementing Decarbonization. As a renewable resource with that can generate firm, flexible power nearly around the clock and with a minimal land use footprint, geothermal offers unique value to the grid—but that value isn't well understood or quantified. Funding under GTO GRID will support regional modeling to quantify these potential contributions. We're currently in the merit review process of these applications and looking forward to announcing selections early next year.

Alex: NOFO and Exchange Notes

Slide 21: Also, while we're on the topic of DOE and GTO funding opportunities, two quick side notes.

First, many of you know our competitive solicitations as Funding Opportunity Announcements, or FOAs. Back in October, the White House Office of Management and Budget replaced DOE FOAs with Notices of Funding Opportunity, or NOFOs, as the vehicle for competitive solicitations. This change doesn't change past announcements and FOAs issued before the change, but we did want to make note of the update. We also covered this in our November Drill Down and that's on our website if you want to read further.

Also, if you've previously used EERE Exchange to apply to funding opportunities or be a reviewer, note that the Exchange site is implementing new Enhanced Identity Proofing login button as of January 1, 2025. You can get more info and a log in guide on Exchange, which is linked here.

Alex: Transition to Alexis

Slide 22: Now I'll turn the virtual mike over to Alexis McKittrick for updates from our low-temperature and hydrothermal resources programs. Before I do so, though, I'd like to mention that—before our next quarterly webinar—Sean Porse will be returning to DMA

and I'll be shifting back to the hydrothermal resources team and critical materials work. We're looking forward to having him back in GTO, and I've really enjoyed leading the DMA team and learning more about their work these last few months.

Okay, Alexis, over to you.

Alexis: Community Geothermal

Slide 23: Thanks, Alex. Also, just a reminder to everyone attending that you can submit questions into the Q&A box anytime.

I'll start with our community geothermal initiative, where we just announced five projects to proceed to a second phase and install their geothermal heating and cooling systems. The projects were downselected from 11 projects funded in the first phase of the initiative, where community coalitions completed several steps to design their systems, such as assessing the geothermal resource, conducting feasibility analysis and local engagement, and identifying workforce and training needs.

The five projects include three urban or suburban communities and two rural communities that are going to install different system sizes, technologies, and innovative configurations. The projects will be installed in:

- Chicago's West Woodlawn Community
- Ann Arbor's Bryant Community
- Framingham, MA
- Hinesburg, VT
- Shawnee, OK

We look forward to seeing this diverse set of installations benefit these communities, while also helping others see how they can also implement community- and district-scale geothermal.

Alexis: GHP PATHs Prize

Slide 24: Next, I'm excited to highlight the new Partnerships to Accelerate Training & Hiring for Geothermal Heat Pumps prize, or GHP PATHs. This \$3 million prize will kickstart regional partnerships aimed at building a stronger workforce for geothermal heat pumps, which is necessary to help expand the use of these systems nationwide.

Our goal with GHP PATHs is to streamline workforce entry and growth by fostering connections and collaborations that help address a few key challenges, including:

- Complexity of the certification process
- Certification costs for installers
- Limited training opportunities
- The need for more coordinated industry collaboration

Alexis: GHP PATHs Prize

Slide 25: This slide illustrates the phases of the prize and the cash awards possible at each stage. As you can see, GHP PATHs is divided into three phases.

The first phase is **Connect**, where competitors will submit proposals with visions for building a sustainable reginal workforce pipeline. Up to 20 teams will receive \$40,000 each for these ideas and proceed to Phase 2...called **Engage**, where competitors will formalize partnerships and flesh out a comprehensive workforce development program. In this phase, up to eight teams will receive \$150,000 each to refine their plans and move on to the final phase, which is called **Execute**. In this final phase, competitors will implement their workforce development programs and show impact by reporting on the number of workers hired and trained, as well as the long-term impact on industry. Winning teams will share the remaining prize pool, receiving \$100,000 to \$400,000 each.

Competitors can be U.S.-based individuals or teams representing one or multiple organizations, students, university faculty members, employers, researchers, or anyone with the desire and drive to transform ideas for the workforce into impactful solutions. The prize is part of the American-Made Network and being hosted on the HeroX website—there's a link here or in the highlight on GTO's home page where you can get more information and register.

Alexis: Geothermal Heating and Cooling Liftoff Report

Slide 26: Next, I'm pleased to share that DOE's Geothermal Heating and Cooling Liftoff Report is nearing completion and expected to publish early in the new year. The DOE Liftoff Reports take a promising technology or suite of technologies and detail the current state, pathways to commercial liftoff, and challenges and solutions to unlock those technologies at scale.

GTO has been working with DOE's Loan Programs Office, Office of Clean Energy Demonstrations, and Office of Technology Transitions on the next installment, which will look at the potential for geothermal heating and cooling commercial liftoff and the pathways to achieve it. The report will assess information about costs, incentives, obstacles and barriers for the industry, views from various market stakeholders, deployment trajectory, and ways the federal government can help. It will also lay out how to achieve our 2019 *GeoVision* goal of an equivalent of at least 28 million households equipped with GHPs by 2050. For a comparative sense of the market today, there are around 2 million GHPs in the United States, growing at a little over 5% per year—so getting to 28 million or more is a big deal. We previewed the report at Deploy24 and, as I mentioned, publication is intended early in the calendar year, so sign up for the Drill Down and our email updates to make sure you get notice as soon as it's available.

Alexis: Transition to Hydrothermal Resources

Slide 27: Okay, changing "hats" now to our hydrothermal resources program, which focuses on conventional geothermal resources, as well as mineral extraction from geothermal brines.

Alexis: Partnerships for Regional Geothermal Data Collection

Slide 28: First, I'll note that – as previewed in the last quarterly webinar - we'll be releasing funding in early 2025 for geothermal field data collection and dissemination, including geophysics and exploratory drilling. We expect to make approximately 4–6 awards totaling about \$19 million to support partnerships to advance regional geothermal resource assessment and exploration and improve collaboration. We expect to support a few key categories of activities, including regional data acquisition and analysis, resource characterization, and data dissemination, including improvements for access to both new and existing datasets. Applicants will also be encouraged to strengthen technical expertise by advancing educational and training programs at universities, trade

schools, and labor organizations. Our goal is to help reduce barriers to locating, characterizing, and accessing geothermal systems, and to help Tribal authorities and other entities develop a pipeline of energy projects.

This funding will come in the form of a Partnership Intermediary Agreement, or PIA, using a partner intermediary called ConnectWerx to help increase cooperative and joint activities between DOE and organizations or entities that might not have as much experience managing DOE projects, such as small business firms, institutes of higher education, non-traditional performers, and innovators. For anyone who has mainly engaged with FOAs / NOFO funding opportunities, I want to highlight that the PIA is a different mechanism, and you can learn more by visiting the website shown on this slide. You can also join the ConnectWerx network and the PIA teaming list from the page.

Alexis: Partnerships for Regional Geothermal Data Collection

Slide 29: Exact details on funding amounts, activities, eligibility, and partnership structures won't be available until the PIA releases, but this slide includes example organizations and entities that will be eligible for this opportunity.

If you previously submitted interest in receiving updates and potentially partnering for this opportunity, we've recorded that information and will be in touch soon. If you haven't done so, don't worry – just sign up for our newsletter or eblasts to be notified as soon as it opens. Interested participants can also go to the website and sign up for the Teaming Partner List for the opportunity.

Alexis: LBNL award

Slide 30: I'll close with a highlight from another recent GTO success story, featuring the Lawrence Berkeley National Lab team responsible for the analysis and report on lithium in the Salton Sea region. Lab leadership recognized the team recently with the 2024 Director's Award for Societal Impact. This annual award acknowledges outstanding research that furthers solutions to large social problems or pressing societal questions—in this case, how the United States can find and access domestic sources of lithium. In addition to the tremendous work the LBNL team did to characterize and quantify the lithium resource in the Salton Sea region, they also integrated community considerations. It's a well-deserved honor and I hope you'll read the success story to learn more about this ground-breaking effort.

Alexis: Transition to Kevin

Slide 31: Now I'll hand the virtual mike to Kevin Jones, our enhanced geothermal systems program manager.

Kevin: FORGE Update

Slide 32: Thank you, Alexis. It's great to be here for our final quarterly webinar of the year. Thanks to everyone for joining. And just another reminder to all the attendees – you can add questions in the Q&A box anytime. If you have a question you'd like to get answered, the please go ahead and add it to the Q&A now.

I'll lead off with Utah FORGE, our Frontier Observatory for Research in Geothermal Energy. The FORGE team is currently assessing data and results from its successful 30-day flow test, and that work will feed into plans and activities for 2025 and beyond. And those data and an initial report on the FORGE 30 day flow test and data available for download from the GDR. In the meantime, they've also been busy hosting guests to the site. This includes DOE's Undersecretary of Infrastructure, David Crane, Deputy Under Secretary for Commercialization and Finance, Leslie Biddle, and Principal Deputy Assistant Secretary in EERE, Jeff Marootian, as well as dignitaries from the Bureau of Indian Affairs and members of the Paiute (*PY-yoot*) Nation. The FORGE team also presented an overview on Utah FORGE to members of the Icelandic Embassy and continued their efforts to support education and the next generation of geothermal innovators through collaborations at the University of Utah as well as Beaver County Schools.

The FORGE team also hosted a <u>webinar</u> led by Dr. Stuart Simmons from the Energy & Geoscience Institute at the University of Utah, which manages FORGE. The webinar looks at different types of surface thermal expressions, their connection to shallow hydrology and deep hydrothermal fluid flow, and their impact and evolution over time. These types of technical engagement activities help expand knowledge and understanding about geothermal energy and are an important extension of FORGE's technical work.

Of course, the FORGE team had several technical successes in 2024, including hydraulic stimulations, the successful creation and flow testing of an enhanced geothermal system, and the collection of extensive amounts of data that are essential to advancing EGS.

These efforts are reducing risk and advancing EGS technology even faster than predicted, and we're looking forward to seeing what they will accomplish in 2025.

Also, a reminder that you can virtually visit FORGE through their new virtual tour feature, which is a great way to learn about the site and "see" how it is configured.

Kevin: GEODE Update

Slide 33: Jumping over to our GEODE initiative now, which is jointly funded out of the EGS and Hydrothermal programs and is looking at ways to leverage knowledge from oil and gas to help advance geothermal. The GEODE effort is well underway, with a number of working groups roadmapping the key facets, or key research areas of the initiative—identifying pain points, research needs, and collecting recommendations that will feed into an R&D plan for the next several years.

The GEODE consortium also issued a Geothermal Capability Mapping and Analysis Request for Information, or RFI, to better understand the relevant geothermal and oil & gas capabilities of national laboratories and universities. The GEODE team will merge information collected from this RFI into a searchable online database that will be available later in 2025. They're looking for data like researcher expertise, experience, past work, available facilities and capabilities, and emerging interests. The goal is to help better align existing capabilities to what's needed to expand the use of geothermal.

More information about the RFI and links for both labs and universities to submit responses to the RFI, are available through the Society of Petroleum Engineer's Journal of Petroleum Technology, with a direct link here that will be in the final slides we share with the public after this webinar.

Kevin: INTERN Success Story

Slide 34: And highlighting one more recent GTO success story, in this case for the Geothermal INTERN program, which is a collaboration between GTO and the National Science Foundation. The success story highlights six students from the program's second cohort, which includes 24 students from U.S. universities, including 14 public universities and three private institutions. The

story features interviews with the students, digging into what attracted them to geothermal energy and what they hope to get from the program. Hopefully you'll check it out and learn more about this next generation of geothermal leaders.

Also, a reminder that the Geothermal INTERN program is open as a rolling opportunity. If you or someone you know might be interested, there are links for details and information about how to apply that are included in that story.

Kevin: BIL Selections

Slide 35: To close out, I'll note that we're reviewing applications in the second round of our BIL EGS demonstrations funding opportunity, for an EGS site in the eastern United States and we expect to announce selections in early 2025.

Kevin: Resources

Slide 36: Now we'll go back to Lauren for Q&A. While you enter your questions in the Q&A box, I'll share one final plug for GTO's website and resources, including technical publications, analysis tools, and more. Elisabet shared how to get to many of these resources, starting with our home page at the link or using the QR code here.

Okay, back to you, Lauren.

Lauren: Q&A

Slide 37: Thanks, Kevin, and thanks to everyone for sharing the latest from your programs. Now we'll turn to questions.

Lauren: Close

Slide 38: Ok, we are out of time today. We'll distribute links to today's slides and transcript soon. If you have any follow-up questions, or if we didn't get to your question live, please email <u>doe.geothermal@ee.doe.gov</u>. Also, if you are interested in being a merit reviewer for GTO projects, please send your resume or CV to that same email address.

I want to thank you all for joining today, and for work that so many of you did in 2024 to advance geothermal energy. It's been a thrilling year for geothermal energy, and we look forward to all the amazing things to come in 2025. In the meantime, on behalf of all of GTO, I wish everyone a safe and peaceful holiday season and a Happy New Year!