

FY23 Q3 Quarterly Stakeholder Script (August 3, 2023)

1:31–1:32	Welcome	Jessica	<p>Slide 1: Good afternoon, everyone—or good morning or evening, depending on where you are! I’m Jessica Quintanar, and I’ll be your host and moderator today.</p> <p>I am a geoscientist and project monitor supporting the Geothermal Technologies Office from DOE’s Golden Field Office in Colorado. I moved into the geothermal space a year ago with the goal of leveraging my geology and oil and gas industry experience to further our country’s clean energy goals, and have been very grateful for the opportunity to not only learn more about geothermal but also take part in sharing that knowledge with the greater public. I’m really excited to be a part of GTO’s continuing efforts for a better energy future and am looking forward to interacting with all of you today during the quarterly webinar.</p> <p>On behalf of the entire GTO team, I’d like to thank you for joining us. We look forward to these webinars and the opportunity to share all the great things happening around GTO and in geothermal energy.</p>
1:32–1:33	Agenda Overview	Jessica	<p>Slide 2: Here is our agenda for today. We’ll start off with news and updates from the Department of Energy and the Office of Energy Efficiency and Renewable Energy, and then move on to GTO news and updates. We’ll get program and project updates from our GTO program managers and then turn the virtual microphone over to our guest, Paul Schwering from Sandia National Laboratories. We’ll finish off with a question-and-answer session, so be sure to enter questions any time in the Q&A tab of Zoom.</p> <p>We have a lot of updates to share, so let’s jump right in!</p>

DOE/EERE News Updates

Jessica

Slide 3: First, some highlights from the Department of Energy, DOE, and the Office of Energy Efficiency and Renewable Energy, or EERE, of which GTO is part.

First, DOE recently announced \$72 million for small businesses to work on scientific, clean energy, and climate projects under the Small Business Innovation Research and Small Business Technology Transfer Awards. The funding will support almost 300 projects across 44 states on topics like renewable energy, cybersecurity, and advanced materials. There are four geothermal-related selections, with projects focused on monitoring subsurface temperatures, flow rate, and seismicity.

DOE also just released the 2023 U.S. Energy and Employment Report, which tracks employment trends across the energy sector. This year’s report shows that the clean energy workforce continues to grow—adding 114,000 jobs and increasing in every state in 2022. While clean energy jobs grew by 3.9% overall, geothermal workforce growth was above the average—growing 5.0% in 2022. It’s so exciting to see clean energy—and geothermal—continue to have a starring role not only in protecting the planet, but in expanding jobs nationwide.

Through its new public access plan, DOE is taking steps to ensure that research funded by the Department is more open and accessible to the public, researchers, and journalists. When this plan goes into effect, findings from DOE research papers will be available immediately, at no cost. The plan also ensures immediate access to published scientific data as well as expanded access even to scientific data that’s not in publications. Although separate from this new DOE plan, we’ll be talking today about the Geothermal Data Repository—where GTO-funded projects share their data—and several GTO projects that are supporting more and better data availability. The more we share as a community, the better our shared outcomes!

DOE’s Office of State and Community Energy Programs has just announced two programs to help states and communities support the clean energy transition. In the first, the State-Based Home Energy Efficiency Contractor Training Grants Program, states will receive \$150 million to develop and implement workforce training for residential efficiency and electrification. In the second, the office has opened applications for the \$25 million Enhancement & Innovation competitive grant program, which aims to accelerate the clean energy transition through demonstrations. The program will select grant projects to support low-income households in a variety of ways, including weatherization, use of clean energy, and better health and safety measures. The program will also encourage weatherization providers to hire, train, and retain employees with good-paying jobs.

Nine states and three tribal nations will be the third cohort to receive a total of almost \$208 million in the grid resilience grants from DOE’s Grid Deployment Office. Supported by the Bipartisan Infrastructure Law, these grants will help modernize the electric grid to reduce impacts of climate-driven extreme weather and natural disasters, while also ensuring power sector reliability.

			<p>And, last but not least, the Industrial Efficiency and Decarbonization Office just selected nine organizations—eight regional and one national—that will establish a network of Technical Assistance Partnerships, or TAPs. Under the TAPs, industrial facilities and other large energy users can receive technical assistance to increase use of onsite energy technologies, including geothermal. The organizations will receive up to \$23 million in federal funding for multi-year technical assistance activities, including initial site screenings, onsite energy assessments, and analysis.</p>
1:38	DOE/EERE News Updates	Jessica	<p>Slide 4: Whew! As you can see, there is a <i>lot</i> going on, and those highlights are just the tip of the iceberg. To stay informed about all the news and funding opportunities coming out of DOE and EERE, we encourage you to sign up for EERE’s Weekly Jolt and follow Secretary Granholm, DOE, and EERE on social media using the information shown here. And use GTO’s hashtag, Geothermal Everywhere, when you post your news so that we can all stay connected!</p>
1:39–1:40	GeothermalEverywhere	Jessica	<p>Slide 5: As you can see on this slide, there is a flurry of geothermal-related activity within DOE! One big highlight for GTO was our Enhanced Geothermal Shot Summit back in May. The Summit featured presentations and panels discussing DOE’s Enhanced Geothermal Shot goal to reduce enhanced geothermal system costs by 90% by 2035 and why it’s important to DOE’s mission. So many wonderful speakers joined us: our Acting Director Lauren Boyd and EGS program manager Kevin Jones, DOE Chief of Staff Christopher Davis, Assistant to the President and National Climate Advisor Ali Zaidi, Colorado Governor Jared Polis, and New Mexico Senator Martin Heinrich were among the many who provided remarks and helped us host a successful event. We’re grateful to all who attended and we encourage you to view the recording!</p> <p>In addition, our Frontier Observatory for Research in Geothermal Energy, or FORGE site, welcomed EERE’s Acting Assistant Secretary Alejandro Moreno and other guests for a visit, and DOE Deputy Secretary David Turk spoke at the Western Governors Association annual meeting, where the association also released their Heat Beneath our Feet Report about geothermal potential in the U.S. West.</p> <p>And GTO staff have been out highlighting geothermal and our research at numerous events, including Fervo’s Energy Technology Day, multiple events focused on geothermal heat pumps and district energy, the ARPA-e Summer Scholars program, and an energy storage workshop that just ended today. Geothermal continues to be a hot topic at DOE and we’re excited that so many people are joining the geothermal conversation!</p>
1:41	Geothermal in the News	Jessica	<p>Slide 6: Adding to all the DOE and GTO activities is a continued wave of media interest in geothermal. The articles listed here are just a handful of recent pieces, including several that feature our GTO team! We are seeing news about geothermal almost every day, from heat pumps to electricity generation. We regularly feature news stories in GTO’s monthly Drill Down newsletter, so sign up to catch the latest coverage.</p>

1:41-1:42	Outreach Updates	Jessica	<p>Slide 7: As we've discussed on previous quarterly webinars, GTO recognizes the critical importance of increasing the range and availability of materials to help stakeholders learn about geothermal energy. Our communications and stakeholder engagement team is always hard at work to improve access to geothermal info, and we wanted to highlight a few recent updates—especially ongoing revisions to our website. We've recently updated our publications page to make it easier to find and access GTO reports, and we've created new pages focused on geothermal heat pump information for consumers and permitting for geothermal projects.</p> <p>And these are just a few of the updates we've made, with more to come! We hope you'll visit our website at the URL or using the QR code here to check out the latest resources and info.</p>
1:42-1:44	Events	Jessica	<p>Slide 8: Okay, so now on to some upcoming GTO events.</p> <p>First, our acting director Lauren Boyd will be featured later this month in the Geothermal Rising Webcast. She'll be highlighting how GTO is working across the geothermal technology spectrum, the office's recent successes and initiatives, and how GTO's work supports our goal for geothermal everywhere. Registration should open soon, so please watch the Drill Down and check the Geothermal Rising website for updates.</p> <p>Next, we are very excited to announce that GTO is a diamond sponsor for this year's Geothermal Rising Conference, scheduled for October 1-4 at the Peppermill Resort Spa Casino in Reno, Nevada. GTO will have a booth, lots of giveaways and information, and other exciting activities related to our sponsorship. We are looking forward to seeing many of you there!</p> <p>Also in October, our low-temperature and coproduced resources program manager Alexis McKittrick will be the presenter at one of IGSHA's town halls. Alexis will discuss ways to navigate DOE, with a particular focus on where the geothermal heat pump industry can find information and funding opportunities. Registration is open and we hope you'll attend and learn more about DOE and GTO's work in GHPs.</p> <p>Finally, the Society of Petroleum Engineers and Geothermal Rising are co-hosting a two-day workshop focused on synergies and lessons learned between the oil and gas and geothermal industries. GTO staff will participate in the event, which features technical presentations, case studies, Q&A, and discussion. More info is available at the link included here, which will be in the slides distributed after the webinar.</p>
1:44	Staff Updates	Jessica	<p>Slide 9: Before we turn to program updates and our spotlight, we just wanted to say hello and welcome to new GTO staff and contractors—Meisha on the federal side, and Jason, Pamela, Ian, Rick, and Angie as contractors. We're pleased to have all of you on board to help us work to expand geothermal energy!</p>
1:45		Jessica	<p>Slide 10: Okay, now we'll shift gears to find out what our GTO programs are up to. I'll start by turning things over to one of our enhanced geothermal systems technical project officers, Jon Payne, who will be giving today's update on our EGS research.</p>

1:45–1:47	EGS: FORGE	Jon	<p>Slide 11: Thanks, Jessica. I'm happy to be here to share some great progress we're making in the EGS portfolio, starting with recent drilling success at our Frontier Observatory for Research in Geothermal Energy, or FORGE. The team finished drilling its new production well, 16B, and confirmed the connectivity of that new well with the existing injection well through a reservoir of fractures. The team is also conducting interference tests to evaluate the connections between these two wells, and is planning additional stimulations of the wells later this year. These additional stimulations will allow the team to improve flow pathways and do flow testing between the two wells to measure heat extraction and power production potentials. This work will add substantially to our understanding of EGS wells and reservoirs, and we're pleased to celebrate this success with the team.</p> <p>In addition, the FORGE team continues to review applications to its second R&D solicitation, targeting topics like induced seismicity protocols, high-temperature proppants, and other topics. Selections are expected soon, so stay tuned.</p> <p>And, finally, FORGE will host its R&D Annual Workshop on September 7 and 8, to explore the progress made in each of the 17 R&D projects funded under their 2020 solicitation. The workshop will be held on Zoom and registration is required; the link is here and will be in the slides when we send them.</p>
1:47–1:48	EGS: BIL EGS Demos and Datathon	Jon	<p>Slide 12: Next, since many of you may be wondering, applications for our Bipartisan Infrastructure Law EGS pilot demos funding opportunity are currently under review and selections are expected this fall. The best way to make sure you receive information related to those selections and future opportunities is to sign up for the Drill Down newsletter.</p> <p>Finally, I wanted to quickly mention that the 2023 Society of Petroleum Engineers Geothermal Datathon is now closed and in the judging phase. The Datathon asks participants to use machine learning methods to create predictive models to aid future geothermal energy production, using one of the largest geothermal datasets assembled and never-before-analyzed data from the FORGE site. Winners will be announced at PIVOT 2023 in September.</p>
1:48		Jon	<p>Slide 13: With that, I'll turn things over to Sean to discuss updates from our data, modeling, and analysis team.</p>

1:49–1:50	DMA: Geothermal Collegiate Competition	Sean	<p>Slide 14: Thanks, Jon. First, we’re excited to highlight that the fall 2023 Geothermal Collegiate Competition, or GCC, is now open. The GCC gives students real-world exposure to the geothermal field and a chance to engage with industry and their local communities. Students from all majors and career paths are encouraged to participate, and teams can comprise one school or several.</p> <p>This year’s competition features two tracks—technical and policy—and first-place teams in each track will win a \$10,000 cash prize. The link here has all the details about the competition, rules, and how to register. We also encourage anyone who is interested to attend the informational webinar on August 15. We’re looking forward to seeing this year’s entries—it’s always a fun and interesting competition!</p>
1:50–1:51	DMA: Geothermal Data Repository	Sean	<p>Slide 15: Given today’s upcoming project highlight and some of the data-related projects Alexis will highlight, I also wanted to share a quick reminder about the GDR, our Geothermal Data Repository. The GDR is the submission point for all data collected from GTO-funded research. All of our projects are required to upload applicable data. The data include the topics noted here—FORGE, EGS Collab, Play Fairway Analysis, and data lakes, which house a collection of curated and diverse datasets—as well as others like heat pumps, so it’s a terrific resource across the geothermal spectrum. If you’ve never checked out the GDR, I hope you’ll visit the site soon to see the available datasets and resources—some of which will be discussed in the updates for our hydrothermal program.</p>
1:51		Sean	<p>Slide 16: And to give those updates, I’ll turn it over to the program manager for our low-temperature and coproduced resources and hydrothermal programs. Alexis, take it away.</p>
1:52	Low-Temp and Coproduced	Alexis	<p>Slide 17: Thanks, Sean. Before I get into those hydrothermal updates, I’ll start with a quick note from our low-temperature and coproduced resources program—specifically, our inclusion in the Department of Energy’s Industrial Heat Shot. The Heat Shot is a DOE-wide initiative aimed at developing cost-competitive industrial heat decarbonization technologies with at least 85% lower greenhouse gas emissions by 2035.</p>
1:52–1:53	Low-Temp and Coproduced	Alexis	<p>Slide 18: Industrial Heat Shot</p>
1:53		Alexis	<p>Slide 19: And now we’ll shift to some updates from our hydrothermal program.</p>

1:53–1:54	AMMTO/GTO Selections	Alexis	<p>Slide 20: First, I'd like to highlight the recent announcement of selections for a joint funding opportunity between GTO and DOE's Advanced Manufacturing and Materials Technologies Office. Work under the opportunity will focus on innovative technologies for extracting and converting battery-grade lithium from geothermal brine, and we selected 10 projects across nine states to receive up to almost \$11 million to do so. This work will increase access to cost-effective, domestic sources of this critical material for batteries, and we're excited to see the outcomes. These project participants will also be invited to participate in DOE's Lithium RD&D Virtual Center, which coordinates investment activity across industry, government, and academia.</p> <p>In related news, a quick note that phase 3 of our Lithium Extraction Prize is finished and we are reviewing entries to announce the final winners, so stay tuned for updates via the Drill Down.</p>
1:54–1:57	Hidden Systems	Alexis	<p>Slide 21: Now I'll briefly highlight some of our hidden systems projects, which will help set the stage for our guest speaker. Through these projects, we are gathering invaluable data on potential geothermal resources and prospects throughout the U.S. West—which is critical to help developers reduce risk in considering project locations and opportunities.</p> <p>First, our INGENIOUS project—short for INnovative Geothermal Exploration through Novel Investigations Of Undiscovered Systems—which builds on and expands our geothermal play fairway efforts in the Great Basin region. The goal is to help facilitate early-stage geothermal prospect identification, including moving several blind prospects forward with geological and geophysical analyses. The team has done extensive work this year on initial exploration drilling, as well as data collection and compilation. Upcoming work will include processing the data and applying Play Fairway Analysis, and—eventually—more drilling to prove out resources. The project has already made extensive data available on our Geothermal Data Repository, including temperature probes and electrical conductance, heat flow, and geophysical maps—as well as on ScienceBase.gov as part of the U.S. Geological Survey's Data Releases.</p> <p>In our GeoDAWN and GeoFlight projects, we are partnered with the U.S. Geological Survey's Earth Mapping Resources Initiative, or EarthMRI, and its 3D Elevation Program, or 3DEP, as well as the U.S. Department of Agriculture's Natural Resources Conservation Services and the Bureau of Land Management to do airborne geophysical and 3DEP lidar surveys over parts of Nevada and California. The teams are surveying undiscovered geothermal, critical mineral, and groundwater resources in the western Great Basin and the Walker Lane region on the California/Nevada border. Data collection is complete and lidar data are available for Walker Lane through GDR. Additional data are forthcoming and will be on GDR when ready.</p> <p>And the third project I'll cover is the Play Fairway Retrospective, which is in the works to curate data from our original 11 play fairway projects. The retrospective is synthesizing and analyzing data across the projects, making it more accessible and useful as a public resource. Datasets from the projects are available at the GDR link here, and the report will be posted on GDR when final.</p>

1:57-1:58		Alexis	<p>Slide 22: And now I'm pleased to introduce our guest spotlight speaker, Paul Schwering, who will discuss another GTO hidden systems project—BRIDGE, short for Basin & Range Investigations for Developing Geothermal Energy.</p> <p>Paul is a near-surface geophysicist from Sandia National Laboratories with multi-disciplinary professional experience spanning geothermal energy resources, geologic engineering, infrastructure investigations, hydrogeology, environmental remediation, and mineral exploration. He is enthusiastic about the potential for geothermal resources to bolster energy surety and resilience.</p> <p>Paul has studied in the full scale of geothermal applications, specializing in characterization of hydrothermal and enhanced geothermal systems, and has been with Sandia since 2017. Paul, take it away.</p>
1:58-2:13	BRIDGE	Paul	<p>Slides 22-42: <i>Paul's presentation</i></p>
2:13-2:14		Jessica	<p>Slide 43: Thanks so much, Paul. It's great to learn so much about the BRIDGE project and the "public data bonanza," and we thank you for joining us today.</p> <p>We hope everyone has enjoyed the webinar. If you haven't already, now would be a great time to enter any questions you have in the chat. While we gather those for Q&A, I want to thank you all again for attending. It's always a pleasure to update you on GTO's activities! As we've mentioned throughout—the best way to stay on top of GTO events and news in between webinars is by signing up for The Drill Down newsletter. And remember we want to hear from you! Email us at DOE.Geothermal@ee.doe.gov to send us your resumes and CVs to be a merit reviewer, ask questions, and just share ideas about the future of geothermal energy with us.</p>
2:14-2:29	Q&A	Jessica moderates	<p>Slide 44: Okay, on to some questions.</p>
2:30	Dismissal	Jessica	<p>Slide 44: Ok, we are out of time today. GTO will be distributing today's slides and transcript by next week. If you have any follow-up questions, or if we didn't get to your question today, please email doe.geothermal@ee.doe.gov. Thank you and have a great rest of your day!</p>