

# Geothermal Technologies Office

Quarterly Update: March 7, 2022



# Today's Agenda

March 7, 2022 / 3–4 p.m. ET

Webinar topics or suggestions? Contact us at [DOE.geothermal@ee.doe.gov](mailto:DOE.geothermal@ee.doe.gov).

Topic	Speaker
<b>EERE Updates and the Bipartisan Infrastructure Law:</b> What it means for GTO and U.S. geothermal	Sue Hamm, GTO Director Kelly Speakes-Backman, Principal Deputy Assistant Secretary EERE
<b>Office News &amp; Updates</b> <ul style="list-style-type: none"><li>• Budget Update</li><li>• Staffing Updates</li><li>• Upcoming Events</li></ul>	Cullen Henderson, GTO Operations Supervisor
<b>Program Updates</b> <ul style="list-style-type: none"><li>• Hydrothermal Resources</li><li>• Low-Temperature and Coproduced Resources</li><li>• Enhanced Geothermal Systems</li><li>• Data, Modeling, and Analysis</li></ul>	GTO Program Managers: <ul style="list-style-type: none"><li>• Alexis McKittrick, Hydrothermal and Low Temperature Program Manager</li><li>• Lauren Boyd, Enhanced Geothermal Systems Program Manager</li><li>• Jeff Winick, Data, Modeling, and Analysis Technology Manager</li></ul>
<b>GTO Multi-Year Program Plan Overview and Panel</b>	Overview and Panel Moderator: Sue Hamm, GTO Director Panelists: GTO Program Managers and Leads
<b>Q&amp;A</b>	Submit your questions

# In Memory



**David Stephen Pye**



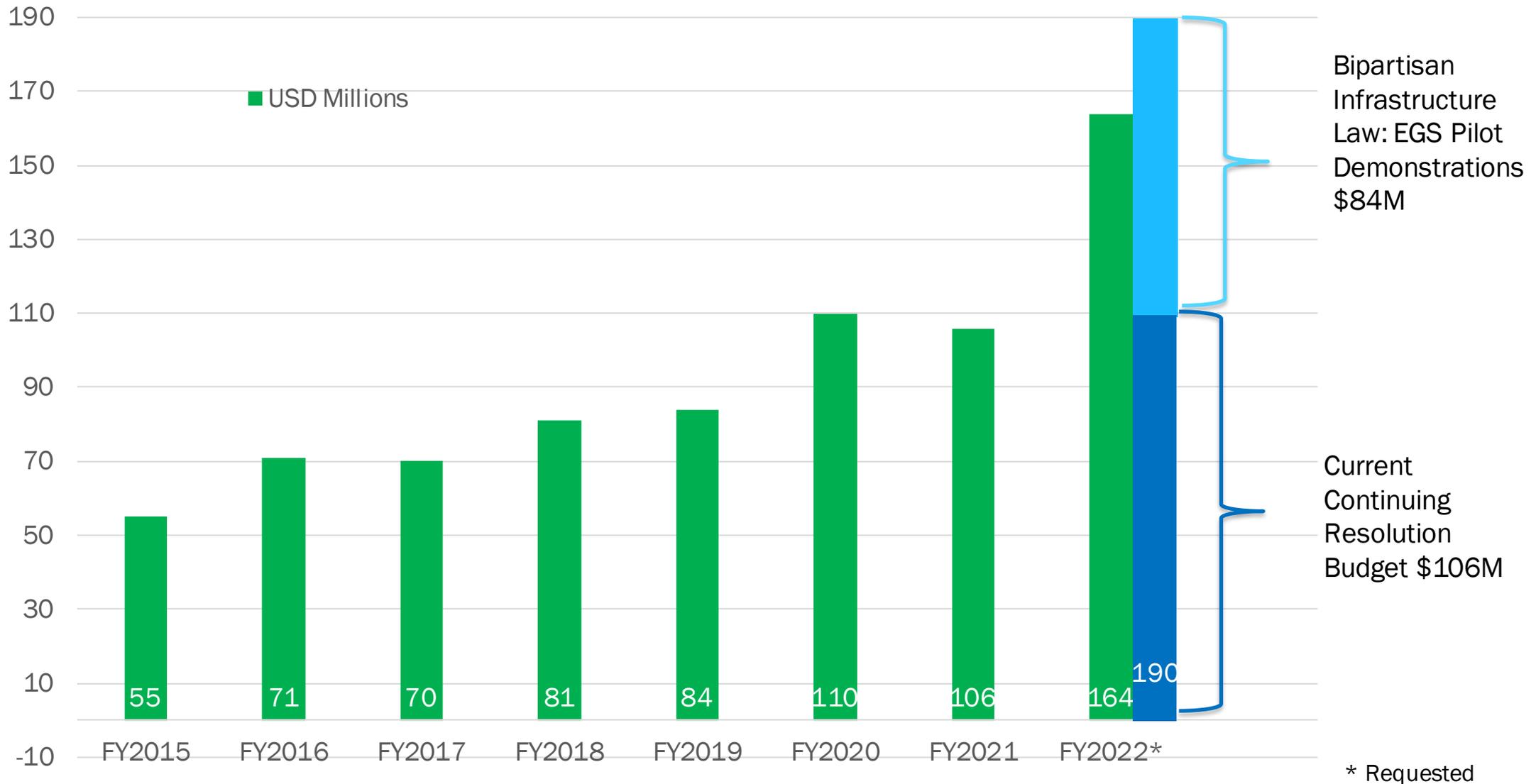
**Professor Dr. Jean-Claude Roegiers**

# EERE Updates and the Bipartisan Infrastructure Law

- Updates from Kelly Speakes-Backman—Principal Deputy Assistant Secretary, Office of Energy Efficiency and Renewable Energy



# GTO FY 2022 Budget: Update



# 2022 GTO Peer Review

- GTO will conduct a virtual peer review via half-day sessions on May 10, 12, 16, 18, 24, and 26.
- A total of 62 GTO-funded projects will be presented and reviewed by external subject matter experts from industry, academia, and federal agencies.

Go to [geothermal.energy.gov](https://geothermal.energy.gov) and sign up for *The Drill Down* to get the latest updates!

2022 PROJECT  
PEER REVIEW 

U.S. DEPARTMENT OF ENERGY  
GEOTHERMAL TECHNOLOGIES OFFICE

Question about the 2022 Peer Review? Email [GTOPeer-Review2022@ee.doe.gov](mailto:GTOPeer-Review2022@ee.doe.gov)

# Upcoming Events

Geothermal Rising is hosting its annual Geothermal Rising Conference, the largest annual gathering of the geothermal community.

- GTO plans to have a booth and will host an event to announce upcoming Prize opportunities.
- We hope to see you there!!



# GTO Staff Additions



<b>Federal Staff</b>	<b>Contractor Staff</b>	
<b>Jeff Bowman</b>	<b>Diana Acero-Allard</b>	<b>Caroline Grace</b>
<b>Cullen Henderson</b>	<b>Andy Adams</b>	<b>Jennifer Livermore</b>
<b>Kevin Jones</b>	<b>Brooke Biber</b>	<b>Rodney Rice</b>
<b>George Stutz</b>	<b>Brittany Cash</b>	<b>Coryne Tasca</b>
<b>Jeff Winick</b>	<b>Kate DeBrandt</b>	

# Hydrothermal Resources – FY22 Drilling Demos FOA



Geothermal Technologies Office

**Announcing a New Funding Opportunity**

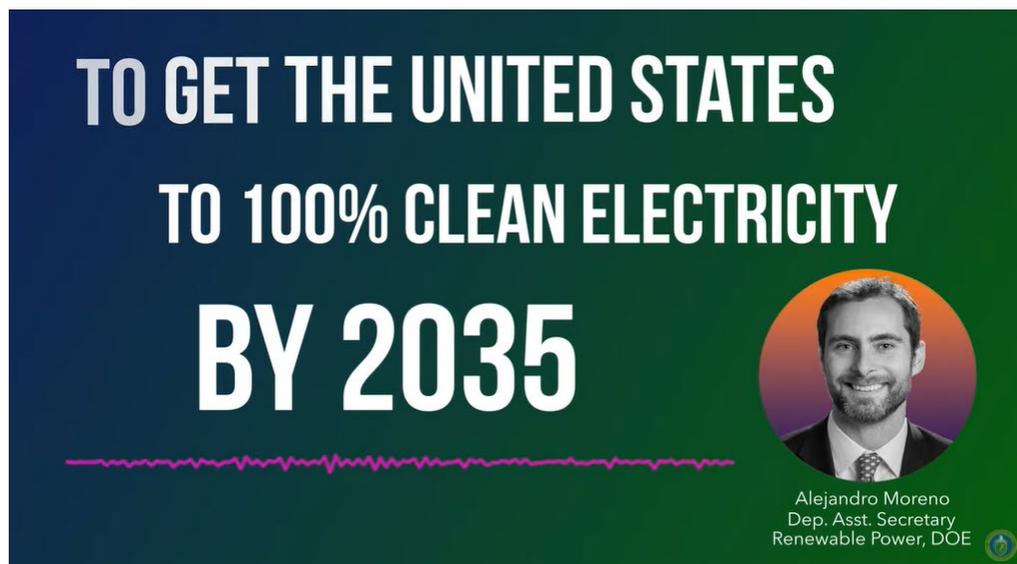
DOE invests **\$20 million** in innovative technology to lower the costs of **Geothermal Drilling**

U.S. DEPARTMENT OF **ENERGY** Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

The graphic features a red background on the left with white text and a photograph of a geothermal drilling rig at night on the right.

## Drilling Technology Demonstrations (\$20M)

- This initiative targets technology developments that will provide significant improvements in drilling performance in commercial geothermal settings.
- Letters of Intent are due by April 4 and full submissions are due June 3.
- GTO compiled a teaming list to facilitate the formation of new project teams for the funding opportunity.



**TO GET THE UNITED STATES  
TO 100% CLEAN ELECTRICITY  
BY 2035**

Alejandro Moreno  
Dep. Asst. Secretary  
Renewable Power, DOE

The graphic has a dark blue background with white text. It includes a circular portrait of Alejandro Moreno and a small DOE logo in the bottom right corner.

Visit the **Funding Opportunities** page on [geothermal.energy.gov](https://geothermal.energy.gov) to learn more!

# Hydrothermal Resources

## GeoFlight: Salton Trough

- GeoFlight is a collaboration with the U.S. Geological Survey to collect data on hidden geothermal systems in California's Imperial Valley, which includes the Salton Sea.
- Using specially equipped, low-flying aircraft, researchers with the USGS Earth Mapping Resource Initiative will survey the Salton Trough.



## Quantification of Lithium Resources in Salton Sea

- This [national-lab-led project](#) aims to better quantify the sources and amounts of lithium present in geothermal brines within the Salton Sea geothermal reservoir.
- Results should provide more detailed estimates of the lithium resource size and predicted lithium depletion rates in the region than available currently.

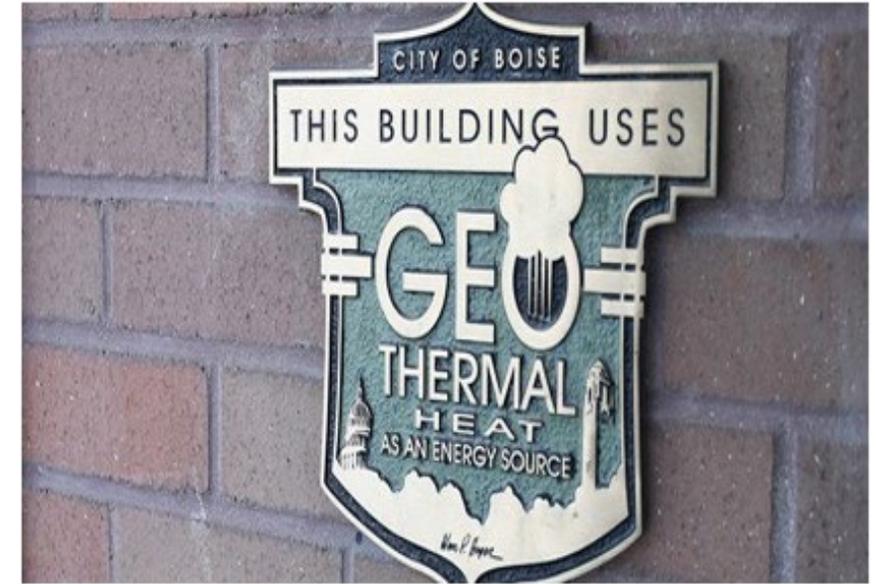
# Low Temperature and Coproduced Resources

## Federal Partnerships for Geothermal Installations

- GTO and the Federal Energy Management Program will make it possible for federal agencies to consider geothermal energy to heat and cool (and, in limited cases, potentially power) their installations.



Klamath Falls, OR, where a geothermal system heats 23 downtown buildings and melts snow from sidewalks and bridges.



## Community Geothermal Heating & Cooling Technical Assistance and Deployment

- This initiative will fund technical assistance to demonstrate and deploy community-scale direct-use geothermal in areas including urban centers, rural areas, and remote communities.

**FY22 projects are pending funding appropriations.**

# Enhanced Geothermal Systems



## Upcoming BIL EGS Demonstrations Request for Info

- GTO will be soliciting feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to EGS demonstrations.
- Areas of interest include on the best steps and outcomes to seek in our planned BIL EGS Demonstration Funding Opportunity Announcement and how DOE can engage and promote increased diversity on demonstration teams.

## Geophone Prize

The Geothermal Geophone Prize will be launched soon. The prize will provide incentives to catalyze development of high-temperature-capable seismic monitoring for EGS.

**FY22 projects are pending funding appropriations.**

# Enhanced Geothermal Systems – cont.



## Frontier Observatory in Research in Geothermal Energy (FORGE)

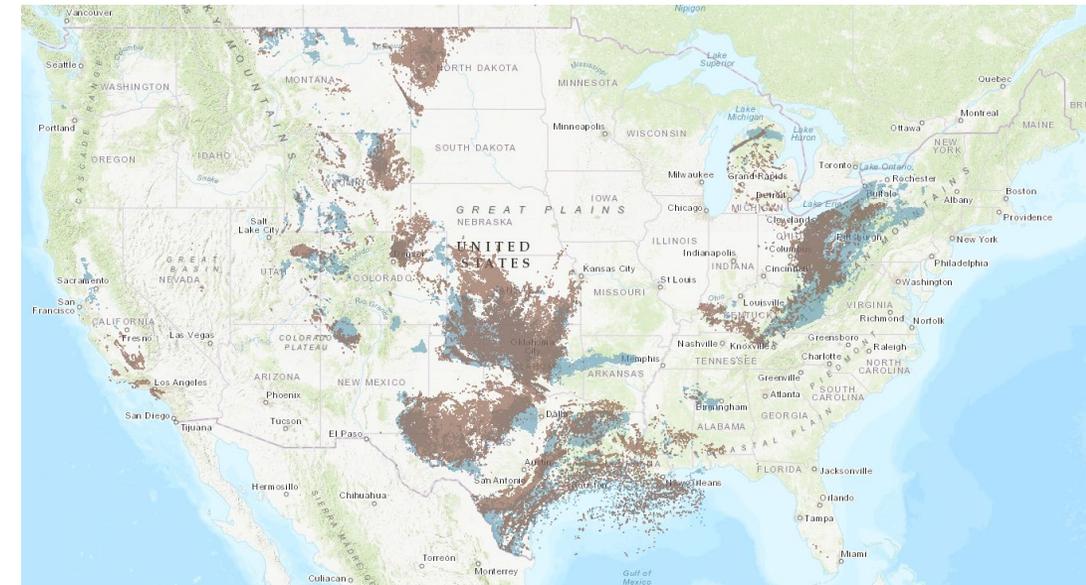
- Utah FORGE drilled the first-ever highly deviated geothermal well at a rate twice the industry standard.

## Wells Of Opportunity

- GTO is partnering with well owners or operators to help cost effectively bring more geothermal power by field testing EGS technologies and techniques within existing wells.

## ReAmplify

- GTO selected four projects to help establish commercial viability of geothermal energy production from existing hydrocarbon fields in the lower 48 states.



# Data, Modeling, and Analysis



## Improving Geothermal Permitting Timelines

- Optimizing permitting timelines alone could increase installed geothermal electricity-generation capacity to 13 GWe by 2050.
- GTO is supporting several national laboratory projects to assess the impact of permitting timelines on geothermal development and propose best practices to help streamline timelines and reduce non-technical barriers.
- GTO is also participating in a newly formed federal interagency task force that will address geothermal permitting timelines.

GTO Events:

<https://www.energy.gov/eere/geothermal/geothermal-events>

# Geothermal Collegiate Competition

- GCC inspires students to learn geothermal industry-relevant skills, engage with the community, and prepare to lead the next generation of geothermal energy development.
- The competition also raises awareness of geothermal resources among communities and the public, thereby broadening the geothermal stakeholder base.

Visit <https://bit.ly/GTOGCC> to learn more and get involved!

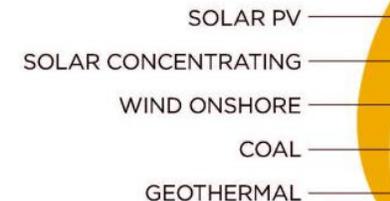
*Graphic was part of the 1<sup>st</sup> place infographic created by Phil Ulibarri of Truckee Meadows Community College in Reno, NV, in the first GCC (2014).*

## THE FOOTPRINT OF A PROJECT.

Acre for Acre GeoEnergy project footprints barely affect other competing interests like hiking, farming, hunting, or someone's backyard view.

### LAND USE

BASED ON ACRES/1GW



Sources: Islandsbanki

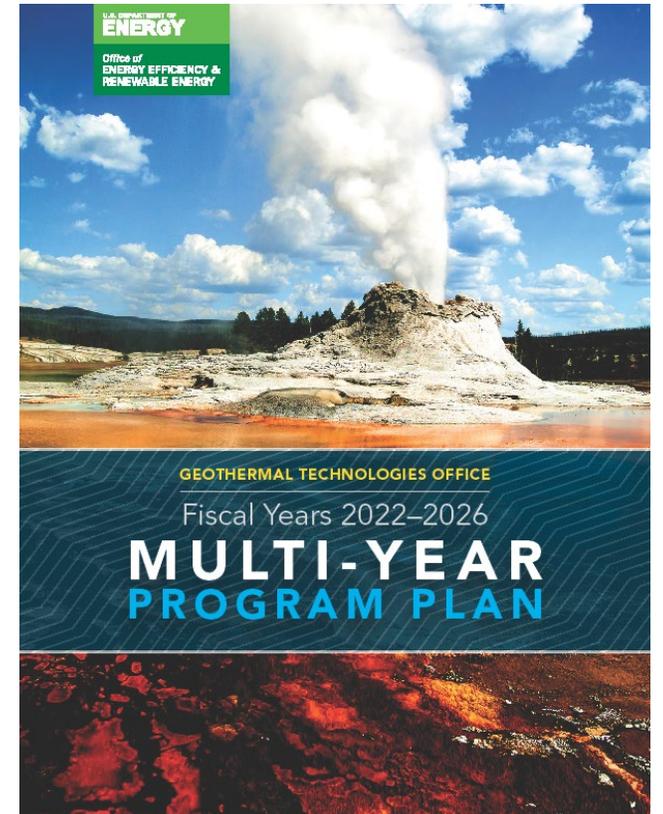
# Multi-Year Program Plan (MYPP)

The MYPP is a 5-year plan of activities GTO will pursue to support the growth and long-term contribution of geothermal energy to the U.S. electricity grid and American homes and buildings.

**Strategic Goal 1:** Drive toward a carbon-free electricity grid by supplying 60 GW of EGS and hydrothermal resource deployment by 2050.

**Strategic Goal 2:** Decarbonize building heating and cooling loads by capturing the economic potential for 17,500 GDH installations and by installing GHPs in 28 million households nationwide by 2050.

**Strategic Goal 3:** Deliver economic, environmental, and social justice advancements through increased geothermal technology development.

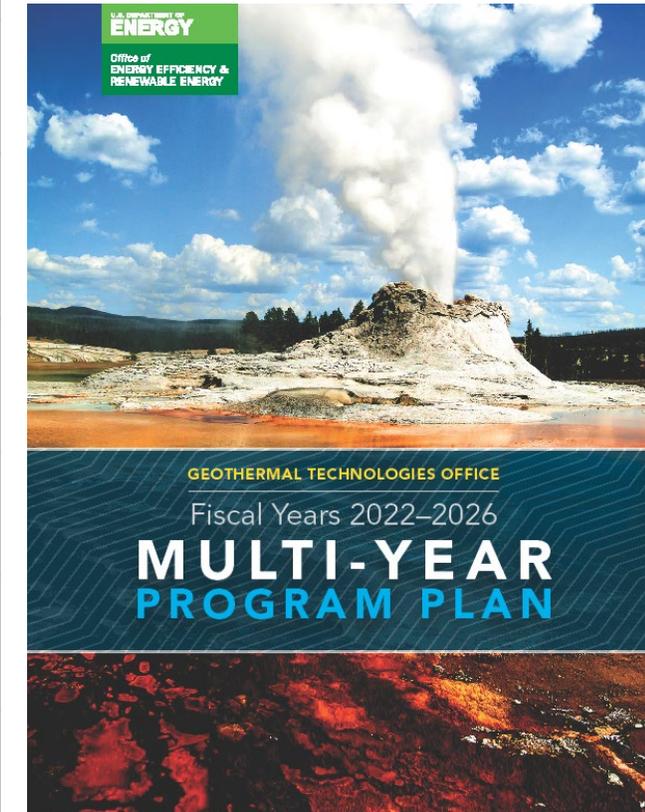


<https://bit.ly/GTOMYPP>

# Multi-Year Program Plan (MYPP) – cont.

## Summary of Geothermal Technologies Office Research Areas and Related Objectives

Research Area	Technical Objective
Exploration and Characterization	Improve resource targeting for all geothermal resource types
Subsurface Accessibility	Improve drilling costs toward the "ideal" cost curves used in the <i>GeoVision</i> analysis
Subsurface Enhancement and Sustainability	Enhance and sustain geothermal energy recovery
Resource Maximization	Accurately capture the value of geothermal energy resources
Data, Modeling, and Analysis	Expand the capabilities of using data to identify and address barriers to geothermal deployment
Geothermal Integration and Awareness	Expand stakeholder education and outreach to improve understanding of geothermal energy and advance geothermal technologies



<https://bit.ly/GTOMYPP>

# MYPP Panelist Discussion

**Moderator**  
**Sue Hamm, Director**

**Panelist**  
**Jeff Winick**  
DMA Technology Manager

**Panelist**  
**Lauren Boyd**  
EGS Program Manager

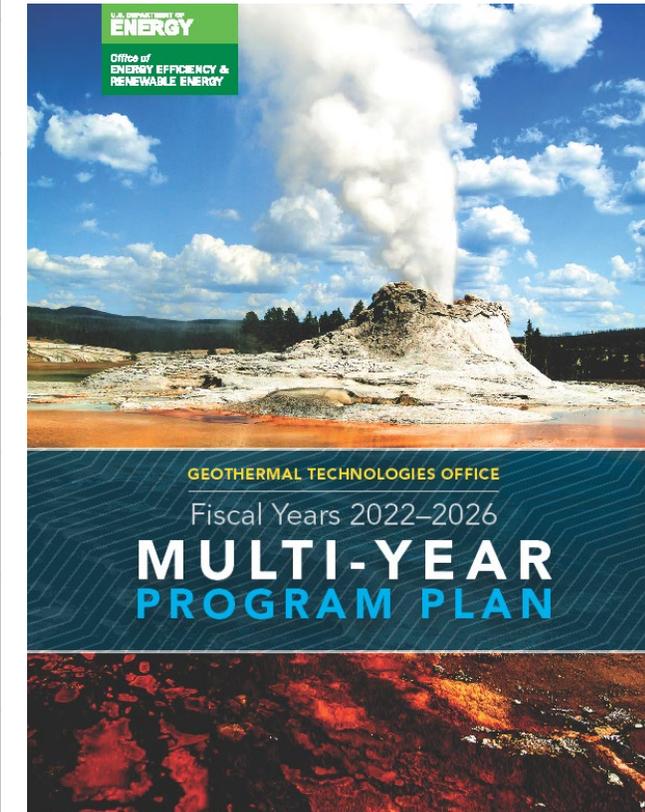
**Panelist**  
**Alexis McKittrick**  
Hydrothermal/Low Temp.  
Program Manager

**Panelist**  
**Elisabet Metcalfe**  
Stakeholder Engagement  
Lead



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<https://bit.ly/GTOMYPP>

# Questions?

The **Geothermal Technologies Office (GTO)** works to reduce the cost and risk associated with geothermal development by supporting innovative technologies that address key exploration and operational challenges.

Visit us at: [www.energy.gov/eere/geothermal](http://www.energy.gov/eere/geothermal)

See what Energy Secretary thinks about geothermal in her geyser-side chat with GTO Director Susan Hamm: <https://bit.ly/GeyserSide>

# Thank You!



**Get the hottest geothermal news from *The Drill Down*, the new monthly newsletter from GTO!**

*Sign up today:*

[geothermal.energy.gov](http://geothermal.energy.gov)

**Interested in serving as a merit reviewer for GTO RD&D projects?**

*Send us your resume or CV:*

[doe.geothermal@ee.doe.gov](mailto:doe.geothermal@ee.doe.gov)