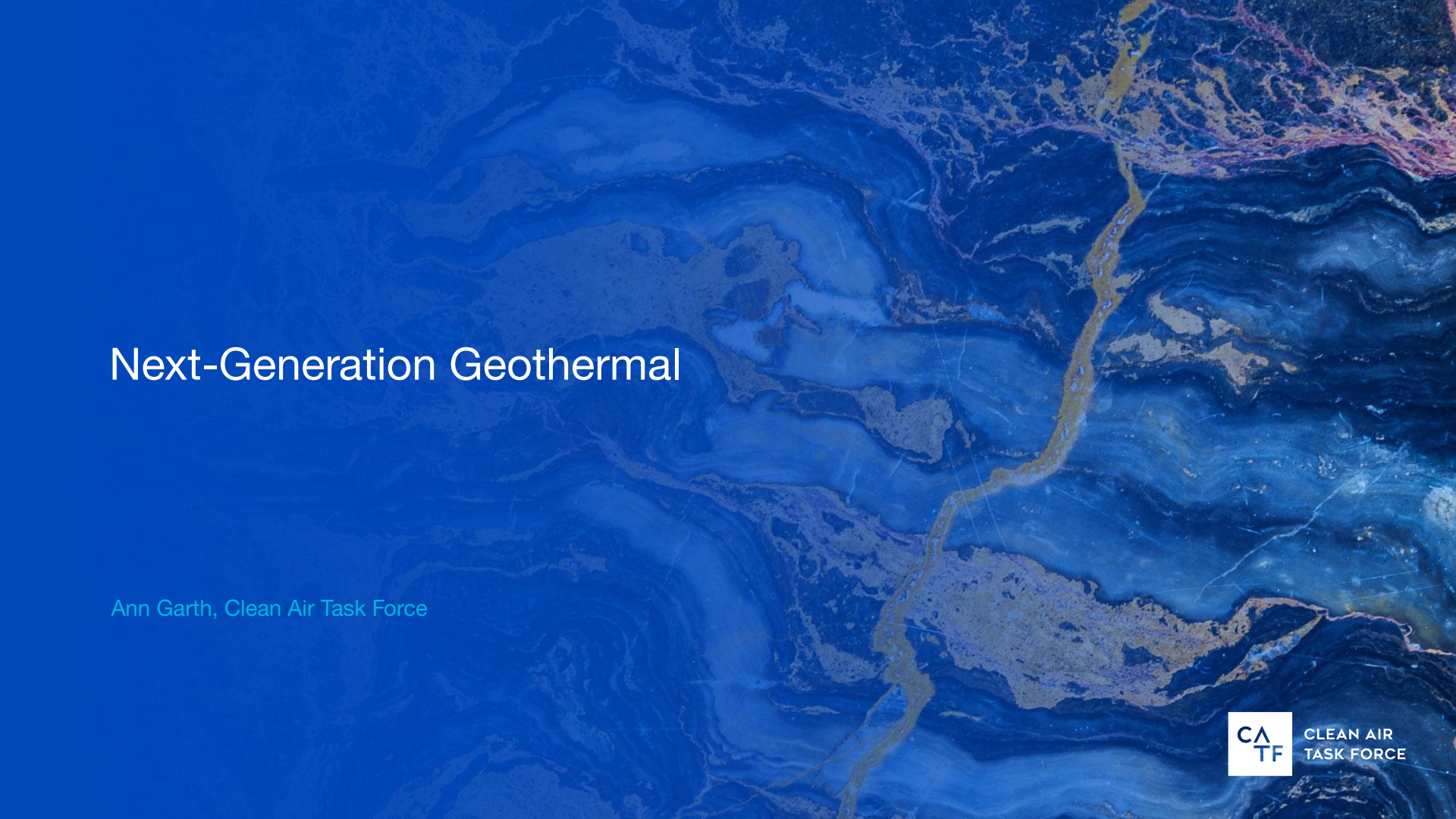
Next-Generation Geothermal

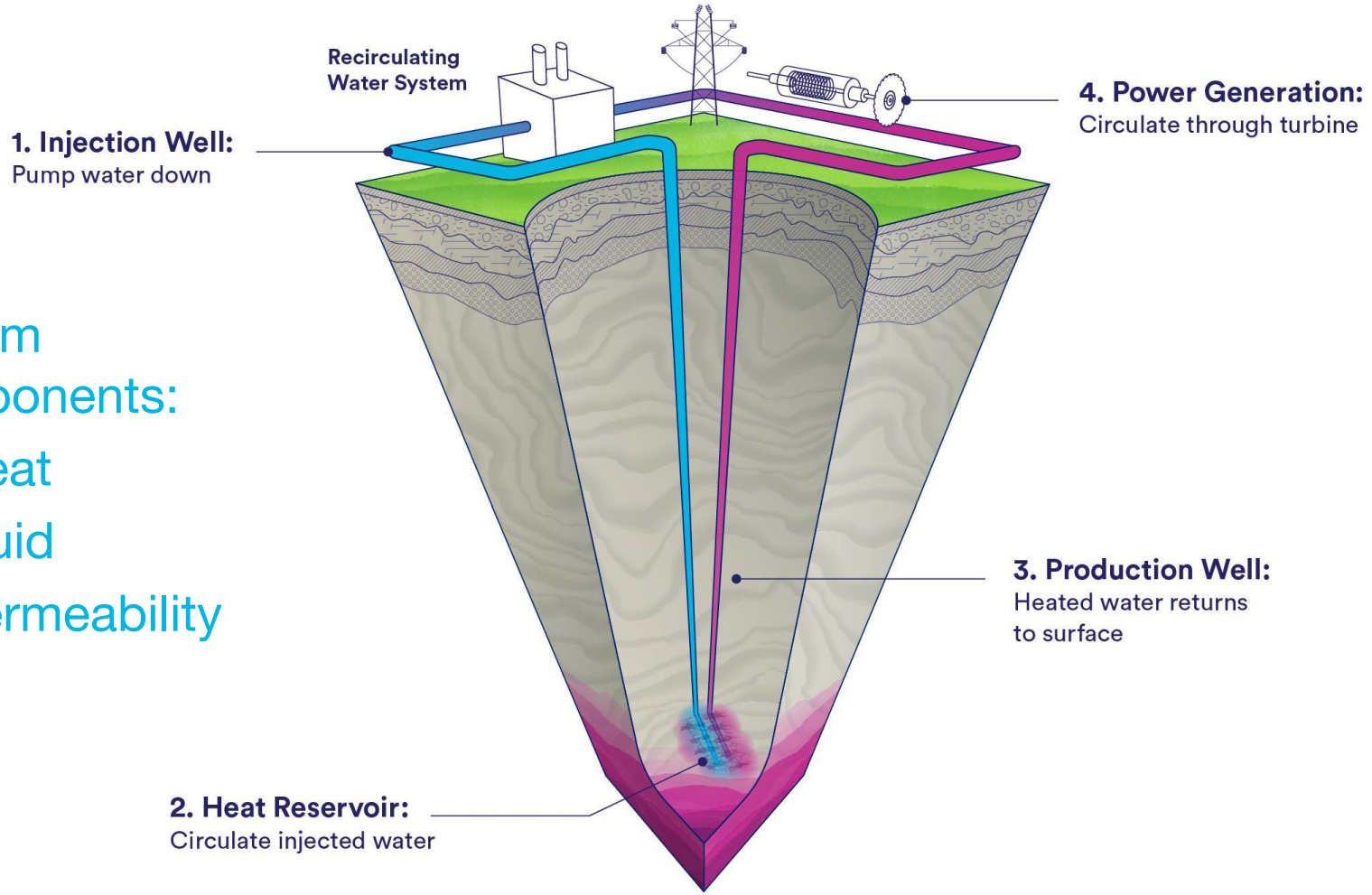
Ann Garth, Clean Air Task Force



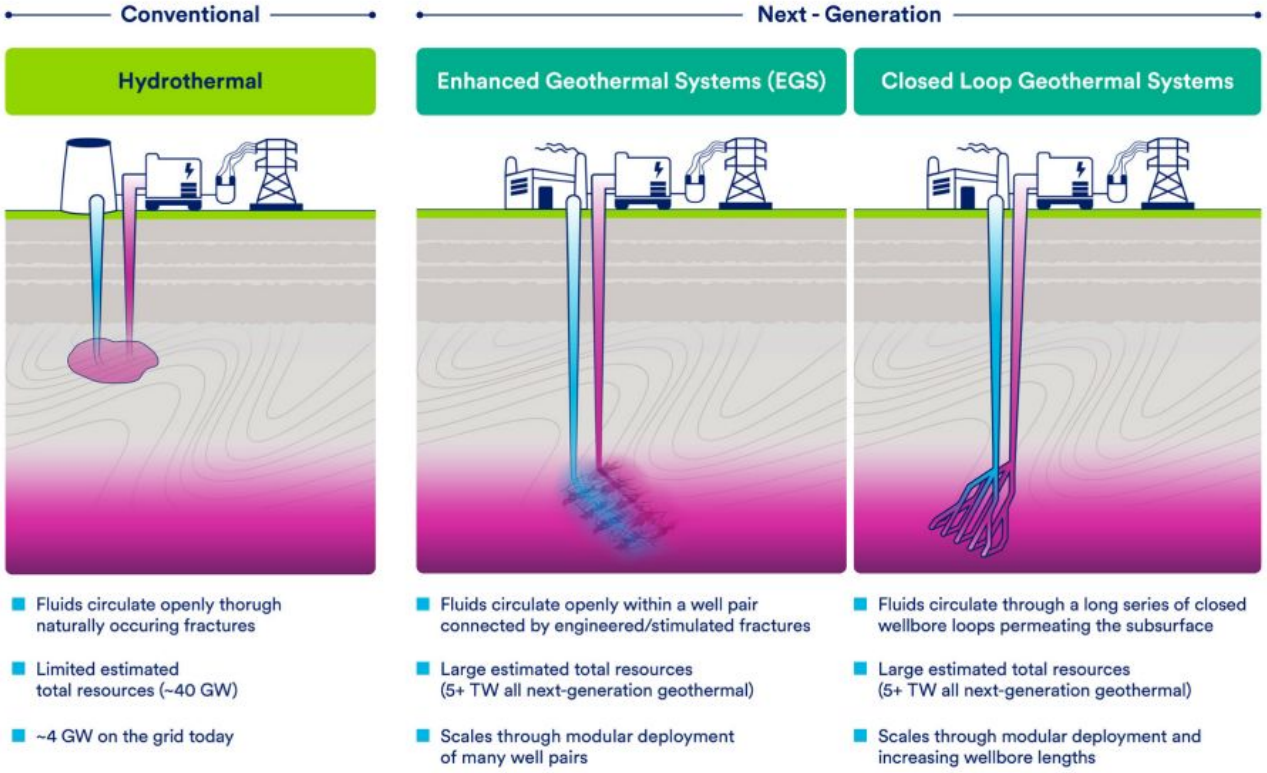
CLEAN AIR TASK FORCE

System Components:

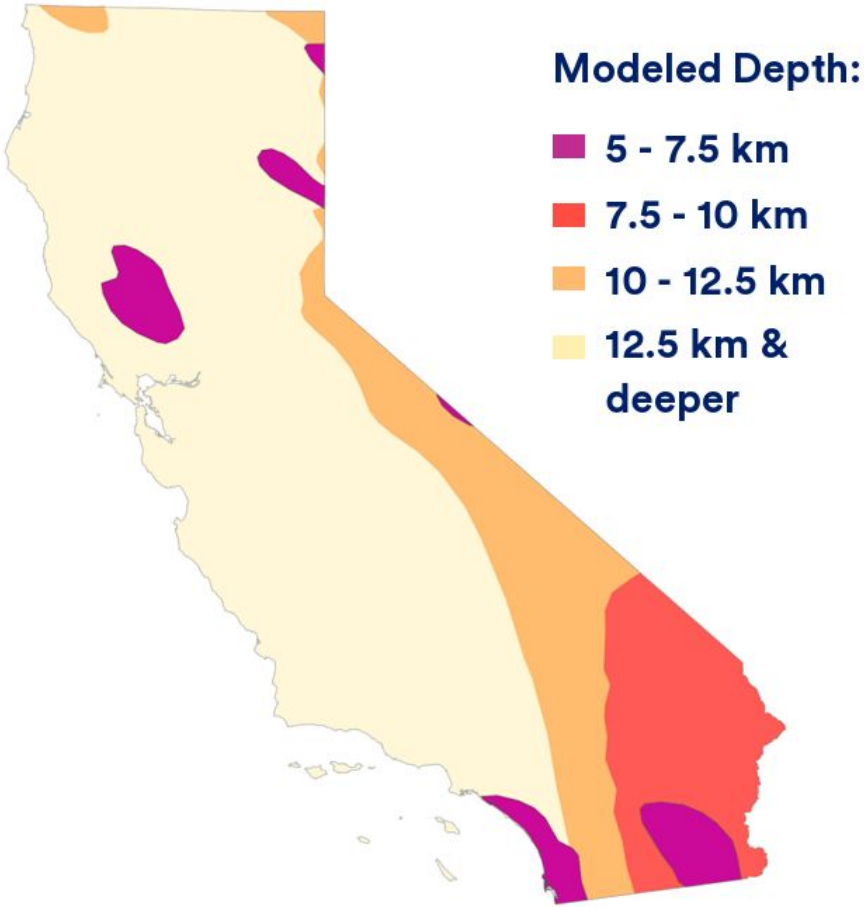
1. Heat
2. Fluid
3. Permeability



Heat extraction methods



Source: U.S. Department of Energy "Pathways to Commercial Liftoff: Next-Generation Geothermal Power"



Just 1% of California's SHR potential at currently-accessible depths could produce 35 GW of energy – which could meet the state's entire 2023 electricity demand

The Value Proposition

Inexhaustible resource

Accessible worldwide with deep drilling innovation

Cost-competitive power

Available 24/7 firm power

Source of both **heat and power**

Ensures U.S. **energy security**

Creates **U.S. jobs** which cannot be offshored

Fast transition of fossil workforce and technology

Potential to repower fossil power plants

Leadership potential for U.S. industry

Zero-carbon technology

Making communities **safer and healthier**

Can increase **energy equity**

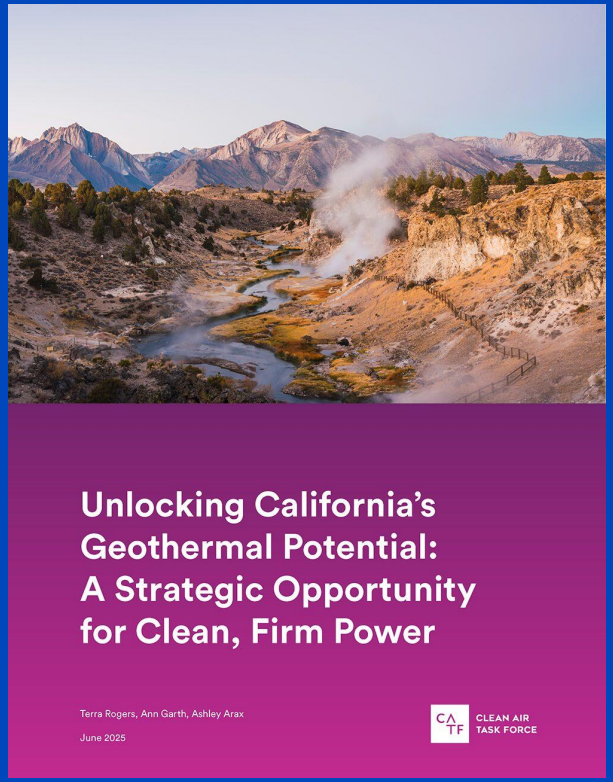
Energy-dense with a small **land footprint**

Efficient use of **transmission resources**

CATF at a Glance

- **Global climate NGO** founded in 1996, working to safeguard against the worst impacts of climate change by catalyzing the rapid development and deployment of low-carbon energy and other climate-protecting technologies
- Group of **cross-sector climate and energy experts** with centuries of collective knowledge and experience
- **Pragmatic** and committed to exploring all viable climate solutions that offer promise

Opportunity Areas and Policy Recommendations



Five Pillars for Geothermal Deployment

🗺️ **Characterize**
Map geothermal's subsurface resource potential

⚖️ **Govern**
Establish a regulatory system that works

🛡️ **Finance**
Derisk exploration and demonstration at scale

⚡ **Enable**
Cultivate supportive infrastructure

🔬 **Innovate**
Sustain R&D

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🗺️ **Characterize**: Map geothermal's subsurface resource potential

- Understanding the subsurface is essential for identifying the best locations to site projects
- Policy recommendations:
  - Digitize historical well logs to provide data relevant for geothermal modeling
  - Expand geologic mapping

⚖️ **Govern:** Establish a regulatory system that works

- We can protect the environment while still supporting efficient and speedy deployment
- Policy recommendations:
  - Streamline permitting and environmental review processes
  - Increase agency capacity to manage processes
  - Develop a permitting guidebook for the geothermal industry
  - Update California's geothermal well regulations to accommodate technological innovations and advancements in next-generation geothermal technology

Finance: Derisk exploration and demonstration at scale

- Private investors want to finance the 10th project
- Policy recommendations:
  - Consider updates to state grant programs to offer larger award amounts and to provide greater consistency and predictability
  - Consider establishing or expanding upon state financing tools
  - Successfully implement DWR's central procurement entity for geothermal
  - Develop an exploratory drilling program to derisk development in new areas of the state

⚡ **Enable:** Cultivate supportive infrastructure

- Transmission and interconnection is one of the biggest bottlenecks to development
- Policy recommendation:
  - Consider whether the current framework for deliverability based on summer peak conditions appropriately reflects the year-round capacity value of clean firm resources like geothermal

Thank You

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