Exhibit to Agenda Item #1

EPRI – Geothermal.

Board Strategic Development Committee and Special SMUD Board of Directors Meeting

Tuesday, August 11, 2026, scheduled to begin at 6:00 p.m.

SMUD Headquarters Building, Auditorium

EPRI Overview

- COLLABORATION
- CREDIBILITY
- EXPERTISE

Explore EPRI's research across the Nuclear, Generation, and Power Delivery and Utilization sectors ranging from decarbonization to grid modernization to low carbon resources.

Who We Are

Founded in 1972, the Electric Power Research Institute (EPRI) is the world's preeminent independent, non-profit energy research and development organization, with offices around the world.

Our Experts

EPRI's trusted experts collaborate with more than 700 utility members and 300 companies in 45 countries, driving innovation to ensure the public has clean, safe, reliable, affordable, and equitable access to electricity across the globe.

Together…Shaping the Future of Energy®

Why Utilities Are Re-Evaluating Geothermal?

A reliable clean power for the future of energy

Continuous Renewable Energy

Capacity factors ~> 90%, firm, dispatchable power

Clean and Low Emissions

Low lifecycle greenhouse gas emissions, minimal land footprint

Leverages existing fossil energy supply chains and workforce

Grid Stability and Energy Security

Supports resource adequacy & grid reliability

Complements variable wind & solar generation

Fuel independent and extreme weather resilience

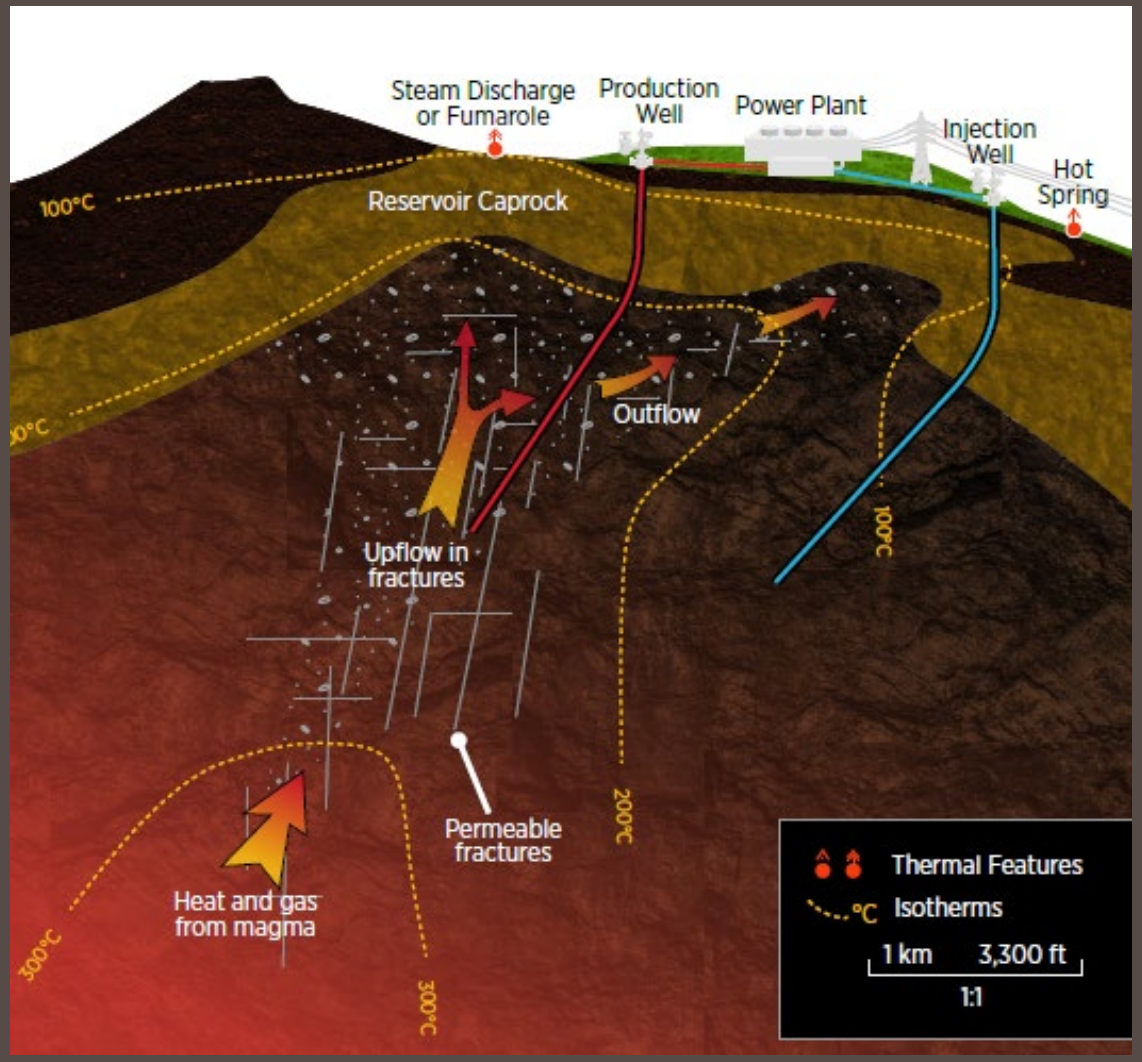
Why Geothermal Now?

- Oil & Gas drilling innovations
- Commercial projects emerging
- Hyperscaler commitments validating demand
- ~800 GW global next-generation geothermal potential by 2050
- Potential to meet up to ~15% of future global electricity demand growth
- Growing need for 24/7 carbon-free resources as solar penetration increases

	USA*		Worldwide**	
Current	Hydrothermal	Next Gen	Hydrothermal	Next Gen
	4 GW	1.5 MW (EGS)	17.2 GW	~ 3 MW (EGS)
By 2050	Hydrothermal	Next Gen	Hydrothermal	Next Gen
	90 GW		800 GW***	

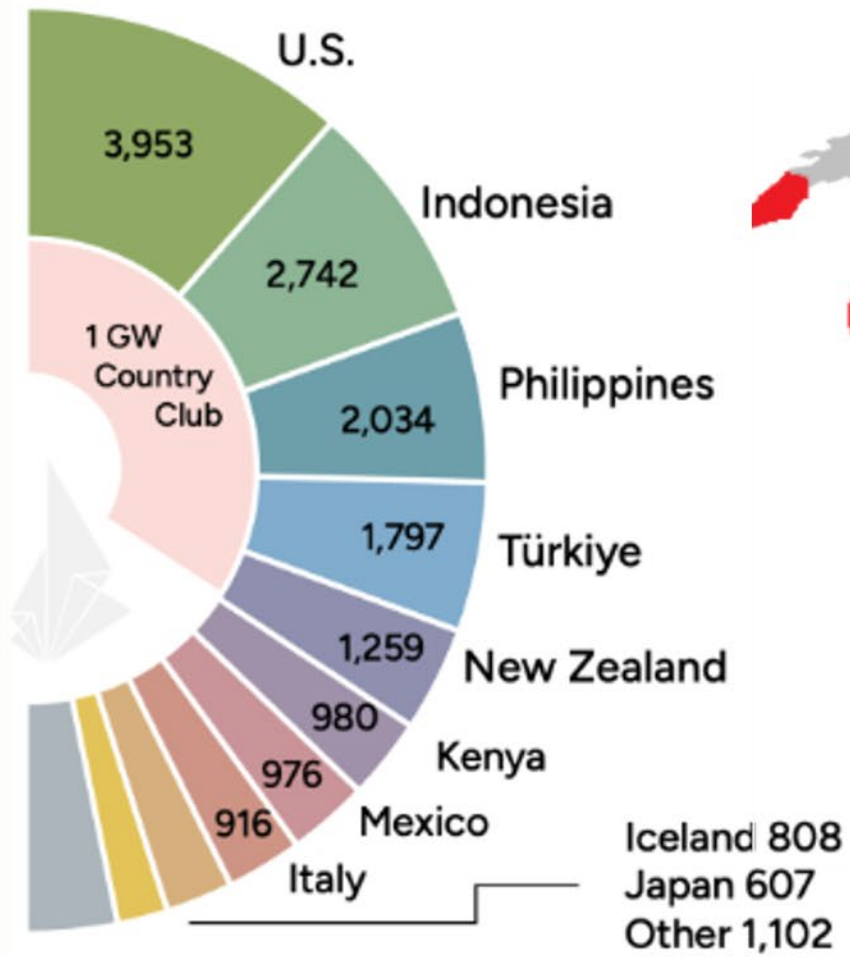
*USA Data from DOE Pathways to Liftoff;
**Worldwide data mainly from IEA 2024 and IRENA geothermal reports
*** 60-80 GW conventional geothermal according to IEA2024

Conventional/Hydrothermal: Heat + Fluid + Permeability



Geovision Report, DOE

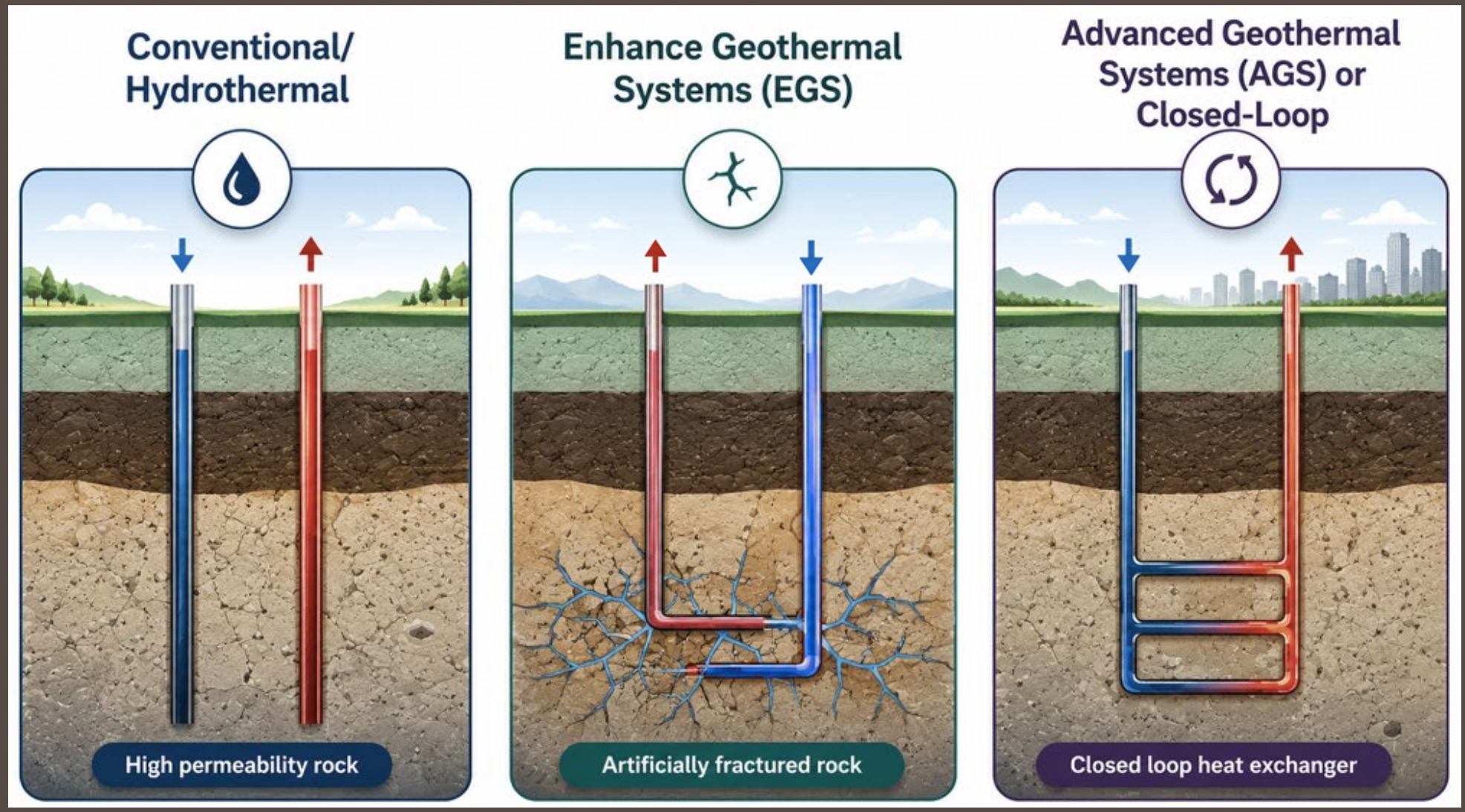
Conventional Geothermal – Geographically Restricted



https://energyeducation.ca/encyclopedia/Geothermal_energy

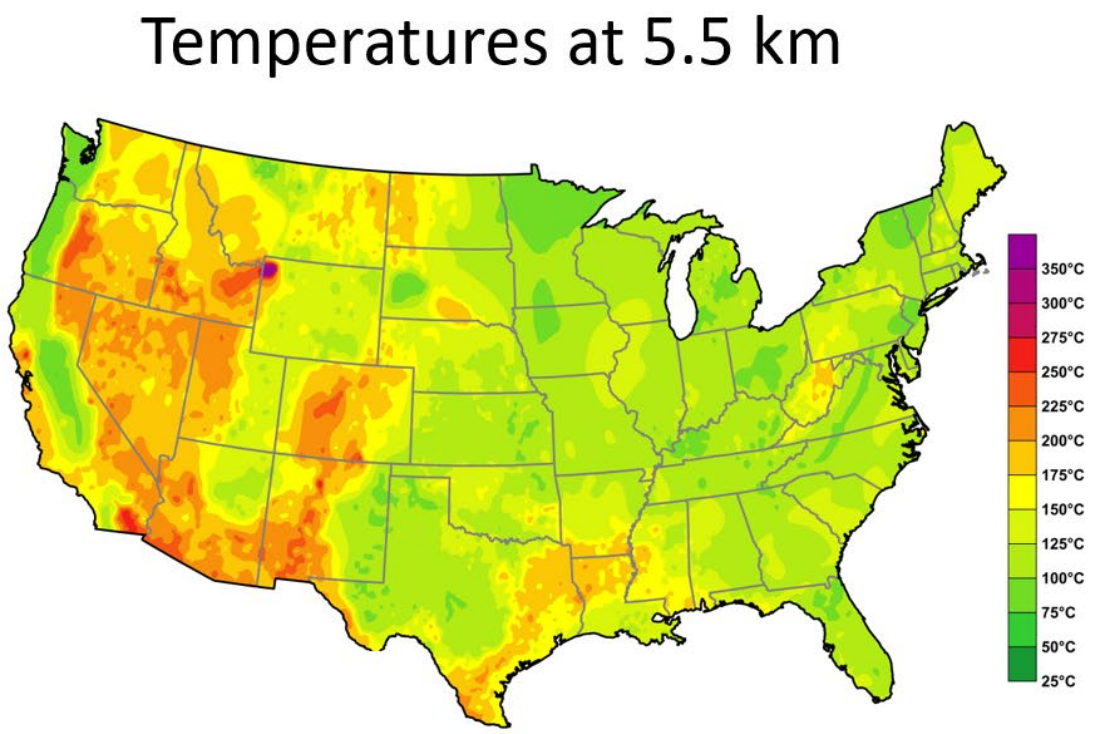
Clean, baseload, and grid-balancing power | 17.2 GW globally

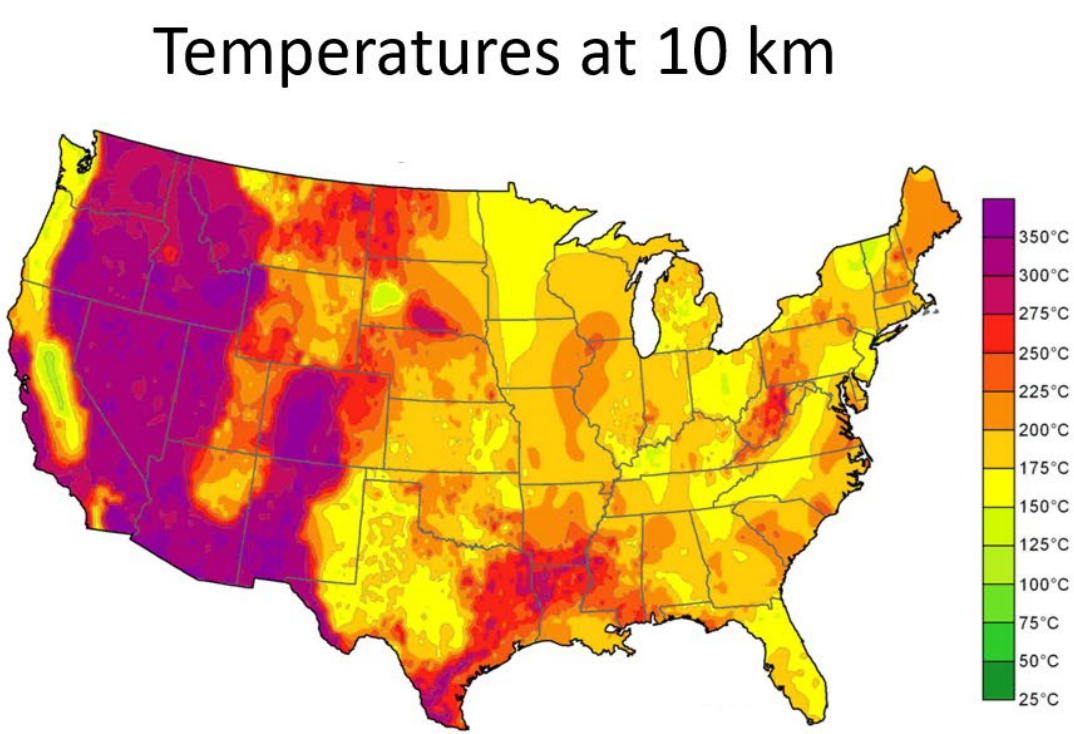
Next-generation Geothermal



Source: IEA

EGS Less Geographically Restricted





Blackwell et al., 2011

SMU GEOTHERMAL LABORATORY

Potential to increase current geothermal power output by 1 - 2 orders of magnitude

Next-generation Geothermal

MARKET POTENTIAL

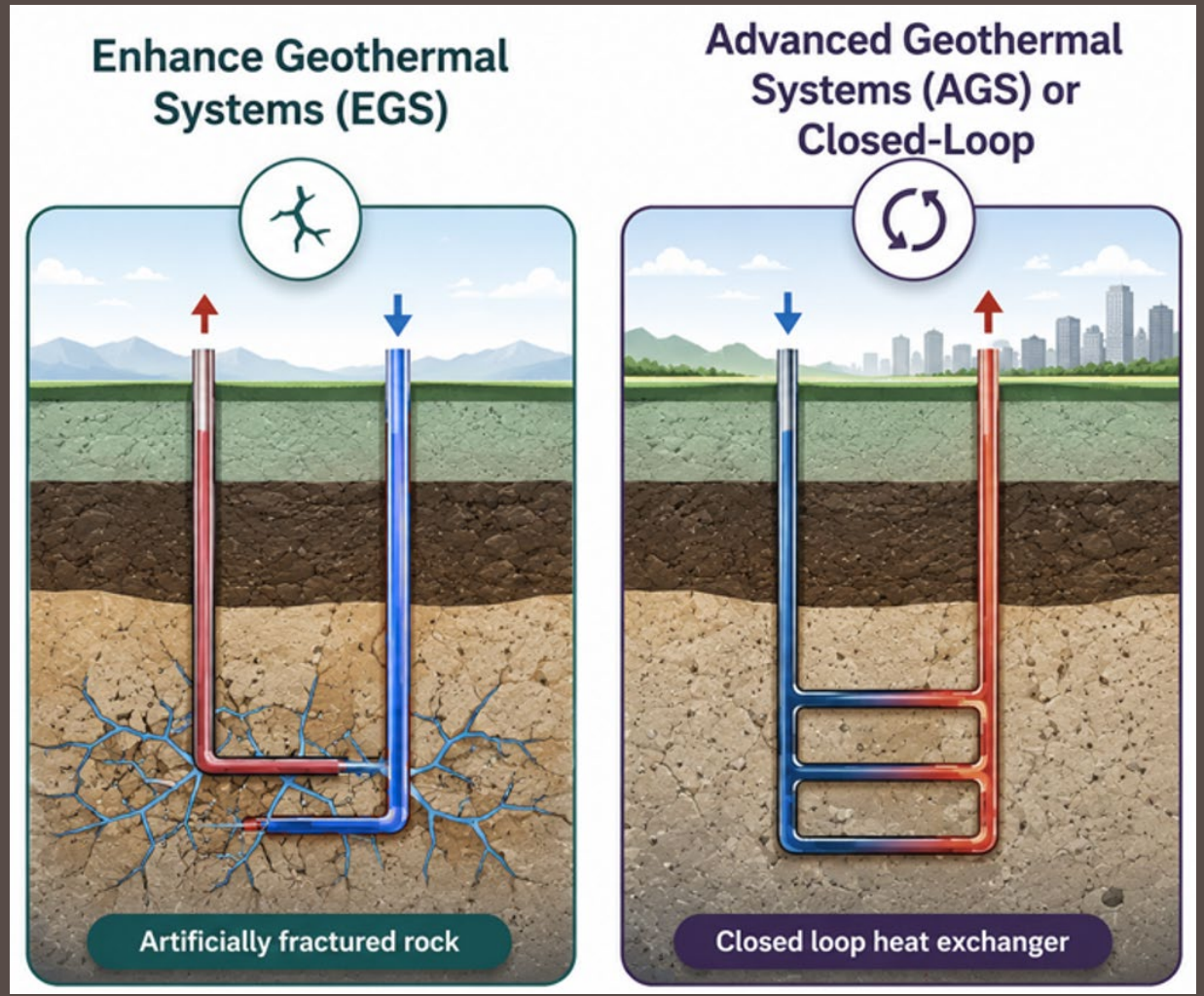
With technology improvements and cost reductions, next-gen geothermal could meet up to 15% of global electricity demand growth to 2050, equivalent to **~800 GW of new potential capacity**

DRILLING BREAKTHROUGH

New drilling technologies/advances accessing **depths beyond 3 km open viable geothermal potential** to nearly every country, not just those with volcanic geology

ULTRA-DEPTH RESOURCE

Resources within 8 km depth represent **~600 TW of EGS electricity capacity,** roughly 2,000× conventional geothermal and second only to solar PV among all renewables

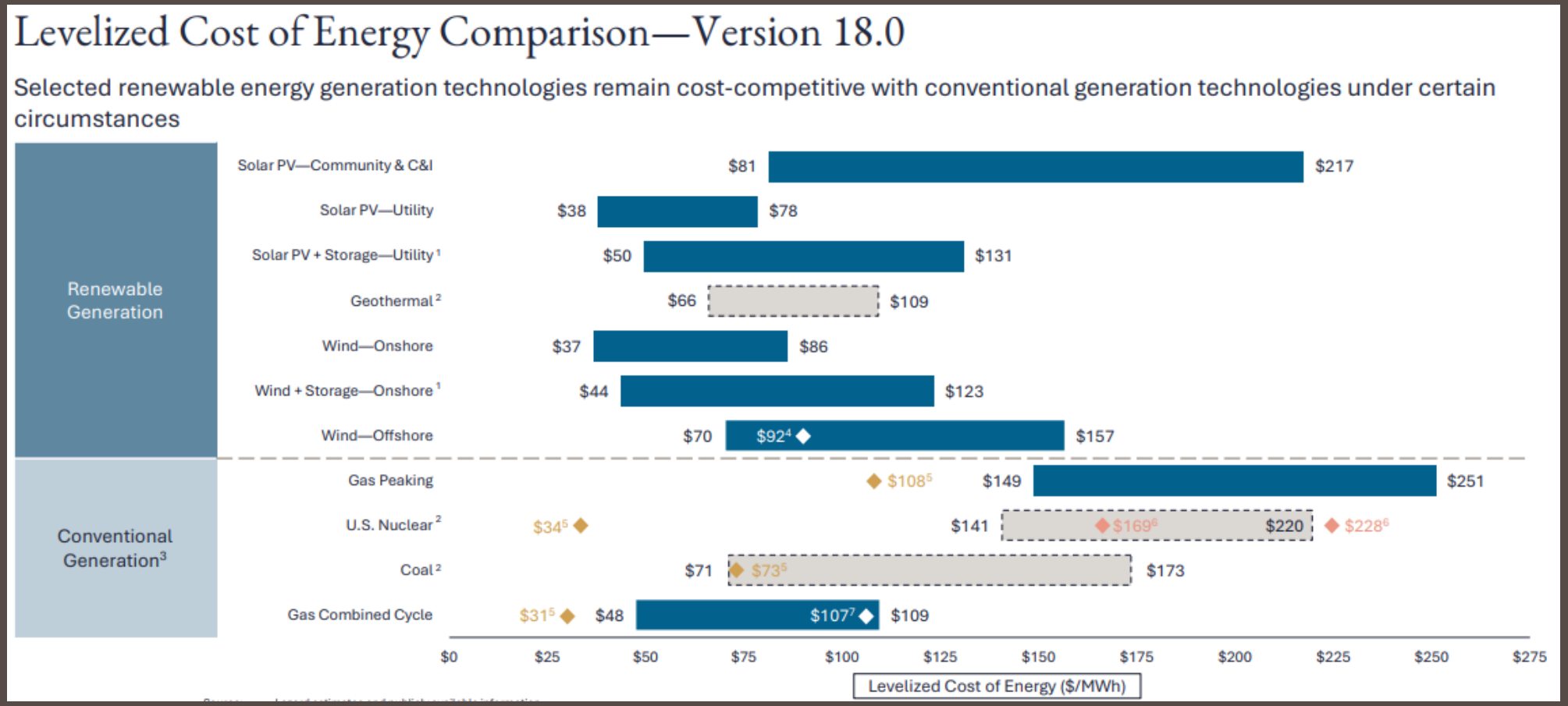


Source: IEA

Key Challenges

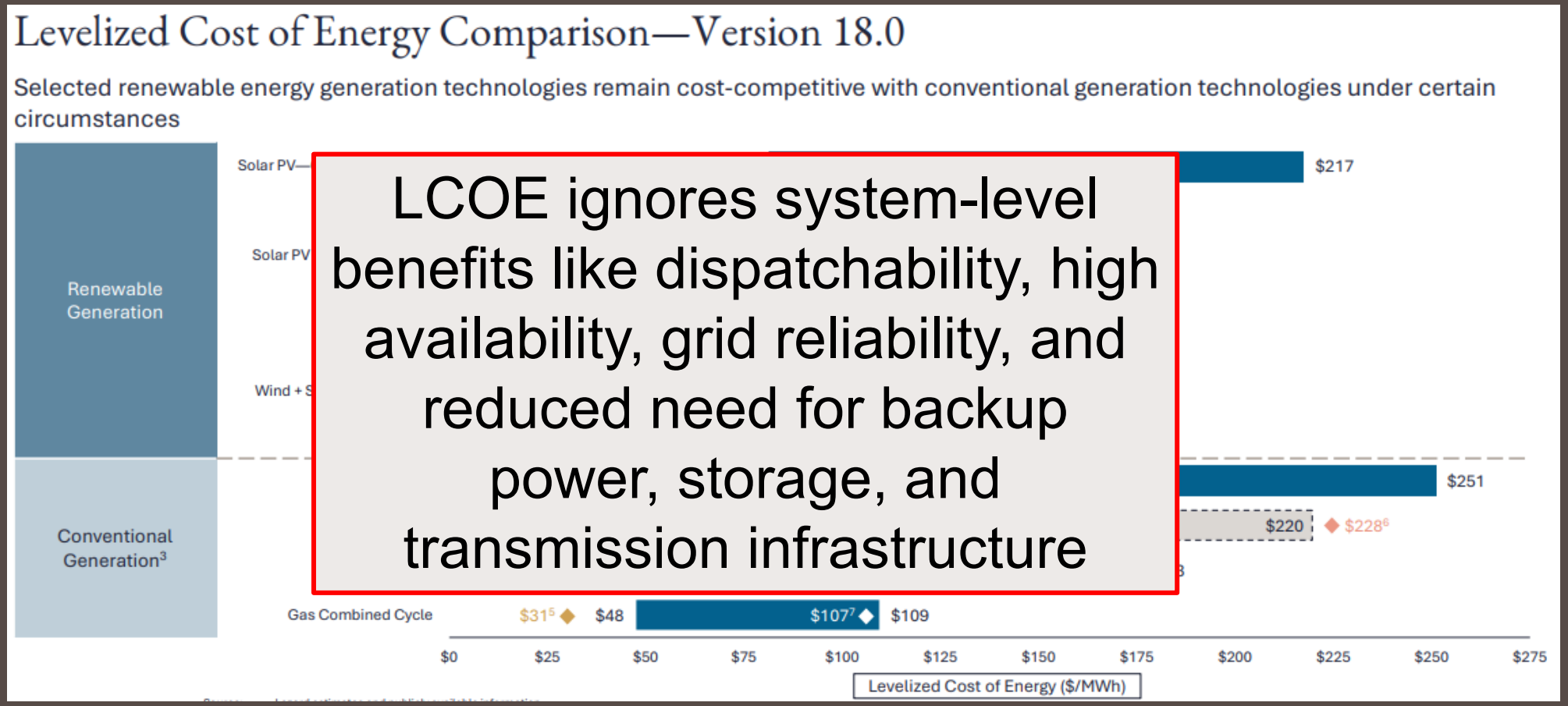
Challenge	Why it Matters	Industry Progress
Resource Discovery & Confirmation	Significant upfront investment before resource quality is proven	AI-enabled exploration, improved subsurface imaging, and advanced geoscience tools
Drilling Cost & Well Performance	Drilling can represent 30-75% of total project capital cost	Oil & gas drilling innovations, automation, & advanced drilling technologies reducing cost & execution risk
Reservoir Productivity	Long-term energy output depends on sustaining heat extraction & fluid flow	Improved reservoir engineering, stimulation methods, & real-time monitoring are enhancing performance predictability
Financing & Bankability	Limited operating history creates investor uncertainty and higher cost of capital	Commercial demonstrations, strategic investors, utility partnerships, and hyperscaler offtake agreements are improving confidence
Permitting & Regulatory Approval	Environmental review and permitting can significantly impact schedules and costs	Efforts are underway to streamline permitting and improve coordination across agencies
Transmission & Interconnection	Many resources are located far from load centers and face queue constraints	Early transmission planning & increased integration into utility resource planning processes are helping address risks
Community Acceptance & Seismicity	Public concerns can affect project development and timelines	Enhanced monitoring, transparent reporting, & improved operating practices are strengthening stakeholder confidence

Economics of Geothermal Power



Drilling costs 30 – 75% of total CAPEX

Economics of Geothermal Power

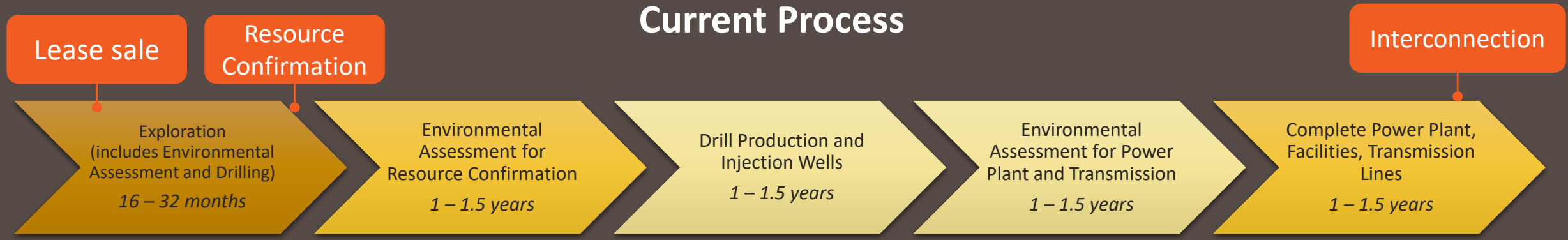


LCOE ignores system-level benefits like dispatchability, high availability, grid reliability, and reduced need for backup power, storage, and transmission infrastructure

Future of geothermal economics will be determined by drilling innovation

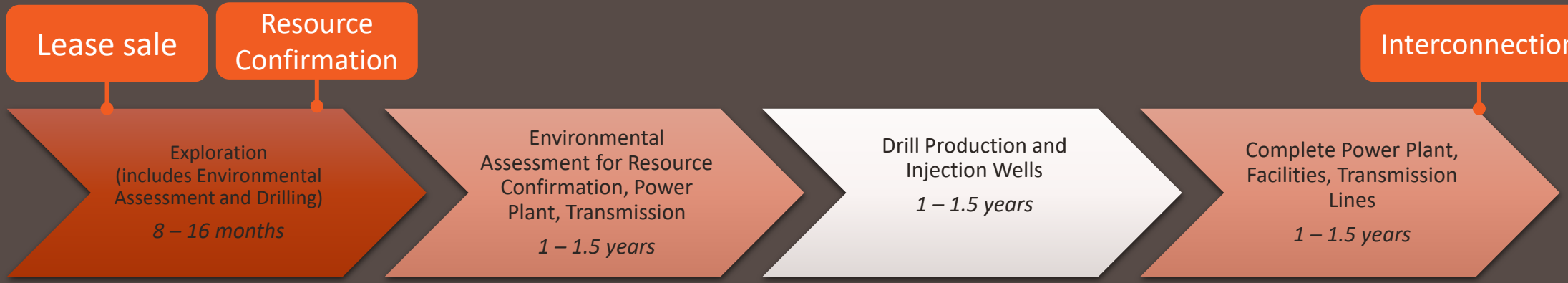
Maturity and Deployment Timelines

Current Process



Total Project Time: 7 – 10 years

Potential Reformed Process



Total Project Time: 4 – 7 years

Technology Companies Are Accelerating Commercialization of Next-Generation Geothermal

Company	Activity
Google	Partnered with Fervo on first corporate advanced geothermal project; geothermal power now supplying the Nevada grid serving Google's operations; later expanded support through a 115 MW geothermal agreement in Nevada.
Meta	Signed agreements with XGS Energy and Sage Geosystems totaling approximately 300 MW of advanced geothermal capacity
Microsoft	Utility-scale power investments (i.e. Kenya data center initiative), & geothermal heating & cooling at its Redmond campus

Early adoption by hyperscalers is helping reduce technology risk, improve financing, & accelerate learning curves for future utility procurement

Key Take Away

- Geothermal offers 24/7 carbon-free firm capacity that can support reliability and resource adequacy.
- Next-generation geothermal significantly expands potential resource availability beyond traditional geothermal regions.
- Commercial deployment is underway, supported by major technology companies and private investment.
- Costs remain uncertain but are expected to decline as drilling (and other) technologies mature.
- Geothermal could become an important component of a diversified clean-energy portfolio