

Hot Rocks: Commercializing Next-Generation Geothermal Energy

Introducing Hot Rocks: Commercializing Next-Generation Geothermal Energy

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A Joint Series from Employ America and Institute for Progress

This piece introduces Hot Rocks: Commercializing Next-Generation Geothermal Energy, a joint series by [Employ America](#) and the [Institute for Progress](#), examining the potential to commercialize next-generation geothermal energy, the lessons we might learn from the shale revolution, and the federal policy changes needed to make it happen. Links to follow-up pieces will be available here.

Despite unprecedented investments in clean energy, the path to decarbonization is still highly uncertain. We can't anticipate the frictions that may arise as we attempt to rapidly deploy clean energy. The risk associated with financing new technology, coupled with a burdensome regulatory framework, could prevent many projects from even getting off the ground. In this volatile environment, policy has a key role to play in **unlocking private capital through public investment and regulatory reform.**

Together, [Employ America](#) and the [Institute for Progress](#) are examining how policy can shape the future of geothermal energy. Although our organizations tackle different challenges, we're both committed to a future of abundant, clean energy that benefits all Americans.

So why focus on geothermal energy? Geothermal has remarkable promise to support growing demand for clean, firm energy — as Eli Dourado [wrote](#) a few years ago, "there is 23,800 times as much geothermal energy in Earth's crust as there is chemical energy in fossil fuels everywhere on the planet." The federal government is also uniquely positioned to accelerate geothermal energy development, because the Bureau of Land Management has the [authority](#) to lease geothermal resources on 245 million acres of public lands. Much of that land is in the American West, where heat resources are shallow and easily

accessible. Finally, American industry is well-equipped to lead a “next-generation” geothermal revolution. By using technologies like fracking and horizontal drilling, the oil and gas industry’s workforce can transfer their skills to geothermal and we have an already-developed supply chain. While we support an “all-of-the-above” approach to ensuring our energy security while decarbonizing, next-generation geothermal has not received the type of targeted policy interventions we provide other high-potential decarbonization efforts, like carbon capture, utilization and storage (CCUS), or hydrogen.

As the wind and solar industries mature, they run up against [constraints](#) that could challenge widespread deployment, such as intermittency and land-use challenges. So it’s essential to accelerate the innovation and commercialization of the next generation of clean energy technology. Unfortunately, next-gen geothermal has a capital problem. The industry faces headwinds that will hinder the pace of innovation and commercialization. With interest rates at their highest level in decades – and slated to stay elevated for an extended period – the cost of capital will limit the nascent industry’s ability to iterate and improve over time. Furthermore, a burdensome regulatory framework (particularly when compared with its closest analogue, the oil and gas industry) will limit investment into the sector as developers – weary of endless litigation – invest elsewhere.

Over the coming week, this series aims to address these challenges. What about the recent history of the shale industry might offer insight into the challenge the geothermal industry faces? What do we know about the regulatory and macroeconomic environment that can inform policy moving forward? What policies are most appropriate to accelerate next-generation geothermal commercialization? These are the questions we hope to answer.

The shale revolution provides a roadmap for accelerating innovation and commercialization for next-generation geothermal energy. **The shale revolution only happened because of an accommodative macroeconomic environment that lowered the cost of capital, fiscal subsidies that made risky drilling more viable, and a permissive regulatory environment that lowered the costs of risky investments. These factors worked in concert to unlock the capital necessary to enable remarkable technological advances in drilling and fracking.**

Although today’s context is different, the history of the shale revolution can inform policy choices to accelerate next-generation geothermal energy. In our view, Congress can pass clear, targeted interventions to support geothermal. Even without congressional action, the Biden administration can start the process through targeted executive action. Our series will lay this out.

First up is [Brian Potter](#) with a history of the technological revolution that enabled the shale boom, and what it means for the geothermal industry. Next is [Alex](#)

[Williams](#) and [Arnab Datta](#) on the economic and regulatory environment that enhanced the shale boom. Then, [Aidan Mackenzie](#), [Ashley George](#), and [Arnab Datta](#) will review the technological, capital, and regulatory challenges making it difficult for the industry to commercialize innovations. Finally, we will describe a detailed set of legislative and executive proposals that could support the commercialization of next-generation geothermal.

Given the uncertainty in our path to decarbonize, it is imperative that federal policy incentivize more shots on goal. Next-generation geothermal is a great place to start.

**We spoke with geothermal energy companies during the research process for this series, to better understand both the underlying technologies and the constraints facing the industry. Neither of our organizations has ever received donations from corporations with any financial interest in this topic.*