

HALLIBURTON



Full Steam Ahead with Geothermal Energy



Geothermal is gaining steam as a cost-effective, reliable, renewable, and environmentally friendly resource offering a virtually endless supply of energy. Geothermal energy offers 24/7

baseload power in a much smaller footprint than other intermittent forms of renewable energy and is abundantly available around the world. Yet today, less than one percent of global electricity is generated from geothermal resources.

Halliburton's Low Carbons Solutions Vice President, Duane Sherritt, shares insight into this developing energy market.

What are the top barriers to entry for developing geothermal projects?

Geothermal resources come with a higher up-front cost and greater risk of exploration failure and have been slower to develop as a result. Even experienced developers find geothermal operations complex and challenging in areas with limited subsurface understanding. This makes site selection and well placement key for managing risk and start-up costs.

Additionally, due to specialized exploration techniques and harsh downhole drilling environments, quick success in new geothermal drilling investments can be difficult to achieve. As technologies, processes, and efficiencies improve, the economics will improve, which will ultimately make geothermal more attractive to investors.

Why are enhanced and advanced geothermal systems important?

Traditionally, geothermal energy could only be harnessed in geographic locations

with hot underground aquifers, but these areas are limited. Enhanced geothermal systems utilize technologies and processes pioneered during the shale revolution, such as horizontal drilling and hydraulic fracturing, to create or enhance the permeability of the reservoir. Advanced geothermal systems utilize horizontal drilling, in addition to ranging and multi-lateral completions, to create closed-loop radiators. Both systems greatly increase the geographic viability of geothermal by limiting the geologic conditions necessary to harvest geothermal energy.

How do energy services providers assist with geothermal projects?

High-temperature applications, such as geothermal reservoir development, often strain the portfolios of many energy services companies. However, new cementing solutions, Electric Submersible Pump (ESP) systems for geothermal applications, chemical treatments, and mechanical cleaning tools to remove scale are all relevant to high-temperature geothermal applications.

With 100 years of experience in the oil and gas industry and 70 years of experience in geothermal development, Halliburton has invested in the technologies to help our customers unlock opportunities in new geographical locations. As the industry pushes the boundaries with deeper, hotter, and more complex well designs, Halliburton is ready to collaborate and engineer the solutions necessary for the safe, efficient delivery of geothermal projects.

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To learn more about Halliburton's geothermal capabilities, scan here:

