

Geothermal Energy Market on a Steady Growth Trajectory, Projected to Expand at a 6.5% CAGR from 2023 to 2033

Geothermal Energy Market Analysis by Power Station Type ,By Power Output,By End Use, & By Region



ROCKVILLE , MARYLAND, USA, October 2, 2023 /EINPresswire.com/ -- The global [geothermal energy market](#) is

valued at US\$ 5.32 billion in 2023 and is predicted to reach US\$ 10 billion by 2033, expanding at a CAGR of 6.5% over the forecast period (2023 to 2033).

The global energy landscape is rapidly evolving, driven by the urgent need to address climate change and reduce greenhouse gas emissions. In this context, geothermal energy has emerged as a promising and sustainable solution. Geothermal energy harnesses the Earth's natural heat from beneath the surface to generate electricity and provide heating and cooling. This article explores the current state of the geothermal energy market, its growth prospects, and its potential to play a pivotal role in the transition to a cleaner and more sustainable energy future.

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The Geothermal Energy Market Landscape

The geothermal energy market has witnessed significant growth in recent years, driven by a confluence of factors, including increased environmental awareness, policy support, and technological advancements. Geothermal power plants are operational in over 80 countries, with a combined installed capacity of approximately 14.9 gigawatts (GW) as of 2021. This capacity is expected to expand rapidly in the coming years, with projections indicating that the global geothermal market could reach 18.4 GW by 2026.

Key Market Drivers

1. **Environmental Concerns:** Geothermal energy is considered one of the cleanest and most environmentally friendly energy sources. It produces minimal greenhouse gas emissions and has

a negligible environmental footprint compared to fossil fuels.

2. **Energy Security:** Geothermal resources are virtually inexhaustible, providing a stable and reliable source of energy. This contributes to energy security by reducing dependence on volatile fossil fuel markets.
3. **Policy Support:** Governments around the world are increasingly recognizing the importance of renewable energy sources, including geothermal. Subsidies, tax incentives, and favorable regulatory frameworks have spurred investment in the sector.
4. **Technological Advancements:** Advances in drilling technology and geothermal plant design have made it more cost-effective to tap into geothermal resources. Enhanced geothermal systems (EGS) and binary cycle power plants have improved energy extraction and efficiency.

Market Challenges

While the geothermal energy market is on an upward trajectory, it still faces several challenges:

1. **High Initial Costs:** The upfront capital costs of drilling and constructing geothermal power plants can be substantial, deterring some investors.
2. **Resource Location:** Geothermal resources are not evenly distributed globally. Access to these resources often requires drilling deep wells, which can be cost-prohibitive in some regions.
3. **Technological Risks:** Enhanced geothermal systems (EGS) and other advanced technologies carry inherent risks, including seismic activity and reservoir stimulation challenges.
4. **Competition from Other Renewables:** Geothermal energy competes with solar and wind power, which have seen rapid cost reductions and widespread adoption.

Market Growth Prospects

Despite these challenges, the geothermal energy market is poised for substantial growth. Several factors contribute to its bright outlook:

1. **Expanding Market Reach:** As technology improves, previously untapped geothermal resources become accessible, expanding the geographical reach of the market.
2. **Hybrid Systems:** Combining geothermal with other renewable energy sources, such as solar and wind, can provide reliable power generation, enhancing its attractiveness.
3. **Decentralized Energy:** Geothermal energy can support decentralized energy systems, reducing transmission and distribution losses.

4. District Heating and Cooling: Geothermal energy is well-suited for district heating and cooling applications, which are increasingly in demand in urban areas.

5. Green Hydrogen Production: Geothermal power can be used to produce green hydrogen, a clean fuel with numerous applications.

Competitive Landscape with Key players

Some well-established energy companies with significant expertise in geothermal energy have a strong presence in the market. These companies often operate geothermal power plants and have extensive experience in geothermal project development, providing them with a competitive advantage.

Independent power producers play a crucial role in the geothermal energy market, especially in regions with supportive regulatory environments. These IPPs develop, own, and operate geothermal power projects, adding to the diversity of market participants.

- Pertamina Geothermal Energy (PGE) planned to increase its geothermal power plant capacity in November 2021 to contribute more to the reduction of greenhouse gas emissions in Indonesia and to support the achievement of the Sustainable Development Goals (SDGs) on climate action by implementing Environmental, Social, and Governance (ESG)-based programs.
- EXERGY International Srl and Geothermal Development & Investment Inc. announced a partnership agreement in June 2022 to distribute turnkey geothermal power stations in Japan using the sophisticated, highly efficient ORC (Organic Rankine Cycle) technology.

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