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Geothermal Energy Market Forecasts to 2032 – Global Analysis By Power Plant Type (Dry Steam Plants, Flash Steam Plants, Binary Cycle Plants, and Combined Heat & Power Plants), Component (Turbines, Heat Exchangers, Pumps, Cooling Towers, Generators, Drilling Equipment, Piping & Well Infrastructure, and Control Systems), Technology, Application, End User, and By Geography

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Abstracts

According to Stratistics MRC, the Global Geothermal Energy Market is accounted for $10.3 billion in 2025 and is expected to reach $15.4 billion by 2032, growing at a CAGR of 5.8% during the forecast period. The geothermal energy market covers technologies and projects that tap heat from beneath the Earth's surface to generate electricity and provide direct heating and cooling. It includes exploration, drilling, power plants, district heating networks, and geothermal heat pumps. Benefits include low and stable operating costs, baseload renewable power, very low emissions, reduced dependence on imported fuels, and long asset lifetimes that support energy security and decarbonization goals.

According to IRENA, global installed geothermal power capacity reached ~15.4 GW by end-2024.

Market Dynamics:

Driver:

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Rising global demand for baseload renewable energy to achieve climate goals

The global push to meet climate targets is a powerful driver for geothermal energy. Unlike intermittent sources like solar and wind, geothermal provides a consistent, reliable baseload power that is crucial for grid stability. This capacity to deliver continuous, clean electricity makes it indispensable for nations committed to decarbonizing their power sectors. Furthermore, its high capacity factor ensures a stable energy supply, directly supporting the phase-out of fossil fuels and making it a strategic component in the renewable energy mix for a sustainable future.

Restraint:

Geographical limitations to viable hydrothermal resources

Economical geothermal power generation currently depends on specific geological conditions, namely high heat flow and permeable rock with substantial water reservoirs, which are only found in distinct regions like the 'Ring of Fire.' This confines large-scale development to specific tectonic areas, excluding many countries from direct exploitation. Consequently, the planet's uneven distribution of these prime geological resources inherently caps the market's natural expansion.

Opportunity:

Increasing investment in emerging markets

Increasing investment into emerging markets, particularly in Southeast Asia and East Africa, presents a substantial opportunity. These regions possess vast, untapped geothermal potential aligned with their urgent need for electrification and economic development. International financing and technology transfers are making capital-intensive exploration and drilling projects more feasible. This influx of capital is unlocking new projects, diversifying the global geothermal landscape, and setting the stage for significant long-term market expansion beyond traditional hotspots.

Threat:

Competition from declining costs of solar PV and wind power

The most pressing threat comes from the relentless cost decline of solar PV and wind power. These variable renewables have achieved record-low prices for new

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installations, making them the default choice for many utilities and investors seeking cheap, clean energy. This positions geothermal, with its high upfront exploration and drilling risks, at a competitive disadvantage in power purchase agreements. Consequently, geothermal projects face intensified competition for funding and market share, potentially slowing their adoption rate.

Covid-19 Impact:

The COVID-19 pandemic significantly disrupted the geothermal market by causing supply chain bottlenecks and project delays. Lockdowns and restrictions hindered the mobilization of specialized equipment and skilled personnel to remote project sites, stalling development timelines. Additionally, initial economic uncertainty led to temporary delays in final investment decisions for new projects. However, the sector demonstrated resilience, and the long-term drivers for clean energy remained intact, with a recovery propelled by renewed government focus on sustainable economic stimulus packages.

The flash steam plants segment is expected to be the largest during the forecast period

The flash steam plants segment is expected to account for the largest market share during the forecast period, as they are the most prevalent and technologically mature method for geothermal power generation, especially in high-temperature reservoirs above 180°C. Their operational efficiency and proven track record in converting hydrothermal resources into electricity make them the preferred choice for many developers. The segment's leading position is strengthened by the large amount of high-temperature resources available in well-established geothermal markets, which will help it stay on top in the near future by providing dependable, large-scale power generation.

The drilling equipment segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the drilling equipment segment is predicted to witness the highest growth rate. Increased global investment in both new greenfield projects and the expansion of existing geothermal fields directly drives this surge. Drilling represents a major portion of project capital expenditure, and as development accelerates, the demand for advanced, efficient drilling rigs and related services intensifies. Moreover, technological innovations aimed at reducing drilling costs and improving success rates in enhanced geothermal systems (EGS) will further propel this segment's expansion.

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Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. The well-established and extensive geothermal infrastructure in the western states, particularly California and Nevada, anchors this leadership. Supportive regulatory frameworks and state-level renewable portfolio standards consistently drive development. Furthermore, continuous investments in modernizing existing plants and exploring new advanced geothermal technologies solidify the region's dominant position, leveraging its long-standing expertise and significant, high-quality resource base.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is expected to exhibit the highest CAGR, driven by massive untapped potential and escalating energy demand. Countries like Indonesia, the Philippines, and New Zealand are aggressively developing their vast geothermal resources to bolster energy security and reduce carbon emissions. Substantial government initiatives, coupled with rising international investments and partnerships, are accelerating project pipelines. This dynamic combination of need, resource availability, and financial backing positions the region for the most rapid market expansion globally.

Key players in the market

Some of the key players in Geothermal Energy Market include Ormat Technologies, Inc., Calpine Corporation, Enel Green Power S.p.A., Energy Development Corporation, PT Pertamina Geothermal Energy, Kenya Electricity Generating Company PLC, Terra-Gen, LLC, Fervo Energy, Inc., Baker Hughes Company, Mitsubishi Heavy Industries, Ltd., Toshiba Energy Systems & Solutions Corporation, General Electric Company, Atlas Copco AB, Turboden S.p.A., Innergex Renewable Energy Inc., Exergy International S.r.l., Contact Energy Limited, and Landsvirkjun.

Key Developments:

In November 2025, PT Pertamina Geothermal Energy (PGE) announced the launch of the Ulubelu Green Hydrogen Pilot Project, integrating geothermal energy with hydrogen technology to support a low-carbon industry and develop an end-to-end green hydrogen ecosystem.

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In October 2025, Ormat Technologies has partnered with SLB to accelerate the development and deployment of integrated geothermal assets, including the next-generation Enhanced Geothermal Systems (EGS). This collaboration aims to make geothermal energy more scalable and commercially viable, addressing the rising energy demand driven by AI and data center needs. The partnership also involves designing and piloting EGS solutions at existing Ormat sites.

In June 2025, Calpine Corporation, in collaboration with MCE, expanded its geothermal capacity by 7 MW at The Geysers geothermal complex, which started powering homes on June 1, 2025. The expansion emphasizes enhanced reliability and community benefits with $50,000 allocated for local green jobs and access to clean energy.

Power Plant Types Covered:

- Dry Steam Plants
- Flash Steam Plants
- Binary Cycle Plants
- Combined Heat & Power Plants

Components Covered:

- Turbines
- Heat Exchangers
- Pumps
- Cooling Towers
- Generators
- Drilling Equipment
- Piping & Well Infrastructure

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- Control Systems

Technologies Covered:

- Conventional Hydrothermal Systems
- Enhanced Geothermal Systems (EGS)
- Ground Source Heat Pumps (GSHP)
- Advanced Closed-Loop Systems

Applications Covered:

- Electricity Generation
- Direct Use
- District Heating & Cooling
- Industrial Heating
- Greenhouse Heating
- Other Applications

End Users Covered:

- Residential
- Commercial
- Industrial
- Utility / Independent Power Producers

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Regions Covered:

- North America
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  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific

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South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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