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Geothermal Electricity Market Outlook 2025-2034: Market Share, and Growth Analysis By Type (Back Pressure, Binary, Double Flash, Dry Steam, Single Flash, Triple Flash), By Application (Residential, Commercial, Industrial, Other Applications), By End-user

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Abstracts

The Geothermal Electricity Market is valued at USD 10.5 billion in 2025 and is projected to grow at a CAGR of 9.4% to reach USD 23.6 billion by 2034.The global geothermal electricity market is gaining traction as governments and energy companies seek sustainable and renewable energy solutions to reduce carbon emissions. Geothermal power, generated by harnessing heat from the Earth's core, offers a reliable and continuous energy source, unlike intermittent renewables such as solar and wind. With increasing concerns over energy security and the volatility of fossil fuel markets, geothermal energy is emerging as a crucial alternative for baseload power generation. Investments in enhanced geothermal systems (EGS) and deep drilling technologies are expanding the feasibility of geothermal projects beyond traditional high-temperature reservoirs. However, the high upfront capital costs and site-specific nature of geothermal plants remain key challenges. Despite these hurdles, policy incentives, technological advancements, and growing electricity demand are positioning geothermal power as a pivotal player in the global energy transition. The geothermal electricity market saw notable developments, driven by government policies promoting renewable energy and the increasing need for energy independence. Countries such as the U.S., Indonesia, and Kenya ramped up investments in new geothermal projects, supported by favorable regulatory frameworks and public-private partnerships. Advances in drilling technologies, such as closed-loop geothermal systems, enabled geothermal energy extraction in regions previously considered unviable. Additionally,

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financial institutions and green energy funds increased their support for geothermal projects, recognizing their potential for long-term stable returns. Enhanced collaboration between geothermal developers and oil and gas companies facilitated the transfer of expertise in subsurface exploration, further driving market expansion. As a result, 2024 marked a year of significant progress in making geothermal electricity more accessible and competitive in the broader energy market. The geothermal electricity market is expected to witness accelerated growth, fueled by continued technological innovation and supportive policies. Governments are likely to introduce more incentives, such as tax credits and feed-in tariffs, to encourage investment in geothermal infrastructure. The development of hybrid renewable energy systems, integrating geothermal with solar or hydrogen production, will enhance efficiency and broaden the applicability of geothermal power. Emerging markets in Latin America and Africa are projected to become hotspots for new geothermal projects due to their untapped geothermal potential and increasing electricity demand. Breakthroughs in artificial intelligence and machine learning are expected to optimize geothermal exploration and plant efficiency, reducing operational costs. However, land-use regulations and environmental concerns related to geothermal drilling could pose challenges to large-scale expansion. Despite these obstacles, geothermal electricity is on track to play a crucial role in the global transition to clean energy.

Key Insights Geothermal Electricity Market

Advancements in Enhanced Geothermal Systems (EGS): The development of EGS technologies is expanding geothermal power generation beyond conventional high-temperature reservoirs, increasing accessibility.

Growing Interest in Hybrid Renewable Systems: Geothermal energy is being integrated with solar and hydrogen production to enhance efficiency and create diversified renewable power solutions.

Government Incentives and Policy Support: Many countries are implementing subsidies, tax incentives, and regulatory reforms to encourage geothermal energy adoption.

AI and Digitalization in Geothermal Exploration: Artificial intelligence and big data analytics are improving resource identification and optimizing geothermal plant operations.

Expansion into Emerging Markets: Developing nations, particularly in Latin

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America and Africa, are investing in geothermal projects to meet rising electricity demand and enhance energy security.

Rising Demand for Clean Energy: The global push for decarbonization and the shift away from fossil fuels are driving interest in geothermal electricity as a reliable renewable source.

Technological Advancements in Drilling: Innovations in deep drilling and closed-loop geothermal systems are making geothermal energy more viable in previously untapped regions.

Increased Energy Security Concerns: The need for stable, locally sourced power generation is prompting governments to invest in geothermal infrastructure.

Financial Support from Green Energy Funds: International financial institutions and private investors are providing capital for geothermal projects, recognizing their long-term sustainability potential.

High Initial Capital Costs: The substantial upfront investment required for geothermal exploration and plant construction remains a major barrier to widespread adoption, limiting the entry of new market players.

Geothermal Electricity Market Segmentation

By Type

- Back Pressure
- Binary
- Double Flash
- Dry Steam
- Single Flash
- Triple Flash

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By Application

- Residential
- Commercial
- Industrial
- Other Applications

By End-user

- Dry Steam Power Stations
- Flash Steam Power Stations
- Binary Cycle Power Station

Key Companies Analysed

- Calpine Corporation
- Comisi?n Federal de Electricidad (CFE)
- Energy Development Corporation
- Enel S.p.A.
- Chevron Corporation
- U.S. Geothermal Inc.
- Kenya Electricity Generating Company PLC (KenGen)
- Contact Energy Limited
- Orkuveita Reykjavikur (Reykjavik Energy)

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Pertamina Geothermal Energy

CalEnergy Generation

Star Energy Ltd.

Northern California Power Agency

Terra-Gen LLC

Ormat Technologies Inc.

Aboitiz Power Corporation

Mercury NZ Limited

PT Pertamina Geothermal Energy

Raya Group Limited

Cyrq Energy Inc.

Fuji Electric Co. Ltd.

Baker Hughes Company

Doosan ?koda Power s.r.o.

Sosian Energy Limited

Geothermal Electricity Market Analytics

The report employs rigorous tools, including Porter’s Five Forces, value chain mapping, and scenario-based modeling, to assess supply–demand dynamics. Cross-sector influences from parent, derived, and substitute markets are evaluated to identify risks and opportunities. Trade and pricing analytics provide an up-to-date view of international flows, including leading exporters, importers, and regional price trends.

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Macroeconomic indicators, policy frameworks such as carbon pricing and energy security strategies, and evolving consumer behavior are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

Geothermal Electricity Market Competitive Intelligence

The competitive landscape is mapped through OG Analysis' proprietary frameworks, profiling leading companies with details on business models, product portfolios, financial performance, and strategic initiatives. Key developments such as mergers & acquisitions, technology collaborations, investment inflows, and regional expansions are analyzed for their competitive impact. The report also identifies emerging players and innovative startups contributing to market disruption.

Regional insights highlight the most promising investment destinations, regulatory landscapes, and evolving partnerships across energy and industrial corridors.

Countries Covered

North America — Geothermal Electricity market data and outlook to 2034

United States

Canada

Mexico

Europe — Geothermal Electricity market data and outlook to 2034

Germany

United Kingdom

France

Italy

Spain

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Brazil

Argentina

Chile

Peru

* *We can include data and analysis of additional countries on demand.*

Research Methodology

This study combines primary inputs from industry experts across the Geothermal Electricity value chain with secondary data from associations, government publications, trade databases, and company disclosures. Proprietary modeling techniques, including data triangulation, statistical correlation, and scenario planning, are applied to deliver reliable market sizing and forecasting.

Key Questions Addressed

What is the current and forecast market size of the Geothermal Electricity industry at global, regional, and country levels?

Which types, applications, and technologies present the highest growth potential?

How are supply chains adapting to geopolitical and economic shocks?

What role do policy frameworks, trade flows, and sustainability targets play in shaping demand?

Who are the leading players, and how are their strategies evolving in the face of global uncertainty?

Which regional “hotspots” and customer segments will outpace the market, and what go-to-market and partnership models best support entry and expansion?

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Where are the most investable opportunities—across technology roadmaps, sustainability-linked innovation, and M&A—and what is the best segment to invest over the next 3–5 years?

Your Key Takeaways from the Geothermal Electricity Market Report

Global Geothermal Electricity market size and growth projections (CAGR), 2024-2034

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Geothermal Electricity trade, costs, and supply chains

Geothermal Electricity market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Geothermal Electricity market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

Short- and long-term Geothermal Electricity market trends, drivers, restraints, and opportunities

Porter’s Five Forces analysis, technological developments, and Geothermal Electricity supply chain analysis

Geothermal Electricity trade analysis, Geothermal Electricity market price analysis, and Geothermal Electricity supply/demand dynamics

Profiles of 5 leading companies—overview, key strategies, financials, and products

Latest Geothermal Electricity market news and developments

Additional Support

With the purchase of this report, you will receive

An updated PDF report and an MS Excel data workbook containing all market

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tables and figures for easy analysis.

7-day post-sale analyst support for clarifications and in-scope supplementary data, ensuring the deliverable aligns precisely with your requirements.

Complimentary report update to incorporate the latest available data and the impact of recent market developments.

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Contents

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8. NORTH AMERICA GEOTHERMAL ELECTRICITY MARKET SIZE, GROWTH TRENDS, AND FUTURE PROSPECTS TO 2034

9. SOUTH AND CENTRAL AMERICA GEOTHERMAL ELECTRICITY MARKET DRIVERS, CHALLENGES, AND FUTURE PROSPECTS

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