

# **Geothermal Heat Pump Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Open Loop, Closed Loop), By Application (Residential, Commercial, Industrial), By Region & Competition, 2021-2031F**

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## **Abstracts**

The global market for Geothermal Heat Pumps is projected to expand significantly, rising from USD 13.02 billion in 2025 to USD 21.75 billion by 2031, demonstrating an 8.93% compound annual growth rate. These advanced renewable energy systems efficiently utilize the earth's stable subsurface temperatures to facilitate thermal energy transfer for various heating and cooling needs. Key factors propelling this market expansion include stringent government mandates for decarbonization and greenhouse gas emission reduction, alongside the inherent operational superiority of ground source technology over traditional fossil fuel or air source options. Additionally, the growing deployment of financial incentives and supportive regulatory structures designed to encourage sustainable thermal technologies is crucial for increasing the adoption of these systems across both residential and commercial applications.

However, the market confronts a considerable hurdle due to the substantial initial investment and intricate installation procedures required for underground loop infrastructure. This financial impediment renders the sector particularly vulnerable to economic shifts and inconsistencies in public funding. For example, the European Heat Pump Association reported an approximately 22 percent decrease in heat pump sales across thirteen major European markets in 2024, primarily attributable to unstable policies and fluctuating support schemes. This market volatility underscores the persistent difficulty in maintaining growth for costly geothermal projects in the absence of consistent regulatory stability.

## Market Driver

Government policies and financial incentives serve as the main drivers for market expansion, effectively mitigating the substantial upfront costs that have traditionally impeded adoption. Through robust subsidy programs and tax credits, regulatory bodies are reducing the financial risk associated with installation for both residential and commercial property owners. For example, the UK Boiler Upgrade Scheme experienced a significant increase in activity, issuing 78 percent more vouchers in December 2024 than in the prior year, as reported by Renewable Energy Installer in February 2025. This ongoing financial support fosters the market stability essential for installers to expand their operations and bolsters consumer trust in renewable thermal technologies.

The escalating demand for energy-efficient HVAC systems is additionally propelling sector growth, as end-users increasingly prioritize long-term operational cost savings and decarbonization efforts. This trend is stimulating significant strategic partnerships and infrastructure development focused on integrating ground-source technology into new construction projects and district heating networks. A prime illustration is the collaboration between Dandelion Energy and Lennar, announced in April 2025, to install geothermal systems in over 1,500 new homes in Colorado, marking one of the largest residential geothermal deployments in U.S. history. Such initiatives contribute to the overall expansion of the global installed base, with ten new geothermal district heating and cooling systems commissioned in Europe in 2024, bringing the total to 412 operational systems, as per the European Geothermal Energy Council's September 2025 report.

## Market Challenge

The significant initial capital investment and the intricate installation processes for underground loop infrastructure pose a major barrier to the growth of the Global Geothermal Heat Pump Market. In contrast to air-source systems, geothermal installations necessitate invasive and expensive civil engineering work, including vertical drilling or extensive horizontal excavation, to create the required heat exchange network. This substantially increases the upfront financial outlay, prolonging the return on investment and thereby limiting adoption primarily to well-funded commercial enterprises or homeowners with considerable financial resources. As a result, this substantial capital burden fosters a market highly susceptible to economic instability and the reliability of financial support.

Reductions or delays in financial incentives quickly undermine the viability of these

capital-intensive projects, causing prompt market contraction. The clear link between financial risk and market performance is illustrated by recent industry data. For instance, the German Heat Pump Association (BWP) reported a 46 percent drop in heat pump sales in Germany in 2024, totaling around 193,000 units. This decline was largely due to uncertainty over funding schemes, which discouraged investment in expensive heating solutions. This information highlights how the issue of high initial costs, especially when combined with regulatory instability, directly impedes the market's consistent growth.

## **Market Trends**

The market is being transformed by the integration of next-generation drilling technologies, which are effectively tackling the logistical hurdles associated with installing underground loops. Advanced innovations, such as compact and autonomous drilling rigs, now permit borefield construction in crowded urban settings where conventional equipment is unfeasible, directly alleviating the barrier of high capital expenditure. This technological advancement simplifies the most labor-intensive stage of deployment, thereby expanding the applicability of ground-source solutions to a wider array of properties. As reported by The Driller in February 2025, Bedrock Energy secured \$12 million in Series A funding to scale its innovative drilling technology, aiming to cut heating and cooling costs for real estate by up to 50 percent.

Concurrently, the rise of Energy-as-a-Service business models, particularly via utility-owned thermal energy networks, is separating upfront infrastructure costs from end-users. Under this model, asset ownership shifts to utility providers, who recoup their investments through established rate structures, thus making ground-source efficiency more accessible by treating geothermal loops as communal public infrastructure. This trend is gaining momentum as utilities strive to decarbonize their energy grids; for instance, Engineering News-Record reported in April 2025 that Eversource was awarded a \$7.8 million Department of Energy grant to fund the second phase of its networked geothermal pilot, which will enlarge the system's capability to serve more residential and commercial clients.

## **Key Market Players**

Carrier Global Corporation

Trane Technologies plc

WaterFurnace Renewable Energy, Inc.

ClimateMaster, Inc.

Bosch Thermotechnology Corp.

Viessmann Group

Stiebel Eltron, Inc.

Dandelion Energy Inc.

## **Report Scope**

In this report, the Global Geothermal Heat Pump Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

### Geothermal Heat Pump Market, By Type

Open Loop

Closed Loop

### Geothermal Heat Pump Market, By Application

Residential

Commercial

Industrial

### Geothermal Heat Pump Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

### **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies present in the Global Geothermal Heat Pump Market.

### **Available Customizations:**

Global Geothermal Heat Pump Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

### **Company Information**

Detailed analysis and profiling of additional market players (up to five).

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