

Thermal Power Plant Market Size, Share & Forecast (2025-2034): USD 2.13 Billion Projection at 3.30% CAGR

The global Thermal Power Plant Market was valued at approximately USD 1,541.23 million in 2024 and is expected to reach around USD 2,132.41 million by 2034

PUNE, MAHARASHTRA, INDIA, August 4, 2025 /EINPresswire.com/ -- Executive Summary:

The [global thermal power plant market](#) was valued at approximately USD 1,541.23 million in 2024 and is

projected to reach USD 2,132.41 million by 2034, expanding at a compound annual growth rate (CAGR) of 3.30% between 2025 and 2034. Despite the global shift toward renewable energy, thermal power plants continue to play a crucial role in providing reliable base-load electricity,

especially in emerging economies and regions with coal or gas reserves.

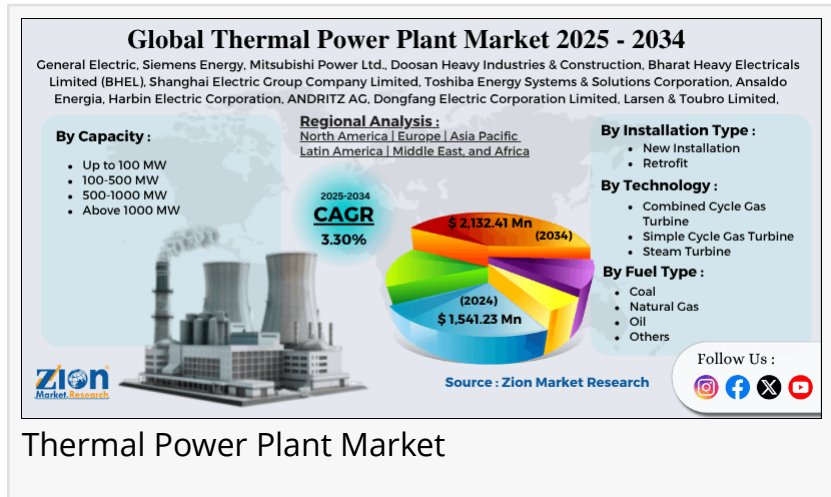
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Global thermal power plant market was valued at approximately USD 1,541.23 million in 2024 and is expected to reach around USD 2,132.41 million by 2034, (CAGR) of roughly 3.30% between 2025 and 2034.”

Deepak Rupnar

Key Insights:

As per the analysis shared by our research analyst, the global thermal power plant market is estimated to grow annually at a CAGR of around 3.30% over the forecast period (2025-2034). In terms of revenue, the global thermal power plant market size was valued at around USD



1,541.23 million in 2024 and is projected to reach USD 2,132.41 million by 2034.

The thermal power plant market is projected to grow significantly due to integrating carbon capture and storage (CCS) technologies, rising demand for baseload power reliability, and favorable regulatory policies supporting thermal capacity expansion in select regions.

Based on fuel type, natural gas leads the segment and will continue to lead the global market.

Based on installation type, retrofit is expected to lead the market.

Based on technology, combined-cycle gas turbines will command the largest market share.

Based on capacity, 500-1000 MW plants are expected to lead the market during the forecast period.

Based on region, Asia Pacific is projected to lead the global market during the forecast period.

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Market Drivers:

□ 1. Rising Energy Demand in Emerging Economies:

Countries in Asia, Africa, and Latin America are experiencing rapid industrialization and urbanization, driving a surge in electricity demand.

Thermal power offers immediate, scalable power generation capabilities.

□ 2. Upgradation of Existing Thermal Plants:

Aging power infrastructure in North America and Europe is being modernized with supercritical and ultra-supercritical technologies to improve efficiency and reduce emissions.

Global Thermal Power Plant Market, 2020-2034 (USD Million)



Thermal Power Plant Market Size



Thermal Power Plant Market Competitive Analysis

□ 3. Abundant Fuel Availability:

Coal, natural gas, and oil remain readily available in several nations, offering cost-effective, secure energy options.

Domestic resource utilization reduces reliance on imported fuels.

□ 4. Integration with Hybrid and Carbon Capture Technologies:

Growth in carbon capture, utilization, and storage (CCUS) technologies is making thermal power plants more sustainable.

Hybrid operations (e.g., solar + coal) are emerging to balance reliability with sustainability.

Market Challenges:

Environmental Concerns & Carbon Emissions: Thermal power plants are among the largest contributors to greenhouse gases, leading to stringent emission regulations.

Shift Toward Renewables: Investment in solar, wind, and hydro is diverting funds from thermal projects.

High Water Usage: Cooling and steam generation require significant water, creating challenges in water-scarce regions.

Opportunities:

Retrofitting Projects: Older plants are being retrofitted with low-NOx burners, scrubbers, flue gas desulfurization (FGD) units, and carbon capture technologies.

Hybrid Power Models: Integration with renewables or energy storage systems creates more flexible and cleaner energy delivery.

AI and Digital Monitoring Systems: Predictive maintenance and real-time efficiency tracking reduce downtime and increase ROI.

Market Segmentation:

□ By Fuel Type:

Coal-fired

Natural Gas-fired

Oil-fired

Others (biomass, waste heat)

□ By Technology:

Subcritical

Supercritical

Ultra-Supercritical

Combined Cycle

□ By End-Use:

Industrial Power Generation

Residential & Commercial Use

Utility Providers

Regional Insights:

□ Asia-Pacific:

Dominates global market with over 60% of new installations, led by China, India, Indonesia, and Vietnam.

Coal remains a strategic asset, supported by domestic reserves and government-backed projects.

□ North America:

Moderate growth due to retirements of aging coal-fired plants.

Focus on CCUS retrofits and gas-fired peaking plants to stabilize renewable-heavy grids.

□ Europe:

Declining new installations; however, modernization of legacy assets and gas-fired flexibility support the market.

Green Deal policies accelerating decommissioning of high-emission facilities.

□ Middle East & Africa:

Rising investments in gas-fired thermal plants to meet infrastructure growth and desalination needs.

Competitive Landscape:

The thermal power plant market is led by multinational conglomerates that specialize in both EPC (Engineering, Procurement, Construction) services and next-generation power equipment.

The global thermal power plant market is led by players like:

General Electric

Siemens Energy

Mitsubishi Power Ltd.

Doosan Heavy Industries & Construction

Bharat Heavy Electricals Limited (BHEL)

Shanghai Electric Group Company Limited

Toshiba Energy Systems & Solutions Corporation

Ansaldo Energia

Harbin Electric Corporation

ANDRITZ AG

Dongfang Electric Corporation Limited

Larsen & Toubro Limited

Kawasaki Heavy Industries Ltd.

MAN Energy Solutions

Babcock & Wilcox Enterprises

Sumitomo Heavy Industries Ltd.

Thermax Limited
IHI Corporation
Wood Group
Mitsubishi Heavy Industries Ltd.

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Recent Developments:

2024: Mitsubishi Power launched a pilot for a hydrogen-coal co-firing turbine in Japan to decarbonize thermal operations.

2023: BHEL secured a major contract to upgrade India's largest coal-fired power plant with ultra-supercritical tech.

2023: Siemens Energy partnered with Middle Eastern governments for the deployment of flex-fuel power plants.

Future Outlook:

While thermal power's share in global generation is expected to decline, its role as a stabilizer for renewable variability and supplier of industrial power will remain vital. Integration with carbon-reducing innovations, along with digitization and hybrid systems, will help thermal power maintain relevance in a decarbonizing world.

Conclusion:

The global thermal power plant market, growing from USD 1,541.23 million in 2024 to USD 2,132.41 million by 2034 at a CAGR of 3.30%, is adapting to a changing energy landscape. It will continue to evolve as a reliable backbone for electricity generation, especially in emerging markets, while innovating to meet climate goals and efficiency demands.

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