

# **Energy ESO Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Service (R&D and Designing, Structuring and Layout, Digitization, Implementation & Maintenance), By Location (Onshore, Offshore), By Source (Renewable, Non-Renewable, Chemical Processing), By Region & Competition, 2021-2031F**

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## **Abstracts**

The Global Energy Engineering Services Outsourcing (ESO) Market is projected to expand robustly from USD 441.02 Billion in 2025 to USD 1164.76 Billion by 2031, at a CAGR of 17.57%. This market involves energy firms strategically outsourcing technical functions like plant design, grid modernization, and digital asset maintenance to specialized third-party vendors. Its growth is primarily driven by the urgent need for operational cost reductions, access to specialized technical expertise that is scarce internally, and the increasing complexity of transitioning to renewable energy infrastructures, which demands agile workforce scaling. The accelerated global shift towards renewable energy, exemplified by a record 473 GW of new capacity in 2023, coupled with the widespread integration of advanced technologies such as AI, IoT, and digital twins for smart grid modernization, compels energy companies to seek external engineering support. This is evident in the projected USD 400 billion spending on electricity grids in 2024 and the 2% rise in global primary energy consumption in 2024, highlighting the critical role of ESO providers in navigating these technical intricacies and ensuring infrastructure reliability.

Despite this strong growth trajectory, a significant challenge for the Global Energy ESO Market is the substantial risk associated with intellectual property protection and data security. Energy companies handle critical national infrastructure and proprietary

technologies, making cross-border data sharing a potential vulnerability for cyber threats and industrial espionage. The sheer scale of capital and proprietary technology involved in modern energy projects, with global enterprise engineering R&D spending at USD 1.53 trillion in 2024, amplifies this concern and often forces firms to restrict outsourcing or retain sensitive functions in-house. This hesitation is underscored by findings like the World Economic Forum's report, indicating that 54% of large organizations identify supply chain vulnerabilities as a major barrier to cyber resilience. Nonetheless, the market is being reshaped by key trends, including the emergence of Energy-as-a-Service (EaaS) models, which enable clients to shift from capital-intensive asset ownership to outcome-based contracts, thereby mitigating financial risk, as seen in Schneider Electric's 10.2% organic sales growth in Energy Management in 2024. Concurrently, the expansion of smart grid and microgrid engineering is accelerating, driven by the demand to accommodate increasing electricity loads from AI data centers and decentralized renewable resources, leading to a heightened reliance on expert vendors for complex technical integrations like high-voltage direct current (HVDC) systems and automated grid stabilization, as reflected in Siemens Energy's 25.4% comparable revenue growth in its Grid Technologies segment in fiscal year 2025.

### **Market Driver**

The market's growth is primarily fueled by the rapid global transition to renewable energy infrastructure, which exceeds internal capacities, and the extensive integration of advanced digital technologies like AI and IoT for smart grid modernization.

### **Market Challenge**

A significant impediment to market expansion is the substantial risk associated with intellectual property protection and data security, particularly due to the sensitive nature of critical infrastructure data and the complexities of cross-border collaboration.

### **Market Trends**

Key market trends include the emergence of Energy-as-a-Service (EaaS) models, offering outcome-based contracts, and the accelerating expansion of smart grid and microgrid engineering to manage increased electricity loads and decentralized energy resources.

### **Key Market Players**

Altair Engineering Inc.

ALTEN Group

Capgemini SE

HDL Development SAS

Cyient Limited

ESI Group

Mott Macdonald Group Limited

QuEST Global Services Pte. Ltd.

## **Report Scope**

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

### Energy ESO Market, By Service

R&D and Designing

Structuring and Layout

Digitization

Implementation & Maintenance

### Energy ESO Market, By Location

Onshore

Offshore

### Energy ESO Market, By Source

Renewable

Non-Renewable

Chemical Processing

## Energy ESO 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 Energy ESO Market.

## **Available Customizations:**

Global Energy ESO 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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