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Energy Transition Market Forecasts to 2030 – Global Analysis By Energy Source (Renewable Energy and Transitional Energy), Technology (Energy Storage Technologies, Smart Grid Technologies, Carbon Capture and Storage (CCS) and Other Technologies), End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Energy Transition Market is accounted for $3.08 trillion in 2024 and is expected to reach $5.56 trillion by 2030 growing at a CAGR of 10.3% during the forecast period. The global switch from fossil fuel-based energy systems to low-carbon, renewable energy sources are referred to as the 'energy transition.' This shift includes adjustments to industrial operations, transportation, and power generation, with a focus on sustainable alternatives like solar, wind, and hydrogen. While maintaining dependable, reasonably priced energy access to satisfy expanding global demands, the objective is to lower greenhouse gas emissions.

According to the U.S. Energy Information Administration, renewables made up 19.8% of electricity generation in 2020, with hydro and wind being the majority contributors.

Market Dynamics:

Driver:

Climate change concerns

Climate change concerns are a significant driver in the energy transition market, as global efforts to reduce greenhouse gas emissions intensify. Governments and

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organizations worldwide are adopting renewable energy solutions to combat rising temperatures and meet international agreements like the Paris Accord. This urgency has spurred investments in solar, wind, and other clean energy technologies. Public awareness and demand for sustainable energy further bolster the market, encouraging innovation and policy support. These factors collectively accelerate the shift towards a low-carbon economy, making climate change mitigation a central market driver.

Restraint:

High upfront costs

Renewable energy projects, such as solar farms or wind turbines, require significant capital investment for installation and infrastructure development. These costs are often prohibitive for developing regions or smaller enterprises, limiting widespread adoption. Financing challenges, coupled with higher interest rates, exacerbate this issue. Despite long-term savings from lower operational costs, the initial financial burden remains a deterrent.

Opportunity:

High upfront costs

Innovations in energy storage systems, such as advanced batteries, enhance renewable energy reliability by addressing intermittency issues. Smart grid technologies and efficient renewable energy generation methods further optimize resource utilization. These advancements reduce costs over time, improve scalability, and make renewable solutions more competitive with fossil fuels. As technology continues to evolve, it creates new avenues for investment and accelerates the adoption of clean energy solutions globally.

Threat:

Resistance from incumbent industries

Considering traditional energy sectors like fossil fuels frequently oppose the shift to renewable energy, resistance from incumbent industries poses a serious danger to the energy transition market. It is difficult to implement laws or technological advancements that support greener alternatives because of the existing infrastructure, financial

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resources, and political clout of these businesses. They might also obstruct innovation or changes in regulations that might challenge their business strategies. This opposition may hinder global progress toward sustainable energy transitions, slow down investment in clean technologies, and delay the implementation of renewable energy alternatives.

Covid-19 Impact:

The COVID-19 pandemic had mixed effects on the energy transition market. While it temporarily reduced global energy demand and emissions due to lockdowns, it disrupted supply chains for renewable projects and delayed installations. Financial constraints also led to reduced investments in new projects, particularly in developing regions. However, the pandemic highlighted the importance of resilient and sustainable energy systems, spurring innovation in digital technologies like smart grids. The crisis served as a wake-up call for accelerating clean energy adoption to ensure long-term economic recovery and environmental sustainability.

The renewable energy segment is expected to be the largest during the forecast period

The renewable energy segment is expected to account for the largest market share during the forecast period due to its critical role in decarbonization efforts. Solar and wind power dominate this segment, driven by declining costs and supportive government policies worldwide. These sources offer scalable solutions for reducing carbon emissions while meeting growing electricity demand sustainably. Additionally, advancements in battery storage enhance their reliability by addressing intermittency issues. As countries aim for net-zero targets, investments in renewable infrastructure will continue to grow significantly.

The data centers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the data centers segment is predicted to witness the highest growth rate due to increasing reliance on digital infrastructure and cloud computing. Data centers are major consumers of electricity; thus, integrating renewable energy solutions like solar or wind power into their operations is becoming crucial for sustainability goals. Moreover, innovations in cooling technologies and efficient power management systems further drive growth in this segment.

Region with largest share:

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During the forecast period, the Asia Pacific region is expected to hold the largest market share due to rapid industrialization and urbanization across countries like China and India. These nations lead in renewable capacity additions driven by cost reductions in solar PV technology and supportive government policies promoting clean energy adoption. Significant investments in infrastructure development also contribute to this dominance. The region's focus on reducing dependence on fossil fuels aligns with global decarbonization goals, ensuring sustained growth of its renewable energy sector.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR owing to its aggressive push towards clean energy transitions. Countries like Vietnam and Indonesia are rapidly expanding their renewable portfolios through ambitious targets and incentives for solar and wind projects. Technological advancements combined with declining costs of renewables further accelerate adoption rates across diverse sectors such as transportation and residential applications. This robust growth trajectory underscores Asia Pacific's pivotal role in shaping global energy transition trends effectively.

Key players in the market

Some of the key players in Energy Transition Market include NextEra Energy Inc., Duke Energy Corporation, Exelon Corporation, Southern Company, American Electric Power Inc., Edison International, Repsol, Brookfield Renewable Partners, Orsted A/S, Pacific Gas and Electric Company, Shell, TotalEnergies, Iberdrola SA, GE Vernova, Constellation Energy Corp, Vestas Wind Systems A/S, Enel S.p.A. and China Shenhua Energy.

Key Developments:

In January 2025, Vestas has received a 384 MW order for the second phase of DTEK’s Tyligulska project in Ukraine. This order adds to the 114 MW Tyligulska I order which Vestas received in March 2021 and successfully commissioned in the spring of 2023. For this order, Vestas will be supplying 64 wind turbines and is responsible for the supply, delivery, and commissioning of the turbines. Together, the first and second phase of Tyligulska will have a capacity of 498 MW, with a total of 83 V162-6.2 MW wind turbines in 6.0 MW operating mode, making it the largest wind energy project in the country.

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In September 2024, The U.S. Nuclear Regulatory Commission (NRC) has approved the subsequent license renewal for Florida Power & Light Company's (FPL) Turkey Point Nuclear Power Plant Units 3 and 4, enabling the continued safe operation of these units through 2052 and 2053, respectively. This significant approval ensures that the nuclear facility will continue to provide reliable, low-cost and clean energy to FPL customers for the next three decades.

In May 2024, Duke Energy, Amazon, Google, Microsoft and Nucor announced agreements to explore new and innovative approaches to support carbon-free energy generation and help utilities serve the future energy needs of large businesses in North Carolina and South Carolina. The announcement was made at the White House Summit on Domestic Nuclear Deployment.

Energy Sources Covered:

- Renewable Energy
- Transitional Energy

Technologies Covered:

- Energy Storage Technologies
- Smart Grid Technologies
- Carbon Capture and Storage (CCS)
- Hydrogen and Fuel Cells
- Advanced Nuclear Reactors

End Users Covered:

- Power Generation
- Industrial Sector

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- Power Utilities
- Commercial & Residential
- Transportation & Logistics
- Data Centers
- Agriculture
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific

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- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

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:

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- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- 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

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

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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