Global Energy Interconnection Investment



Overview

Source, flows and destination of global energy-related investment. World Energy Investment 2025 - Analysis and key findings. A report by the Internationa.

Key Takeaways

Global energy interconnection investment is rapidly expanding, driven by the need for clean energy integration, grid modernization, and cross-border electricity connectivity to enhance energy security and support decarbonization.

Investment Trends and Scale

Global investment in the energy transition reached a record $2. 3 trillion in 2025, with significant allocations to renewable energy, electrified transport, and grid infrastructure. Grid investment alone accounted for $483 billion, reflecting the growing recognition that modern, interconnected power systems are essential for integrating renewable energy and ensuring reliable electricity supply.

Clean energy supply investment now outpaces fossil fuel investment, highlighting a shift toward decarbonized energy systems. Role of InterconnectorsInterconnectors—high-capacity transmission lines linking national or regional grids—are central to global energy interconnection strategies. They allow efficient energy sharing across borders, reduce reliance on fossil fuels, and improve resilience against market stress or local supply disruptions.



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For example, China's ultra-high voltage (UHV) transmission network delivers renewable energy across thousands of kilometers with minimal losses, powering millions of homes and integrating solar and wind resources. Europe is also expanding interconnectors, inspired by the Nordics' decades-long experience in cross-border grid development.

Strategic Importance

Investing in global energy interconnections supports multiple objectives: Energy security: Reduces blackout risks and mitigates grid overloads. Decarbonization: Facilitates the integration of variable renewable energy sources. Economic efficiency: Optimizes electricity markets and reduces costs through shared resources.

Regional cooperation: Promotes cross-border collaboration and knowledge sharing among governments, financial institutions, and private investors. Financing and ImplementationHigh-quality interconnection projects require robust project preparation, risk mitigation, and technical expertise. Multilateral institutions like the MCDF provide grants, capacity building, and technical support for cross-border green energy projects, such as the Luapula Hydropower Project between the Democratic Republic of Congo and Zambia.

Strategic partnerships with manufacturers, grid operators, and investors are also critical to ensure long-term cash generation and sustainability.

Outlook

The International Energy Agency estimates that global grid capacity must at least double in the next 15 years to meet climate goals, emphasizing the urgent need for investment in interconnectors and modern transmission infrastructure. As countries pursue net-zero targets, global energy interconnection investment will remain a key driver of the energy transition, combining decarbonization, energy security, and economic growth.

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Global Energy Interconnection Development and Cooperation

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World Energy Investment 2025

The report provides a global benchmark for tracking capital flows in the energy sector and examines how investors are assessing risks and opportunities across all areas of fuel and electricity supply, critical

Global energy interconnection

Renewable energies are constrained by geographic location, weather conditions, and time Requires transmission of power over long distances Investment in new energy infrastructure and technology,

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Global energy demands within the AI regulatory landscape

This background guide on energy demands and AI was distributed to participants ahead of the FCAI dialogue on Nov. 18, 2025.

Our investment in AI-powered solutions for the electric grid

Bringing more energy capacity onto the grid, faster: Tapestry is building AI-powered tools that will streamline and accelerate the interconnection application and critical parts of the verification

Energy Transition Investment Trends

Global investment in renewable energy reached approximately $683 billion in 2025 and is projected to exceed $700 billion in 2026. This trajectory underscores the sustained momentum behind the energy

The Complete Guide to Renewable Energy Investments in 2025

The renewable energy sector is experiencing unprecedented growth, with global investment set to reach $3.3 trillion in 2025 according to the International Energy Agency. As the

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