

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 International Energy Agency.

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 Interconnectors—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.



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 Implementation High-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.

Article Content

Source, flows and destination of global energy-related investment ...

World Energy Investment 2025 - Analysis and key findings. A report by the International Energy Agency.

Grids - Electricity 2026 - Analysis

Meeting electricity demand through 2030 will require annual grid investment to increase by approximately 50% by 2030 from today's USD 400 billion, alongside

Global Energy Interconnection Development and Cooperation

GEIDCO has carried out more than 100 researches, released more than 50 innovative results globally, and published more than 50 monographs and reports in Chinese and English, enhancing its

Global Energy Interconnection | Journal

The provision of low carbon energy to our society is a key issue at the heart of sustainable development of global energy supply. The Global Energy Interconnection (GEI) Journal publishes original research

Evaluating the economic and social benefits of global energy ...

The GEI project represents a costly, long-term investment to facilitate the transition from fossil fuel dominance to a clean energy-led global energy system. Against the backdrop of fossil fuel

IEA World Energy Investment Report 2025: Where is global capital

Learn more about the key findings from the IEA World Energy Investment Report 2025, and Hanwha's presence across the industry.

MCDF Expert Outlines Keys to Supporting High-Quality Connectivity ...

An expert from the Multilateral Cooperation Center for Development Finance (MCDF) shared insights on promoting high-quality cross-border energy connectivity infrastructure investment

BloombergNEF Finds Global Energy Transition

BloombergNEF's Energy Transition Investment Trends reviews annual investment figures in the global energy transition, including spending to

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,

AI to drive 165% increase in data center power demand

The explosion in interest in generative artificial intelligence has resulted in an arms race to develop the technology, which will require many high

US Utilities Plan \$1.4T for AI Data Centers: 27% Capex

US utilities plan \$1.4 trillion in spending through 2030 for AI data centers. Duke Energy leads at \$102.2B as power demand hits 9% of US electricity.

Energy supply for AI – Energy and AI – Analysis

Energy supply for AI Global electricity supply to meet data centre demand Global electricity generation to supply data centres is projected to grow from 460 TWh in

Hyperscaler AI & Data Center Energy 2026, \$726B Dell'Oro

Hyperscaler 500 MW PPA with Linea Energy and the Shift to On-Site Power While hyperscalers continue to sign large-scale renewable PPAs to meet sustainability goals, the defining strategic shift

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

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: <https://bagyou.es>

Technical inquiry: <https://bagyou.es/project-enquiry.html>

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

