

The Vision of a Global Energy Interconnection



AI Overview

The Global Energy Interconnection (GEI) envisions a worldwide electricity network linking national and continental grids through ultra-high voltage systems to optimize renewable energy use, enhance energy security, and support sustainable development.

Concept and Objectives

The GEI represents a transformative approach to global energy systems, aiming to integrate large-scale renewable energy with smart grid technologies and ultra-high voltage (UHV) transmission infrastructure. Its primary objectives include:

- Maximizing renewable energy utilization by connecting regions with abundant solar, wind, and hydro resources to areas with high energy demand.
- Stabilizing energy supply by mitigating local intermittency through global coordination of energy flows.
- Reducing carbon emissions and supporting the transition to a zero-emission planetary energy system.
- Promoting international cooperation and energy market stability by linking high-supply and high-demand nations.

Technical Framework

The GEI relies on high-voltage direct current (HVDC) transmission to efficiently transport electricity over long distances with minimal losses. Key technical features include:

- Ultra-high voltage (UHV) backbone connecting national and continental grids.
- Smart grid integration for automated, intelligent energy management.
- Interoperability standards to ensure seamless operation across countries, technical domains, and equipment life cycles.

Phased implementation: initial integration of national grids, followed by continental interconnections, and ultimately transcontinental networks spanning Afro-Eurasia by 2070.

Economic and Environmental Benefits

Initial analyses suggest that a fully interconnected global system could reduce the levelized cost of electricity by approximately 4% and decrease required installed capacities by a similar margin compared to isolated sys...

Article Content

Global Energy Interconnection-SciEngine

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

Research and Outlook on Global Energy Interconnection

Research by Global Energy Interconnection Development and Cooperation Organization (GEIDCO) shows that the development of the climate crisis mainly presents four phases. The first is the risk

The vision of an interconnected world

Global Energy Interconnection (GEI) is designed to realize the global optimal allocation of clean energy through power grid interconnection, and turn the differences in resources, time

GM Empower 2026: Scaling the future of electrification ...

1 The GM Energy PowerShift Charger and GM Energy V2H Enablement Kit requires an adequately charged V2H-capable GM EV, a properly equipped home, and proper grid interconnection. Weather

Research and Outlook on Global Energy Interconnection

The Global Energy Interconnection (GEI) is a clean energy-dominant, electricity-centered, interconnected and shared modern energy system. It is an important platform for large-scale

2025 Global Energy Interconnection Conference

On September 26, 2015, Chinese President Xi Jinping proposed a visionary initiative at the United Nations Sustainable Development Summit— “to establish Global Energy Interconnection (GEI) to

Global Energy Interconnection

GEI is a clean energy-dominant, electric-centric modern energy system that is globally interconnected, jointly constructed and mutually beneficial to all. It is an important platform for large-scale

China's Vision for a Global Grid

In 2015, Xi Jinping debuted at the UN a grand scheme called Global Energy Interconnection (GEI) to transform the world's power grids.

Global energy interconnection | IEC

Global energy interconnection (GEI) is technically highly complex. It will require a level of dependability never seen before. International Standards inherently contain solutions that will help

China's Bold Energy Vision

China's proposed Global Energy Interconnection – based on renewables, ultra-high-voltage transmission, and an AI-powered smart grid – represents the boldest global initiative by any

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

Global energy interconnection

Thus this White Paper aims to highlight the concept of GEI and begin laying the foundations for identifying and addressing the standardization needs for large-scale, transcontinental and global

Global Energy Interconnection Development and Cooperation

The Global Energy Interconnection Initiative provides a key to solutions that can efficiently use rich and renewable resources, to deliver more than energy services to all even at long distances.

A Powerful Connection: Project Hostos to Link DR and PR Energy Grids

This interconnection is more than just a cable; it's the foundational piece of a potential integrated Caribbean energy market. By linking the grids of the region's two largest island

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Global Energy Interconnection: Vision of A World Power Grid

BEIJING, March 21, 2016 /PRNewswire/ -- Global Energy Interconnection (GEI), a vision of a world power grid, was outlined by the State Grid Corporation of China ("State Grid"). It foresees a ...

Global energy interconnection

Executive summary Global energy interconnection (GEI) represents the ultimate evolution of the trend towards greater interconnection of power systems. It embodies high-level integration of the flow of

Why 2026 is the Year Bitcoin Miners Become Global

Experts say Bitcoin miners will pivot to AI in 2026, with more energy asset purchases and more convergence between AI, mining and power firms.

Global energy interconnection

Large-scale implementation of clean energy (notably renewables) Transmission of power over long distances (ultra-high voltage) Smart grid solutions Benefits of GEI: Optimize renewable energy

Global Energy Interconnection: an innovative solution for

Against the background of energy consumption transformation and climate governance, Global Energy Interconnection (GEI), which features an innovative combination of advanced

Origin of Global Energy Interconnection

Concept of Global Energy Interconnection • GEI is an interconnected modern energy system, dominated by clean energy and centering on electricity, and an important carrier for safe, cost-effective and

Opening remarks at 2025 Global Energy Interconnection (GEI)

I extend my appreciation to the Global Energy Interconnection Development and Cooperation Organization for convening this timely meeting. We meet at a decisive moment for people and the

2025 Global Energy Interconnection Conference

In response, the Global Energy Interconnection Development and Cooperation Organization (GEIDCO) was established to advance this vision. Over the past decade, GEIDCO has brought together global

Global Energy Interconnection: an effective solution to climate ...

GEI was founded to seek a solution to global energy and environment challenges, focusing on energy security and environmental issues related to fossil energy utilization. The

GEI—An idea whose time has come

Global Energy Interconnection (GEI) is a bold venture for the generation, transmission, and use of clean energy, applying a smart grid as well as ultra-high voltage transmissions to

High-Level Symposium "Global Energy Interconnection: Advancing the ...

The United Nations has long recognized energy as one of the most important preconditions for achieving worldwide poverty eradication and sustainable development.

Global Energy N Interconnection

opment, adopted a dramatic way. With by world leaders conven- of Global Energy large-scale glacial melt-ing in the UN General Interconnection ing worldwide, a drasti- Assembly in September

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