

Digital Grid and Energy Internet



Overview

IRENA identifies five key areas in which digital technologies can transform power systems: monitoring through smart sensors and metres; AI-enhanced forecasting for demand and renewable generation; operational optimization to reduce losses and congestion; end-use automation for demand. IRENA identifies five key areas in which digital technologies can transform power systems: monitoring through smart sensors and metres; AI-enhanced forecasting for demand and renewable generation; operational optimization to reduce losses and congestion; end-use automation for demand. Imagine a city where every rooftop generates electricity, every battery communicates seamlessly with the grid, and algorithms make split-second decisions on how energy is distributed most efficiently. A digital neural system made of data spaces, AI, and cyber resilience that enables net-zero and. FIDE, or Foundation for Interoperability in Digital Economy (fide.org), is a not-for-profit organisation that fosters an open, inclusive, decentralised and fair digital economy through interoperable open standards and architecture. FIDE achieves this by promoting innovation and co-creation among. The European Commission has taken a significant step to address the impact of digital technologies on the energy sector. The. The agency's Digitalisation and AI for Power System Transformation report, which it developed together with the G7 Presidency, says that the COP28 goal of tripling renewable energy capacity by 2030 can be "catalyzed by digitalization". With many countries recognizing digitalization as a strategic. Digital and energy infrastructure are fuelling important progress. Integrating them can maximize the benefits.



Article Content

Grid Talk

Grid Talk is a podcast featuring the leaders and innovators shaping the 21st century grid. Hear the stories—in their own words—of how they are meeting the challenges and transitioning their

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Insights | Siemens

Explore how we're bringing AI to the real world through digital twins, autonomous infrastructure and software-defined automation.

Digital and energy infrastructure are fuelling important progress ...

Digital and energy infrastructure are at the heart of development and social mobility. Yet, their benefits are not evenly distributed. Today, 2.5 billion people still lack internet connectivity, and

Commission presents measures to digitalise Europe's energy system

The European Commission has taken a significant step to address the impact of digital technologies on the energy sector.

Digital twins for renewable energy

Digital twins for renewable energy, defined Digital twins (DT) for renewable energy refer to a technology that creates dynamic, virtual replicas of cyber-physical systems, such as power grids,

We did the math on AI's energy footprint. Here's the story you haven't ...

The emissions from individual AI text, image, and video queries seem small—until you add up what the industry isn't tracking and consider where it's heading next.

Smart Grid to Energy Internet: A Systematic Review of Transitioning ...

These technologies have achieved a state of evolution to facilitate seamless bidirectional flows in the Energy Internet. This paper has attempted to study the aptness of Energy Internet for a

Digital energy grids of the future

In this video, Prof. Martin Braun, Director of the Fraunhofer Institute for Energy Economics and Energy System Technology IEE, explains how we are laying the digital foundations

Digital power systems "essential" – and more energy stories

Overall, grid control activities accounted for almost a third of the total activities, due to distributed energy resource management systems, virtual power plants, advanced distribution

Making the electricity grid work like the internet

In this episode, I chat with Swedish tech entrepreneur Jonas Birgersson about his radical plan to apply the architecture of the internet—packet switching, buffering, and decentralized

Impacts of digitalization on smart grids, renewable energy, and

The insights gained from this review highlight the essential role of these emerging technologies in supporting decentralized, intelligent energy networks, offering valuable strategies for

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Digital Energy Grid

Together, we can build a Digital Energy Grid that not only addresses the challenges of today but also lays the foundation for a sustainable, resilient, and inclusive energy future.

AI to drive 165% increase in data center power demand by 2030

Goldman Sachs Research forecasts global power demand from data centers will increase 50% by 2027 and by as much as 165% by the end of the decade (compared with 2023), writes

Energy and AI – Analysis

The development and uptake of artificial intelligence (AI) has accelerated in recent years – elevating the question of what widespread

Siemens Energy press updates and news portal

Read Siemens Energy official press releases and media info to track the latest in energy tech and sustainability efforts.

Digitalisation

Advances in digital technologies and services, declining costs and ubiquitous connectivity have accelerated the digital transformation of energy in recent years, particularly in electricity networks.

Digitalisation and AI for transforming power systems: Case studies

Drawing on insights from IRENA Innovation Week 2025, the report examines digital solutions for grid operation and distributed energy resource management. The case studies cover dynamic congestion

Fluence | A Siemens and AES Company

Fluence is a global market leader in energy storage products and services, and cloud-based software for renewables and storage assets.

Impacts of digitalization on smart grids, renewable energy, and

Abstract Decarbonization, decentralization, and digitalization are essential for advanced energy systems (AES), which encompass smart grids, renewable energy integration, and demand

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TAMPA, Fla., July 8, 2026 /PRNewswire/ -- Verdantas, a leader in digitally enabled technical consulting for the environment, water, and energy transition markets, today announced its acquisition of

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