+357 96 030922
info@marketpublishers.com

US AI In Energy and Power Market - Strategic Insights and Forecasts (2026-2031)

https://marketpublishers.com/r/U419E0998569EN.html
Date: February 2026
Pages: 82
Price: US$ 2,850.00 (Single User License)
ID: U419E0998569EN

Abstracts

The US AI in Energy and Power Market is expected to grow at a CAGR of 25.2%, reaching a market size of USD 7.2 billion in 2031 from USD 2.3 billion in 2026.

The US AI in Energy and Power market is undergoing a fundamental transformation driven by the pressing need to modernize grid infrastructure, integrate renewable energy sources, and manage rapidly changing demand patterns. As the grid evolves toward decentralization and digitalization, traditional static systems are proving insufficient to handle bi-directional flows, distributed energy resources (DERs), and weather-driven volatility. Advanced AI solutions are moving from experimental deployments to core operational tools for utilities and large energy consumers. This shift is supported by federal initiatives aimed at accelerating energy infrastructure development and increased investment in predictive analytics and smart grid technologies. However, fragmented operational data systems and integration complexity continue to challenge widespread adoption.

Market Drivers

Variable renewable energy integration is a major growth driver. Wind and solar generate intermittent power, requiring sophisticated AI-enabled predictive algorithms to balance supply and demand accurately and in real time. These systems analyze weather patterns, historical generation data, and consumption behavior to forecast generation outputs and optimize distribution. Simultaneously, rising energy consumption from sectors such as electric vehicles and AI-heavy data centers is exerting pressure on grid infrastructure. Utilities increasingly adopt AI-based smart grid platforms to dynamically manage loads and mitigate risk of outages. Federal regulatory support through Department of Energy programs like “Speed to Power” further incentivizes integration

+357 96 030922
info@marketpublishers.com

of AI tools in transmission planning and real-time operations.

Market Restraints

A significant restraint is the fragmented nature of utility operational data. Legacy systems often separate IT and operational technology (OT) platforms, creating silos that impede model training and AI deployment. This increases integration costs and slows implementation. Additionally, utilities must address data governance and cybersecurity concerns as they expand AI capabilities across critical infrastructure. Standardizing data architectures across distributed networks remains a persistent challenge that limits scalability.

Technology and Segment Insights

By Technology: The market is segmented into machine learning, natural language processing, computer vision, and others. Machine learning is the dominant technology, enabling high-fidelity forecasting, anomaly detection, and optimization across generation and distribution systems. Natural language processing supports automated reporting and compliance functions, while computer vision is applied in asset inspection and grid monitoring operations.

By Application: Key application segments include demand forecasting, energy production and distribution optimization, energy management, smart grids, and smart meters. Demand forecasting remains foundational, providing utilities with granular predictions of load requirements through complex data synthesis from smart meters and external variables. Energy production and distribution optimization ensures balanced energy flows, minimizing losses and improving grid stability. Smart grids and smart meter analytics enhance real-time grid visibility and consumer participation in demand response programs.

By End-User: The market is segmented by commercial and industrial and residential end-users. Commercial and industrial users lead adoption due to significant energy consumption and strong financial incentives for cost reduction and sustainability. These users deploy AI-powered energy management systems to optimize HVAC systems, integrate on-site generation, and align operations with real-time electricity pricing. Residential demand is growing gradually, driven by smart home energy solutions and utility demand response initiatives.

Competitive and Strategic Outlook

+357 96 030922
info@marketpublishers.com

Competition in the US AI in Energy and Power market includes traditional industrial technology giants and AI-native platform providers. Successful vendors combine deep domain expertise with scalable platforms capable of normalizing and analyzing diverse OT/IT datasets. Strategic focus is on full-stack solutions that bridge sensor edge data to cloud-based analytics, ensuring interoperability with legacy utility systems. Partnerships between cloud infrastructure providers and energy technology specialists are catalyzing innovation and lowering integration barriers for utilities and large energy consumers.

The US AI in Energy and Power market is poised for sustained growth driven by grid modernization and the need for predictive and adaptive operational capabilities. AI adoption is increasingly essential for managing renewable integration, evolving demand patterns, and infrastructure resilience. Utilities and large energy users that deploy interoperable and scalable AI solutions will strengthen operational reliability and cost efficiency in a rapidly transforming energy landscape.

Key Benefits of this Report

Insightful Analysis: Gain detailed market insights across regions, customer segments, policies, socio-economic factors, consumer preferences, and industry verticals.

Competitive Landscape: Understand strategic moves by key players to identify optimal market entry approaches.

Market Drivers and Future Trends: Assess major growth forces and emerging developments shaping the market.

Actionable Recommendations: Support strategic decisions to unlock new revenue streams.

Caters to a Wide Audience: Suitable for startups, research institutions, consultants, SMEs, and large enterprises.

What Businesses Use Our Reports For

Industry and market insights, opportunity assessment, product demand forecasting, market entry strategy, geographical expansion, capital investment decisions, regulatory

+357 96 030922
info@marketpublishers.com

analysis, new product development, and competitive intelligence.

Report Coverage

Historical data from 2021 to 2024, Base Year 2025, Forecast Years 2026-2031

Growth opportunities, challenges, supply chain outlook, regulatory framework, and trend analysis

Competitive positioning, strategies, and market share evaluation

Revenue growth and forecast assessment across segments and regions

Company profiling including strategies, products, financials, and key developments

+357 96 030922
info@marketpublishers.com

Contents

1. EXECUTIVE SUMMARY

2. MARKET SNAPSHOT

2.1. Market Overview
2.2. Market Definition
2.3. Scope of the Study
2.4. Market Segmentation

3. BUSINESS LANDSCAPE

3.1. Market Drivers
3.2. Market Restraints
3.3. Market Opportunities
3.4. Porter's Five Forces Analysis
3.5. Industry Value Chain Analysis
3.6. Policies and Regulations
3.7. Strategic Recommendations

4. TECHNOLOGICAL OUTLOOK

5. US AI IN ENERGY AND POWER MARKET BY TECHNOLOGY

5.1. Introduction
5.2. Machine Learning
5.3. Natural Language Processing
5.4. Computer Vision
5.5. Others

6. US AI IN ENERGY AND POWER MARKET BY APPLICATION

6.1. Introduction
6.2. Demand Forecasting
6.3. Energy Production and Distribution Optimization
6.4. Energy Management
6.5. Smart Grids
6.6. Smart Meter

+357 96 030922
info@marketpublishers.com

6.7. Others

7. US AI IN ENERGY AND POWER MARKET BY END-USER

7.1. Introduction
7.2. Commercial and Industrial
7.3. Residential

8. COMPETITIVE ENVIRONMENT AND ANALYSIS

8.1. Major Players and Strategy Analysis
8.2. Market Share Analysis
8.3. Mergers, Acquisitions, Agreements, and Collaborations
8.4. Competitive Dashboard

9. COMPANY PROFILES

9.1. General Electric Company
9.2. Siemens Energy
9.3. Schneider Electric
9.4. ABB Ltd.
9.5. Honeywell International Inc.
9.6. C3.ai Inc.
9.7. Eaton Corporation Plc
9.8. IBM Corporation
9.9. Oracle

10. APPENDIX

10.1. Currency
10.2. Assumptions
10.3. Base and Forecast Years Timeline
10.4. Key benefits for the stakeholders
10.5. Research Methodology
10.6. Abbreviations

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: US AI In Energy and Power Market - Strategic Insights and Forecasts (2026-2031)
Product link: https://marketpublishers.com/r/U419E0998569EN.html
Price: US$ 2,850.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/U419E0998569EN.html