United States Smart Grid Market Assessment, By Network Area [Home Area Network (HAN), Neighbourhood Area Network (NAN), Wide Area Network (WAN), and Long-Range Wide Area Network (LoRaWAN)], By Components [Hardware and Software], By Applications [Distribution Automation, Conservation Voltage Reduction (CVR), Substation Automation, and Advanced Metering Infrastructure (AMI)], By Region, Opportunities, and Forecast, 2016-2030F

Market Report | 2024-04-19 | 84 pages | Market Xcel - Markets and Data

AVAILABLE LICENSES:

- Single User License $3300.00
- Muti-User/Corporate Licence $4500.00
- Custom Research License $7000.00

Report description:

The Smart Grid Market in the United States has been experiencing noteworthy advancements and is anticipated to reach a value of USD 64.34 billion by 2030, reflecting substantial growth from USD 23.71 billion in 2022, at a CAGR of 13.29% during the forecast period.

There have been significant developments in the implementation and adoption of smart grid technologies across the country. The increasing need for efficient and reliable energy distribution, along with the growing demand for renewable energy integration, has been driving the growth of the smart grid market in the United States. Moreover, the market has witnessed a rise in partnerships and collaborations between utility companies, technology providers, and research institutions to accelerate the deployment of smart grid solutions. These collaborations aim to develop innovative products, services, and business models that optimize energy management, enhance grid reliability, and enable consumer participation. For instance, in 2022, Duke Energy collaborated with Amazon Web Services (AWS) to co-create intelligent grid solutions that enhance customer service and accelerate the company's transition towards clean energy. This collaboration includes expanding their existing Intelligent Grid Services, a collection of tailored applications that aid the utility in predicting future energy needs and determining the necessary updates to the power grid.

Integration of EVs and Smart Grids

There has been a notable increase in the implementation of smart grid technologies compatible with EVs to enhance their functionality, efficiency, and integration with the power grid. Vehicle to everything (V2X) technology is one of the most trending technologies currently prevailing in the United States market. V2X technology plays a crucial role in the integration of EVs with smart grids. It enables communication and interaction between EVs and various entities within the grid ecosystem, including the power grid, charging infrastructure, energy management systems, and other vehicles. Hence, the organizations are collaborating with each other in order to improvise this technology as a smart grid solution in EVs.

For example, in 2023, BMW of North America, Pacific Gas and Electric Company (PG&E) collaborated to explore the potential of vehicle-to-everything (V2X) technology in addressing the increasing demand on the power grid. The collaboration aims to assess "how a California home can optimize its utilization of renewable energy by leveraging the power stored in an electric vehicle's (EV) battery in combination with grid-provided renewable energy". By charging the EV when renewable energy generation on the grid is at its peak and discharging it throughout the day to meet household energy needs, the partnership aims to maximize renewable energy consumption. According to BMW, connecting an EV to a home can potentially provide twice the amount of renewable energy typically consumed by an average California household in a day. Moreover, BMW also emphasized that V2X technology will enable EV owners to contribute to the grid by returning any surplus stored energy from their vehicle batteries, receiving compensation in return. The company believes that V2X technology has the potential to significantly enhance the integration of greenhouse gas-free resources into the power grid. By allowing EVs to serve as flexible energy storage units, the technology can support the utilization of renewable energy sources and contribute to reducing greenhouse gas emissions associated with grid operations.

Advancement of Rural Electric Infrastructure

Investments in rural electric infrastructure using smart grid technology have been on the rise in the United States as utilities and government entities recognize the importance of modernizing rural grids. Many rural electric cooperatives are investing in smart grid technologies to improve service reliability and efficiency for their members. These cooperatives often serve rural areas where large investor-owned utilities may not find it economically viable to invest. With support from government programs and partnerships with technology vendors, rural cooperatives are implementing advanced metering, distribution automation, and other smart grid solutions.

For example, in 2019, the U.S. Department of Agriculture (USDA) has allocated a substantial investment of USD 485 million to enhance rural electric systems and reduce energy expenses. This funding includes approximately USD 7.1 million specifically designated for the implementation of smart grid technologies, which aim to enhance system operations and enhance grid security. Furthermore, South Dakota's Northern Electric Cooperative is set to receive a loan of USD 24.8 million to construct or upgrade 360 miles of power lines. Within this loan, USD 351,000 has been allocated to integrate smart grid technologies such as computer applications, two-way machine-to-machine communications, geospatial information systems, and other tools. These technologies will contribute to increased reliability and efficiency in the delivery of electric power systems in rural areas of the country.

Government Initiatives

The United States smart grid market is subject to various government regulations that aim to promote the adoption and development of smart grid technologies. These regulations are intended to modernize the electricity grid, enhance grid reliability, support renewable energy integration, and promote energy efficiency. In 2022, the U.S. Department of Energy (DOE) released a Request for Information (RFI) to gather input regarding the Grid Resilience and Innovation Partnership Program, a funding initiative of USD 10.5 billion. The program aims to strengthen the resilience and dependability of the electric grid in the United States. It seeks to expedite the implementation of transformative projects that will contribute to the stability and reliability of the power sector's infrastructure. By doing so, the program aims to ensure that all communities across the country have access to affordable, clean electricity that is available consistently and reliably.

Furthermore, the program aligns with President Biden's objective of achieving 100% clean electricity by 2035. So, it can be stated that the introduction of the Grid Resilience and Innovation Partnership Program by the U.S. DOE is amplifying the market growth of smart grids significantly in the United States.

Impact of COVID-19

The COVID-19 pandemic had both positive and negative impacts on the smart grid market in the United States. On the positive side, the pandemic has highlighted the importance of reliable and resilient energy infrastructure. As a result, there has been an increased emphasis on modernizing the grid and investing in smart grid technologies to improve operational efficiency, remote monitoring capabilities, and grid reliability. Furthermore, the shift towards remote work and digitalization has also accelerated the adoption of smart grid solutions, enabling utilities to manage and optimize the grid remotely.
However, the pandemic has also posed challenges such as supply chain disruptions and delays in project implementations. Economic uncertainties and budget constraints have slowed down some investments in the smart grid sector. Despite these challenges, the long-term outlook for the smart grid market remains positive as the pandemic has reinforced the need for a robust and intelligent electricity grid to support future energy demands and enhance resilience in the face of future crises.
Key Players Landscape and Outlook
Leading players in United States Smart Grid Market are emphasizing the importance of highly advanced smart grid technologies like vehicle-to-home (V2H) and vehicle-to-grid (V2G) functionalities along with their brand positionings, sustaining their market share and expanding their presence worldwide. These companies are allocating increased resources to energy resilience, research and development, and expanding their distribution networks along with notable mergers and acquisitions, and joint ventures.
In February 2023, Enphase Energy, Inc., a global energy technology company and a leading provider of solar and battery systems based on microinverters, announced a successful demonstration of their bidirectional EV charger. This innovative charger enables V2H and vehicle-to-grid (V2G) functionality. By utilizing Enphase's grid-forming IQ8 Microinverters and Ensemble energy management technology, the bidirectional EV charger effortlessly integrates into Enphase's home energy systems.
In August 2022, Honeywell, and Duke Energy Sustainable Solutions (DESS) formed a partnership to collaborate on creating and offering energy resiliency solutions in specific markets within the United States. These solutions aim to address the needs of communities facing significant challenges related to resiliency, such as frequent power outages and grid disruptions caused by climate change. These services are primarily focused on developing municipal microgrids that enable cities to continue providing essential services during outages. These services include water distribution, wastewater management, and supplying power to community centers that can function as shelters for citizens.

Table of Contents:

1. Research Methodology
2. Project Scope & Definitions
3. Impact of Covid-19 on United States Smart Grid Market
4. Executive Summary
5. Voice of Customer
5.1. Product and Market Intelligence
5.2. Sources of Information
5.3. Factors Considered in Purchase Decisions
5.3.1. Overall Expenses
5.3.2. Facility Requirement
5.3.3. Operational Manpower Expertise
5.3.4. Number of Installation Units
5.3.5. Experience in the Industry
5.3.6. Efficiency
5.3.7. After-Sales Support
5.4. Purpose of Installation
5.5. Demand and Supply Mechanism
5.6. Consideration and Understanding of Safety Regulations
5.7. Application of Legal Compliances
5.8. Existing User or Intended Purchaser
6. United States Smart Grid Market Outlook, 2016-2030F

6.1. Market Size & Forecast
6.1.1. By Value
6.1.2. By Volume
6.2. By Network Area
6.2.1. Home Area Network (HAN)
6.2.2. Neighbourhood Area Network (NAN)
6.2.3. Wide Area Network (WAN)
6.2.4. Long Range Wide Area Network (LoRaWAN)
6.3. By Components
6.3.1. Hardware
6.3.1.1. Smart sensors (Temperature sensors)
6.3.1.2. Smart Power Meters
6.3.1.3. Smart Substations
6.3.1.4. Super Conducting Cables
6.3.1.5. Integrated communications
6.3.1.6. Phasor Measurement Units (PMU)
6.3.2. Software
6.3.2.1. Smart Energy Management System
6.3.2.2. Demand response Programs (DR)
6.3.2.3. Distribution Management Systems (DMS)
6.3.2.4. Outage Management Systems (OMS)
6.4. By Application
6.4.1. Distribution Automation
6.4.2. Conservation Voltage Reduction (CVR)
6.4.3. Substation Automation
6.4.4. Advanced Metering Infrastructure (AMI)
6.5. By Region
6.5.1. Northeast
6.5.2. Southwest
6.5.3. West
6.5.4. Southeast
6.5.5. Midwest
6.6. By Company Market Share (%), 2022
7. Market Mapping, 2022
7.1. By Network Area
7.2. By Components
7.3. By Applications
7.4. By Region
8. Macro Environment and Industry Structure
8.1. Supply Demand Analysis
8.2. Import Export Analysis
8.3. Value Chain Analysis
8.4. PESTEL Analysis
8.4.1. Political Factors
8.4.2. Economic System
8.4.3. Social Implications
8.4.4. Technological Advancements

8.4.5.Environmental Impacts
8.4.6.Legal Compliances and Regulatory Policies (Statutory Bodies Included)
8.5.Porter's Five Forces Analysis
8.5.1.Supplier Power
8.5.2.Buyer Power
8.5.3.Substitution Threat
8.5.4.Threat from New Entrant
8.5.5.Competitive Rivalry
9.Market Dynamics
9.1.Growth Drivers
9.2.Growth Inhibitors (Challenges and Restraints)
10.Key Players Landscape
10.1.Competition Matrix of Top Five Market Leaders
10.2.Market Revenue Analysis of Top Five Market Leaders (in %, 2022)
10.3.Mergers and Acquisitions/Joint Ventures (If Applicable)
10.4.SWOT Analysis (For Five Market Players)
10.5.Patent Analysis (If Applicable)
11.Pricing Analysis
12.Case Studies
13.Key Players Outlook
13.1.Cisco Systems Inc.
13.1.1.Company Details
13.1.2.Key Management Personnel
13.1.3.Products and Services
13.1.4.Financials (As reported)
13.1.5.Key Market Focus and Geographical Presence
13.1.6.Recent Developments
13.2.General Electric Company
13.3.Itron Inc.
13.4.Enphase Energy Inc.
13.5.IBM Corporation
13.6.S&C Electric Company
13.7.Sunverge Energy Inc.
13.8.Eaton Corporation
13.9.Honeywell International Inc.
13.10.PowerSecure Inc.
*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work
14.Strategic Recommendations
15.About Us & Disclaimer

United States Smart Grid Market Assessment, By Network Area [Home Area Network (HAN), Neighbourhood Area Network (NAN), Wide Area Network (WAN), and Long-Range Wide Area Network (LoRaWAN)], By Components [Hardware and Software], By Applications [Distribution Automation, Conservation Voltage Reduction (CVR), Substation Automation, and Advanced Metering Infrastructure (AMI)], By Region, Opportunities, and Forecast, 2016-2030F

Market Report | 2024-04-19 | 84 pages | Market Xcel - Markets and Data

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$3300.00
	Muti-User/Corporate Licence	$4500.00
	Custom Research License	$7000.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			

Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2025-05-07
		Signature	