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Virtual Power Plant Market – Global Industry Size, Share, Trends, Opportunity, and Forecast. 2018-2028F. Segmented By Technology (Distribution Generation, Demand Response and Mixed Asset), By Component (Software and Service), By Source (Renewables, Energy Storage, Combined Heat and Power, Other Local Generation), By End-User (Industrial, Commercial & Residential), By Region, Competition

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Abstracts

Global Virtual Power Plant Market is growing rapidly due to the need for flexible, scalable, and economical computing. Virtual power plants are becoming the foundational technology model for the new normal. Specifically, during the pandemic uncertainty, virtual work meets virtual power plants. Many enterprises are adopting virtual power plants as a cost-effective solution. The high usage and rising competition between service providers in virtual power plant solutions across the residential, industrial, and commercial sector has become one of the important factors for offering cutting edge services to the customers. Moreover, the growth of the market is also accounted for the emerging shift towards electric vehicle and promotion of intelligent office buildings. Furthermore, smart grids with use of real-time analytics enabled by cloud based intelligent power management system across the globe are propelling the market growth.. Technology has become the key enabler of excellence and thus, businesses are gradually becoming mobile as digitalization emerges which is an aspect that is expected to boost the global virtual power plant market in the forecast period.

A virtual power plant is a cluster of dispersed generator units, controlled loads, and storage systems, aggregated to function as a unique power plant. It necessitates a

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fundamental IT control architecture, distributed renewable energy resources, hydropower units and flexible power consumers, all of which are controlled by a single remote-control system. Virtual power plants (VPP) are designed to seamlessly integrate substantial non-conventional energy units into already existing central energy networks. Marketing opportunities, including the development of internal peer-to-peer trading platforms or the establishment of grid flexibility markets for the effective grid has opened the potential for the growth of virtual power plants in the market.

Rising Demand for Renewable Energy in Power Generation Sector

The rising demand for renewable energy in the power generation sector is due to increasing awareness regarding the benefits of renewable power for industries. As renewable energy is a naturally occurring source of energy that can be easily replenished, many countries are try to implement renewable energy as a power source to reduce greenhouse gas emissions and overcome the global warming. Additionally, rising government initiatives and support for developing renewable power sources promoting renewable power generation, is propelling the demand for virtual power plants in the market, thus, anticipating the demand for Virtual Power Plant in the market. For instance, as per the India Brand Equity Foundation (IBEF) report, investment in renewable energy is rising in India and has increased to 125% over FY2021, followed by a record of USD 14.5 billion, in FY2022. As per the Central Electricity Authority (CEA) estimation, the share of renewable energy generation would increase from 18% to 44%, by 2030.

Changes in Dynamic of Power Grids from Centralized to Distributed

One of the main drivers for the growth of global virtual power plants is the change in dynamics of power grids from centralized to distributed. The networks used to distribute energy throughout the world today are decentralized. On a small scale, energy is being produced and distributed via micro hydropower plants, geothermal systems, and solar power. Distributed generating systems can provide electricity during power outages and times of high energy demand. Moreover, the growing prominence on decarbonization, digitalization, advancement in power producing and storage technologies are accelerating the shift to distributed generation. Furthermore, energy security and capital expenditure advantages are enabling the expansion of this market and are being accelerated by legislation, along with local and state government policies.

Moderating Costs and Easy Accessibility of Energy Storage Systems

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The easy accessibility of monitor the power generation and consumption through continuous advancement in power generation capabilities through virtual power plants systems and easy availability of raw material used for PV modules has proliferated the growth in virtual power plant market. The data deployment options through varied technology connectivity with cost-effectiveness of energy storage systems have enabled potential opportunities to easily access the energy storage systems. Furthermore, the introduction of predictive technology for multiple user accessibility to schedule and control (multi-use) storage batteries for multiple purposes are providing an edge to monitor power plants. This enables the efficient operations of peak cut and demand response, while securing the necessary power during the case of emergency in the storage system, installed at disaster prevention facilities. For instance, as per the International Renewable Energy Agency (IRENA), the total installation cost of renewables project is estimated to decrease between 50% to 60%, by 2030. It has created an ease for better optimization, cost management and adequate supply and demand environment within the organizations. Thus, moderating costs and easy accessibility of energy storage systems has propelled the demand for virtual power plant market in the forecast period.

Market Segmentation

The Global Virtual Power Plant Market is segmented into technology, component, source, end-user, and region. By technology type, the market is bifurcated into distribution generation, demand response and mixed asset. Based on component, the market is segmented into software and services. Based on source, the market is categorized into renewables, energy storage, combined heat and power, and other local generation. The end-user segment is further categorized into industrial, commercial, and residential.

Market Player

Major market players in the global virtual power plant market are ABB Ltd., Siemens AG, Schneider Electric SE, EnerNoc, Inc., Comverge, Inc., AutoGrid System, Inc., Flexitricity Limited, General Electric Company, AGL Energy, International Business Machines Corporation.

Report Scope:

In this report, the global virtual power plant market has been segmented into the following categories, in addition to the industry trends which have also been detailed

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below:

- Virtual Power Plant Market, By Technology
  - Distribution Generation
  - Demand Response
  - Mixed Asset
- Virtual Power Plant Market, By Component
  - Software
  - Service
- Virtual Power Plant Market, By Source
  - Renewables
  - Energy Storage
  - Combined Heat and Power
  - Other Local Generation
- Virtual Power Plant Market, By End-User
  - Industrial
  - Commercial
  - Residential
- Virtual Power Plant Market, By Region:
  - North America
    - United States

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- Mexico

Asia-Pacific

- China
- Japan
- India
- Australia
- South Korea

Europe

- United Kingdom
- Germany
- Denmark
- France
- Italy
- Greece
- Netherlands

South America

- Brazil
- Argentina

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Middle East & Africa

UAE

Saudi Arabia

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the global virtual power plant market.

Available Customizations:

Global virtual power plant market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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