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United States Virtual Power Plant Market by Technology (Demand Response, Distributed Generation, Mixed Asset), By End User (Residential, Commercial, Industrial (Petroleum Refining, Chemicals Industry, Metals & Mining, Others)), By Source (Renewables, CHP, Energy Storage, Other Local Generation), By Component (Software and Service), By Region, Competition Forecast & Opportunities, 2018-2028F

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Abstracts

The US Virtual Power Plant Market is anticipated to grow robustly in the forecast period 2024-2028. The key drivers for the virtual power plant market growth during the projected period are drivers of a virtual power plant in the energy industry, a rise in government initiatives, and investments in energy infrastructure. A virtual power plant combines many power sources to provide a dependable overall power supply. The sources frequently consist of a variety of centrally controlled dispatchable and non-dispatchable, controllable, or flexible load (CL or FL) distributed generation (DG) systems, such as microCHPs, small-scale wind power plants, photovoltaics, run-of-river hydroelectricity plants, small hydro, biomass, backup generators, and energy storage systems (ESS). Benefits of this system include its capacity to rapidly generate load-following power or distribute electricity during peak load. Such a VPP (Virtual Power Plant) can take the position of a traditional power plant while offering more flexibility and efficiency, allowing the system to respond to load changes more effectively.

Rising In Demand of Renewable Energy and IoT/Cloud Platform Across the Nation

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Leading economies across the country are increasingly using renewable energy sources to generate electricity, and this need has emerged as a significant growth driver for the market for US virtual power plants. Additionally, a significant movement from centralized to distributed generation is anticipated to boost demand for virtual power plants and support future market expansion.

Growth of the market is credited to the power industry's increasing adoption of cutting-edge technologies like the internet of things (IoT) and cloud platforms, along with the growing awareness of the advantages of renewable energy, the simplicity of obtaining power through platforms for virtual power plants (VPP), and the increasing focus on cost-effectiveness in power generation.

Moreover, the low cost and readily available raw materials has increased competition in the market for PV modules. Regulations are promoting the development of renewable energy, accelerating industrial growth. For instance, Solar power company Sunrun declared in December 2022 that it had been effective in supplying electricity to consumers in the months of June, July, and August via a virtual power plant in Massachusetts that integrated an estimated 5,000 small-scale solar energy installations. This aspect is expected to grow the market further in the forecast period.

Latest Trend of VPP in United States

A significant industry trend that is being examined is the rising investment in the construction of new virtual power plants. The building and operation of a conventional power plant requires large amounts of money. VPP, on the other hand, is a centralized control system that is connected to power generating and transmission units. As a result, it costs less and can combine different dispersed energy resources.

Governmental measures have strained national resources, forced reconsideration of switching to renewable energy sources, and delayed reforms to the power industry. For instance, in just 10 years, renewable energy’s segment of US electricity generation gets doubled over—from 10% in 2010 to 20% in 2020. More than 100 gigawatts (GW) of solar and 122.5 GW of wind capacity were available in the nation, in the end of 2020.

Energy storage is a key component for the optimal integration of renewable energy, carrying with it the benefits of compact power generation and a clean, reliable energy supply, both of which are essential in this industry. For instance, according to the U.S. Energy Storage Monitor report, 345 MW of new energy storage systems reportedly went online in the second quarter of 2021.

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Market Segmentation

The United States virtual power plant market is segmented based on technology, end user, source, component, company, and region. Based on technology, the market is segmented into demand response, distributed generation, mixed asset. Based on source, the market is segmented into renewables, CHP, energy storage, other local generation. Based on end user, the market can be residential, commercial, industrial (petroleum refining, chemicals industry, metals & mining, others. Based on component, the market is segmented into software and service.

Market player

Major players operating in the United States virtual power plant market include Enel X, EnerNOC, Inc., Comverge, Cpower, ABB Ltd, Siemens AG, Schneider Electric SE, General Electric Company, Flexitricity Limited, AGL Energy, etc.

Recent Developments

The Massachusetts Department of Energy Resources must set a 1,000 MWh energy storage goal by 2025, for instance, as a result of House Bill 4857 (An Act to Advance Clean Energy), which was created by the state of Massachusetts in the United States in August 2018. Rising solar energy cost competitiveness and governmental efforts to build energy storage systems are therefore expected to increase the demand for VPPs during the forecast period. Funding to hasten the company's goal of installing 26,000 energy storage devices in buildings and residences while integrating them with Swell's 600MWh of virtual power plants (VPP) across the US.

According to Carrington, Stem (Company located in carrington) is aiming for 'full participation and value' of its VPPs in U.S. wholesale markets by providing voltage support, frequency regulation, renewable energy integration, reserve capacity, and other grid services.

Report Scope:

In this report, US Virtual Power Plant Markethas been segmented into the following categories, in addition to the industry trends which have also been detailed below:

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US Virtual Power Plant Market, By Technology:

Demand Response

Distributed Generation

Mixed Asset

US Virtual Power Plant Market, By End-User:

Residential

Commercial

Industrial

Petroleum Refining

Chemicals Industry

Metals & Mining

Others

US Virtual Power Plant Market, By Source:

Renewables

CHP

Energy Storage

Local Generation

Other

US Virtual Power Plant Market, By Components:

Software

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Service

US Virtual Power Plant Market, By Region:

Midwest US

West US

Northeast US

South US

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the US Virtual Power Plant Market

Available Customizations:

US 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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