

Virtual Power Plant Market Size, Share & Trends Analysis Report By Technology (Distributed Energy Resource, Demand Response, Mixed Asset), By End Use (Industrial, Commercial, Residential), By Region, And Segment Forecasts, 2024 - 2030

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Abstracts

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Virtual Power Plant Market Growth & Trends

The global virtual power plant market size is anticipated to reach USD 16.65 billion by 2030 and is anticipated to expand at a CAGR of 22.2% from 2024 to 2030, according to a new report by Grand View Research. Virtual power plants (VPPs) can play a significant role in reducing carbon emissions in the energy sector. Virtual power plants can be programmed to prioritize the use of clean energy sources and minimize the use of carbon-intensive generation sources when possible, thus lowering overall emissions associated with electricity production. Through advanced control algorithms and real-time monitoring, virtual power plants can optimize energy production and consumption, reducing energy waste and associated emissions.

Virtual power plants offer several benefits to customers, both residential and commercial, by providing them with greater control over their energy consumption and cost savings. Customers can reduce their energy bills by participating in virtual power plant programs. Virtual power plant enables customers to take advantage of time-of-use pricing and demand response opportunities, allowing them to shift energy consumption to lower-cost periods and avoid peak-demand charges. Virtual power plants often come with advanced energy management tools and applications that allow customers to monitor and control their energy usage in real-time.

Stringent government regulations can play a significant role in driving the use of virtual power plants. Regulations aimed at reducing greenhouse gas emissions often incentivize adopting clean energy technologies. Virtual power plants, by enabling the integration of renewables and demand response, contribute to reducing carbon emissions in the energy sector, aligning with government emission reduction goals. Governments often invest in grid modernization efforts to improve the overall efficiency and intelligence of the power grid.

Virtual Power Plant Market Report Highlights

In terms of technology, the demand response segment dominated the market in 2023. The demand response segment aligns with the broader sustainability goals, making it a critical driver of the VPP market's growth as the world increasingly transitions towards greener and more responsive energy systems

In terms of end use, the industrial segment dominated the market in 2023. The growth of the segment can be attributed to its substantial energy demands, complex energy management needs, and the potential for significant cost savings and carbon footprint reduction through VPP adoption

North America dominated the regional market in 2023. The growing awareness of the benefits of renewable power is leading to a rise in demand for renewables such as wind, solar, and hydropower in North America. Furthermore, supportive government initiatives in the region are promoting the development of renewable energy sources, which is expected to drive the demand for virtual power plants, thus driving the growth of the regional market

In June 2023, SolarEdge Technologies, Inc., a smart energy technology leader, unveiled its 1st battery virtual power plant that provides grid support through the U.K.'s National Grid ESO Demand Flexibility Service (DFS). This service can be leveraged for SolarEdge home battery owners with eligible smart meters across the U.K. and provides them financial incentives to utilize their stored battery energy during DFS demand events

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