The Residential Virtual Power Plant Software Market

1st Edition

The Residential Virtual Power Plant Software Market is a new report from Berg Insight analysing the latest developments and trends on this market in Europe and North America. This strategic research report provides you with 100 pages of unique business intelligence including 5-year industry forecasts and expert commentary on which to base your business decisions.

Berg Insight™

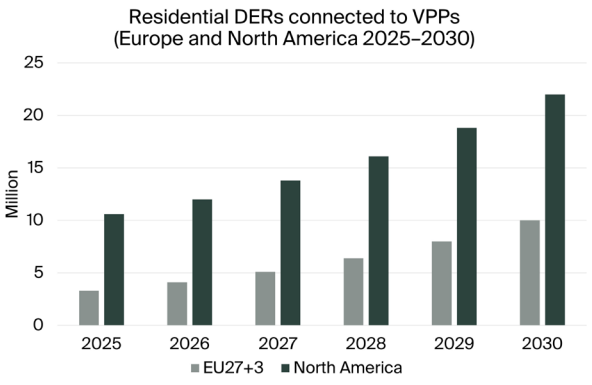
The number of residential DERs connected to VPP platforms in Europe and North America to reach 32 million by 2030

The share of energy generated from intermittent renewable sources such as wind and solar is steadily increasing, making electricity supply more volatile and less predictable. At the same time, electricity demand is rising rapidly, driven by the expansion of data centres to support AI computing, as well as the growing adoption of electric vehicles and electrified heating and cooling systems. Together, these developments place significant strain on existing electricity grid infrastructure, much of which was designed and built decades ago for a more centralised and predictable energy system. While the expansion of renewables and electrification is beneficial for the environment, it also introduces new challenges that must be actively managed. One approach to address these challenges is the use of virtual power plants (VPPs).

A VPP connects and aggregates distributed energy resources (DERs), such as EV chargers, energy storage systems, solar PV, HVAC systems and compressors, into a single controllable resource. Residential VPPs aggregate DERs installed in homes, primarily smart thermostats, EV chargers, home batteries, heat pumps and rooftop solar PV systems. Individually, these assets have little effect on the energy system. However, when thousands of them are aggregated, they form a significant resource comparable in scale to a conventional power plant. A VPP can supply energy, reduce demand and provide critical grid-stabilisation services. These capabilities are typically delivered faster, more cleanly and at lower cost than conventional power plants. VPPs create value for multiple stakeholders in the energy sector, including utilities, energy retailers and grid operators. They also unlock new value streams for DER manufacturers and provide financial benefits for households.

In Europe, there were an estimated 3.3 million residential DERs connected to VPP software platforms at the end of 2025. Smart heating is estimated to be the largest DER category in terms of the number of units followed by EV charging and home battery storage systems. The total flexible capacity of these DERs reached 9.0 GW at the end of 2025. In North America, there were an estimated 10.6 million residential DERs connected to VPP software platforms at the end of 2025. Smart thermostats are estimated to be the largest DER category, accounting for the vast majority of the assets. Home battery storage systems and EV chargers are estimated to account for smaller shares. The total flexible capacity of these DERs reached 13.9 GW at the end of 2025.

A number of companies develop and provide VPP services. This report focuses on European and North American companies that develop software solutions for aggregating residential DERs, providing various grid support services and enabling participation in wholesale energy markets. The report also includes companies that develop software and hardware solutions that enable other companies to provide these services. The former group includes specialists such as Renew Home, EnergyHub, Uplight, Voltus, Voltalis, Kraken, Axle Energy and Flexa; DER OEMs and installers such as Tesla, Sonnen, Lunar Energy and 1KOMMA5°; and energy retailers and utilities such as Tibber, Frank Energie and David Energy. Companies developing tools and platforms that enable utilities and other companies to provide VPP services include Beebop.ai, Ensek, Eniris, Kiwigrid, Enode, Virtual Peaker and GridX, among others. In terms of the number of connected DERs, US-based Renew Home and EnergyHub rank as the leading players in North America, while France-based Voltalis and UK-based Kraken rank as the largest players in Europe.



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360-degree overview of the residential virtual power plant ecosystem.

Summary of key industry trends in residential DER aggregation and grid flexibility.

Statistical data on connected residential DERs and flexible capacity in Europe and North America.

Market forecasts lasting until 2030.

Reviews of the latest initiatives launched by utilities, energy retailers, DER OEMs and specialist VPP platform providers.

Profiles of the key companies active in the residential VPP market.

Comparative analysis of the leading players in Europe and North America.

The report answers the following questions

- What are virtual power plants and how do they aggregate residential DERs?
- Which residential DER categories are most relevant for VPP applications?
- What grid support services and market opportunities can residential VPPs provide?
- Which business models are used by VPP platform providers, utilities and energy retailers?
- Which companies are the leading providers of residential VPP software platforms?
- What are the main drivers and barriers to wider adoption of residential VPPs?
- How will the residential VPP market evolve in the next five years?

About Berg Insight's IoT market research

Our market reports offer comprehensive information and analysis on key IoT technologies and markets, addressing important concerns including total addressable market, market penetration, market shares, industry landscape, regulatory environment, market trends and forecasts. Our research portfolio today comprises more than 80 items, where each market report focuses on a specific vertical application area or cover horizontal themes. All market reports come with complementary data sets in Excel format that can be easily analysed and converted into tables and charts. We offer a range of different license options together with bundled packages and subscriptions to suit your specific needs.

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The Residential Virtual Power Plant Software Market

How will the residential virtual power plant software market in Europe and North America evolve in 2026 and beyond? Berg Insight estimates that there were 13.9 million residential DERs connected to VPP software platforms in the two regions at the end of 2025. Residential VPPs aggregate DERs installed in homes, primarily smart thermostats, EV chargers, home batteries, heat pumps and rooftop solar PV systems. Until 2030, Berg Insight forecasts that this number will grow at a compound annual growth rate of 18.1 percent to reach 32.0 million at the end of the period. Get up to date with the latest trends and information about vendors, products and markets.

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Who should read this report?

The Residential Virtual Power Plant Software Market is the foremost source of information about VPPs that can connect and aggregate distributed energy resources (DERs) into a single controllable resource. Whether you are a utility, product vendor, service provider, telecom operator, investor, consultant, application developer or government agency, you will gain valuable insights from our in-depth research.

AUTHOR

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Martin is a principal analyst who specialises in IoT applications for the smart homes and buildings, transportation and security markets. He joined Berg Insight in 2018 and is the lead author of numerous research reports. In addition to published research, he has provided bespoke research to clients ranging from IoT solution providers, management consulting firms, private equity firms and others. Prior to joining Berg Insight, Martin worked as a supply chain analyst at Volvo Group. Martin holds a Master's degree in Industrial Engineering and Management from Chalmers University of Technology.

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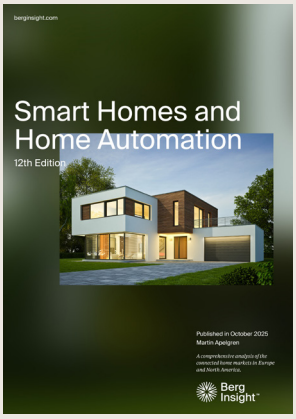

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