Virtual Power Plant Partnership (VP3)

Catalyzing industry to scale the market for virtual power plants

VIRTUAL POWER PLANT PARTNERSHIP

Virtual power plants (VPPs) may be the greatest untapped domestic energy resource of the 21st century. RMI's Virtual Power Plant Partnership (VP3) works to catalyze industry and transform policy to scale VPPs in ways that benefit communities and society.

The VPP Opportunity

A virtual power plant (VPP) aggregates and coordinates distributed energy resources to benefit all those who rely on our electric grid. At its core, a virtual power plant is comprised of hundreds or thousands of households and businesses that can offer the latent potential of their electric vehicles (EVs), thermostats, appliances, batteries, and solar arrays to support the grid.

In a VPP, these decentralized distributed energy resources (DERs) are aggregated into a portfolio. Customers themselves or energy service companies — with the help of advanced software — can adjust charging, discharging, output, and demand from DERs in response to signals from markets and grid operators. In this way, VPPs can play an important role in seamlessly and efficiently matching energy supply and demand.

After a decade of steady advances, VPPs may be poised for explosive growth. For the first time, Congress (through the Inflation Reduction Act) and FERC (Order 2222) have VPP-friendly programs and regulation. Federal policies combined with successful pilots and technology advances could set the stage for a decade of dramatic growth. RMI analysis suggests the VPP market could grow to 275 GW or more by 2030.

A market of that size represents a major income and sustainability opportunity for businesses. For hardware-, software-, and energy- service companies, VPPs are a multi-billion-dollar revenue opportunity. For large energy users, VPPs can reduce energy spend and provide new revenue streams. Beyond economics, VPPs can advance corporate sustainability goals by driving positive environmental and societal impacts.

VPPs provide multiple direct benefits to consumers, communities, and society including enhanced electric system reliability, more affordable and equitable electric bills, greenhouse gas emissions reductions, and improved public health outcomes. VPPs can further accelerate the energy transition by enabling wide-spread electrification and reducing long-term power system costs.

Barriers to VPP Market Growth

To unleash the full potential of VPPs, three things must change:

1. Wholesale electricity market rules must be clarified, updated, and modernized to enable competitive access for VPPs.
2. Retail utility programs and offerings must be improved and expanded to benefit more customers.
3. More industry leaders and policymakers must be made aware of the VPP opportunity.

The next 12 to 24 months are critical for policy and program development. Policy change, customer and stakeholder education, and unilateral action by individual businesses or organizations all take time and resources. Therefore, near-term and collective action is needed to shape and prepare the market for long-term growth.

About RMI

RMI is an independent nonprofit founded in 1982 that transforms global energy systems through market-driven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. We work in the world's most critical geographies and engage businesses, policymakers, communities, and NGOs to identify and scale energy system interventions that will cut greenhouse gas emissions at least 50 percent by 2030. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and Beijing.

Join Us

VP3 members are leading businesses from building controls, residential energy technologies, utility-facing software solutions, and other key sectors.

To learn more, contact
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VP3: Catalyzing Industry and Policymakers to Scale VPPs

To overcome barriers to VPP market growth, RMI and partners launched the Virtual Power Plant Partnership (VP3). VP3 brings industry voices together to catalyze change in the necessary policies, regulations, and market rules required to let VPPs scale to their full potential.

As RMI launches this effort, we are partnering with leading businesses in VPP-related sectors including electric vehicles, building controls, residential energy technologies, utility-facing software solutions, and more.

With the guidance and support of its members, VP3 will:

1. Develop technical resources for practitioners and advocates to enable VPPs to scale in key venues;
2. Provide direct support in key federal, state, and local venues to provide proof points of success;
3. Convene across industry, utilities, and policymakers to generate alignment within a broad coalition interested in VPP market growth; and
4. Communicate to targeted and mass-market audiences to raise awareness of the VPP opportunity and how to capture it.

By advancing those four priorities, and working closely with government, NGOs, and industry organizations, VP3 will help address key barriers, and scale the VPP market. We will help build a future where businesses, households, and communities are empowered through VPPs to help ensure affordable energy, clean air, and a reliable electricity grid.