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Brochure

# AspenTech OSI DERMS™ Virtual Power Plant

Accelerate Your Clean Energy Transition With the Power of Aggregated Distributed Energy Resources



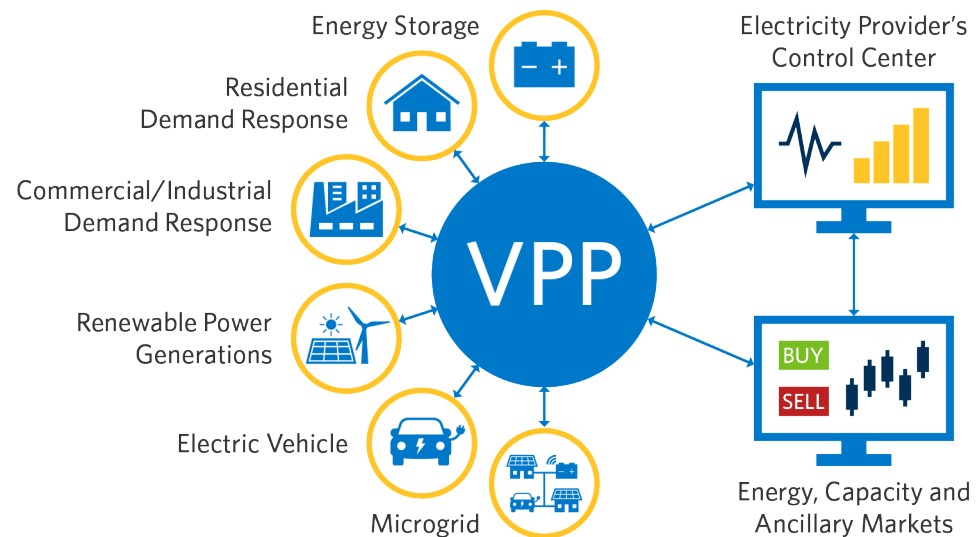
# Power Generation Is Decentralizing—It's Time to Adapt

The unprecedented growth of consumer-owned distributed energy resources (DERs) is changing the power industry.

From rooftop solar, electric vehicles (EVs) and smart thermostats to utility-owned renewables like SCADA-controlled backup generators and batteries, the increasing adoption of DERs presents a significant opportunity to companies across the industry. Taking advantage of this growth and expediting the achievement of net-zero carbon goals will require building a robust, scalable software solution to model, group, aggregate and optimally schedule and dispatch DERs to ensure balanced grid operations, maximize DER economics and comply with FERC Order 2222 requirements.

## Virtual Power Plants

Virtual power plants, or VPPs, are logical groupings or aggregations of DERs that can provide traditional grid services similar to a traditional power plant—including energy market participation. Managing these groups of selectable DERs allows for multiple objective functions to meet the various use cases of VPPs in both grid operations and energy market participation.



**Figure 1.** Virtual power plants aggregate all types of DERs.



**Tripling virtual power plant capacity by 2030 could save \$10B USD and meet 20% of peak demand in the US.**

Source: [Pathways to commercial Liftoff: Virtual Power Plants](#), US Department of Energy, September 2023

## AspenTech OSI DERMS Virtual Power Plant

The AspenTech OSI DERMS Virtual Power Plant solution is designed to leverage aggregations of DERs in a real-time network model by natively integrating with operational solutions such as:

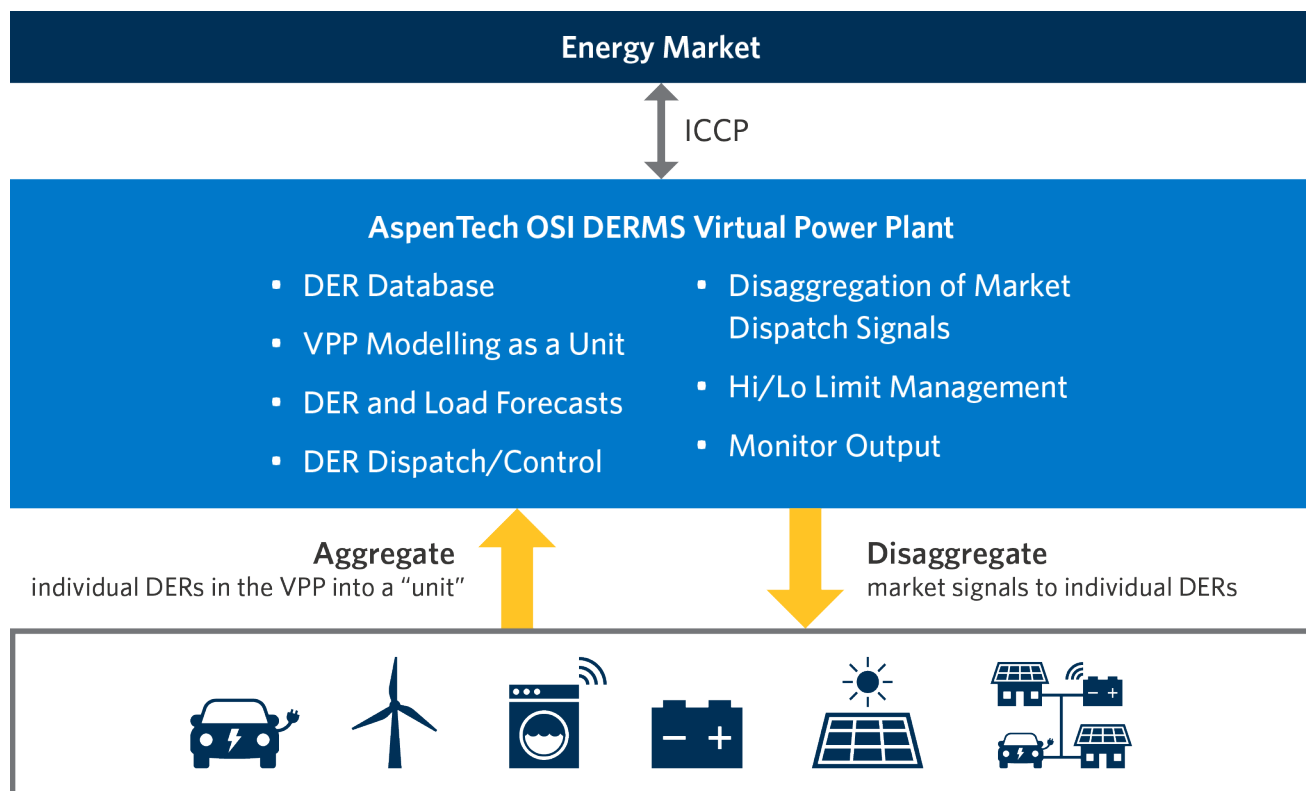
- AspenTech OSI monarch™ SCADA
- AspenTech OSI Generation Management System™ (GMS)
- AspenTech OSI Energy Management System™ (EMS)
- AspenTech OSI Advanced Distribution Management System™ (ADMS)

This enables utilities and power companies to have topology-aware VPPs paired with the industry's smartest control and optimization algorithms. Everything comes together to solve grid resiliency and resource adequacy issues, while also generating new economic value streams in energy markets.

The AspenTech OSI DERMS VPP solution can interface with and control any type of DER. Common DERs used in VPPs include larger, SCADA-controlled backup generators and fuel cells that the VPP can dispatch, SCADA-controlled batteries, and large solar and wind units with forecasted output and real-time curtailment.

The VPP can also integrate with aggregations of behind-the-meter (BTM) DERs and demand-response (DR) programs, including EVs and EV charging stations. Also, BTM DERs can be scheduled as part of the VPP while the real-time resources follow real-time dispatch signals.

With flexibility to support utility-wide users from real-time operations, customer program management, engineering and planning and market participation staff can all use the centralized data to meet multiple objectives. This distinguishes the AspenTech OSI DERMS VPP solution from the rest of the industry.



**Figure 2.** High-level architecture and workflow for market participation with virtual power plant



# Key Benefits and Capabilities

With a focus on goal realization through a comprehensive solution, the AspenTech OSI DERMS VPP solution provides several unique benefits and functionalities.

- **A complete VPP solution:** Aggregate, forecast, schedule and control DERs of various types and sizes across multiple locations. VPPs can be built from a dynamic blend of SCADA-connected and non-SCADA-connected DERs, whether they are in-front-of-meter (IFM) or behind-the-meter (BTM), including residential, commercial and industrial assets.
- **New revenue streams with market participation:** Maximize economic value while supporting operational priorities by participating in energy and ancillary services markets per FERC Order 2222 initiatives.
- **A fully integrated enterprise DERMS solution:** Deploy a single enterprise DERMS to bring value to all functions within a utility. From

real-time operations, customer program management, engineering and planning and market participation can all use the centralized data to meet multiple objectives.

- **Operational efficiencies with as-operated topology and network aware VPPs:** Solve complex grid issues through a control room-tied VPP that leverages as-operated network topology and ongoing GIS updates to electrical hierarchy. Power flow, load forecasting, generation forecasting, scheduling, volt/var optimization and switching are just a few of the applications that can leverage VPPs in algorithms to ensure reliable electric operations.
- **Maximum grid reliability with real-time communications:** Gain real-time visibility and control of VPP and individual DERs through industry standards (IEEE 2030.5, OpenADR, DNP3, SCADA and others) on the same screens operators are using to manage the rest of the network.





- **Increased consumer engagement and meet decarbonization goals:** Track and improve your ability to meet corporate decarbonization goals, enable new business models and support increased consumer engagement by measuring, monitoring and optimizing DER resources.
- **Over 30 years of OT experience:** AspenTech OSI DERMS draws on more than 30 years of mission-critical OT platform development and participation in energy markets.

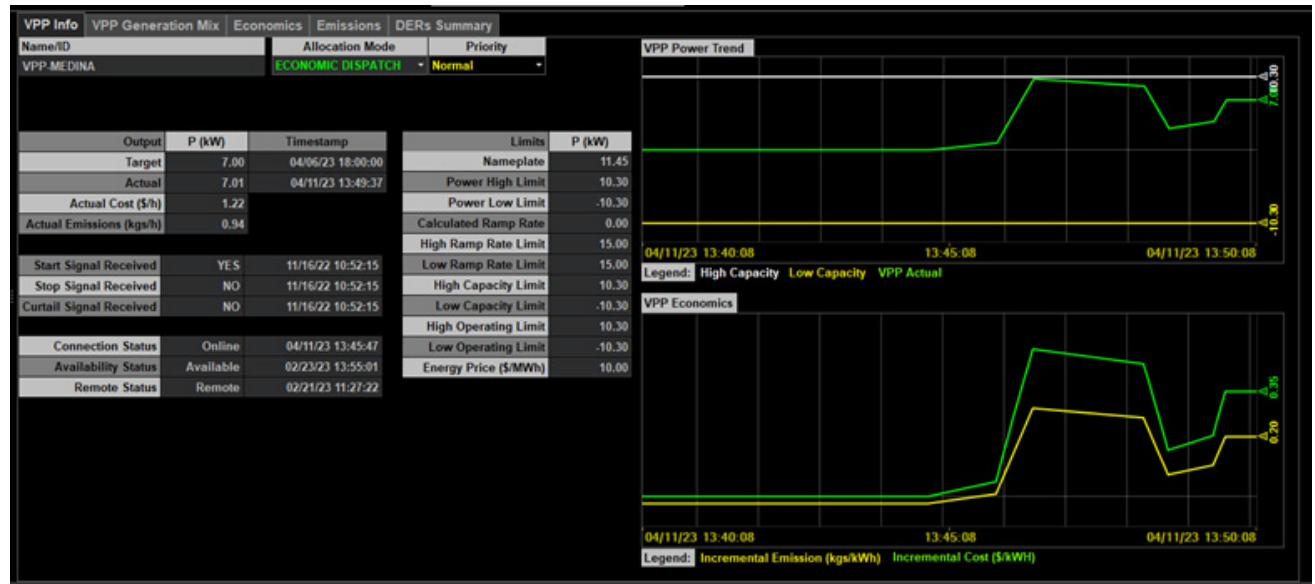


Figure 3. VPP dashboard displaying generation and economic trends with real-time VPP information

## AspenTech OSI DERMS VPP Ecosystem

The AspenTech OSI DERMS VPP solution can communicate with both utility-controlled and aggregator-controlled DER assets through standards such as IEEE 2030.5 and OpenADR Alliance to provide maximum flexibility and scalability for DER growth. This is a sample of supported third-party DER aggregation interfaces:





## AspenTech OSI DERMS Delivers Real Results



Learn how **Iberdrola**, a global leader in renewable energy, uses AspenTech OSI DERMS to enable flexibility management through Virtual Power Plant and Microgrid.



Learn about **PNM's** utilization of DERMS for advanced battery management for renewables and storage to optimize grid operations and market participation.



Read about the unique value **SMUD** realized by integrating AspenTech OSI DERMS with an ADMS solution to enable power flow functionality.

## Comprehensive Virtual Power Plant Solution

The AspenTech OSI DERMS VPP solution enables utilities and energy providers to integrate, aggregate and optimize the economics of grid-edge assets. This comprehensive VPP solution and our robust roadmap enable users to bring these grid assets to the energy markets for balancing and optimization, while ensuring long-term scalability to meet decarbonization goals.

If you have any questions or would like to get in touch, please contact us at [sales@aspentech.com](mailto:sales@aspentech.com).







## About Aspen Technology

Aspen Technology, Inc. (NASDAQ: AZPN) is a global software leader helping industries at the forefront of the world's dual challenge meet the increasing demand for resources from a rapidly growing population in a profitable and sustainable manner. AspenTech solutions address complex environments where it is critical to optimize the asset design, operation and maintenance life-cycle. Through our unique combination of deep domain expertise and innovation, customers in asset-intensive industries can run their assets safer, greener, longer and faster to improve their operational excellence.

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