

VAAS ongoing innovation

Voltage as a Service (VAAS)TM is an energy-saving service solution for regulating and optimising the voltage supplied to electrical equipment to the optimal level for efficient operation. The purpose of VAAS is to reduce energy consumption, lower electricity bills, and decrease carbon emissions by ensuring that electrical devices operate at their most efficient voltage level.

Ongoing innovation by VAASCO Group

Voltage as a Service (VAAS)TM is an innovative service solution aimed at enhancing the efficiency of electrical systems by reducing voltage levels to optimal levels.

VAASCO Group continues to evolve VAAS, using advancements in renewable energy and energy efficiency to provide more awareness and opportunity for C&I customers to adopt VAAS Services.

Key technology trends include advancements in smart technology, integration with renewable energy systems, and improved control systems. Within the VAAS solution set, innovations derive from the integration of AI and IoT for measurement, forecasting and cloud based services.

Key innovations

The prominent innovations shaping the strategic evolution of VAAS for C&I customers are set out in the following table. VAASCO's evolution of its VAAS solutions are carefully designed to enhance C&I customers' pursuit of Net Zero Energy outcomes.

Trends	Description
Smart Voltage Optimisation Systems	Integration of Smart Sensors and IoT: Modern VO systems increasingly use smart sensors and IoT technology to monitor real-time data and optimise voltage levels dynamically. This integration allows for better demand response and load management.
	Adaptive Algorithms: Advanced algorithms are being developed to adapt VO settings based on real-time data, improving efficiency and reducing energy consumption.
	Remote Monitoring and Control: Enhanced remote monitoring and control capabilities enable operators to manage VO systems from a distance, improving convenience and operational efficiency.
Integration with Renewable Energy Systems	Compatibility with Solar PV and Wind Systems: VO systems are being designed to integrate seamlessly with distributed renewable energy sources, enhancing their efficiency and reliability.
	Dynamic Voltage Regulation: VO systems are increasingly capable of dynamic voltage regulation to handle the variability of renewable energy sources.



Trends	Description
Enhanced Efficiency and Cost-Effectiveness	Increased Efficiency Gains: New VO technologies are focusing on delivering higher efficiency gains and cost savings through advanced design and materials.
	Cost-Effective Solutions: There is a trend towards developing more cost-effective VO solutions that provide a return on investment through energy savings and reduced operational costs.
Regulatory and Standards Development	Evolving Standards and Regulations: As VO technology advances, there is a growing need for updated standards and regulations to ensure system safety, performance, and compatibility.
	Increased Adoption: Regulatory incentives and standards are driving the adoption of VO systems across various sectors, including commercial, industrial, and residential.
Energy Storage Integration	Synergies with Energy Storage: VO systems are being developed to work in conjunction with energy storage solutions, such as batteries, to enhance grid stability and energy efficiency.
	Improved Load Management: Integration with energy storage helps in balancing supply and demand, reducing voltage fluctuations and improving overall system performance.

These trends highlight the ongoing advancements and future directions for Voltage Optimisation and other technologies used in the delivery of VAAS based managed services.

Market drivers

There are many factors driving innovation in VAAS, and they all reflect the demanding requirements of our C&I customers. These factors include:

- The urgency for Renewable Energy and Grid Transition
- Drive for C&I customers to achieve increased energy efficiency.
- Distributed renewable generation causing increased grid voltage levels and variability
- Increased grid stability sensitivity due to distributed renewable generation
- Urgency to achieve action on GHG reduction, climate change, Net Zero Energy and corporate ESG responsibilities provide significant drivers
- Massive costs for renewable generation and required grid distribution infrastructure
- Further evolution of Carbon markets for certificate trading
- Corporate ESG reporting, statutory environmental and carbon reporting requirements
- Community and shareholder pressure to achieve outcomes

VAAS can provide a very useful contribution to a company's plans to meet its Carbon emission targets, as well as reporting requirements. VAAS provides the right voltage to electrical equipment, ensuring efficiency, cost savings, environmental benefits and performance reporting while maintaining equipment performance and longevity.

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