

Fixed and Dynamic Control

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.

System types

The two main types of VAAS systems for voltage control are the dynamic and fixed ratio types. Both approaches have their pros and cons, depending on the specific application and requirements.

VO Type	Issues	Details	
Dynamic	Pros	Adaptability	Dynamic voltage optimisation (DVO) adjusts the voltage level in real-time based on the varying load conditions, ensuring optimal voltage supply at all times. This leads to better energy savings compared to fixed systems.
		Improved Energy Efficiency	By continuously monitoring and optimising the voltage, DVO can achieve greater energy savings, typically in the range of 10-15%.
		Enhanced Power Quality	DVO systems can help in mitigating power quality issues such as voltage sags, swells, and harmonics, providing a more stable and consistent supply to sensitive equipment.
		Reduced Equipment Wear and Tear	By maintaining the voltage closer to optimal levels, dynamic systems can prolong the life of electrical equipment by reducing over-voltage and under-voltage conditions.
	Cons	Higher Initial Cost	Dynamic systems are typically more complex and expensive to install due to the need for advanced sensors, controllers, and monitoring systems.
		Maintenance Requirements	DVO systems often require ongoing maintenance and calibration to ensure optimal performance, potentially increasing operational costs.
		Potential for Over-Correction	Rapid and frequent voltage adjustments could cause instability in certain sensitive equipment or processes if not properly managed.
Fixed Ratio	Simplicity and Cost-Effectiveness	Fixed ratio voltage optimisation (FRVO) systems are simpler and more cost-effective to install and maintain since they do not require advanced control systems.	
	Low Maintenance	With fewer moving parts and no need for real-time adjustments, fixed systems typically require less maintenance.	
	Reliable Performance for Stable Loads	In environments where the load profile is relatively stable and predictable, FRVO can provide reliable and consistent performance.	



Conclusion

The choice between dynamic and fixed ratio voltage control methods depends on the specific requirements, load profiles, and budget constraints of the facility. Dynamic voltage control is more suitable for facilities with variable loads and a need for high energy savings and power quality, while fixed ratio voltage control can be more appropriate for smaller sites or those with stable loads looking for a cost-effective solution.

Voltage as a Service (VAAS) offers both immediate and long-term financial benefits while aligning with broader strategic goals related to sustainability, operational efficiency, and risk management. These benefits make VAAS an attractive proposition for businesses looking to reduce energy costs, enhance their environmental credentials, and improve their overall competitiveness.

Voltage as a Service (VAAS) can provide a very useful contribution to a company's plans to meet its Carbon emission targets, as well as reporting requirements. Voltage as a Service (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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