EMSc Asia Pacific

ENERGY EFFICIENCY FINANCE

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VOLTAGE AS A SERVICE™
VOLTAGE PERFORMANCE CONTRACT™

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VOLTAGE AS A SERVICE™ & VOLTAGE PERFORMANCE CONTRACT™

VOLTAGE AS A SERVICE™ (VaaS)[1] is a unique and innovative service delivery model whereby customers subscribe to and purchase voltage management services.

Why Voltage is important

Most energy users are using more energy than they need to simply because their supply voltage is higher than it should be. Local grid voltages are on average high, and variable. For example, Australia wide the average supply voltage is 247 Volts; whereas, electrical equipment is designed to operate at 220 Volts. So, as energy consumption varies approximately as the square of voltage, the higher supply voltages cause higher energy usage of between 15% and 20%; and increased CO2 emissions. The excess energy usage is dissipated as heat, also shortening the life of valuable electrical equipment.

Solution

The solution is to reduce and dynamically stabilise the voltage to the equipment nameplate voltage of 220 Volts. This is voltage optimization.

Voltage Optimisation (VO) is a dynamic method of managing the power delivery, specifically the voltage, in order to reduce load energy consumption and to enhance power quality. Additionally, it is a green solution which significantly reduces CO2 footprint of energy consumers.

- **Key features**
  - Voltage control as the delivered service
  - Guaranteed energy reduction
  - Cash flow positive as Service Fees are less than Guaranteed Energy Reduction
  - No maintenance costs
  - Remote monitoring and reporting
  - Performance reward to Service Provider

- **Benefits of voltage control**
  - Reduce kWh energy consumption of all connected loads
  - Extends equipment life
  - Protects sensitive equipment from voltage transients that cause failure (eg: LED lighting, computers, VSDs etc)
  - Reduces CO2 emissions

[1] Voltage As A Service™ and Voltage Performance Contract™ are brands of EMSc Asia Pacific Pty Limited.

Benefits of Voltage As A Service™

One way to deploy Voltage Optimisation is through Voltage As A Service™.

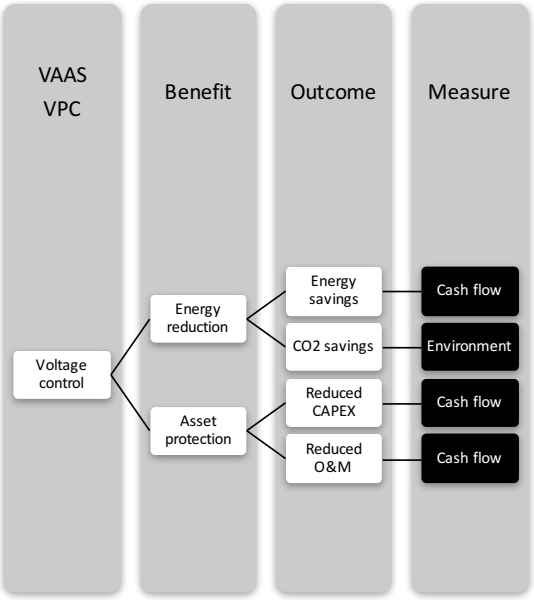
The advantages to this service delivery model approach include:

- Equipment integration issues are eliminated from the client site
- Monitoring costs for the installation are spread over a number of sites
- VaaS providers have more expert experience than the in-house staff
- Key system components are kept up to date, available, and managed for performance by the VaaS providers
- Improved reliability, availability, scalability and security of standardized system designs and configurations
- The VaaS provider's service level agreement guarantees a defined level of service
- Access to product and technology experts dedicated to available products
- Reduction of internal engineering and other costs to a predictable service fee
- Redeploying engineering and energy systems staff and tools to focus on strategic technology projects that impact the enterprise's bottom line.

VaaS Value Proposition

The value proposition is based around the following:

- Voltage is managed as a service
- Benefits are two-fold: energy reduction and asset protection
- Outcomes are readily measured, through energy and O&M savings, as well as avoidance of capital expenditure
- Measurement is cash flow enhancement
- Risk mitigation
- Off balance sheet
- Managed solution



Pricing

Unlike traditional equipment investment, which is conventionally sold for an up-front cost (and an optional ongoing support fee), VaaS providers generally price applications using an availability fee, most commonly a monthly fee or an annual fee.

Consequently, the initial setup cost for VaaS is much lower than the equivalent traditional equipment investment.

VaaS is typically priced based on some performance parameters, such as the percentage of time that the voltage is delivered within the specified performance band.

There is also a performance reward for energy saved, being a small share of energy savings over the contracted minimum energy savings specification.

A key driver of VaaS growth is the VaaS provider's ability to provide a price that is competitive with traditional equipment investment. This is consistent with the economies of scale that VaaS offers, including better, cheaper, more reliable operations. This facility offers more value to the customer than a traditional Build Own Operate Transfer (BOOT) alternative.

Summary terms

The VaaS model provides these advantages:

- Off balance sheet solution
- Ownership during term by EMSCAP
- Fixed term subscription model
- Capped risks, with 0% downside risk to the customer
- Guaranteed minimum performance
- Penalty / reward performance based incentives for maximum service delivery
- No maintenance cost
- Right to acquire at term, or extend

Detailed terms

Initial Term	10 years
Extension Term	A further 10 years
Availability Fee	Fixed during initial term
Guarantees	Guaranteed % kWh saving during the term of the VaaS subscription, ensuring that 100% of the downside risk is absorbed by the VaaS provider
Voltage Performance	This is a variable Fee or Penalty, depending upon over or under performance of the service
Energy Performance	This is a variable Fee based on a share of the energy savings achieved that are in excess of the Guaranteed Energy Savings
O&M	During the term of the service agreement, the facility is fully maintained by the VaaS provider
Warranty	Should the customer acquire the facility after the Initial Term, the facility will be warranted for a further 5 years.

Risk management

Under the VaaS service model, the VaaS provider bears the performance risk. These are some types of the most common risks involved:

- Technical risk: construction difficulties, for example unforeseen installation conditions, breakdown of equipment.

- Financing risk: foreign exchange rate risk and interest rate fluctuation, market risk (change in the price of raw materials), income risk (over-optimistic cash-flow forecasts), cost overrun risk, equipment availability, equipment performance.

Contract model

The Voltage as a Service™ is delivered using a Voltage Performance Contract™ (VPC).

The following table summarises key features of the VPC:

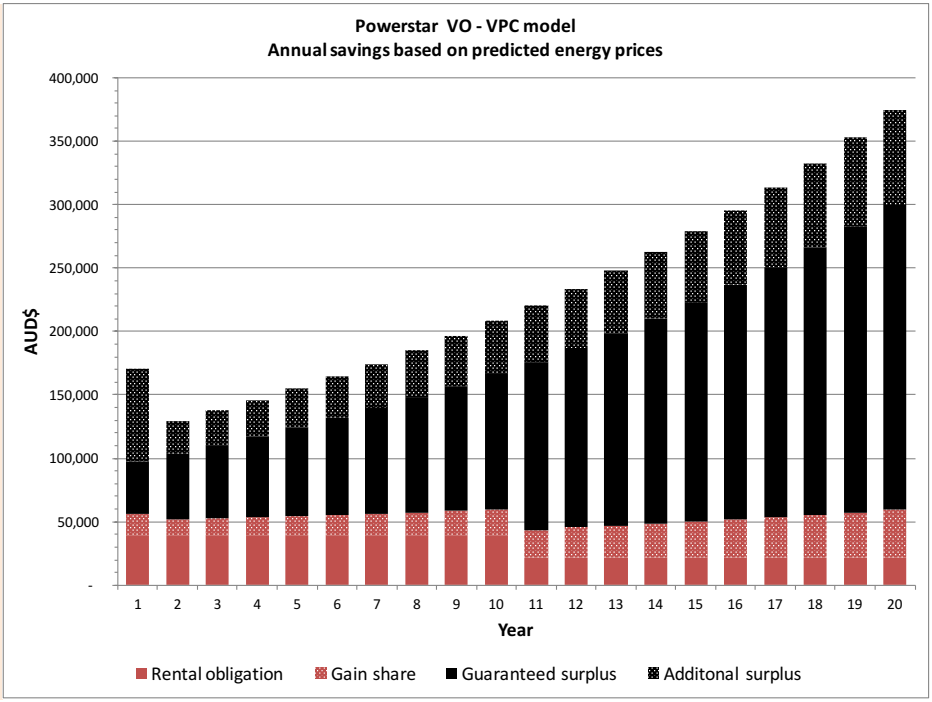
Item	Detail
Contract form	Power quality service contract
Term	10 years
Deliverables	Low voltage (LV) voltage control
KPI	• **Voltage**: Set point (nominally 220V) 97.5% of the time • **Energy**: Guaranteed % kWh reduction energy use
Guarantee	100% Savings Guarantee to protect against downside risk
Payment	• Availability fee • Fee tied to voltage control and energy savings performance • Penalty and reward
Incentive	• Penalties on Provider for KPI under-performance • Rewards on Provider for KPI over-performance
Verification	• EVO IPMVP (international gold standard) • Remote monitoring and reporting
Transfer Option	Option to transfer equipment to Client at term, or continue for repeat term at discount

Case Study Example

Powerstar LV Max installation at a site.

Key points for VAAS VPC

1. **Proposal is guaranteed Positive Cash Flow throughout the term**
2. **Incentives and penalties for Voltage Control and Energy Savings**
3. 100% Energy Savings Guarantee exceeds the annual cost of VAAS
4. 15 year factory warranty provides certainty of operations and equipment performance post term
5. Verification based on EVO IPMVP international gold standard



Case study summary

In this case study the following applies:

Guarantees	The guaranteed energy savings are more than twice the annual subscription cost of the Voltage as a Service™
Financial cost	The annual cost to the customer comprises the Availability Fee and the Performance Fee (Gain Share)
Cash flow result	The project is Cash Flow Positive for the customer from day one

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