CYME
Power Engineering Software and Solutions

Volt/VAR Optimization

Optimize your Distribution Network through Volt/VAR Management

To sustain the energy supply expansion utilities are now looking into emerging smart grid technologies in order to find methods to optimize their network. The CYME Volt/VAR Optimization module is a powerful tool that helps find the optimal way to operate distribution network such that the need of today's and tomorrow's demand can be met through energy efficiency improvement and demand reduction.

The Volt/VAR Optimization (VVO) analysis module simulates a Volt/VAR management application. Simulating such a system gives crucial information such as the switching of capacitors and optimal tap positions of voltage regulators and LTC's leading to loss and demand reduction. Utilities can know beforehand how much their network can be improved taking into account power factor, kvar constraints, voltage limits and varying loading conditions.

The CYME Volt/VAR Optimization module capabilities include:

- Conservation Voltage Reduction (CVR) analysis
- Var optimization analysis
- Capacitor priority sequencing by defining capacitor switching priority
- Multiple power system constraints
- Single load scaling factor or multiple load scaling factor
- Economical benefits evaluation
- User-defined voltage profile charts and tabular reports

Include the CYME Volt/VAR Optimization module in your distribution planning to achieve a more efficient and reliable network.

EATON
Powering Business Worldwide

Volt/VAR Management

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CVR and VAR Optimization

The CYME Volt/VAR Optimization module can perform:

- VAR Optimization
- Conservation Voltage Reduction (CVR)

The conservation Voltage Reduction objective is contrary to the normal approach of operating Volt/VAR control devices individually. It recommends concurrent device settings for shunt capacitors, load tap changers and voltage regulators all at the same time to recommend the optimal settings for the devices.

Multiple System Constraints

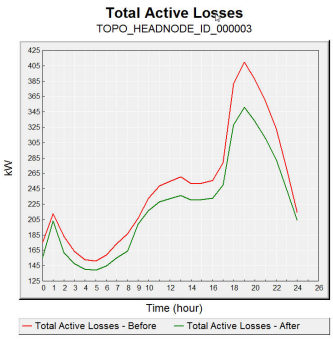
Optional constraints can be applied to a given simulation such that the analysis considers them when making a setting recommendation. Constraints include:

- Minimize active power demand
- Minimize active power losses
- Remove abnormal conditions
- Power factor constraint at substation or at multiple selected devices
- Reactive factor constraint at substation or at selected devices

Load Factors and Capacitor Sequencing

A single load factor or a user-defined load scaling table can be used. With multiple load scaling factors, capacitor bank sequencing can be selected to meet the varying power factor needs.

Through illustrative charts and reports, the CYME VVO analysis module will provide a much more comprehensive Volt/VAR control device management to help you find viable ways to save energy.



Economic Benefits

The reduction in active power generation and the decrease in active power loss brought by the VVO module are both measurable.

Initial Cost		Final Cost	
kWh	k$ / Year	kWh	k$ / Year
2100000	100560	2046000	95620

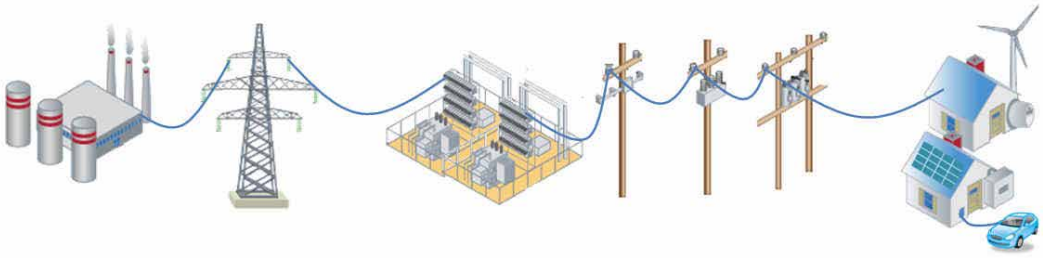
With the CYME software, VVO case studies can be built and the annual savings of different scenarios compared.

Equipment operating beyond their nominal ratings, risk failure and a shortened lifespan. Since the VVO module helps alleviate overloading conditions, installations of new equipment can be postponed and maintenance cost reduced, resulting in further savings.

Real-time Simulation with CYME Server

The CYME Server solution* offers a complete Service Oriented Architecture solution that is embedded into your enterprise applications. It is possible to perform quasi real time Volt/VAR management studies to quickly respond to any network change.

** See our CYME Server – Real-Time Engineering Analysis brochure*



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