ADVVOC: Advanced Distribution Volt/VAR Optimization Controllers

ADVVOCs help your LTC Transformers, Voltage Regulators and Line Capacitors team up to handle the challenges of complex distribution systems with high penetration of Distributed Energy Resources (DER) and Distribution Automation (DA). ADVVOCs run your Volt/VAR Optimization (VVO) and Conservation Voltage Reduction (CVR) applications with or without communications and include embedded cybersecurity and power quality tools.

Distribution Automation Controllers traditionally operate in silos:

- To maintain voltage, LTC Transformer and Voltage Regulator Controls typically use R and X_L line drop compensation.
- Capacitor Controls use voltage to switch for reactive support.
- DER uses voltage for Volt/VAR droop to regulate reactive support.

How do we unify the voltage and reactive support?

- ADVVOCs unify voltage and reactive support control between LTC Transformer, Voltage Regulator, Line Capacitor and DER Droop Controls by measuring VAR Flow and Voltage.
- The measurement is used to implement VAR-Bias control to effectively dispatch VAR from voltage based capacitor controls and Volt/VAR droop DER control.

## Energy Optimization 24x7

The ADVVOC Story

ADVVOCs can be applied for Volt/VAR Optimization (VVO) applications as stand-alone, with centralized SCADA/DMS control or in hybrid control schemes.

ADVVOCs contain control algorithms for implementing VVO/CVR during normal operation.

ADVVOCs automatically compensate for levels of available reactive support to ensure low voltage limits for CVR periods are not violated.

ADVVOCs can autonomously adapt to line reconfiguration post DA/FLISR actions using Autodaptive®-based compensate capacitor controls.

ADVVOCs do not require communications to control voltage switched capacitors or Volt/VAR Droop control-based DER. By measuring voltage and VAR flow as feedback, voltage bands in LTC Transformer and Voltage Regulator controls are modified to allow the reactive support to properly dispatch. Use On-load Tap Changer elements to control voltage, and reactive elements to control VAR.
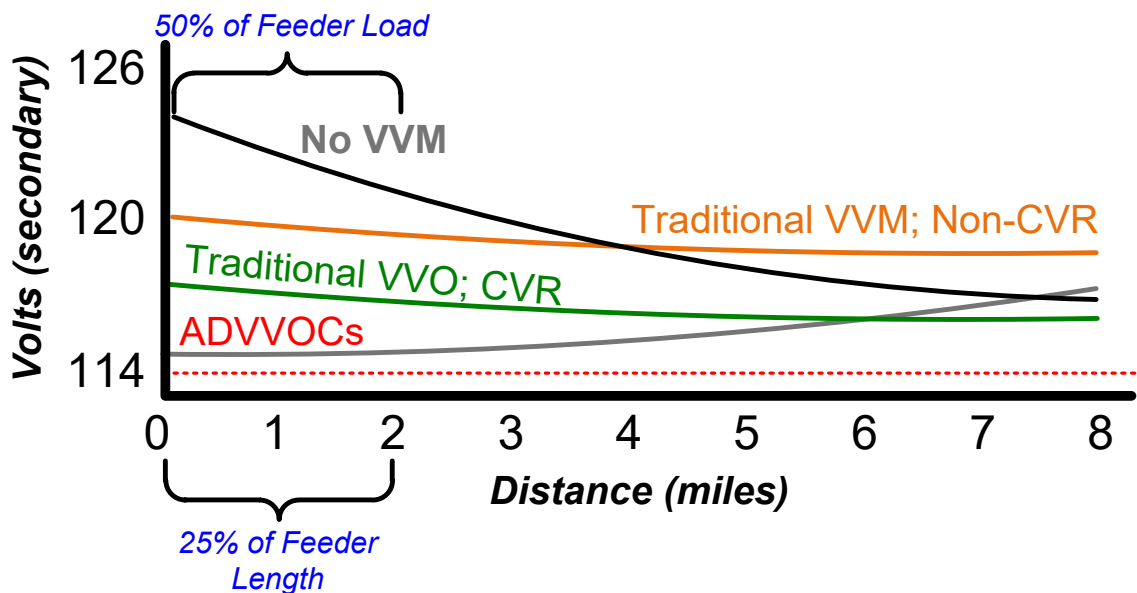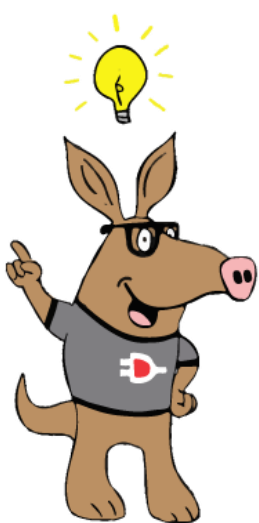
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