

# UTILITY SOLUTIONS

## MAGAZINE



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# Reducing Electrical System Losses with Voltage Control

Elster's EnergyAxis System delivers Smart Grid solutions for power utilities

Utilities have an ever-increasing need to reduce electrical system losses, which can often reach levels as high as 7%. Leading-edge Smart Grid technologies enable utilities to more effectively reduce these losses.

One proven way to reduce losses is to tightly control voltages along distribution feeders, keeping service delivery voltages in the lower range of the ANSI-prescribed limits. As shown by numerous field studies, lowering feeder voltages yields immediate energy conservation, while requiring minimal customer interactions.

Typically, utilities use stale data from field surveys for feeder voltage profile estimates. Lacking real-time visibility of voltages, most utilities maintain overly conservative values at distribution substations to prevent unacceptably low voltages in the far reaches of the distribution system. Utilities are also concerned that unknown issues at individual service delivery locations along the feeder may result in voltage excursions if voltages are lowered below the utility's historical conservative limits.

Advanced metering infrastructure (AMI) provides powerful tools for implementing highly effective voltage control initiatives. Elster's EnergyAxis® AMI solution is based on a multi-technology, flexible architecture optimized for advanced Smart Grid applications. Whereas many popular AMI providers are still working to solidify their communications solutions, security implementations, and head-end architectures, EnergyAxis has already achieved these milestones and is today being actively used to fulfill advanced Smart Grid needs, including voltage control.

## EnergyAxis capabilities include:

- Active polling of voltage at select point-to-point and mesh-connected meter and transformer monitoring points along the distribution feeder, providing real-time voltage information for control decisions and post-control analysis
- Unique capabilities leveraging the distributed architecture in mesh-networked areas to highly optimize endpoint voltage polling
- State-of-the-art configurable voltage threshold alerts at meter endpoints and transformer monitors, allowing utilities to lower feeder voltages with confidence, as alerts will quickly notify the utility if control activities have an undesired effect at a particular customer's service
- Per-phase voltage information with every network element reading, enabling utilities to create comprehensive voltage profiles for feeder analysis
- Support for both internet protocol (IP) and ANSI C12-based communications, allowing utilities to leverage the EnergyAxis communication infrastructure to also transport control messages to distribution control equipment

No other AMI system today offers the field-proven capabilities of EnergyAxis in support of energy conservation initiatives based on voltage control. With EnergyAxis, utilities realize powerful Smart Grid benefits, extending far beyond those typically associated with traditional smart metering.

For more information about Elster smart meters and EnergyAxis systems for the Smart Grid, see [www.elster.com](http://www.elster.com) and [www.energyaxis.com](http://www.energyaxis.com). ✕

