



Leveraging the Potential of Conservation Voltage

Conservation voltage offers the potential for electric utilities to utilize controls over the voltage levels of the distribution network to enable real operational gains. While utilities typically operate in the upper range of the ANSI voltage band under normal circumstances, voltage can be compressed during key periods in a way that benefits utilities and consumers. Numerous studies have shown that for each 1% drop in voltage levels, mean energy consumption for residential and commercial loads can be reduced by .8%, although this value can vary depending on load mix and distribution system configuration.

One of the reasons that this field offers so much value to utilities is the high benefit potential relative to implementation cost. While many system automation programs can take many years to achieve payback, many voltage management programs offer payback in 2-3 years, and many are even more cost effective than that.

Another benefit stems from the varied system approaches that can be employed, with potential program targets including load reduction, improvement in voltage profile, voltage quality improvement, and other areas of operational benefits. As such, utilities can develop their own approaches to build a program that best suits their needs.

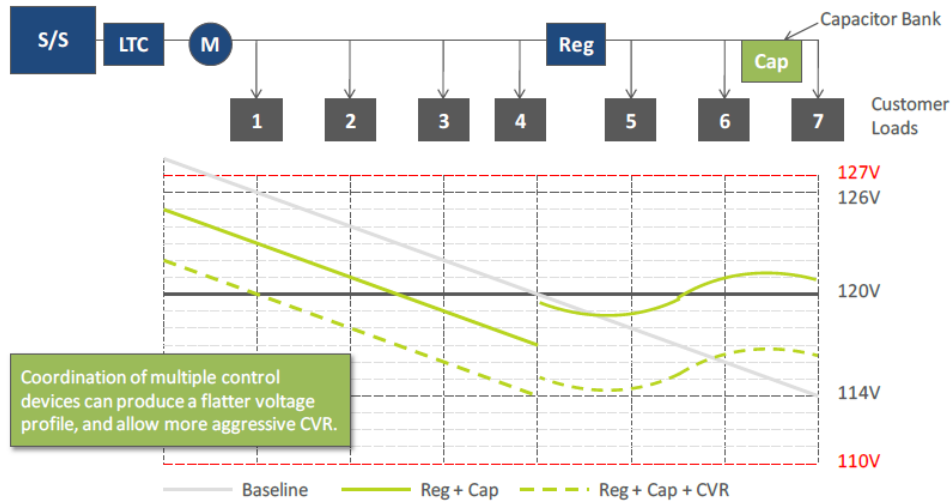
Electric utilities have historically extracted as much value and efficiency as possible with manual controls. Today, however, we see a major shift in the thinking within the electric utility industry as it approaches the issue of building the electric infrastructure to ensure reliable and cost-effective service delivery given a rapidly changing industry. One of the areas of focus for many electric utilities involves the active and automated management of voltage levels.

Many smart grid programs involve the ability to maintain more constant voltage levels throughout the system. This is critical for digital equipment, which is a characteristic of our post-industrial information economy and is expected to grow further in the years ahead. Advanced Voltage and VAR optimization (VVO) technologies can help drive value creation by improving electric distribution system operations. Advanced VVO is made possible through dramatic improvements in sensors, communications, control algorithms, and information processing technologies that monitor and control voltage levels across the distribution system. Broadly speaking, voltage management programs offer utilities the potential to lower voltage during peak periods to achieve demand reduction, support energy conservation efforts, and reduce energy losses. Doing so provides the potential to defer capital investments, improve asset utilization, reduce generation requirements, and support more efficient utility operations.

Small Shovel can help utilities to generate benefits from more effectively managing their voltage profile. Conservation voltage offers fundamental operating support for the distribution network. Volt/VAR control offers the potential to maintain acceptable voltages across all points along the distribution feeder under all loading conditions. In addition, utilities are able to use the system for some key opportunities:

- Improve efficiency by reducing technical losses through voltage optimization

- Reduce system demand through voltage reduction
- Promote a “self-healing” grid
- Support deployments of distributed generation, energy storage, and other distributed energy resources



How can Small Shovel help your utility? Contact us at info@smallshovel.com to find out!

