Satisfying the world’s ever-growing need for power requires going beyond the way we manage energy today. Our grid has to be smarter and more reliable. It needs to respond to rapid changes in demand, seamlessly incorporate a wide range of distributed energy resources and help control energy costs.

Traditionally, voltage regulators have been used to address these challenges. However, in order to prepare for the grid of the future, an easy-to-use step-voltage regulator control is needed. Multi-phase controls are the latest innovation designed to carry our power grid into the future. Here are six ways the technology can help utilities modernize the larger grid while generating savings that can be passed down to the energy consumer:

1. Reduced costs
   With multi-phase configurations of voltage regulator controls, upfront savings on required equipment is realized along with the equipment needed for communications due to the need of only one communication device instead of multiple at each installation point. Setup and programming effort is also dramatically reduced while the inventory of spare controls is reduced by a factor of three to help minimize material requirements.

2. Improved productivity
   Multi-phase controls can help reduce time spent in the field, as well as the associated operating costs of remote control, scanning, programming and data log downloads over a secure network. These devices provide remote, over-the-air setting updates—simplifying lifecycle management. Intuitive operational settings also help reduce the amount of training required to configure controls without limiting capabilities, as engineers can easily select nearly 400 data points for logging and reporting.

3. Enhanced grid oversight
   Multi-phase controls provide three-phase power quality measurements with one device to enable monitoring of every aspect of site health, with refined power quality monitoring for in-depth event analysis in the event of complication or grid anomalies requiring detailed analysis.

4. Flexible communications
   Multi-phase voltage regulating controls are specifically designed for remote operation and retrieval of field measurement data for analysis by integrated volt/var optimization applications. Benefits of this highly flexible and programmable control architecture include easy “radio-ready” integration into networks and SCADA systems using a variety of communication radios and modems, and communication loss fail-safe modes for grid stability.

5. Simplified programming
   Multi-phase controls are embedded with software that is designed to simplify programming of the entire line of common platform controls. This reduces the need for multiple software packages to interface with multiple control versions. Straight out of the box, users can easily program the devices themselves through a step-by-step guide.

6. Flexibility for the future
   By design, multi-phase controls can easily integrate into smart grid communications networks with the inclusion of integrated communications modules, multiple available protocols, communications battery backups, as well as DC and AC auxiliary power supplies. For easing the integration of distributed energy, and maximizing the potential of renewable energy resources, multi-phase controls also offer comprehensive co-generation operating modes for meeting specific site requirements. These modes include:
   • Co-generation
   • Bias Co-Generation mode
   • Reverse Co-Generation mode