PUBLIC POWER CONNECTIONS

Trends: Technology, Economic and Regulatory

Communities should be aware of latest industry trends as utility sector faces transformation

Technology, economic and regulatory trends all contribute to making the electric utility industry an ever-changing field.

Advances in solar **technology** are making solar generation more affordable and popular. Installed solar capacity grew 77 percent from 2010-2013, according to the Environment America Research & Policy Center, and a recent report by the Solar Energy Industries Association states that solar accounted for 36 percent of all new electricity generating capacity installed during the first three quarters of 2014 in the U.S.

The modern **technology** of smart grid has also become more prevalent as utilities install meters that provide added benefits and options for customers and utilities. The automation of meter reading improves efficiency and reliability. Advanced metering infrastructure (AMI) is becoming popular, and some utility customers are even tailoring their daily energy consumption to reduce their monthly electricity bills.

The low price of natural gas is a current **economic** industry trend. This is causing a boom of natural gas plants being built to take advantage of these cheaper natural gas prices. It is also putting pressure on non-gas entities (such as coal) to be competitive in their pricing. The AMP Fremont Energy Center (AFEC) is a natural gas combined cycle facility that has been an excellent resource for AMP members since the price of natural gas is so low. These savings are being passed on to participating utilities' customers.

Creating diversified energy portfolios is also a major **economic** industry trend for AMP members. Diversification is what contributes to the overall goal of providing stable rates. Increasing the number of ways a community gets its power avoids volatile hourly markets and protects against the "putting all your eggs in one basket" scenario. Communities are building portfolios with diversified fuel types such as hydroelectric, wind, solar, natural gas, coal, landfill gas and behind-the-meter generation.

While there are a variety of **regulatory** issues facing the industry, the following are a few main rules you'll likely hear about this year:

- The Mercury and Air Toxic Standards (MATS) are federal standards that require certain power plants to limit their emissions of toxic air pollutants. Originally issued in 2011, the standards took effect in 2015.
- The U.S. Environmental Protection Agency (USEPA) issued a proposed rule on national ambient air quality standard (NAAQS) for ozone in 2014 and is likely on the horizon as a final rule in 2015. Ground-level ozone occurs both naturally and can also form due to emissions from industrial facilities, power plants, vehicle exhaust and chemical solvents. The NAAQS rule proposes a reduction from the current level of 75 parts per billion (ppb) to a level between 65 and 70 ppb.
- The final rule of the USEPA's carbon pollution emission guidelines for existing stationary units is also expected in 2015. Proposed in 2014, the rule aims to cut carbon emissions from existing power plants by 30 percent by 2030. This rule, often referred to as 111(d), is expected to have far-reaching impacts on electric utility resource planning and operations.

SAFETY SPOTLIGHT

Many are opening windows to let the fresh air inside as the weather gets warmer, but it's important to be mindful of window safety. According to a 2015 report by Safe Kids Worldwide, about eight children under the age of five die each year from falling out a window, and more than 3,300 are injured seriously enough to go to the hospital. When opening windows for ventilation, make sure children can't reach them. Consider installing ASTM-approved fall prevention devices, which only allow a window to open a few inches.

Community Projects Put Solar in New Light

Community solar is the idea that some customers may be willing to pay to receive a portion of their power from a solar facility. Rather than each customer installing solar panels on their home or business, a single solar facility is built, and customers sign up to take power from that facility.

A community shared solar project allows residents, organizations and businesses to access renewable energy benefits from systems located at local sites with the technology, installation and operation costs shared by participants. The benefits are divided among the participants according to their share. This structure allows individuals or organizations who are incapable of installing renewable energy options on their own property to take advantage of building larger systems as a combined group for a cheaper cost per killowatt. Community solar projects provide benefits by:

- Capturing economies of scale and building solar more cost-effectively than customers could build individually
- Making it easy for customers – nothing to install, nothing to break on their system, no panels they have to insure or take on and off their roof
- Requiring no updates to residential building or zoning codes
- Offering a single point of power injection, which means protection for utility employees
- Providing the utility experience in distributed generation and control of the system, including operations and maintenance
- Enabling customers who cannot install solar to still gain the benefits of it (economically constrained, renters, no or poor solar access due to shading or building orientation)

American Municipal Power, Inc. (AMP) is in the discovery phase of launching new community solar projects. The goal is to build solar generation to meet a portion of AMP members' capacity and peak energy needs.

WHAT IS?: POWER SURGE

A power surge is the result of an increase in voltage or electrical pressure. The most common causes of internal power surges are high-powered electrical devices that require a lot of energy to run components such as compressors and motors. The culprits are mainly elevators, air conditioners and refrigerators. When one of these devices goes to switch on it causes a brief, but large demand for power and this can upset the steady flow of electricity.

Smaller devices such as a hair dryer or power tools can also cause internal power surges. External surges are generally the result of downed power lines. If lightning strikes near a power line, it can significantly boost the electrical pressure and cause a massive surge.

Small internal surges actually occur quite frequently just from everyday activity, and while they don't leave any outward evidence, they can take a toll on electronic products over time.

A surge protector is exactly what its name suggests – a piece of equipment that protects electrical devices from power surges. When voltage spikes, the protector redirects the excess energy away from the connected device(s). It's recommended to use a surge protector for any high-end electronic equipment, such as computers and televisions, as it will generally extend the lives of the devices.

There are several types of surge protectors. Some of the most common are:

- A whole house (or point-of-entry) protector defends the entire house or building from external surges and is installed at the main panel.
- A wall-mount functions like a standard electrical outlet, but has a built-in surge protector.
- The surge protector strip is the most widely used and is plugged into a standard electrical outlet.
- A battery backup (or uninterruptible power supply) provides instant backup power to connected devices if there is a power failure. Most provide surge protection as well.

A surge protector will likely not stand up to lightning, however. The best protection is to unplug your devices during a lighting storm if possible. It is your responsibility to protect your devices. Only you will be accountable if your equipment is damaged as the result of a surge.