

FIELD AREA NETWORKS: A KEY INGREDIENT FOR OPTIMAL SMART GRID SUCCESS

Smart meters and intelligent networksensors are widely hailed as core elements in the smart grid success formula, providing unprecedented visibility, control and efficiency for consumers and power operators alike. Yet there is another powerful, if less heralded, technology that is essential to assuring optimal interoperability and success for these revolutionary tools: wireless field area networks (FANs).

Today's leading utilities are leveraging distribution automation (DA) and substation automation (SA) technologies to assure greater efficiency and reliability along with efficient integration of distributed generation sources and plug-in electric vehicles (PEVs). DA and SA provide for much greater visibility and control of the grid by the addition of intelligent sensors and communications technologies at many points within the control network. These allow the utility to rebalance power as needed and defer or eliminate expensive investments in stand-by generation and new feeders that raise electric bills; or identify portions of the grid that are subject to failure and take proactive steps before the lights go out in the consumer's home.

Most utilities have DA and SA implementation plans as part of their smart grid initiatives, but in many cases, these intelligent sensors are frequently difficult or prohibitively expensive to reach using wired or fiber technologies. They may also require more bandwidth availability than can be achieved cost-effectively with technologies such as power line carrier (PLC) or telephone services. As a result, more utilities are turning to FANs to reach these devices.

MORE THAN JUST A WIRELESS SOLUTION

Alcatel-Lucent's wireless FAN solution is a pre-tested, pre-integrated set of open-standard wireless technologies designed to support the mission-critical needs of utility operations. Often deployed in conjunction with Alcatel-Lucent's award winning IP/MPLS and industry-leading microwave and fiber optic data backhaul solutions, it provides the highly reliable, highly secure, ubiquitous and cost-effective end-to-end smart grid communications architecture required for mission-critical applications of DA and SA.

Solution components include:

- 802.16e/WiMAX: Alcatel-Lucent has become the utility industry's leading integrator of 802.16e/WiMAX-based systems, partnering with leading manufacturers to

provide mission-critical wireless broadband connectivity to substations and field assets. Utilities such as OG&E, PECO/ Exelon, and PPL have turned to Alcatel-Lucent's solutions for their Smart Grid communications needs

- LTE: Alcatel-Lucent is the leader in bringing Long-Term Evolution (LTE) to the utility industry. An alternative technology to WiMAX, LTE is the natural evolution of cellular and WiMAX technologies. It provides robust and highly scalable broadband connectivity for both fixed and mobile applications that allow the utility to converge its mobile data needs to a single network technology.
- lightRadio™: Another example of Alcatel-Lucent's leadership for utility communications, the lightRadio™ portfolio utilizes a very small 2"x2" form factor cube that combines the functionality of both an antenna and base-station device. It is a key enabler to advanced wireless solutions that can be mounted on light poles, power poles, and buildings – essentially disappearing into the environment. This greatly reduces the expense and regulatory hurdles of building new communications towers that often accompany FAN solutions

TECHNOLOGY TO TRUST IN A CHALLENGING WORLD

Alcatel-Lucent has provided the highest level of technology and service to the world's leading utility companies for more than 20 years. Its wireless smart grid communications solutions, deployed on electrical grids around the globe, are each tailored to meet a specific need. All share the ability to access data from the smart grid in real time, enabling utilities to respond rapidly new demands and plan smarter strategies for the future.

Visit www.alcatel-lucent.com/smartgrid to find out how our leading smart grid communications solutions are used by power utilities throughout the world.

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“HOW CAN WE WORK WITH CUSTOMERS TO MANAGE ENERGY CHOICES? IN REAL TIME, PLEASE.”

SMART COMMUNICATIONS FOR THE SMART GRID

Customers have many energy choices – renewable sources, usage management, micro generation, flexible rates, and now new options for electric use, such as electric vehicles. These choices require real time information, and smart communications is the key enabler. Alcatel-Lucent is bringing communications technology to the Smart Grid allowing customers to make energy choices—in real time, online, from

anywhere—empowering them to save energy and money every day. All while helping support your mission-critical operations with uncompromising reliability and security. With solutions running in more than 80 power grid networks, Alcatel-Lucent's deep expertise is enabling smarter energy management and usage with smart communications – bridging the gap between energy and communications – and bringing the Smart Grid to life.

To learn more, visit www.alcatel-lucent.com/smartgrid

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