



# DistribuTECH 2013 Briefing

A Service from Modern Grid Academy  
A subsidiary of Modern Grid Solutions

## 1. About DistribuTECH

DistribuTECH is the utility industry's leading smart grid conference and exposition, covering automation and control systems, energy efficiency, demand response, renewable energy integration, advanced metering, T&D system operation and reliability, power delivery equipment and water utility technology.

## 2. Key Developments/Highlights by Smart Grid Dimension



Key Dimensions of Smart Grid

### 2.1. Transmission & Distribution Automation

#### ABB

- Released new 15kV current and voltage sensors, called DistribuSense for advanced DA applications. The sensors can be used in a variety of Smart Grid applications including Volt/VAR Optimization (VVO/VVC), Conservation Voltage Reduction (CVR) and Fault Detection, Isolation and Restoration (FDIR). Their low voltage/current output enables them to be used with the widest number of smart meters, relays and capacitor controllers.
- Released industry's first 40kA magnetically actuated outdoor breaker for 38kV. The breaker's compact and modular design makes it suitable for a wide range of climatic and environmental conditions. It utilizes a magnetic actuator with only one moving part that requires

no regular maintenance during the life of the breaker, thus reducing costly maintenance intervals, while increasing reliability and safety.

#### ABB and Ambient

- Collaborate on Advanced Power Quality Monitoring Solution that integrates ABB's DistribuSense™ current and voltage sensors with AmbientPQM™ for advanced power quality monitoring and communications. The combined solution will facilitate grid management through real-time monitoring, and measurement of extensive power quality parameters, to increase efficiency through Volt/VAR Optimization (VVO), and reliability through Fault Detection, Isolation and Restoration (FDIR). It enables utilities to monitor their distribution networks and helps reduce their generation needs, and operating costs.

## **BPL Global**

- Launched its Grid Management Pilot Package that provides electric utilities rapid, cost effective path to implementing distribution grid monitoring. It enables quick deployment of line monitoring hardware and system software to provide power metrics and fault information that utilities can use to improve reliability and efficiency.

## **Cooper Power Systems**

- Released its new CL-7 Voltage Regulator Controls with full suite of deployment options. Easily integrate into an existing system without requiring the expense of additional controls. Controls are scalable and enable end-user selection of control strategies and communications. Optimize power quality, minimize voltage fluctuations, improve energy savings, and enhance communications.

## **S&C Electric**

- Launched IntelliCap 2000 Automatic Capacitor Controls for Volt/Var Optimization. These controls make it easier for utilities to deploy and manage a comprehensive volt/var optimization solution by reducing system set-up time and by providing access to very accurate data.
- Released the latest version of its IntelliLink® Remote Setup Software, a tool that enables installation and operation of distribution automation controls remotely. The latest version has an improved workflow set-up and data-entry process that reduces the time needed to perform these tasks.

## **2.2. Advanced Operational Systems**

### **Alstom Grid and Cap Gemini**

- Launched industry's first real-time, cloud-based Integrated Distribution Management Systems and a new cloud-based Demand Response Management System. The joint solution is expected to reduce total cost of ownership for utilities with full investment protection and efficiency metrics to meet electric distribution utility needs. The single, scalable and integrated platform is expected to lower risk through a progressive roll-out of critical technologies. The service offering is expected to optimize IT maintenance and system management for utilities.

### **Nexant**

- Launched a new network modeling and simulation software application for utilities, called GRID360 Distribution Manager, to build, analyze, simulate, and optimize distribution networks. It enables utilities to address the challenge of unpredictable power flow in the power grid due to distributed generation, renewable integration, micro-grids, and demand response, by providing greater network visibility.

### **Varentec**

- Launched its product, Edge of Network Grid Optimization (ENGO), for dynamic grid control and monitoring. The solution delivers accurate control of grid voltage, distribution line monitoring, power quality alerts, and grid analytics. It provides utilities with greater grid visibility, precise controls and enables improved integration of renewable energy, improved system reliability, energy conservation, and reduced peak demand events.

## **GE**

- Formed a strategic partnership with Systems Control to offer a modular package for substation automation that can be "dropped in" to new or existing distribution electrical grid infrastructures. It is a fully functional, high-quality, factory-tested substation protection and control solution. It eliminates the need for utilities to work with multiple vendors to build, engineer and integrate a new substation and control package—helping them to better control costs and easier implementation.

## **2.3. Communications**

### **Trilliant**

- Launched enhanced SecureMesh WAN 1100 Series, a broadband mesh network for advanced distribution automation applications. The system features integrated dynamic routing and near-immediate failover to ensure uninterrupted communications, reduced latency, end-to-end security, and expanded interoperability. It enables utilities to manage all smart grid applications – Smart Distribution, Smart Metering and Smart Consumer – on a single, unified network.

### **S&C Electric**

- Launched IntelliCom® DA Mesh Radios for Smart Grid Communication Systems. The solution provides dependable, high-capacity, self-healing wireless mesh network communication for a broad array of utility automation applications such as self-healing systems, advanced SCADA and distributed energy management. The new radios provide reliable Ethernet connectivity with Layer 2 wireless mesh bridging, which greatly enhances fault isolation and circuit restoration speeds in distribution automation applications.

### **Proximetry and Airspan**

- Announced collaboration to deliver scalable and secure end-to-end network management solutions. The combined solution would support LTE, WiMAX, 3G, and Wi-Fi technologies, in addition to offering robust visualization, translation of business logic to network control, and network element management for lower total cost of ownership. It would offer utilities greater flexibility, scalability, extensibility, and security than relying on non-integrated systems.

## Siemens and Proximetry

- To deliver advanced end-to-end communication network management solutions for smart electric, gas, and water grids. In the U.S., the market for smart grid network management systems deployed by utilities is projected to grow from \$225 million in 2013 to \$1 billion by 2020. The number of devices under management is expected to grow from 65 million in 2013 to 330 million by 2020. The joint solution is to enable utilities manage millions of communicating grid devices.

## Belden

- Released its new GarrettCom router for hardened, secure substation networking. It provides flexible WAN connectivity, high performance, security, substation-hardened design, and support for mixed TCP/IP and legacy protocols, for substation networking.

## On-Ramp Wireless

- Launched a new AMI solution powered by its wireless communications network. Supports state-of-the-art smart metering capabilities on the same network infrastructure that supports grid automation and demand response. Dramatically reduces utilities' network infrastructure costs and accelerates ROI by providing lowest total cost of ownership combined with rapid realization of advanced metering benefits.

## 2.4. Smart Meters

### Itron

- Announced collaboration with Qualcomm Technologies, Inc. on next-generation smart energy platform. The new platform will combine Itron's OpenWay® smart meters with Qualcomm Technologies' Gobi MDM8x15 multi-mode modem and integrated application processor, enabling a streamlined and cost-optimized solution. The new Itron smart meters will enable emerging smart energy applications such as distribution automation, demand response, distributed generation, pre-paid metering, electric vehicle integration and Volt/Var monitoring, by providing greater amounts of granular data.

### GE and On-Ramp Wireless

- Announced collaboration to integrate GE's Grid IQ advanced metering infrastructure (AMI) solution with On-Ramp Wireless next generation wireless platform. The combined solution provides wide-range of metering capabilities that enable a utility to capture meter data across expansive geographical territories—from urban to rural areas—with minimal network infrastructure. It enables utilities to monitor multiple distribution-sensing applications, such as smart meters, transformers, fault circuit indicators and other grid assets, under one unified network, accelerating the utility return on investment.

## Texas Instruments

- Announced expanded portfolio of fully integrated systems-on-chip (SoCs) for polyphase smart meters. These new metering SoCs provide developers with best-in-class accuracy, largest integrated memory that enable more sophisticated metering features and advanced anti-tampering protection that helps electric utilities prevent power theft and meter manipulation.

## 2.5. Demand Response and Energy Efficiency

### BPL Global and Corporate Systems Engineering

- Announced collaboration in delivering next generation Demand Management Systems. The new system enables a broader set of utility use cases including operational emergency curtailment, ancillary services and peak load shifting in addition to traditional peak load reduction. The high degree of flexibility designed into the solution enables utilities to adjust to evolving regulatory requirements, operational needs and customer expectations.

### Comverge

- Announced its new customer engagement solution, called SmartConsumer. It is an integrated suite of software and services that helps utilities reduce base load by educating and inspiring residential customers to become more energy aware. It enables utilities to implement energy efficiency programs, increase customer satisfaction and meet regulatory mandates.

### EnerNOC

- Released its latest version of energy management application platform with increased utility demand response offerings and enhanced business intelligence functionality. It offers utilities different customer engagement models including a software-as-a-service (SaaS) offering, which enables utilities and energy retailers to directly recruit participants and administer programs via the energy management platform.

### Powerit Solutions

- Launched its new product, Spara Hub, a cloud-based offering of advanced demand management tools. It uses sophisticated load prediction and control algorithms, built-in load-shedding intelligence, and data drawn from industrial equipment, electricity meters, and utility transmissions to optimize facility energy use. It enables users to remotely access their data on any device without maintaining on-site databases, compare energy data across sites to get an enterprise-level view of their energy use and demand control savings, and manage demand settings and utility program participation.

## **DVI (Dominion company)**

- Released its latest version, EDGE 1.2, for utilities to plan, manage and validate investments in energy efficiency, demand response, and grid optimization. Its modular and adaptive conservation voltage management solution enables utilities to deploy incremental grid-side energy management that requires no behavioral changes or purchases by end customers. It provides significant and sustainable energy savings of as much as 4 percent through integrated planning, execution and validation of grid side energy efficiency management.

## **Energate and Sensus**

- Announced the operation of Energate's Consumer Connected Demand Response™ (CCDR) Platform over Sensus' FlexNet™ Advanced Metering Infrastructure (AMI) technology. The solution enables utilities to communicate with customers' home area networks, support utility residential demand response programs, and reduce peak demand.

## **2.6. Smart Homes and Smart Buildings**

### **SDG&E and Candi Controls**

- Announced new mobile PowerTools app for SDG&E customers to track recent energy use, set and manage energy saving goals. It provides access to SDG&E outage map, online bill payment, environmental impact, historical use analysis, and overview of actual use and savings relative to history. It enables customers to securely identify ways to make smarter choices in their energy use habits and decisions, improving efficiency and lowering costs.

### **Jetlun**

- Announced its new solution, Jetlun Advanced Metering Solution (JAMES) for connecting the smart meter to consumers in multi-dwelling units (MDUs). JAMES extends already deployed ZigBee-based Smart Meters to the consumer by converting the ZigBee RF signal into a HomePlug Powerline signal and back to ZigBee, enabling electric utilities to provide real-time energy information to consumers and facilitate demand response programs.

### **Aclara**

- Launched its new, Aclara Mobile Experience (AME), an open-source middleware platform for mobile consumer engagement by utilities. It will enable utilities to offer features such as bill alerts, customer service, usage tracking, and prepay to be available on smartphones.

### **Tendril**

- Released a new version of Tendril Energize, the company's flagship home energy management application suite. It expands availability of home energy management for customers who are not connected to a

smart meter or an AMR/AMI network, using either just their monthly billing data or no billing information at all. It enables energy service providers to accelerate consumer participation via energy efficiency, demand response, direct load control and orchestrated home energy management (e.g., distributed generation, solar, electric vehicles) programs, allowing them to meet their business objectives and regulatory requirements.

## **CEIVA Energy**

- Launches a new solution called Entryway, a system that makes HAN management easy for utilities. It allows utilities to deploy and manage all SEP compliant Home Area Network devices and programs at an unprecedented scale. It makes it simple for utilities to provision HAN devices, create and manage demand response and AMI events, and monitor response analytics.

## **2.7. Data Analytics**

### **GE**

- Launched its new power management system, Grid IQ Insight., which consolidates data from broad mix of sources, and applies advanced data analytics to generate actionable information for utilities. By consolidating and analyzing real-time data from once disconnected sources, Grid IQ Insight helps predict and prevent potential problems to the grid by getting the right information to the right people at the right time. It enables utilities to identify system outages quickly via improved visualization and analysis of their systems, minimizing outage times and greatly reducing costs associated with extended system outages.

## **2.8. Cyber Security**

### **ViaSat**

- Launched a new security system for critical infrastructure such as energy grids and utility networks. The system provides a distributed sensor network that enables real-time detection of problems in the network combined with mechanisms to quarantine issues. It enables operations personnel to manage security with a mouse click, based on real-time intelligence information.

### **McAfee and SUBNET**

- Released a unified security solution offering for substation integration and automation systems. The solution enables integration, automation and securing a utility's IED-based substation without requiring costly upgrades or replacement of existing substation IEDs. It provides advanced threat prevention designed specifically for substation systems architectures. Using this solution a utility operator can implement an advanced substation integration and automation system that protects against cyber threats for meeting regulatory requirements such as NERC CIP.

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### 3. Pulse and Key Focus

For the most part, discussions among utilities and vendors centered around business cases for distribution automation. This is a shift in focus from AMI business cases from years past. Regulators and utilities are deeply interested in value propositions of transmission and distribution automation technologies, and the business cases for deploying them.

A case in point is the technologies described by SDG&E at DTech, which include wireless sensors that automatically detect outages and other problems on the electric grid, as well as devices that smoothly integrate environmentally beneficial renewable energy. The installation of these technologies is creating a more automated electric grid that can quickly respond to changes and events and, in many cases, will even be able to use information to "heal" itself remotely or sense problems before they occur. SDG&E has already installed 2,000 fault detectors throughout the region and will install 10,000 by 2017. The "self-healing" aspect of the grid is a key element of SDG&E's overall smart grid deployment effort.

At DTech, last year's buzzword of "interoperability" has been replaced by "data analytics". Many vendors are offering solutions to extract actionable intelligence from big data.

Overall, data analytics, mobile and automated demand response are showing an upward trend in 2013 for utilities.

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