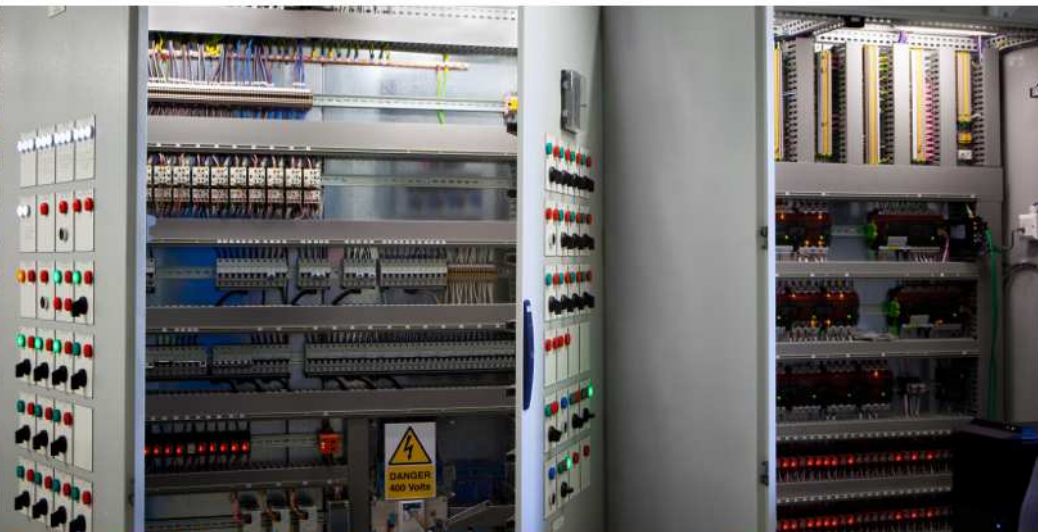




Newton-Evans Research Company's

Market Trends Digest

July 2014



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U.S. Sales of MV Equipment, Components and Services to Reach \$13 Billion by 2016

The Newton-Evans Research Company has announced the publication of a series of 18 electric power distribution market two-page snapshot market summaries. The new series of market overview reports (executive market summaries) includes supplier listings, representative products, and estimated market size for each topic, vendor market share estimates and market outlook and growth factors through 2016. Electric utilities accounted for nearly two-thirds of purchases of the medium voltage product categories in this series, with industrial and commercial segments accounting for about one third of the value of MV equipment shipments. A majority of the included equipment and products continue to be manufactured and/or assembled in the United States.

The Medium Voltage equipment market overview series is priced at \$1,500 for all 18 market summary reports, or at \$150.00 for individual report summaries. Each snapshot report include product definitions, estimates of 2013 U.S. market size, supplier market shares and the outlook through 2016 for these categories:

- MV01 – Air Insulated Metal Clad Switchgear
- MV02 – MV Motor Controllers
- MV03 – MV Gas Insulated Switchgear
- MV04 – Automatic Circuit Reclosers
- MV05 – Outdoor Distribution Circuit Breakers (5-38kv)
- MV06 – Load Interrupter Switchgear
- MV07 – Overhead Disconnect Switches (15-38kv)
- MV08 – Sectionalizers; MV09 – Fused Cutouts
- MV10 – Pad Mounted Switchgear
- MV11 – Submersible Switchgear
- MV12 – Bus Duct and Bus Bar
- MV13 – Substation Class Pad Mounted Capacitors
- MV14 – Current/Instrument Transformers
- MV15 – Fault Current Limiters
- MV16 – Fault Current Indicators and Faulted Circuit Indicators
- MV17 – Current Limiting Fuses and Fuse Links
- MV18 – Surge Arresters.

Other U.S. T&D market snapshot series to be updated during the next three months include power transformers (11 market segment snapshots), protective relays (8 market segment snapshots) and substation automation components (13 market segment snapshots). The next market overview series to be released

covers 12 component topics related to distribution automation. The DA series was just published in June, 2014.

Further information on each series of U.S. T&D market snapshots is available from Newton-Evans Research Company, 10176 Baltimore National Pike, Suite 204, Ellicott City, Maryland 21042. Phone: 410-465-7316 or visit www.newton-evans.com for a brochure or to place an order for any of the related report series or more than 85 individual T&D report summaries online. For subscriptions to all of the currently available report series, please call or email us for special introductory pricing offers.

To stay up to date on all our report topics visit our website

www.newton-evans.com/





Smart grid? Get market smart.

Since 1978, NEWTON-EVANS RESEARCH COMPANY, INC. has been conducting business-to-business market research focused on energy industry automation, information technology, and infrastructure topics such as Smart Grid. We also provide business consulting services for clients in the computer, communications, control systems and engineered products areas. Newton-Evans is recognized as a world leader in research of the electric power delivery industry's use of computers, communications, control systems, and technical equipment and products.

Newton-Evans Research Company is a member of the American Marketing Association (AMA), The Council of American Survey Research Organization (CASRO), the Institute of Electrical and Electronics Engineers (IEEE), CIGRE, and the Utilities Telecom Council (UTC). Newton-Evans Research is an associate member of the National Electrical Manufacturers Association (NEMA).

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U.S. Market for T&D Control Systems Products and Services

Newton-Evans Research Company is pleased to announce publication of the report series entitled: *Overview of the 2014-2016 U.S. Transmission and Distribution Equipment Market: Control Systems Series*. The new 11 volume report series covers the following topics:

- CS01 - EMS Systems Integration
- CS02 - Distribution SCADA
- CS03 - Geographic Information Systems
- CS04 - Customer Information Systems
- CS05 - Outage Management Systems
- CS06 - Meter Data Management Systems
- CS07 - Mobile Workforce Management Systems
- CS08 - Advanced Distribution Automation
- CS09 - Electric Power Market Management System
- CS10 - Cyber Security Software for Control Systems
- CS11 – Generation Management Systems

Each report contains a product/service definition, a summary table of the major market participants and their 2013 estimated market share in \$MUSD and as a percentage of the total U.S. market, comparison of utility vs. industrial spending, and a U.S. market forecast through year end 2016.

Purchase the complete set for \$975 or any individual report for \$150.

For more information about this series or to place an order visit our website:

<http://www.newton-evans.com/our-reports>



What to Expect Next: Potential Synergies of the Alstom (Power and Grid) Acquisition by General Electric

By Chuck Newton

As many long-term readers of Newton-Evans' reports and articles knew from our assessment reported in 2009 there were back then three major contenders for the \$7 billion Transmission and Distribution business units of the old Areva T&D Corporation. These were the American firm General Electric, the French corporate combination of Alstom and Schneider Electric, and the Japanese company, Toshiba. In the end the French government simply divided Areva T&D in half, and placed the "T" business into Alstom and the "D" business into Schneider Electric.

On June 21, 2014 GE was informed that Alstom's board of directors decided to recommend GE's offer to acquire the Power and Grid business of Alstom Corporation. These units are: Alstom Power (generation assets) and more importantly for this assessment, Alstom Grid, the HV and control systems components of the old Areva T&D business. The "D" business of Areva has now become a core business within the capable Schneider Electric camp of medium voltage equipment offerings.

Newton-Evans Research believes significant benefits to GE's efforts targeting the global electric power industry will accrue if the company staffs truly work synergistically. Here are six key reasons for this view, in our opinion:

(1) IMPROVED WORLD MARKET ACCESS: GE will gain improved access to European electric power markets and other world regions with long-established relationships nurtured by Alstom and predecessors under the French management and government policies, which may continue under GE ownership, now that the French government is slated to become a significant shareholder investor in Alstom securities. Keep in mind that GE has more than a century of experience and accomplishments in France. I can recall visits to Belfort in eastern France and visiting both GE and Alstom (Areva) factory sites.

(2) ATTAINMENT OF ORGANIC GROWTH: GE Energy Management will again be able to lay claim to some real growth within 24 months of the close of this acquisition. Growth will come from both inorganic sources (via this acquisition – itself worth more than \$4 Billion in current year sales of Alstom Grid products, systems and services) and organic growth (through increased interest in, and procurement of all combined GE-Alstom equipment, products and services). Each of the four

component businesses of GE Energy Management including: Digital Energy, Industrial Solutions, Power Conversion and Energy Consulting will each benefit significantly if all goes as planned and envisioned in early July 2014. The big issue we see is whether Atlanta and Toronto will report in to Paris, or whether the reverse will be true.

(3) REDUCTION IN OFFERINGS “GAP”: GE will be able to fill several significant product/equipment gaps in its electric power transmission and distribution product line and related automation offerings. This will result in significant mid-term benefits to GE Digital Energy. However, a key issue for GE will be the “branding” of product offerings going forward from midyear 2015.

(4) MARKET-LEADING POSITION IN POWER GENERATION: Alstom's power business includes assets for power generation such as turbines for coal, gas and nuclear power plants, wind farms while GE is a co-leader in both fossil, nuclear, hydro and renewables businesses.

(5) INCREASED SHARES OF OPERATIONAL CONTROL SYSTEMS: While GE's EMS offerings have had somewhat limited success beyond North America, its DMS, OMS and GIS offerings are well-respected and are high quality offerings. Alstom Grid is a world leader in EMS, with a world-class group of systems for power transmission and distribution. The company's “*e-terra*” line of systems is the leading market shareholder among critical T&D operational control systems used in the global electric power industry. The company also has developed a growing customer base among large utilities for advanced distribution network management with its IDMS offering. If the companies' technical and product marketing teams work together as they have over time on various technical committees (IEEE, IEC, CIGRE et al) and provide smooth cross-systems integration capabilities, the company will be a force to be reckoned with in the world market for control systems. GE has a strong substation modernization/automation business focus across all components (systems, products, intelligent devices, communications equipment) that leads the North American market and is a growing force internationally.

GE Energy Management will likely become a major player in several growing portions of the transmission equipment business, establishing a stronger foothold in the North American and international transmission market segments described below. Together these segments are worth \$32-40 billion on a worldwide basis. Newton-Evans' estimates that Alstom Grid earned about \$3.5 billion to \$4.1 billion in HV equipment sales in 2013.

Here is our take on the gains to be realized for both electric power infrastructure and electric utility automation and services:

FACTS and Reactive Power Compensation:

ABB is probably the global leader in flexible AC transmission systems and the related reactive power compensation segment of high voltage equipment for transmission networks. Siemens Energy is a strong number two supplier with several others (notably Mitsubishi Electric Power Products, and American Superconductor) also active in North America, and around the world. Alstom Grid and GE are also participants that together could challenge the market leading positions of ABB and Siemens within three years of a merger of product lines.

HVDC Equipment:

Siemens is the market leader in HVDC, with ABB a reasonably close second place share holder and MEPP the likely third most important player. However, an integrated Alstom Grid-General Electric product grouping would enable the company to attain up to a quarter of the available market shares.

Gas Insulated Substations/Switchgear: The North American market for High Voltage GIS equipment is in excess of a quarter billion dollars. While Alstom Grid has only a small share (stronger in Canada than in the US), GE Energy could now present itself as a player in this growing market segment of high voltage switchgear. GE would also play a much more important role in international markets where – unlike in North America – GIS equipment is prevalent. Globally, GIS equipment is a 2-3 billion dollar annual market.

High Voltage Bushings:

This relatively small (about \$125-150M in annual worldwide sales) market is led by Siemens and ABB. However, the combined Alstom Grid and GE offerings could make GE into a formidable player in this segment.

High Voltage Capacitors:

GE Energy is already the major participant in the North American market for HV capacitors, but globally, ABB is the leader. Alstom Grid, by virtue of its recent acquisition of the Finnish manufacturer, Nokian Capacitors, is also a very strong player in Northern Europe. Together, the product lines could pose a real threat to ABB dominance here (yet another billion dollar global product segment).

High Voltage Circuit Breakers:

Alstom Grid is already a major player globally, and with GE's "sales boots on the ground" could significantly increase its share in North America and abroad. ABB and

Siemens are both very strong manufacturers in this large annual global market of better than \$2 billion.

Disconnect Switches:

High voltage disconnect switches are vital components of many transmission systems, and the global market runs to about \$500 million annually. GE and Alstom Grid are among the six leading suppliers of disconnect switches in North America, but lag behind Hubbell, S&C and Southern States, some of which offer circuit switchers used for disconnect applications.

Large Power Transformers:

Alstom Grid is number three in the world in terms of large power transformer market share and assets, operating 13 plants with an annual production capacity of more than 130 MVA. GE Prolec is a major North American market force with about a 14% share of the U.S. market. Together, this alliance may become number three in the global market for LPTs behind ABB and Siemens. To do so, the GE-Alstom combine will have to fend off HICO, Hyundai, Toshiba and MEPPI as well as three up-and-coming Chinese manufacturers.

Instrument Transformers:

The market for high voltage instrument transformers had been dominated by specialist “independent” manufacturers until recently. A recent buying spree had Siemens acquiring Trench Electric, Alstom Grid acquiring Ritz and ABB acquiring Kuhlman. Currently, the market for HV IT equipment is shared primarily by these three firms, with GE very active in the MV segment. Together, the combined HV/MV instrument transformer offerings of an integrated GE-Alstom Grid would change the shape of this market, which in North America alone hovers around \$100 million, and close to one-half billion dollars worldwide.

Air Core Reactors:

Another component of some transmission network architectures, Siemens-Trench and Alstom Grid-Ritz are key players, with GE also strong and MEPPI further behind, but with a growing share. A number of smaller participants account for a rather large share of this \$400 million global business.

Surge Arresters:

Another sizable market in its own right (about \$1 billion per year globally) high voltage surge arresters are manufactured by a number of US-based firms such as Hubbell, Thomas & Betts, and Cooper Power, each of which competes quite successfully against the likes of ABB, Siemens and GE.

Automation Systems:

GE's older XA/21 EMS platform and Alstom Grid's highly rated E-Terra offerings are both held in high regard around the world, although GE's systems are mainly installed in the USA. By year-end 2015 and more likely into 2016, General Electric-Alstom Grid will see benefits from world-leading combined market shares in substation automation, protection and control and T&D control systems (energy management, DMS, OMS, GIS and SCADA). Earlier (1990's era) acquisition efforts have been fraught with initial business unit integration problems (to wit- ABB with its acquisition of the older Ferranti EMS business (Spider v. Ranger offerings) and Siemens-Control Data (Sinault-Spectrum v. Empros).

Substation Modernization:

If protective relays are included in the mix of substation modernization, then the collaborative efforts of GE and Alstom will lead to a global co-leadership market position across the board. Alstom Grid enjoys a strong position with transmission class relays and related MiCOM systems and equipment, and has been fairly strong participant in the global market for substation automation. GE enjoys a strong position in protective relays in North America (number two supplier) and in some Western European and Asian markets, and does make the list of qualified suppliers elsewhere.

Protection and Control:

Internationally, Alstom Grid (with part of the Stafford, UK-based relay business) holds an estimated 16% share of the global protective relay market (outside of the U.S.), estimated by Newton-Evans to be about \$2.4-\$2.6 billion this year. GE Multilin, based in Toronto, is also a very strong market participant, especially in the Americas, and is the leader in industrial protection and control markets.

T&D Services:

GE is a major participant in T&D equipment repair and services, especially with its transformer repair business, and Alstom Grid outside of North America earns about \$550 million per year with its array of high voltage equipment services and global agreements for automation systems maintenance and upgrades.

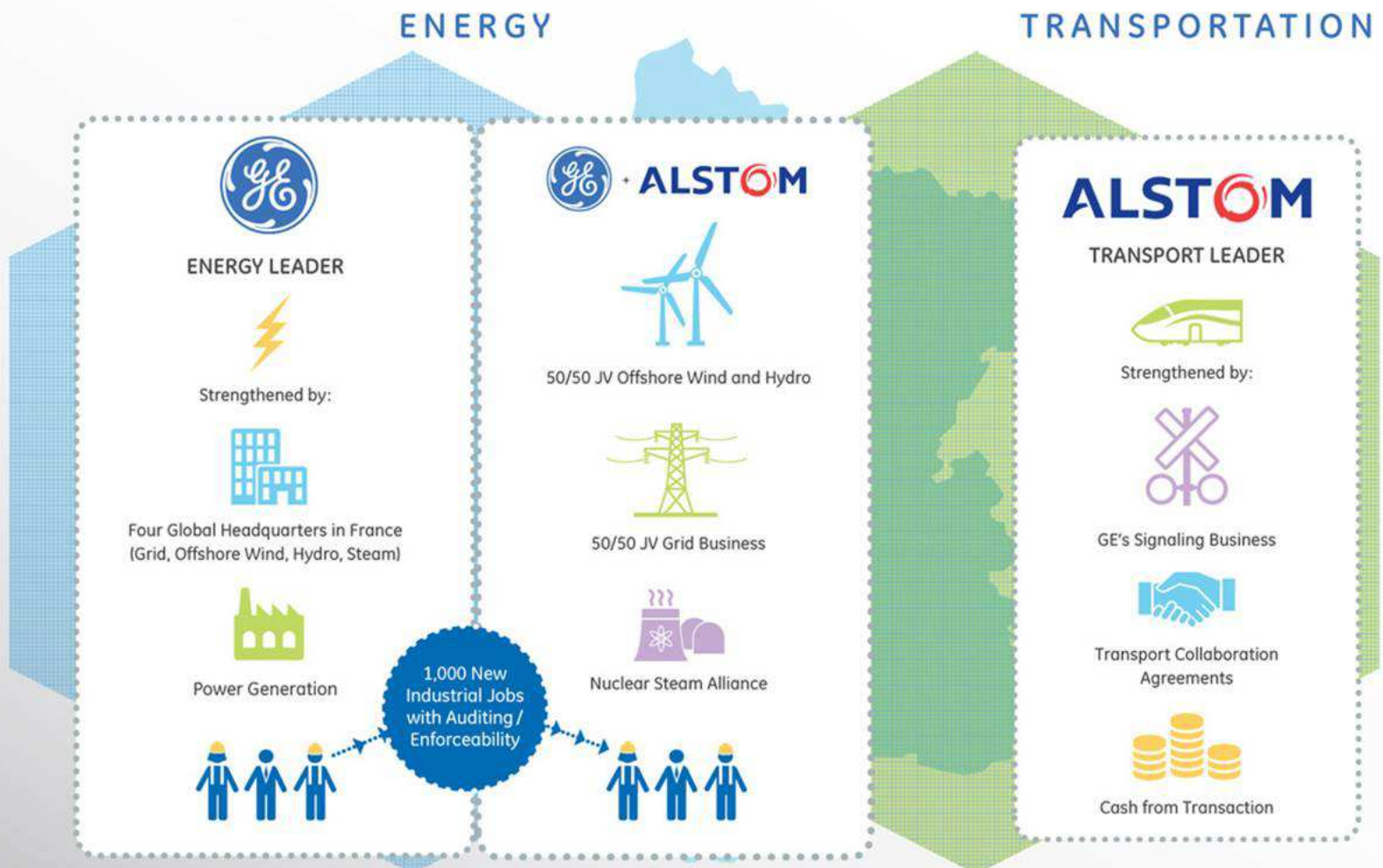
Let's not count this as a "done deal" quite yet. I do believe it is now very likely to be seen through by all parties (GE, Alstom, French government, possibly various international courts). The important role of Alstom's minority shareholders and their reaction to the GE acquisition is somewhat unclear as is the role the French government's strong minority ownership position will play. GE has made significant concessions regarding job retention among the French workforce, and has promised

to add another 1000 jobs in the country. This could have ripple effects on its global workforce, especially if workforce reductions take place.

The following chart (*used with permission of General Electric*) illustrates the current state of the acquisition and the alliance formation.

AN ALLIANCE FOR FRANCE

Two global champions for France in two of the world's most essential industries – energy & transportation



The U.S. Market for Distribution Automation

From 2008 onward, Newton-Evans Research Company has completed one or two client-based, proprietary studies each year to provide mid-term and longer-term outlooks for one or more components of the burgeoning Distribution Automation market comprised of U.S.-based electric power utilities. The primary focus of these studies has centered on various DA field equipment types and associated controllers as well as DA software and platforms, located in the field, at the substation level or at the MV operations control center.

Research Methodology

These studies have included several weeks of primary research based on direct communications with major and mid-size utilities, requesting their insights regarding DA plans through 2020. These studies also included secondary research methods to learn about documented plans for DA among other North American utilities and to better understand the likely impact of economic growth projections and electric utility revenue outlook and CAPEX spending. Overall economic information used in the preparation of our range estimates was also based on NGO and a variety of government outlook documents.

The following observations are based on survey completions provided by scores of electric power utility officials during 2012-2014.

DA expenditure allocation among three purchasing categories

The overall indications from the surveys completed prior to 2014 pointed to somewhat more than one-half of the 2013-2015 DA budgets going to the procurement of field equipment, with an equal percentage of the remaining budget allocated for platforms and software, and for DA controller devices.

Over the longer term horizon (2016-2020) the DA expenditure outlook indicated a slight shift in spending patterns, suggesting increases in the percentage of program funding allocated to DA field equipment, and slightly lower percentages going toward platforms, software, and DA controller devices.

The following series of charts represent the Newton-Evans consensus view of low, mid-range and high estimates of likely DA spending for five components:

- DA smart field-based distribution equipment
- DA controllers
- Substation-based DA platforms and software
- control center-based DA platforms and software
- Telecoms for DA

Specific DA communications network developments are excluded from this outlook. The mid-range outlook is based in large part on the utility survey responses and a cautiously optimistic assessment of the near-term and mid-term.

The low range outlook takes into account the possible continuation of unclear energy policies at the federal and state levels, federal and local government budget woes, minimal growth in electric utility industry revenues and a continuation of relatively flat electricity consumption patterns.

The high range outlook factors in a stronger economic outlook for the periods from late 2013 through 2016, based on the economic analysis information reported by several external organizations.

References were made to recent publications provided by several organizations including The Conference Board, Moody's Analytics, The World Bank, The Federal Reserve and the Bureau of Economic Analysis.

The historic DA spending baseline years in this study have been derived from the larger and more comprehensive mid-2010 baseline study of North American utilities conducted by Newton-Evans Research Company.

This year's update to the report series, "Overview of the 2014-2016 U.S. Transmission and Distribution Equipment Market: Distribution Automation Series" goes into more detail with respect to the market for specific DA equipment and spending categories such as Automatic Circuit Recloser Controls; DA/DMS System Components; Voltage Regulators; Capacitor Bank Controllers; Fault Indicators; Pole Top (and Pad Mount) RTUs; Line Mounted Monitoring Devices; Communications Components for DA; and Engineering Services for DA.

See our reports page for topic listings and pricing details, and be sure to send us an email at info@newton-evans.com or call 1 800 222 2856 to place your order.



Energy Management and Market Operations Systems (EMMOS) Users Group Solidifies Plans for 2014 Annual Meeting & Training Sessions

+ New York ISO to Host EMMOS Event during September 8-10, 2014

+ Tours Planned for NYISO Control Center and GE Durathon Battery Plant

The 21st annual three day conference of the Energy Management and Market Operations Systems (EMMOS) Users Group will be held at the Hilton Albany Hotel located in downtown Albany, New York, on September 8-10, 2014, starting with a welcoming reception on the evening of Sunday, September 7th.

The 2014 conference will include tours of the New York ISO (NYISO) control center and the new General Electric Durathon Energy Storage Battery production facility in nearby Schenectady.

The conference agenda will feature topical speakers and roundtable sessions, vendor exhibitions and two technical training classes.

Featured conference topics at the 2014 gathering of North American and international control systems operations management and staff include: What's coming next? A preview of next generation EMS and SCADA control systems technology; building grid resiliency; securing linkages to external systems; OT/IT integration; regulatory change and its impact on control systems; data communications trends & standards; cyber-security topics; situational awareness; renewables integration, and other topics.

The annual EMMOS conference attendees include electric power operations officials involved with transmission, distribution and generation, as well as IT managers, planning engineers, consultants, ISO staffs, and related systems personnel involved with substation modernization, distribution automation, outage management and geographic information systems.

Further information on the upcoming 2014 EMMOS conference, including registration information and hotel booking arrangements, as well as exhibition and sponsorship opportunities can be found on the EMMOS website at www.emmos.org or email either Erika Ferguson eferguson@osisoft.com or Chuck Newton cnewton@newton-evans.com.

