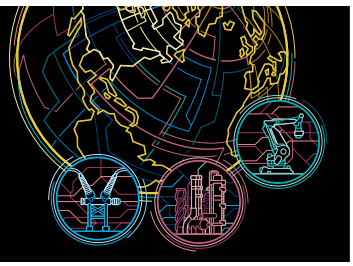
Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Curriculum titles and abstracts
Listed by program and track name

Best practices in industry

Best practices for infrastructure

Best practices for utilities

Business forum

Industry forums

New and updated products

Technical training

Build your own agenda using the APW Sample Agenda Builder

Use the search to start building your agenda. Once you build your agenda you will be able to download your sample agenda.

Locate the Sample Agenda Builder at:
http://abb2015.sample.alliancetech.com

For more information and to register visit www.abb.com/apw

This page intentionally left blank

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX

Best practices for industry
Innovations in automation technology

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

401001 **AC500 PLC-based wireless control system/live video for nuclear hazardous waste cleanup vehicles**
This case study covers the design of a distributed processor-based control system using the AC500 and AC500eCO platform. This system provides wireless remote control of vehicles used to remove nuclear hazardous waste. Live video feeds provide the operators with visual feedback of the operating vehicles. Design challenges included minimizing latency, reliability, generator/ battery power requirements and packaging. This session reviews the generation of system architecture, component selection, final design, testing and implementation.

2:30 p.m. - 3:30 p.m.

401002 **Chemical injection optimization**
This session describes three different ways to inject chemicals: continuous, batch and chemicals with plunger lift. The continuous method is based on a rate. For foamers, as the flow rate drops, the amount of chemicals increases. The batch method calculates the amount of fluid in the well and calculates the amount of time the chemical pump needs to be on to inject the proper amount of chemicals. With plunger lift, when the well is closed, the same calculation as in batch is done and the slug is treated.

4:00 p.m. - 5:00 p.m.

401003 **Styron case study: MOD5 migration to System 800xA**
How would you like the challenge of migrating legacy DCS systems at 38 plants scattered around the globe within the next 5 years? This is precisely the challenge that Styron has accepted. This session explains how Styron and ABB are working together to meet this challenge. It encompasses the management of a global engineering team and session, the application conversion tools developed to help streamline the overall effort and some of the successes and hurdles to date.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

401004 **Virtualization of a refinery DCS: YPf Lujan de Cuyo refinery**
If worries about the security, reliability and serviceability of your control system keep you up at night, learn how YPF's Lujan de Cuyo refinery used virtualization to increase the robustness and availability of their 800xA system. By virtualizing the domain controllers, aspect and connectivity servers and implementing triple redundancy of the server hardware, several benefits were achieved, including geographic separation of servers and software management of the virtual networks, which reduced maintenance costs.

2:30 p.m. - 3:30 p.m.

401005 **Demystifying the industrial internet of things (IIoT)**
For several years the phrase internet of things (IoT) has been highlighted in the media as a way to transform manufacturing, with a lot of emphasis being placed on how low-cost sensors and internet connections will drive new decision making models for manufacturing and maintenance. Using examples from industry, this session examines the hype, reality and potential of the industrial internet of things, as well as other related technologies such as cloud computing and big data, looked at in the context of the modern industrial plant.

4:00 p.m. - 5:00 p.m.

401006 **Next generation ABB subsea power solutions**
Together with Statoil and two other oil companies, ABB is developing the next generation subsea power solution, suitable for systems up to 100 MW, depths of 9000 feet (3000 meters) and very long transmission distances. This session provides a midway update on this 5 year, $100 million development effort, as well as the latest news on ABB's present subsea power portfolio and capabilities.

Best practices for industry
Innovations in automation technology

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

401007 **Wireless communication networks for open pit mining applications**

Open pit mining is a high-tech undertaking in decidedly hostile environments. Some of the world's largest, most expensive machines must be safely and efficiently maintained and operated in remote locations with rugged terrain and extreme weather. A private wireless IP broadband network based on the Tropos network architecture can provide the communications infrastructure to support the applications required for safe, secure, efficient and, ultimately, profitable mining operations.

2:30 p.m. - 3:30 p.m.

401008 **Innovations for a better world: future control room engagement@work**

The automation products and systems of tomorrow will not look like they do today. This session examines what is happening in different domains and how the new technologies can be applied to shape the future of automation. Find out how technologies such as wearables, augmented reality and internet of things can be applied in industry.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

401010 **CoServ Gas: SCADA in the cloud**

In 2014, ABB was awarded a contract to provide a supervisory control and data acquisition (SCADA) solution to CoServ Gas that included the supply and installation of ABB total flow RTUs and access to data from a SCADAvantage solution hosted in the cloud. This revolutionary approach to SCADA allows new or smaller users to have all the benefits of a powerful SCADA solution, such as SCADAvantage, without taking on the responsibility to own, operate or maintain the host infrastructure themselves.

2:30 p.m. - 3:30 p.m.

401011 **16,000 HP at 16,000 foot elevation: design and commissioning of overland conveyor drives**

This session reviews the design and commissioning of the drives for a complex overland conveyor that is located at an elevation of 16,000 feet and is over 3 miles long. Limitations in the mechanical speed reducers affected the selection of the drive systems. Conveyor load requirements vary from plus 12,000 hp to minus 5,400 hp. The session shares information about the installation and commissioning of the mechanical components, including the reducers, auxiliary systems, couplings, brakes, alignments, plumbing and the interface of the four reducers with the control system.

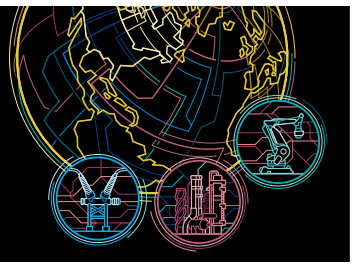
4:00 p.m. - 5:00 p.m.

401012 **A robust process FT-NIR spectrometer with small footprint and extended maintenance interval**

Control and optimization of refinery process units, from distillation, conversion and upgrading units through to final product blending and release, has always been a major concern and objective for refinery operations, critical as it is for effective and economic operation. Process optical spectroscopy analyzers are attractive tools to measure stream quality. This session explores recent technical innovations within process spectroscopy, including simpler more robust process FT-NIR analyzers with minimum footprint and utility requirements.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for industry
Maintenance strategies

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

401101 **Windows XP support: what to do when no one is plugging the holes in the Swiss cheese**

Like the Swiss cheese in your refrigerator, Windows XP has holes and no one is going to patch them. If Windows XP is still in use with your control system, can you minimize the downside of no operating system support, no hardware manufacturer support and no independent software vendor support? Are there ways to lock down your system to protect it and reduce the need for patches? Are you struggling to justify to your organization a necessary upgrade? Find out how other industrial control system users are filling the holes in the cheese.

2:30 p.m. - 3:30 p.m.

401102 **Optimizing Harmony DCS performance**

Learn about advanced Harmony diagnostics available in your system, how to assess system performance and how to proactively assess potential performance problems. Communication loop performance issues may cause temporary system performance degradation; and some system settings restrict maximum communication and module reporting errors. The Harmony Performance Fingerprint can be delivered on site or remotely through the ServicePort Service Delivery Platform. ABB service engineers can help analyze data and identify issues to improve performance.

4:00 p.m. - 5:00 p.m.

401103 **Control system cyber security: detect threats, reduce risk and begin the lifecycle security process**

Cyber security is a new business risk. How do you assess it, identify threats and reduce risks? Will a cyber security investment only protect or can it improve performance? Cyber security can be addressed in a way that identifies threats, mitigates risks and improves performance. Yet control system cyber security is not a one-time event, but an ongoing process. This session identifies best practices, standards and services available for self-maintainers and those wanting more help. It covers basic controls, as well as how to identify and address gaps to minimize risk and maximize reward.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

401104 **Harmony OPC Evolution success story: North Pacific Paper Corporation (NORPAC)**

Evolving your distributed control system components and interfaces to current technologies is a key part of maintaining a reliable and supportable control infrastructure. This session reviews one recently completed project, from requirements, planning, design and engineering to installation and troubleshooting. The case study features Symphony Harmony components, but touches on goals, themes and benefits that can be applied to the most challenging evolution projects.

2:30 p.m. - 3:30 p.m.

401105 **Delivering a successful migration project at Dow: MOD5 to 800xA**

This session targets existing or prospective owner or operator of System 800xA who would like to reduce their automation solution's cost of ownership. System 800xA's architecture and deployment options, including virtualization, the use of 800xA's automation platform and application consolidation, are among the many money saving, productivity enhancing topics discussed.

4:00 p.m. - 5:00 p.m.

401106 **Panel on automation DCS evolution for industry**

Interested in evolving or modernizing your System 800xA or heritage ABB system? Concerned about the justification, where to start and what questions to ask? System modernization can extend the life of your DCS, lower the cost of ownership and increase the value it provides to your plant. In this session, ABB experts discuss best practices developed from performing hundreds of DCS evolution projects and taking advantage of new technology within the framework of an existing DCS. Topics include lifecycle audits, evolution planning, FEED studies, convert or enhance decisions and more.

Best practices for industry
Maintenance strategies

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

401107 **Preventive maintenance: increase drive reliability while cutting operating costs**

AC drives are not maintenance-free devices; they need regular maintenance to extend their useful lives. Preventive maintenance consists of regular inspections and component replacements according to a product-specific schedule and tailored to environmental conditions. Preventive maintenance is carried out on site during planned production shutdowns. This proactive service solution maximizes the life, uptime and performance of drive equipment, thus lowering the total cost of ownership.

2:30 p.m. - 3:30 p.m.

401108 **Leveraging MySiteCondition to move from time-based maintenance to reliability-centered maintenance**

Operational and maintenance budgets are decreasing, assets are aging and resources are more limited than ever. Knowing the condition of the installed equipment and where to focus operational budgets is key. MySiteCondition is a condition indexing methodology that supports reliability-centered maintenance strategies by assessing the criticality of the equipment, actual site conditions, historical data and safety. It helps evolve switchgear maintenance to better leverage a company's operational budget and resources.

4:00 p.m. - 5:00 p.m.

401109 **Squeezing maximum benefit from your service provider network with remote access solutions**

Discover how a remote access solution can augment your resources, identify potential issues before they become problems and help you leverage the full potential of your existing service provider network. During the session, process optimization engineers connect over HMI consoles to explain how all these goals can be achieved while keeping your IT department satisfied.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

401110 **Cyber securing your site throughout its lifecycle**

Establishing cyber security for a control system is not a one-time implementation but an ongoing part of maintenance. We'll explore best practices and standards, and services available both for those who are self-sufficient and those requiring more assistance. We'll cover baseline security controls which should be deployed, such as patch management, anti-virus, hardening, removable media, host firewalls, log review, and system backup, testing, and recovery and how they are related to each other. Identify the gaps in your life cycle maintenance plan and discover how to address them.

2:30 p.m. - 3:30 p.m.

401111 **Remote monitoring for drives: what can it do for you?**

Concerned about the high cost of downtime? Consider remote monitoring to reduce service time and accelerate fault recovery. Learn about the ways that a drive monitor can reduce downtime on your drive-dependent applications. Discover the monetary and time savings from remote diagnostics compared to dispatching an engineer on site for troubleshooting. Witness a real-time demonstration of a drive monitor connected to a remotely located drive.

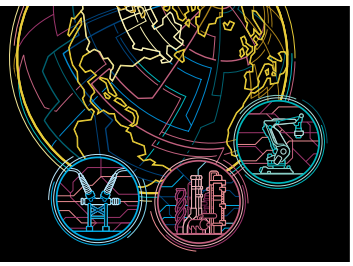
4:00 p.m. - 5:00 p.m.

401112 **How standardization in chemical, oil and gas deliveries reduces lifecycle costs**

In response to lower margins and increasing cost pressures, oil and gas companies are focusing on reducing lifecycle costs. Standard solutions not only reduce EPC costs, but also give significant cost savings over the life of a facility. The benefits of tailor-made solutions may be enjoyable in the first years, but result in higher costs in upgrade and update activities during operation. A lifecycle perspective on the costs of a facility suggests that the long-term savings associated with standardization outweigh the benefits of customization.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for industry
Optimizing plant assets

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

401201 **Return on investment using 800xA asset monitoring and predictive maintenance**
Washington River Protection Solutions, a Department of Energy subcontractor, has implemented ABB 800xA asset monitoring as a predictive maintenance tool for the maintenance organization. Weekly monitoring using ABB's Maintenance Workplace has resulted in maintenance issues being identified prior to operational impacts and has reduced costs, as centralized predictive maintenance replaces annual field checks.

2:30 p.m. - 3:30 p.m.

401202 **Improving operations by taking asset health to the next step**
Asset health is typically looked at as independent components: asset monitoring, reliability and computerized maintenance and management systems (CMMS), for example. ABB has combined these components into a complete, integrated process, including securely collecting device data, applying real-time condition monitoring for immediate visibility into issues, performing a comprehensive asset reliability analysis and integrating the results with a variety of CMMS. This session details the only complete device-to-enterprise solution available today.

4:00 p.m. - 5:00 p.m.

401203 **Keys to effectively deploying a reliability-centered maintenance strategy that maximizes asset life**
This session explores the elements to effectively deploy a reliability-centered maintenance (RCM) strategy that supports operational excellence and financial performance. Run-to-failure (RTF), preventive maintenance (PM), predictive maintenance (PdM) and condition-based maintenance (CBM) are common. A blend of run-to-failure and preventive maintenance is the typical approach for many industrial plants. The challenge is to develop a balanced strategy that ensures asset performance, process availability and low lifecycle cost. A reliability-centered maintenance strategy provides this balance.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

401204 **Energy efficiency in a large-scale facility: the electrical system perspective**
Improving energy efficiency is a key aspect for plant management, especially due to increasing electricity costs. Vale, a global mining company, expects to improve the production-energy balance by focusing on remotely maintaining and monitoring their electrical equipment at their new iron ore plant. The use of ABB's System 800xA to integrate production and electrical environments reduces downtime, improves safety and lowers maintenance costs to improve profitability.

2:30 p.m. - 3:30 p.m.

401205 **Validating energy savings projects: direct drive cooling tower Installations, before and after**
The actual energy savings from green projects must be determined to help validate expenditures and justify future energy savings projects. Often, an energy savings project is started as a trial before it is scaled up across a plant or to other facilities in an organization. The Baldor direct drive cooling tower motor and ABB drive package is a relatively new technology that can provide significant energy, environmental and reliability improvements. This session compares an existing mechanical cooling tower drive solution with the new direct drive cooling tower solution.

4:00 p.m. - 5:00 p.m.

401206 **Understanding large AC motor enclosures, features and accessories for your application**
Large AC motors are designed for long service life. However, the environment and application play a large role in deciding what type of enclosure would be best, "enclosed" or "open" types. The differences between the two are significant and influence the required maintenance. This session details the maintenance procedures and accessories available to ensure motor health.

Best practices for industry
Optimizing plant assets

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

401207 **Best practices for optimized performance of your System 800xA**

This session explains how to assess the performance of your System 800xA and help you determine proper configuration settings and maintenance practices. Learn how to determine if network settings are properly configured, monitor computer performance items, monitor controller performance, determine if the aspect database is in good health and check domain core functionalities. Monitoring and correcting some of the items covered in this session could help resolve intermittent connectivity issues, accelerate graphic callup times and catch system degradation.

2:30 p.m. - 3:30 p.m.

401208 **Automation service solutions for the 21st century**

Up to 75% of the automation investment is not providing benefit because of the lack of a comprehensive service approach. Based on the equivalent of 1000 years of recorded service activity, ABB has defined service distribution models that address today's service requirements. This session highlights preventive maintenance, reactive maintenance and optimization (process) maintenance. Today's service requires advanced solutions based on the latest technology, coupled with proven methods to ensure the optimal distribution of service effort.

4:00 p.m. - 5:00 p.m.

401209 **The benefits of alarm management**

With modern DCS systems, everything gets instrumented and, hence, more and more alarms must be managed and operated. Having too many alarms is a health, safety and environment (HSE) issue and a cost issue, leading to an unhealthy operator environment, unplanned shutdowns and sub-optimal process efficiency. The benefits of alarm management include improved safety and profitability as well as compliance with international standards and government regulations. ABB delivers solutions for the whole alarm management lifecycle; for example, ABBs AlarmInsight.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

401210 **Applying variable frequency drives in the process industries**

Throughout the process industries, production reliability and machine uptime are tied together with plant maintenance requirements, driving customer behavior related to variable speed drive products. Identifying problem applications and providing solutions with drives can address some of the challenges that customers face. Understanding the customer's needs relative to reliability, productivity and maintenance time allows the proper application of drives, helps to reduce the total cost of ownership and improves plant performance.

2:30 p.m. - 3:30 p.m.

401211 **Implementing and using new smart measurement technologies to improve plant performance**

The real reason to install smart instruments is to get more information about the process and the device itself. There is little doubt that technological improvements, such as fieldbuses, have offered significant savings in wiring, but enhanced diagnostics of the sensor, electronics and process also communicate more information about the devices. Smart instruments are embedded systems and use a hardware-architecture strategy to increase measurement accuracy under varying operating conditions.

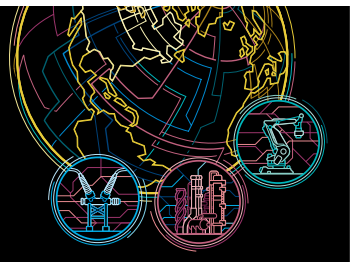
4:00 p.m. - 5:00 p.m.

401212 **Compressor performance and condition monitoring using high frequency electrical data**

Asset conditioning and performance (ACP) is a joint industry project between ABB, Statoil and Gasco. The project collects electrical data from the drive system to find opportunities to enhance B31performance and conditioning monitoring for gas compressor drive systems. A shaft power calculation has been verified with an inaccuracy of less than 1 % for a compressor drive system. A prototype has been installed at Statoil's gas export plant, Kollsnes. Analysis of the data collected show promising results for condition monitoring of the compressor drive motor.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for industry
Process safety and security

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

401301 **Functional safety: requirements into design (bridging the specification gap)**
Safe operation requires the correct allocation of risk reduction to instrumented protective layers and management of the potential mismatch between the hazard and risk analysis information. The development of a safety requirements specification (SRS) is a critical technical challenge for end users. The SRS must be more than just a documented version of the cause and effects diagram in order to bridge the potential SRS information gap.

2:30 p.m. - 3:30 p.m.

401302 **Special considerations for upgrading safety instrumented systems**
Over the last 30 years, the process industries have implemented different digital technologies to mitigate process risk, including programmable logic controllers (PLCs), distributed control systems (DCSs) and safety logic solvers. ABB has supplied numerous technologies over that timeframe, some of which do not conform with current industry standards. This session explores issues affecting systems installed in the last 30 years and activities to address compliance gaps, including safety lifecycle activities.

4:00 p.m. - 5:00 p.m.

401303 **Effective ICS cyber security: physical, process control and information technology**
Gone are the days when physical security, process control security and cyber security could be treated as separate functional areas. Recognizing and capitalizing upon the broad commonality of security domains across all the three security functional areas can open many more possibilities to enhance an enterprise's defenses. By extending this methodology, this session provides a framework for a strategy that lets industrial control system (ICS) professionals quickly analyze threats across all three environments.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

401304 **Technology to enable process safety compliance**
Safety is among the top concerns affecting process operators worldwide, not only compliance to local and international regulations but to effectively avoid the risk in the production process. The industry typically implements process safety and risk reduction mechanisms using different and disconnected systems, thereby losing the ability to effectively assess and reduce risk. This session discussed how integrated systems help streamline the management of process safety, and improve operators' ability to head off escalating process conditions before automated intervention is needed.

2:30 p.m. - 3:30 p.m.

401305 **A practical approach for implementing functional safety according to IEC 61511**
End-users need a practical approach for functional safety management throughout the lifecycle of a plant. The IEC 61511 standard covers safety lifecycle phases from initial concept, design, implementation, operation and maintenance through to decommissioning. This session addresses organizational responsibilities and provides examples of the documentation required when working with the safety lifecycle according to the IEC 61511 standard. It also covers upcoming changes as defined in Edition 2 and their impact on end users.

4:00 p.m. - 5:00 p.m.

401306 **The value of instrument reliability**
Instrumentation is widely used to maintain the process health and safety of an asset. Instrumentation manufacturers' data becomes the critical data used by asset owners in determining component selection in applications. Therefore, the reliability of instruments and field devices is vital to ensure equipment protection goals are met. This session examines new ABB software capabilities to collect and analyze "proven in use" data to determine how the instrumentation behaves and maintain an electronic reporting history of testing results.

Best practices for industry
Process safety and security

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

401307 **Implementing a safe and secure safety instrumented system in an integrated environment**
Recent industry events have increased concerns and awareness around the impact of security on the performance of automated systems. Safety Instrumented Systems perceived to be the last line of defense to prevent catastrophic consequences in plant operations are of special interest to plant operators, This workshop cover best practices adopted by automation companies to protect their systems by design, by default from the box and during implementation.

2:30 p.m. - 3:30 p.m.

401308 **Human factors and their impact on plant safety**
Automation systems introduced in the manufacturing processes have produced increased safety and productivity during normal operation, but they can also help to keep the plant safe during abnormal conditions. This session discusses some of the capabilities available in a modern automation system and how to apply technology to support decision making and help humans handle abnormal situations safely and effectively.

4:00 p.m. - 5:00 p.m.

401309 **Implementing cyber security strategies for process control systems**
Industrial control systems are leveraging standard IT infrastructure more than ever and for good reason. Standardization reduces costs, simplifies DCS integration with other systems and offers additional productivity-enhancing concepts such as remote operations and mobility. However, as a result of these trends, cyber security threats are increasing as well. This session explains how to apply best practices when implementing a cyber security solution, resulting in safe, secure operations.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

401310 **The truth about the separation of safety and process automation**
Industry commonly implements process control and safety using different and independent systems, and the method is established in safety standards as a best engineering practice. However, users perceive benefits from the integration of safety and control. An expert panel reviews safety standards and identifies implementation schemes to address the need for integration and provide a better response to abnormal conditions in the plant, while still meeting safety standards. The session also addresses concerns about the cyber security of integrated systems.

2:30 p.m. - 3:30 p.m.

401311 **Technology advances in process safety: the value of mobility in performing safety proof tests**
Instrumentation manufacturers provide key reliability statistics for their products. The reliability of instruments and field devices is vital for meeting process safety protection goals. New advances in field mobility enable workers to perform periodic validation tests using ruggedized devices to ensure the accuracy and reliability of instrumentation. Those test results can be recorded electronically and tabulated over time, becoming a true validation of the reliability of critical instruments.

4:00 p.m. - 5:00 p.m.

401312 **Compliance to functional safety standard ISA 84**
The process industries are facing increasing demands to demonstrate that their operating risks to people, environment and the workplace are reduced to acceptable levels. This session highlights a lifecycle management approach that supports compliance with the ISA 84 safety standard, industry good engineering practices and the delivery of sustainable, profitable and safe manufacturing operations. The session also addresses corporate responsibility, the development of a safe culture and the basis of safe operation and competency within the organization.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX

Best practices for industry
Transforming operations

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

401401 **Migrating multiple vendors' control systems using state-of-the-art technologies with IT on board**
Air Products migrated a fleet of control systems over hundreds of sites and geographic locations. Existing systems from several control vendors had to be updated to the latest in Microsoft patchable systems, while conforming to current cyber security recommendations; they also had to be operable from a remote location with a common look and feel across all systems. Air Products was able to meet the requirements of the project within a focused time frame. Their success was enabled by a unified company organization and significant IT involvement.

2:30 p.m. - 3:30 p.m.

401402 **Maximizing return on investment using ABB 800xA**
Washington River Protection Solutions, at the Department of Energy Hanford site in Washington State, has been implementing progressive upgrades to its installed ABB 800xA system to realize a significant return on investment. The upgrades include the ABB 800xA features of point of control, asset monitoring for predictive maintenance, Historian and SmartClient. Also, the 800xA system has enabled control room consolidation, a process training simulator, cyber security improvements, wireless features and virtualization. This session discusses the benefits derived from the upgrades.

4:00 p.m. - 5:00 p.m.

401403 **Enabling real-time data access to improve oil field operations**
Real-time broadband data access in the oil field enables a range of applications that improve business operations for field operators. From intelligent well head monitoring to field intranet access and video, broadband communications can improve productivity while reducing windshield time for workers. This session features examples of data applications and results from real customer deployments in North America.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

401404 **Advanced integrated operations and FPSO solutions**
Digital oilfield integration is a key enabler, contributing to process performance, asset health, productivity, safety and lean operations. Real use cases of offshore oil and gas projects reveal that integrated operations facilitate safe and efficient project handover and asset operation. Floating production storage and offloading (FPSO) and floating production units (FPU) offer unique challenges: remoteness, limited storage and accommodation and long turnover cycles. Discover how advancements in FPSO and FPU solutions help meet production targets.

2:30 p.m. - 3:30 p.m.

401405 **Totally integrated mine operations: the vision and the results**
In the worlds' most integrated mines, only one automation system (800xA) is needed for operators to run production. Among other equipment, the mine hoists, mine ventilation, power system and switchgear as well as advanced process control (APC), the maintenance system, PA system and building automation have all been integrated in System 800xA. Specific improvements (20-50%) were achieved for throughput, energy efficiency and product quality, through the implementation of the APC solution.

4:00 p.m. - 5:00 p.m.

401406 **An introduction to robotics**
Robots continue to transform manufacturing operations in industries from heavy manufacturing to food, pharmaceutical and personal care. Development and improvements in functionality allow companies to be more competitive and to do more with less. As the technology advances, robots are used in applications where a few years ago they could not be justified or could not work as effectively as humans. Learn about the basics and the advances in technology to help your company be more effective and efficient in your production.

Best practices for industry
Transforming operations

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

401407 **Spur evolution of your operator interface: it's not all black and white**

Display system design involves more than the background color of the graphics. This session focuses on a display system evaluation from an operating company. Actual displays are evaluated and design changes recommended. Key concepts are covered, including workspace layout (the use of monitors and area of monitors); display system structure (the organization of graphics for enhanced processing and navigation); and display layout and formatting (what objects should look like and how much detail should be provided).

2:30 p.m. - 3:30 p.m.

401408 **New control room design for enhanced operations**

The latest research proves the importance of ergonomic design and indicates how technology can be used to plan state-of-the-art operation centers that increase operator alertness, improve situation awareness and reduce training requirements. Operators are human and humans make mistakes that lead to increased risk to business, environment and personnel. Many of these errors can be avoided by implementing the various concepts and tactics addressed in this session.

4:00 p.m. - 5:00 p.m.

401409 **Mobile technologies to mitigate against human error in procedures**

The science of ergonomics and human factors has well-established models and taxonomies of human error that have been applied successfully to the process industries over the years. These models have resulted in mitigation strategies for human performance, in areas such as competence, instructions and operating culture. This session introduces the established error taxonomies, highlighting some of the problematic error types. It examines current and emergent technologies, their implications for job design and their possible impact on human performance.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

401410 **Improve process safety with state-based control**

Generally, process safety automation is considered the responsibility of a specialized safety system and that remains true for safety integrity level (SIL) safety automation requirements. But what if basic automation of the process were constructed to significantly improve maintenance of the process within acceptable operating limits so that it does not reach the conditions that trigger a response from the safety system? Opportunities for improvement range from ensuring consistent and mistake-proof operations to removing the need to expose operators to potential process and physical hazards.

2:30 p.m. - 3:30 p.m.

401411 **Phased approach to alarm management using ABB solutions and services**

Learn how to implement an effective alarm management strategy with the correct methodologies and practices to keep alarm annunciators quieter while achieving production, quality and safety goals. Denver Metro Wastewater Reclamation District (MWRD) used an 800xA distributed control system for phased alarm management. MWRD is the wastewater treatment authority for much of metropolitan Denver and parts of northern Colorado.

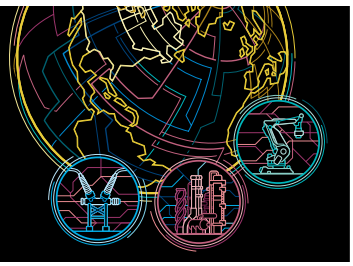
4:00 p.m. - 5:00 p.m.

401412 **800xA simulator: current and future trends in lifecycle simulators**

More and more customers worldwide use lifecycle simulators, such as ABB's 800xA simulator with a dynamic process model. The demand is growing for full-scope simulators that include new important system additions to the control systems, such as integrated safety, power management, electrical integration and APC, since the benefits of virtual commissioning and operator training are well known. Additionally, virtualization and cloud computing make it possible to have multiple systems available on demand. Lifecycle simulators reflect these new trends.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for infrastructure
Lean construction

Monday, March 2, 2015

1:00 p.m. - 4:00 p.m.

501001 **Lean 101: philosophies, culture and tools to better understand lean • (NOTE: 3 hour session)**
In the world of continuous improvement, lean is a philosophy, methodology and set of tools for enhancing customer value by eliminating waste from a process. Lean 101 introduces the basic components of lean, including the origin and benefits of continuous improvement and lean, 7 wastes, 5s, Kaizen and Standard Work.

Tuesday, March 3, 2015

1:00 p.m. - 4:00 p.m.

501002 **Lean simulation 1: the benefits of lean • (NOTE: 3 hour session)**
Learn the basic principles of lean manufacturing and lean construction and how to apply them. Using a combination of hands-on simulation and classroom learning, this session demonstrates how to apply lean tools and concepts, such as standardized work, visual controls, batch-size reduction and pull systems.

Wednesday, March 4, 2015

1:00 p.m. - 4:00 p.m.

501003 **Lean Simulation 2: the benefits of lean • (NOTE: 3 hour session)**
Learn the basic principles of lean manufacturing/lean construction and how to apply them. Using a combination of hands-on simulation and classroom learning, this session demonstrates how to apply lean tools and concepts, such as standardized work, visual controls, batch-size reduction and pull systems.

Thursday, March 5, 2015

1:00 p.m. - 3:00 p.m.

501004 **Discrete machine safety: reducing the risk of injury • (NOTE: 2 hour session)**
Lean safety is about being efficient, better and more cost effective. Real changes in technology and safety culture not only improve the safety performance of the workforce, but increase the efficiency and quality of systems that are currently in place on machines. Value-added functions enhance user satisfaction, reduce installation waste and lower net application costs. With common processes and easy-to-maintain and use safety systems, results are immediate. Discover how to begin the process of lean cultural safety.

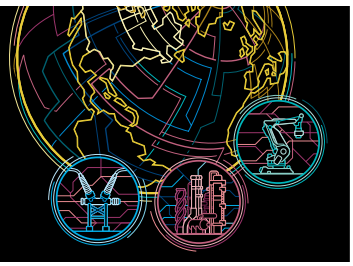
4:00 p.m. - 5:00 p.m.

501005 **A cultural shift towards engagement and continuous improvement**
Does your facility need a new approach toward continuous improvement? In this session, learn how the ABB Drives and Controls factory in New Berlin, Wisconsin has gone through a 10-year transformation to achieve a cultural shift towards engagement and continuous improvement, through the use of 6S methods and Kaizen events. With these best practices, your facility can also use the 6S tools of organization, housekeeping and visual management to achieve productivity, efficiency and profitability and eliminate waste through Lean Manufacturing Kaizen events.

This page intentionally left blank

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for infrastructure
Solving information and transportation challenges

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

501101 **Enabling a new generation of electric buses**
The world's first large capacity, battery-powered bus, TOSA operates without overhead lines and recharges itself at stops in a mere 15 seconds. The Switzerland-based project was a partnership between four companies, including ABB, and is currently operational with the capacity of 1.3 million passenger kilometers per year. This project is just one example of the trend for zero emission mobility that is revitalizing urban mass transportation.

2:30 p.m. - 3:30 p.m.

501102 **The rise of public EV infrastructure**
Well-planned public charging infrastructure is a cornerstone strategy to promoting electric vehicle (EV) ownership by increasing confidence in the driving range. Charging networks now link intelligent public chargers that drivers can access at any time, while network operators can manage these assets to better balance driver demand with the needs of both the market and the grid. This session highlights network rollouts that have been successful both locally and abroad.

4:00 p.m. - 5:00 p.m.

501103 **Hyperspeed for hyperscale: speeding up data center upgrades**
More than ever, data center owners and operators are looking for solutions to save on labor, time and money in their facilities. This session explains how to provide a more predictable ROI on data center construction and upgrade projects. From modular metal framing to abbreviated switchgear and breakers, it explores some of the key components that can speed up your next data center upgrade.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

501104 **The next level of efficiency in the data center: no stone is left uncovered**
The data center industry has entered a new optimization phase. You now need a strategy for more than just the low hanging fruit in your facility. This session identifies the key areas that data centers must focus on to remain competitive in the market.

2:30 p.m. - 3:30 p.m.

501105 **Emerging technologies on the grid that boost data center reliability**
Today, data centers and utilities coexist. Data centers are 3% of the load on the grid, and this load continues to grow. Utilities are expected to provide these energy hungry facilities with even more reliable power than ever before. As this relationship evolves, what are the best ways that the two can work together: a specially designed substation, a microgrid or even a specialized energy storage system? Take a look at how emerging technologies in the data center can benefit utilities.

4:00 p.m. - 5:00 p.m.

501106 **Myth busting: the truth behind data center market trends**
Do higher voltages make power distribution more efficient? Are nuisances trips a thing of the past with coordinated circuit protection? Which of the trends in heating, ventilation and air conditioning (HVAC) are most relevant to your site? Are tier levels still relevant? This session uncovers the trends that really matter and exposes the data center industry hype.

Best practices for infrastructure
Solving information and transportation challenges

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

501107 **Energy efficiency in transport: Innovative solutions to reduce impacts on the grid**

The transportation industry accounts for 28% of all energy use in the US. Electricity provides propulsion for everything from cars to ships, as well as a variety of less obvious applications to make the movement of goods and people more efficient, cost-effective and environmentally sustainable. This session investigates technologies that support this trend and the impacts that they can have for the grid, operators and end users from a technical, an economical and an environmental perspective.

2:30 p.m. - 3:30 p.m.

501108 **EV fast charging technology: what's next?**

Five years ago, there were just a few hundred electric vehicles in the US, and garage outlets were the only charging option. Now, with 300,000 plug-ins on US roads, a rapidly growing public infrastructure is trying to keep up with demand. With the standards settled and driver trends heavily studied, the next generation of fast charge technology must address emerging driver needs, network expansion, payment models and the effect on power demand. Market experience is driving smart infrastructure roll-out, and electric vehicles (EV) are the future in North America.

4:00 p.m. - 5:00 p.m.

501109 **The first braking energy recovery system**

Our experts introduce the first ever braking energy recovery system for Southeastern Pennsylvania Transit Authority (SEPTA), designed to capture braking energy for redistribution into the SEPTA power network. While it generates revenue with behind the meter load response, it also sustains the local grid and the wholesale energy market. Find out how this project was developed and how it currently generates over $250,000 of annual energy savings and earned revenues.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

501110 **How does a transit's energy storage system impact a utility?**

Transit authorities are now looking for innovative solutions that transform them from an inefficient energy consumer into both a smart consumer and a producer of energy. These transit companies are moving towards a unique position that will forever change their energy cost structure by harnessing regenerative braking on the tracks. What does this mean for the utility and how does this energy feed back to the grid?

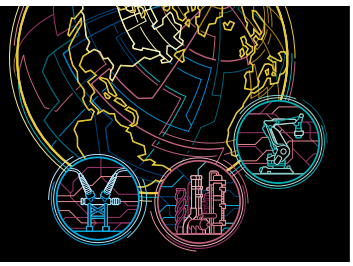
2:30 p.m. - 3:30 p.m.

501111 **Electric vehicles and charging 101**

Electric vehicle ownership means a paradigm shift for drivers in how they acquire the energy they need to get from point A to point B. With plug-in vehicle sales doubling year over year, more questions are being raised about the cars and the charging, including when to charge, where to charge, how fast to charge and who will charging affect? This session considers the vehicles, charging types and infrastructure roll-out.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for utilities
Asset management

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

601001 **Is an oil change the best solution for aging transformer oil degradation?**
The oil in a transformer degrades when subjected to heat and dielectric stresses during normal operation. In cars, oil is replaced at the end of life. In a transformer, contaminated oil is captured in the cellulose insulation system. The existing oil can be cleaned with the transformer off-line through a state-of-the-art oil reclamation system. Oil can also be refreshed while the transformer is online carrying load. This session reviews a basic oil analysis that determines when action is required, to minimize costs and maximize transformer life.

2:30 p.m. - 3:30 p.m.

601002 **Transformer bushing replacement: what are the options and is it as simple as "plug and play"?**
A power transformer likely has a life that exceeds that of its original bushings. The decision to replace a bushing may seem simple, but selecting the right bushing type and successfully installing it is complicated. Critical considerations range from selecting the proper technology to matching the dimensions of the original bushings as closely as possible and dealing with the internal insulation and structural members of the transformer.

4:00 p.m. - 5:00 p.m.

601003 **On-load tap changer maintenance and retrofitting to keep transformers humming**
On-load tap changers are the only moving parts in the power transformer. Maintenance is essential to keep the transformer system operating reliably. There are solutions for the replacement of worn contacts and insulation with factory equal-or-better components for many models. Some older designs have questionable reliability, and these tap changer types can be replaced with modern load tap changers (LTCs) that offer state-of-the-art smart-grid-ready performance while using the remaining life in the transformer core and coils.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

601004 **Optimal solutions for aging substations based upon reliability and economics**
Expanding or extending the life of aging substations often involves a variety of options. This session presents several examples of risk assessments based upon an analysis of configuration, component reliability and how failures affect system reliability. The results provide quantified alternatives comparing the reliability and economics of each for capital planning.

2:30 p.m. - 3:30 p.m.

601005 **Operating issues with aging equipment**
The California Department of Water Resources (DWR) replaced the pneumatically operated generator circuit breaker (GCB) and disconnecting switch in a dam with an SF6-type GCB and motor-operated disconnect switch. Hear about the operating issues involved with aging equipment and how the difficulties with maintenance were overcome. A collaborative effort by DWR and ABB enabled repair and replacement of the old equipment.

4:00 p.m. - 5:00 p.m.

601006 **Power electronics gas turbine starting solutions 101**
Static frequency converters (SFC) can start large gas turbine-generator sets if the generator is operated as a synchronous motor; this approach eliminates the need for a separate starting device, such as an electric motor, diesel engine, torque converter and associated auxiliary equipment. Static starters also require less maintenance and less mounting space. This session examines static frequency converters and generator excitation systems and how recent advances in technology can be applied in an upgrade project.

Best practices for utilities
Asset management

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

601007 **Improve asset lifecycle and lower costs through predictive analytics and asset health management**
Asset management strategies leveraging predictive analytics are critical for optimizing the asset lifecycle. Retiring experts, aging assets and shrinking budgets are increasing the demand on utilities to get the most out of their systems. Traditional approaches to maintenance and replacement planning are unable to meet these growing demands. This session explores the challenges utilities face in managing their asset fleet and how they can use advanced performance algorithms and predictive analytics to increase reliability and efficiency and save millions in operating and capital expenses.

2:30 p.m. - 3:30 p.m.

601008 **Using other fluids in a transformer originally designed and tested with mineral oil**
Other fluids may be considered for retrofilling a transformer when properties of the alternative fluid are desired due to safety or environmental concerns and the original design details are known. This session considers the dependency of the insulation and cooling system on the liquid used in the original transformer design. Key items that must be evaluated include bushings and tap-changers. A design evaluation is also necessary to determine the nameplate rating of the retrofilled transformer.

4:00 p.m. - 5:00 p.m.

601009 **Driving value and efficiency with an operational focus: linking the enterprise and mobile workforce**
Utilities can improve enterprise asset utilization and mobile field service operational efficiency. Integrated and complementary solutions for work and asset management create many benefits by linking the back-office enterprise to the supply chain and customer service and to the field through mobile applications. An operational focus helps automate cross-functional work processes to safely and efficiently plan and perform inspections, maintenance and repairs; and leads to savings from efficiency and reduced operating and capital expenses.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

601010 **Performing repairs of power transformers on site, including winding replacement and full testing**
Traditionally, when a large power transformer reaches end of life and the organic material is exhausted, it is either replaced or sent to a remanufacturing facility. With the aid of significant mobile processing and test systems, ABB has developed a process that allows rebuilding of the transformer at or near the installation site. Windings are built at an ABB factory and then carefully installed in a temporary or permanent clean room near the station. This session provides examples of the hundreds of transformers that have been successfully returned to begin a new life of service.

2:30 p.m. - 3:30 p.m.

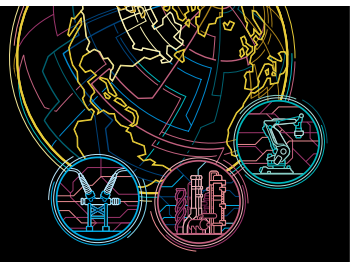
601011 **New technology to improve arc flash safety for switchgear**
The REA arc flash relay and the ultra fast earthing switch (UFES) provide 24x7 arc flash mitigation for switchgear by lowering incident energy levels to workable levels. Protective relay maintenance modes need to be manually applied every time the switchgear is serviced or tested and don't protect the switchgear when not engaged. However, the REA and UFES solutions provide protection to quickly isolate the feeder bus when a problem occurs.

4:00 p.m. - 5:00 p.m.

601012 **Modern monitoring tools keep an eye on your power transformer without frequent visits**
Failures of power transformers can be costly and disruptive. Many monitoring options are available for owners of power transformers, giving detailed operational insight into the condition of the transformers. The session reviews the modes of failure, the drivers of those events and the monitoring options that are available to detect problems as they emerge.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for utilities
Distributed energy resources and renewables

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

601101 **Collecting renewable power, from source to substation**
Renewable energy is nothing new, but today's technologies for capturing that power and converting it to usable electricity have evolved dramatically. Specialized applications and expertise are often required to ensure renewable plants capture power as efficiently, safely and cost-effectively as possible.

2:30 p.m. - 3:30 p.m.

601102 **Energy storage 101**
Energy storage is a grid game-changer, going through a significant technical and commercial evolution. Improvements in storage mediums and innovations in power electronics, advanced controls and algorithms have greatly increased performance and reliability in complex applications. This session presents energy storage system basics and applications that manage power fluctuations while improving network performance. It also addresses the impact of regulatory change and distributed generation and uses case studies to illustrate gains made in operational efficiencies and standardization.

4:00 p.m. - 5:00 p.m.

601103 **Own some sun: the high growth of residential solar power**
Residential solar is growing quickly and homeowners across North America are moving towards solar-powered homes. Among key factors to consider for residential solar are climate, utility policies and regulatory and environment incentives.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

601104 **Connecting renewable power, from conversion to the grid**
Connecting renewables to the grid requires more than specialized hardware. Wind and solar developers need to understand grid codes and utility practices to minimize project implementation delays and maximize project profitability. An expert panel sheds light on the key issues developers and utilities are facing. Bring your questions and get them answered.

2:30 p.m. - 3:30 p.m.

601105 **Islanded hybrid-diesel grids: Alaska's Power Systems Integration Laboratory**
The Alaska Center for Energy and Power (ACEP) at the University of Alaska Fairbanks operates a 500 kW Power Systems Integration Laboratory that emulates the islanded hybrid-diesel microgrids found in remote regions of Alaska and around the world. Recently, ACEP acquired a 313 kVA ABB power conversion system (PCS) to demonstrate the integration of various energy storage devices into these grids. This session examines the general laboratory design and capabilities, the integration of the PCS with a flywheel and valve-regulated lead-acid (VRLA) batteries and performance testing of the systems.

4:00 p.m. - 5:00 p.m.

601106 **The Kodiak Island grid stabilization microgrid project**
Kodiak Energy Authority (KEA) is responsible for generating and delivering power to Kodiak Island in Alaska. KEA currently generates power through hydro generators, wind turbines and diesel gensets and intends to go to 100% renewables by the end of 2014. Two battery systems are in place to mitigate the renewable intermittency. The Kodiak Island PowerStores grid stabilization project will mitigate the effect of a new crane at the port facility that is being introduced into the existing network, as well as intermittency of the 9 MW wind farm output.

Best practices for utilities
Distributed energy resources and renewables

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

601107 **Operating, maintaining and planning ahead with renewables to ensure bankability**
Every renewable plant owner wants to see their project perform with maximum productivity and minimal risks. After a renewable project is built, maintenance and control systems are needed to make real-time operational decisions that ensure bankability. A well-prepared plan is essential. An expert panel shares the hardware and software considerations for managing renewable power, from plan to portfolio.

2:30 p.m. - 3:30 p.m.

601108 **Hybrid energy storage system transforms drilling operations**
Drilling operations face challenges when venturing into isolated locations with rugged terrain and harsh environmental conditions. Off-grid rigs are more susceptible to transients and faults, yet power quality performance remains essential for safe and efficient operations. This session describes an integrated mobile battery energy storage solution for a gas rig that quickly responds to changes in power demand and operating conditions, providing many benefits that reduce the need for added capex equipment while greatly lowering fuel consumption, maintenance costs and site emissions.

4:00 p.m. - 5:00 p.m.

601109 **Navigating the complex world of energy supply and demand**
Energy supply portfolios are getting more complex with the introduction of renewable energy projects, demand sessions, multiple configurations of combined cycle gas turbine (CCGT) assets and market structures. This session highlights short-term optimization of a portfolio, including forecasting renewable energy and demand response sessions, optimizing both renewable and conventional generation schedules, integrating portfolio optimization tools with asset steering and monitoring and portfolio reporting to senior management.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

601110 **Integrating renewables on the grid: wind and solar case studies**
Increasing numbers of wind farms and solar parks are connecting to the grid, challenging transmission system operators, utilities and developers alike. Renewable power generators, like all generating facilities, must operate reliably so as not to disrupt network operations and still deliver energy production and profitability. The session presents both transmission and distribution level case studies, including a wind farm and solar PV cluster, helped by dynamic reactive power solutions that have facilitated seamless connection to the grid.

2:30 p.m. - 3:30 p.m.

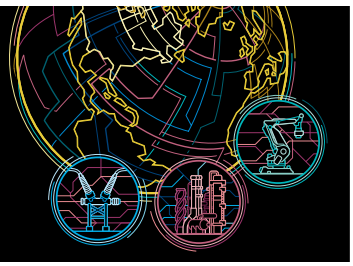
601111 **When disaster strikes: a hydro plant's approach to safety and reliability**
After a disastrous overfill incident resulted in deterioration of the supporting walls of a hydro power plant, the plant owner was left with an environmental catastrophe and an emergency plant shutdown. In the process of rebuilding and returning to commercial operation, the plant decided to replace most of the control and protection systems in a massive effort to improve the plant's operational safety and reliability. Learn how the owner modernized this plant and the solutions ABB provided to bring the plant to current safety and reliability standards.

4:00 p.m. - 5:00 p.m.

601112 **Improving wind and solar bankability with transformers**
Both solar and wind energy projects have special transformer requirements, affected by site conditions and power variability. Harmonics, sizing, current, losses and safety are critical design considerations for these renewable generation sites. This session studies the issues unique to wind and solar applications and offers solutions and examples that improve reliability and reduce lifetime costs.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for utilities
Grid modernization

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

601201 **Distribution automation applications using Tropos wireless communications**
This session concentrates on several distribution automation examples using ABB-Tropos wireless communications. It examines high speed applications employing IEC 61850 8-1 GOOSE across Tropos wireless communications and compares test results for Tropos wireless communications versus hard wire LAN.

2:30 p.m. - 3:30 p.m.

601202 **Using enterprise software to operate the grid closer to its limits**
Modern distribution networks are undergoing dramatic changes that are forcing utilities to change how they manage and operate the grid. New smart grid technologies, such as distribution automation and advanced distribution management systems (ADMS), have enabled utilities to implement solutions which improve energy efficiency, power quality, reliability and customer satisfaction. This session focuses on the enterprise solutions and advanced applications that allow a utility to effectively monitor, forecast and take proactive course correction of the network as needed.

4:00 p.m. - 5:00 p.m.

601203 **Duke Energy vacuum reactance load tap changer (VRLTC) pilot project and case study**
This session details the 2+ year pilot project involving ABB's vacuum reactance load tap changer (VRLTC) at Duke Energy, including the project inception, the goals of the project, the background of Duke Energy's LTC retrofit program and performance monitoring. Findings from the 2 year inspection are reviewed.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

601204 **Variable shunt reactors: optimizing transmission systems**
The market interest in variable shunt reactors (VSRs) is steadily increasing. The VSR is able to control fluctuations in reactive power that require too many switching actions for a switched reactor or capacitor but where the advanced control possibilities of a static var compensator (SVC) are not needed. This session presents the transmission system benefits and applications, like improved power quality, optimized grid operation and even the possibility of interaction with other regulation devices to maximized the dynamic capacity of the network at network failures.

2:30 p.m. - 3:30 p.m.

601205 **Volt-var optimization**
A volt-var pilot project incorporated real-time measurements for voltage violations, demand reduction and loss reduction in the volt-var optimization (VVO) algorithm. This cutting edge application can run centralized or decentralized and does not require a network model. Learn how to optimize and manage unbalanced KW/KVAR and per phase voltages that are common on distribution circuits, without over-operating the existing equipment, by utilizing the simulation mode to show the results during load conditions over 24 hours.

4:00 p.m. - 5:00 p.m.

601206 **Real world example of using IEC 61850 in recloser controls for distribution automation**
The need for electric utilities to future-proof their investments in distribution grid upgrades combined with the need for system interoperability, improved reliability and lower design, commissioning and operating costs underscore the importance of implementing IEC 61850 in distribution networks. This session explores a real world example of using IEC 61850 to perform an auto-transfer scheme at South Central Indiana (SCI) REMC. It highlights the reasons for using IEC 61850, issues and lessons learned, system configurations and contingencies, and actions that SCI considered.

Best practices for utilities
Grid modernization

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

601207 **Newark Energy Center 230 kV underground connection**
In 2014 ABB High Voltage Cables (HVC) in Huntersville, NC commissioned a 230 kV XLPE cable system for the newly constructed Newark Energy Center in Newark, NJ. The cable system provides the grid connection for a new 650 MW natural gas power plant. Given the congested nature of the route, extensive engineering was required to ensure proper cable ratings and power delivery capacity. The project was delivered on time and marks a key milestone for the new HVC team in the US, this being the first major project manufactured, delivered and executed by the local team.

2:30 p.m. - 3:30 p.m.

601208 **Modernizing distribution feeders with real-time communications at First Energy**
Providing reliable communications for feeder distribution automation applications is critical to grid modernization efforts. Deploying a self-healing, smart grid technology starts with non-traditional systems that can enhance reliability, reduce downtime and monitor in real-time. In this session, First Energy and ABB provide details about a large-scale pilot project, addressing challenges encountered along with the methods used to meet those challenges.

4:00 p.m. - 5:00 p.m.

601209 **Coordinating self-healing and volt/var smart grid applications on distribution circuits**
This session explains the interaction between self-healing networks, in conjunction with voltage reduction and power factor control programs. Combining smart grid applications optimizes investments in communications, automation, distribution sensors, meters, switches, regulators, load tap changes and capacitor banks. This approach delivers a faster return on investment, increases capacity potential without significant investment, improves system reliability and improves safety and working conditions for lineman and system operators.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

601210 **The digital substation: the evolution of protection, control and automation**
What is so special about the digital substation? The digital substation's key benefits include safety, reliability, functional consolidation and cost drivers leading to customer savings. Utilities are facing an increased demand for substation information, and the digital substation opens the door for real-time data exchange. The digital substation's key technologies (Relion relays, advanced substation automation and modern instrument transformers) are advantages, whereby IEC 61850/Ethernet and cyber security become technology enablers, not obstacles.

2:30 p.m. - 3:30 p.m.

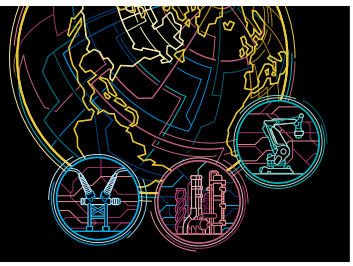
601211 **A secure field area communication network architecture for smart grids**
A smart grid integrates communication and information technology into all areas of utility operations. With this integration comes an increased fear of cyber-attacks, making security a key consideration in smart grid deployment. This session lays out security requirements for smart grid field area communication networks. The Tropos wireless network architecture provides field network security through adaptability, open standards and defense-in-depth. Networks based on this architecture form a secure infrastructure with flexible security policies to support many applications and endpoints.

4:00 p.m. - 5:00 p.m.

601212 **PASS advantages and success stories for a changing market**
PASS is a modern hybrid switchgear which is insulated in SF6 gas and integrates multiple circuit breaker functions in one single bay. PASS has been sold globally for 15 years, but is a newer offering in North America. In a changing market where capex and opex cost reduction is key, PASS could be the solution, especially where available space is an issue. Con Edison recently decided to use PASS M0S 420 kV hybrid switching modules to help bolster the reliability of their East 13th Street substation.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for utilities
Reliability and resiliency

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

601301 **FirstEnergy's experience with static var compensators (SVCs)**
FirstEnergy is a major transmission utility in Pennsylvania, New Jersey and Maryland (PJM). Since 2012, FirstEnergy has deployed more than 10 static var compensators (SVCs) in the high voltage (HV) and extra high voltage (EHV) network, making them one of the largest SVC users in North America. This session looks at the reliability and capacity challenges faced by FirstEnergy, describes how SVCs have addressed those challenges and details the scale and scope of FirstEnergy's recent and ongoing SVC projects.

2:30 p.m. - 3:30 p.m.

601302 **Preparing for the worst: storm hardening and elevated substations**
Historically, substation designs have been based on standardized engineering practices and traditional technology. Given the challenges associated with recent super storms, especially in flood prone environments, implementing traditional designs may not be the best approach. Storm and flood hardening of substations vulnerable to flooding can improve reliability, lifecycle costs, security and, most importantly, public safety. Innovative substation solutions and new technologies can improve grid storm hardening by detecting floods early or by producing substations with environmental immunity.

4:00 p.m. - 5:00 p.m.

601303 **Nuclear plant reliability improvement with generator breaker**
TVA Sequoyah Nuclear Power Plant operated over 25 years without a generator circuit breaker (GCB); but due to system auxiliary requirements, a GCB was installed in 2013. This session reviews the reason for the addition of GCB and the lessons learned during installation.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

601304 **Medium voltage system designs to support metropolitan low voltage network distribution systems**
Medium voltage (MV) ring bus designs are frequently applied to maximize the reliability of power in the case of an unplanned loss of a sourced transformer or main bus supporting a metropolitan city network distribution system. Medium voltage apparatus equipment combinations are now available that provide improved system performance, reduced footprint and a carrying capacity of up to 350 MVA.

2:30 p.m. - 3:30 p.m.

601305 **Communications for the implementation of relay protection schemes**
Communications between substations are essential for the implementation of line protection schemes and direct transfer tripping, commonly called teleprotection services. This session examines the fundamentals of the technologies frequently used for communications between substations, from power line carrier to fiber optics, and the role that packet switched networks (Ethernet) are playing in the substation protection field.

4:00 p.m. - 5:00 p.m.

601306 **The impact of geomagnetically induced currents (GIC) on power transformers and power systems**
Understanding the impact of geometrically induced currents (GIC) on power systems is a key requirement to ensure system stability. GIC studies identify key areas of concern and options for magnetic and thermal evaluation. Most power transformers would not experience significant overheating or damage from high levels of GIC. However, the system impact must be considered, including causes of GIC, effect of DC and GIC on power transformers, impact of a GIC event on power systems, mitigation of GIC effects, GIC capability of a transformer design and system impact.

Best practices for utilities
Reliability and resiliency

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

601307 **Increasing the reliability of feeder processing at Con Edison of New York's Brownsville substation**
This case study describes required upgrades that led to reliability improvements at Con Edison's Brownsville substation. A Con Edison representative walks you through the challenges that were faced on this project regarding access to equipment, space constraints, timelines and technical requirements, including the unique requirements on this project that required special design changes and collaboration between ABB and Con Edison to upgrade the system.

2:30 p.m. - 3:30 p.m.

601308 **Substation physical security**
The 2013 attack on PG&E's Metcalf substation alerted the US power industry of the potential danger of a physical attack on US substations. Many North American Electric Reliability Council (NERC), Federal Energy Regulatory Commission (FERC) and Institute of Electrical and Electronic Engineers (IEEE) standards are being modified to provide utilities with guidelines on substation security. This session analyzes what happened at the Metcalf substation and reviews the power industry's direction regarding substation physical security.

4:00 p.m. - 5:00 p.m.

601309 **Power quality control during faults**
Major faults on networks having two or more high voltage/medium voltage (HV/MV) sourced transformers will cause a voltage drop on all connected buses. The voltage reduction depth and duration is determined by the fault ampere size and protective device's clearing time. ABB now offers percentage control of that voltage reduction on non-faulted buses.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

601310 **Reviving a GE Frame 5 combustion turbine at Arizona Public Service's Douglas Power Plant**
In today's generation market, utilities are facing the decision of reviving outdated assets versus buying new generation assets to keep up with capacity requirements. Failed starts on an aging combustion turbine fleet can cost a utility serious revenue losses. Arizona Public Service (APS) had to decide what to do with a 1970s vintage GE Frame 5 combustion turbine with the original OEM controls. New generation proved to be uneconomical so APS made the decision to upgrade the outdated control system with a new Symphony Plus system.

2:30 p.m. - 3:30 p.m.

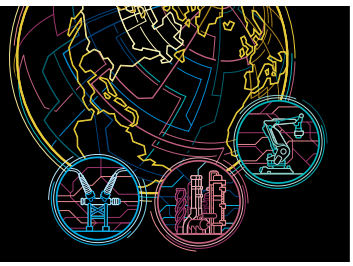
601311 **Brownfield GIS substation retrofits**
With the aging electrical infrastructure and the need for keeping the power on at old substations, retrofitting existing AIS substations with GIS equipment is becoming more frequent. This session will present the benefits of retrofitting an AIS substation with GIS equipment. Several case studies will be presented showing success in this type of project.

4:00 p.m. - 5:00 p.m.

601312 **High fidelity, optical Information to drive adoption of IEC 61850 and enable the digital substation**
IEC 61850 promises to improve the reliability and resiliency of the 21st century digital substation, but the standard is limited by the accuracy and stability of the ITs that provide the input signal. Unlike early optical sensors that have proven to be unreliable, intensity modulated optical sensors provide a field stable solution to this input signal problem. This session presents data from on-going trials and demonstrates how intensity modulated optical sensors can be used to simplify the merging unit architecture and deliver the full promise of 61850 to utilities and their customers.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Best practices for utilities
Safety and regulatory compliance

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

601401 **Reliability and economic impacts of regulatory carbon reduction plans, past and present**
In investigating the reliability and economic impacts of the regional greenhouse gas initiative (RGGI), studies showed that, as CO2 prices increase, coal plants run less and average locational marginal pricing (LMP) increases significantly. The decreasing use of coal could force some plants to retire, possibly violating NERC requirements. Additional scenarios, such as the influence of renewable portfolio standards and nuclear retirement, were also investigated to quantify the impacts on CO2 emission amounts. With the advent of the EPA's Clean Power Plan, greater challenges are near.

2:30 p.m. - 3:30 p.m.

601402 **The MATS conundrum: how do the GHG New Source Performance Standards impact Old Smokey Power?**
In 2013, the EPA began implementing the Climate Action Plan. The EPA rescinded proposed CO2 limits on new utility sources under the New Source Performance Standards (NSPS) and proposed new NSPS rules to control the types of electrical generation to be built in the future; this change likely represents the end of new coal-fired generation and will also affect existing units. This session looks at how this rule impacts the Mercury and Air Toxic Standards (MATS) conundrum relative to Old Smokey Power, which will co-fire natural gas with coal based on a Monte Carlo simulation.

4:00 p.m. - 5:00 p.m.

601403 **Changes to 1910.269, the Generation, Transmission and Distribution Code of federal regulations**
As of July 14, 2014, OSHA's Generation, Transmission and Distribution Code standard (CFR 1910.269) has been fully adopted in the Code of Federal Regulations (CFR) dedicated to construction. Now both the construction contractor and the utility have legal responsibility to adhere to the same general code of practice. CFR 1910.269 references consensus standards, such as the Standard for Electrical Safety in the Workplace (NFPA 70E) and the National Electrical Safety Code (IEEE NESC). These changes will require industry-wide standardization.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

601404 **A review of the recent 316b ruling and its implications for power generators and industry**
The 316b ruling has a varied effect on both power generators and large industrial manufacturing facilities. Today, those affected are going through an evaluation phase. Possible responses to this ruling include modifications to the intake structure along with additional cooling towers. Come learn what the implications may be for you in an open forum discussion.

2:30 p.m. - 3:30 p.m.

601405 **Effective management of natural disasters affecting industrial electrical systems**
Newly published Institute of Electrical and Electronics Engineers (IEEE) Standard 1716, Presidential Policy Directive #8, and National Fire Protection Association (NFPA) 1600 form the basis of this comprehensive discussion addressing the resilience of industrial electrical systems. Business continuity and disaster management continues to be an emerging business trend in the industrial arena. Learn what disasters could shut your facility down, how to be prepared and the economic impacts if proper preparations are not made.

4:00 p.m. - 5:00 p.m.

601406 **How to identify the optimal technical and economic solution in response to FERC Order 1000**
The Federal Energy Regulatory Commission (FERC) is driving changes in the competitive landscape of US electric transmission. While Order 1000 will increasingly become more relevant through the removal of the right of first refusal (ROFR) from regional tariffs, it opens up the playing field for both incumbents and non-incumbents to propose solutions. Only the most technically and economically justified proposals will win open opportunities by identifying optimal transmission solutions (such as HVdc and FACTS) that have the potential to decrease overall production cost.

Best practices for utilities
Safety and regulatory compliance

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

601407 **Review of measurement technology trends to meet tightening EPA emission regulations**
Growing pressure to reduce emissions from major industrial sources is driving instrument companies to measure more components at lower concentrations than ever before. This session studies the latest EPA regulations affecting the oil, gas and petrochemical industry, power utilities, cement plants, and waste incinerators, including monitoring requirements and measuring technology trends.

2:30 p.m. - 3:30 p.m.

601408 **Best utility practices for modeling modern power system loads**
Transmission owners are under regulatory scrutiny for system reliability, which is further complicated as generation is retired near load centers to comply with Environmental Protection Agency (EPA) and other regulations for emissions. Load growth in urban areas is driven by complex loads that can have a significant influence on power system reliability during transient conditions, when the grid is most vulnerable. This session focuses on the best practices for modeling and how one utility is addressing the reliability concerns driven by modern, complex loads.

4:00 p.m. - 5:00 p.m.

601409 **Best practices for launching a cyber security plan at your power plant**
From the corporate organizational structure down to the network control loops, there are many points to consider when launching a new cyber security session. Portland General Electric (PGE) shares their approach and challenges faced when launching the cyber security plan at their Coyote Springs Power Plant. With an organizational plan in place, PGE and ABB worked collaboratively to integrate ABB's Security Workplace with the distributed control system. This session clarifies high level security best practices and includes a technical dive into ABB's Security Workplace solution.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

601410 **DOE 2016 is just around the corner: are you ready?**
The Department of Energy (DOE) 2016 distribution transformer efficiency requirements are just around the corner. Take a look at DOE 2016 and its projected impact on the industry, along with ABB's planned actions and timetable for implementation.

2:30 p.m. - 3:30 p.m.

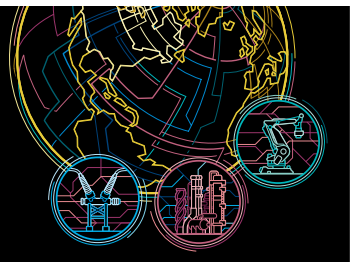
601411 **Getting the most out of a clean power plan**
New regulations regarding power generation CO2 reductions have moved from the far horizon into the limelight. If all goes as planned, new rules will be established by the Environmental Protection Agency (EPA) this June, targeting an eventual CO2 reduction of 30% from the US power industry by 2030, as measured from a 2005 baseline. This session describes the Coal-Plant Survival Kit, a series of recommendations within a clean power strategy, allowing the traditional fleet operator to move forward into the 2015-2030 time period.

4:00 p.m. - 5:00 p.m.

601412 **Understanding OSHA final rule and mitigation methods to minimize arc flash hazard**
Five to ten arc flash explosions occur every day. Some of these explosions can be fatal. OSHA issued a Final Rule on July 10, 2014, revising the standards for electric power systems and encompassing risk analysis, minimum approach distance, personal protective equipment and other concerns. The Final Rule imposed several compliance dates as early as January 1, 2015. This session covers highlights of the new law and arc flash mitigation methods that can minimize possible harm.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Business forum
Business trends and professional development

Monday, March 2, 2015

2:30 p.m. - 3:30 p.m.

301001 **Multi-country electrical motor frame agreement: benefits, process and considerations**
On large projects there are often a number of value chain layers between a product manufacturer and the end user including EPCs and OEMs. Additionally there can be multiple OEMs and product vendors offered. How does the end user ensure they are getting what they require? ExxonMobil and ABB present the business case for frame agreements, including commercial, technical and lifecycle benefits as well as the process and considerations used to achieve multi-country frame agreements.

4:00 p.m. - 5:00 p.m.

301002 **Emotional intelligence: people smarts for technical professionals**
Technical competence is not enough if you can't build and sustain relationships both professionally and personally. Emotional intelligence (EI) is a key predictor of leadership effectiveness and a better predictor of success in work and life than IQ. Fortunately, EI is a learned skill that can be developed. Self-awareness and self-management are important for managing emotions and responses in the moment. Learn about the observation and communication skills that foster social awareness, allowing you to better manage relationships.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

301003 **Sustainability and its impact on profit and loss • (NOTE: 1.5 hour session)**
There are financial and nonfinancial risks in business. So where does sustainability fit in: risk management or capitalizing on opportunities?

1:00 p.m. - 2:00 p.m.

301004 **Which global economies offer the best growth prospects for the automation and power markets?**
The lingering effects of the Great Recession and the related financial upheaval centered in Europe have resulted in a global economy struggling to restart economic engines in the world's once fast growing regions. The chief economist from the National Electrical Manufacturers Association (NEMA) illuminates the international economic outlook, focusing on the major markets and drivers for industrial automation and power systems.

2:30 p.m. - 3:30 p.m.

301005 **Town Hall with ABB CEO Ulrich Spiesshofer**
This special session is exclusively for ABB customers and partners, a chance to hear about ABB's vision for the future direct from CEO Ulrich Spiesshofer and other ABB senior managers. Join in a candid and open discussion on a range of topics focused on facing the challenges in today's global marketplace.

4:00 p.m. - 5:00 p.m.

301006 **Strategic partnering and collaboration: an executive discussion**
Partnering and collaboration are not new concepts, but they have taken on a new level of importance amid a flood of new tools aimed at helping people work together. So what does collaboration look like today? What makes partnerships pay off? Executives from some of the region's top organizations talk about the challenges and rewards of partnering and how strategic collaboration has affected their bottom line.

Business forum
Business trends and professional development

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

301007 **ABB's research and development outlook with CTO Claes Rytoft**
ABB has always put a strong emphasis on research and development. In this session, Chief Technology Officer Claes Rytoft provides insights on recent innovations like DC breakers and alternatives for SF6 gas. He also pulls back the curtain on ABB's nine targeted research areas.

2:30 p.m. - 3:30 p.m.

301008 **Cyber security: the present state and the future**
Cyber security has become a dominant topic in many industries and continues to grow in importance. Asset owners, system integrators, vendors and government organizations alike are increasing their efforts to address the new challenges. Cyber security has become a topic discussed at all levels of an organization, as well as one of public interest. This session brings together thought leaders to discuss the current state of cyber security and how to effectively address the growing challenges, as well as sharing their visions of how the cyber security landscape will change.

4:00 p.m. - 5:00 p.m.

301009 **Bore no more: how to present your ideas with power, passion and professionalism**
It doesn't matter how mind-blowing your ideas are if you can't capture your audience's attention. Let's face it: if your presenting style is filled with nervous tics, "um's" and "uh's," poor eye contact, awkward gestures and a less-than-commanding stance, nobody is going to be focused on your content. In this interactive session, learn how to command the room (even before you speak) and present your ideas in a way that conveys your confidence and competence.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

301010 **Understanding the science of change**
Personal mastery, creative tension and emotional resilience can not only help us endure change, but even embrace and lead others through it. Change can be empowering if we learn to understand our reactions to it and utilize the tension it brings to propel ourselves towards a different future. This session shows how individuals, as well as organizations, have seized the opportunities presented by change.

2:30 p.m. - 3:30 p.m.

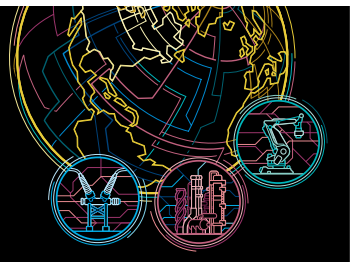
301011 **Big data is not better data: business analytics as a storytelling tool**
Business analytics are all around us, and the abundance of data does not necessarily result in better results. Business analytics can be used to convey a concept or idea and should be used as a tool for storytelling. Relying on just the numbers won't necessarily add up to success. Whether entry level, mid-level managers or senior leadership, all employees need to sell their concept, projecting initiative and self-worth, and too much data can often become a distraction instead of providing clarity.

4:00 p.m. - 5:00 p.m.

301012 **Bore no more: how to design a compelling story to drive change and innovation**
Communicating clearly and concisely is important for every speaker, but it's positively do-or-die for the technical presenter. One of the most effective ways for technical professionals to transform their sessions is to tell a compelling story. According to the Harvard Business Review, powerful speakers know how to combine data and narrative to make an impact, ignite change and inspire innovation. This session shares concrete tips and tools to help you become a more compelling, concise, clear and effective speaker.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Business forum
Effective project management

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

301101 **It's all about the people: developing project management capabilities**
Capability development and competence play an important role in achieving project success and customer satisfaction. ABB's Learning, Coaching and Certification program contributes to these objectives and ensures the continuously increasing skills of project managers and others.

2:30 p.m. - 3:30 p.m.

301102 **Project management: the difference between success and failure**
This session investigates the core competencies of project management and the role they play in the success or failure of an EPC project. Learn how to properly set up and manage the project through the use of schedule and cost controls over the entire duration. The session also discusses risk and change management, along with supplier/contractor management.

4:00 p.m. - 5:00 p.m.

301103 **In pursuit of continuous improvement: project management governance at ABB**
ABB is working hard to continuously improve the way projects are delivered to customers. All project managers are trained in 4Q, ABB's method for process improvement that is utilized to strengthen our project business.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

301104 **Managing project risks and dealing with the surprises**
Project risks are inevitable, but how are they managed or controlled? What about risks that weren't identified in the planning stage? What can be done about them? This interactive session examines different risk response strategies and proven techniques to manage and control previously identified and emerging risks during the implementation phase of the project.

2:30 p.m. - 3:30 p.m.

301105 **Complex projects: why they often fail and what to do about it**
Failure rates for large and complex projects remain high across industries. As complexity increases, project leaders and their organizations must address unique challenges that require different approaches than those that work in "traditional" project environments. This session discusses the factors that lead to project complexity, how to measure complexity at the outset and what organizational and project infrastructures are required to improve performance in critical areas, such as interface management, change control and risk management.

4:00 p.m. - 5:00 p.m.

301110 **Communicating with project stakeholders: understanding filters and dealing with them**
Learn how to identify your own communication filters, recognize the communication filters of others and develop techniques for addressing them. Managing communication filters helps improve overall communication effectiveness in the project setting.

Business forum
Effective project management

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

301106 **Project Requirements: scope creep is manageable**

Clearly articulated requirements allow the predictable and complete realization of the project scope, a challenging task especially for large projects. Conversely, poorly defined or inadequate up-front requirements can lead to costly rework down the road.

2:30 p.m. - 3:30 p.m.

301107 **Project planning: beginning with the end in mind**

Project planning is the heart of project management and occurs continuously throughout the project lifecycle. This session focuses on the activities that typically occur during the first few weeks of a project, including identifying all the work, sequencing activities, planning for risk, creating a realistic schedule, obtaining commitment, planning for testing and documentation and scheduling resources and team members.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

301108 **ABB extends main automation contractor capability with EPC/SI partners**

Today's market for capable automation resources becomes more challenging by the week. With an aging workforce and constant movement in technology, finding consistent and experienced resources is a problem. ABB is solving this problem by extending its own main automation contractor (MAC) capabilities beyond just ABB systems to include full-service engineering capabilities along with independent systems integration (SI), by engaging experienced partners with resources.

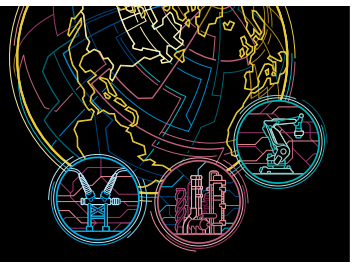
2:30 p.m. - 3:30 p.m.

301109 **Collaborative risk management: the mutual benefits from jointly managing risks**

Customer supply chain staff often transfers risks to the primary supplier, but that approach may not always be in the best interest of large projects. Instead, partnering agreements may reduce total project risks. This session looks into possible areas of collaboration between customer and supplier to lower the overall project risk and project cost by apportioning certain civil works, transportation, installation, interfacing and other risks.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Chemical, oil and gas

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201001 **Fueling the world: meeting the global need for energy in a changing landscape**

Operating conditions today evolve at an ever-increasing pace. Technological advances, shifts in workforce demographics, tight capital budgets and increased public scrutiny are just a few of the challenges facing companies in the chemical, oil and gas industries. Experts from operating companies, industry analysts, EPC companies and technology providers discuss what they consider to be the most pressing concerns for the industry in the short and long terms and the steps they are taking to deal with those challenges.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201002 **The power of integration in the chemical, oil and gas industry**

The complexity of process plants is growing, as are the requirements of the electrical, automation, safety and manufacturing operations systems that run them. To better manage this complexity, an increasing number of chemical, oil and gas projects are integrating as many of their systems as possible. We will look at some of the integration options available to the industry, what their benefits are and in what situations they make the most business sense to pursue.

Thursday, March 5, 2015

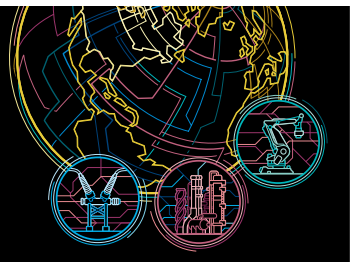
10:00 a.m. - 11:30 a.m.

201003 **Leading flawless execution in the chemical, oil and gas industry**

Flawless execution is a common goal among chemical, oil and gas companies, given multi-million dollar projects in high-risk environments, grueling production schedules and increasing public scrutiny. Experts from Afterburner, former fighter pilots who live and breathe flawless execution every day, teach you techniques to lead your teams and execute your mission critical business objectives.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Data Centers

Tuesday, March 3, 2015

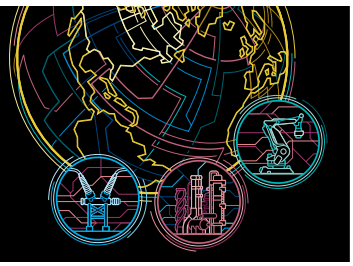
10:00 a.m. - 11:30 a.m.

201101 **Big data: what is it and where is it going?**

Big data, the internet of things, cloud computing, data warehousing and Hadoop are new buzz terms that are all part of a new data reality, characterized by greater connectivity, increased availability of data and improved collection and analysis of data. This new data reality is having a significant impact on many industries and sectors. Industry experts discuss the big data trend and how the use of data is changing the way companies operate and are managing performance and risk.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Manufacturing

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201201 **Preview of upcoming motor efficiency regulations in the US**

The Department of Energy (DOE) issued new efficiency regulations for integral horsepower motors effective June 2016. This session gives an update on regulations for 1 through 500 HP low voltage AC induction motors. The new regulations cover more configurations than before, including 56 frame enclosed motors. Motor regulations for Canada and Mexico generally follow the US lead. Europe is working on regulations for low and medium voltage (LV and MV) motors through 1000 kW and proposing IE4 levels by 2022. DOE is studying pump, fan and compressor systems and how to regulate their efficiency.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201202 **Creating a local workforce: a case study with ABB Robotics and University of Arkansas at Fort Smith**

The University of Arkansas at Fort Smith has a history of partnering with local employers to develop programs which support current and future employees. ABB Robotics has robotics packages specifically for educational institutions as well as the training to go with them. Together, these organizations have created a unique, multi-year program to provide technical education that supports dozens of regional companies invested in automation. This session features a student perspective on how the support of local companies can influence career choices.

Thursday, March 5, 2015

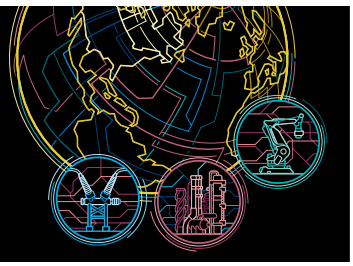
10:00 a.m. - 11:30 a.m.

201203 **How a changing workforce can uncover opportunities**

The manufacturing workforce is constantly changing. Technology moves at the speed of light, team members are retiring, others are just beginning. Different cultures, work ethics, demographics and generations all affect the work style and mix of employees in our facilities. A panel of experienced manufacturing personnel answers questions about how adapting to changes in the workforce actually created opportunities for improvement in their businesses.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Marine

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201301 **Energy storage and advanced power systems for DP vessels**

Post IEC 61850 (communication standard), DP vessels operate with an unprecedented level of asset protection, improving safety, efficiency and the flexibility of marine power network distribution. Complementing and perhaps rivaling the advances in network potency, energy storage solutions are being introduced to further bridge peak energy demand and eliminate the blackout of DP critical consumers by providing an energy buffer for load transients and fault ride through stability. Learn about the latest innovations in power distribution networks, combined with energy storage solutions.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201302 **ABB Marine services: integration operations and diagnostics**

Striving towards improving customer service for the marine industry, ABB introduces a higher platform of response (built upon ABB's extensive core service solutions), to deliver a new level of integrated support and asset performance. Through remote diagnostics, customers can now connect and cooperate with ABB Marine for lifecycle and technical support, covering all parts of the installed power distribution or production network. Combining field working processes with the very latest maintenance technologies and resources means fewer excuses for downtime.

Thursday, March 5, 2015

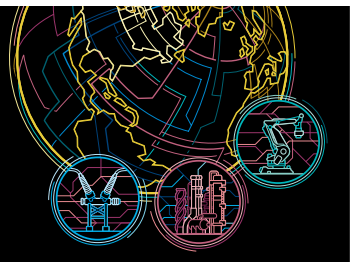
10:00 a.m. - 11:30 a.m.

201303 **Azipod gearless thruster efficiency and reliability**

ABB Azipod is the world's leading product on podded propulsion. Since 1990, this technology has been delivered to an extensive array of both cruise and oil and gas dynamic positioning (DP) vessels where both reliability and extended levels of periodic maintenance are essential for asset safety and performance. Due to its simplified core design, Azipod delivers the highest product efficiency with reduced operating and maintenance costs. Learn about the next generation of Azipod with even greater focus on lower power range units (typically used in offshore support or other vessel segments).

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Metals

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201401 **Improve productivity and quality: measurement and control innovations for furnaces and rolling mills**
Part 1 explains how electromagnetic stirring in metal processes enhances thermal and chemical reactions, to improve energy consumption, quality and production economy. Success stories are presented for electric arc furnaces for steel, scrap melting furnaces for aluminum and continuous steel slab casting applications. Part 2 addresses the benefits of flatness measurement and control in aluminum and other thin strip hot mill applications, flatness control compensation for post rolling effects and the use of pulsed eddy current technology for strip gauge measurement of nonferrous metals.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201402 **Enhance reliability and safety: energy efficient AC/DC power solutions optimize and protect assets**
Part 1 reviews ABB's high power rectifier technology, which enhances operations with smooth, reliable and energy efficient production and provides stable DC current from 5,000 to 550,000 amps for commodity metals production, including steel, zinc and aluminum applications. Part 2 covers trends and standards for disruptive technologies in medium voltage (MV) metal-clad switchgear; the differences between passive and active arc mitigation; their benefits and specific applications for the metals industry; and the impact of a recent OSHA ruling revising the standards for electric power systems.

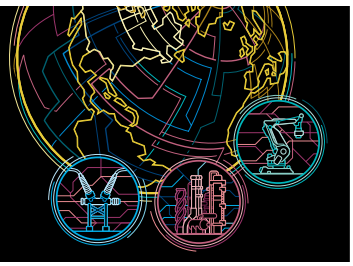
Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

201403 **Reduce costs and product variability: drive system solutions for hot and cold rolling mills**
ast and accurate control of torque and speed under all operating conditions is an important precondition for the successful control of material thickness, flatness and tension. For metals applications, ABB has developed dedicated special drive functions to achieve the highest performance speed and torque control and to optimize production while ensuring quality, minimizing wear and enhancing reliability.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Mining and minerals

Wednesday, March 4, 2015

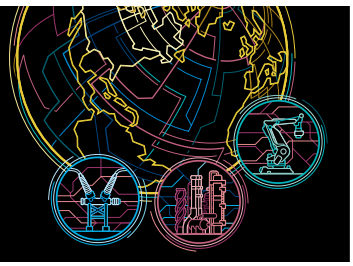
10:00 a.m. - 11:30 a.m.

201501 **Market top challenges and ways the mining industry can mitigate them**

Mining companies executives were surveyed to define and prioritize the challenges they face in today's market conditions. Production optimization, workforce safety, ensuring reliability and predictability in equipment operation as well as managing capital projects were all very high on the list. This session looks at each of these challenges and potential solution that ABB could offer to mitigate them.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Power generation

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201601 **Regulation and compliance in the US power generation industry**

Many environmental regulations have a direct impact on the US power generation industry. Some of these regulations are cause for uncertainty and the subject of ongoing debate and litigation. This session targets the most pressing environmental regulations affecting the power generation industry and offers the views of industry participants as well as those of the regulatory community.

Wednesday, March 4, 2015

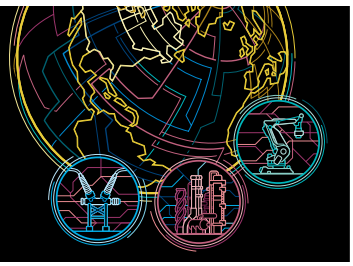
10:00 a.m. - 11:30 a.m.

201602 **Power plant security versus compliance**

This session clarifies and addresses the challenges of maintaining a robust and reliable power plant control system when faced with new cyber security and compliance requirements. It stresses key measures for achieving the desired level of cyber security while being in a position to meet the compliance requirements of the future, in particular, the current and future versions of the North American Electric Reliability Council's Critical Infrastructure Protection standards (NERC CIP).

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Pulp and paper

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201701 **Advances in pulp mill and digester control and automatic pulp and stock quality testing**
In this two-part session, find out how automatic pulp testing produces pulp and paper products within given specifications at the lowest possible cost, by monitoring pulp properties throughout stock preparation and by acting as soon as a deviation occurs. Producing quality pulp at a consistently high rate sets additional challenges. ABB's pulp mill advanced process control solutions, OPT800 Cook and OPT800 Wash, were implemented in Europe. The OPT800 solution stabilized the digester and wash operations resulting in a 54% improvement in pulp quality and a 60% reduction in brownstock wash loss.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201702 **Improving pulp and paper mill efficiency with drives and CPM**
Part 1 of this session details how ABB's permanent magnet motors achieve both faster and slower Fourdrinier speeds than a DC motor and gearbox power transmission system. An actual case study is discussed. Part 2 describes how KPAQ Industries, LLC faced numerous manufacturing challenges due to the lack of cohesion in their existing production system. With ABB's collaborative production management (CPM) products, KPAQ significantly improved efficiency and reduced overall production costs.

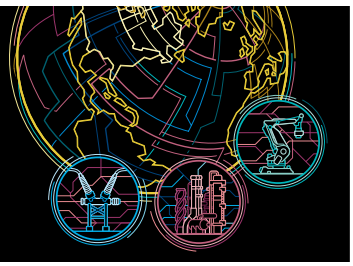
Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

201703 **Improving pulp and paper measurements and performance**
In Part 1 of this session, discover how the new ABB AC induction CD caliper control actuator reduces wrinkles, corrugations, offset, run together, energy costs and, especially, recovery time from breaks, start-ups and grade changes while improving reel building and profile quality. Part 2 demonstrates how repeatable consistency measurement and control is crucial to the manufacture of high-quality, uniform pulp and paper.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Transmission and distribution

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201801 **Securing the grid**

The power grid faces a variety of threats today: physical and cyber threats as well as threats from natural causes have the potential to affect both national security and a utility's bottom line. This session covers the latest North American Electric Reliability Council's Critical Infrastructure Protection standards (NERC CIP), risk management strategies and trending security controls. An expert panel provides real-world guidance on how to protect critical substation assets and secure enterprise software systems into the next decade.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201802 **Get prepared: resiliency planning for the transmission grid**

Grid resiliency, or the ability to withstand and then recover from failures or events, is a major concern for most utilities today. Historically, aging infrastructure, load growth, and severe storms were the main challenges stressing the power grid. Today, new issues such as sabotage, physical security and emerging regulations are making grid hardening and resiliency planning even more critical. An expert panel examines some best practices to address these stresses and increase the reliability and resiliency of your grid.

Thursday, March 5, 2015

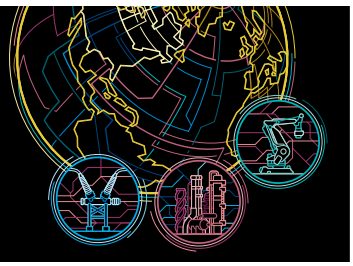
10:00 a.m. - 11:30 a.m.

201803 **Restructuring distribution: how technology can enable the transition**

Regulatory mandates, customer requirements, technological advances and new market entrants are driving change to the electric utility business model. Distribution system operators are responsible for the safe and reliable operation of the system, but must perform amid increasing challenges to resources from customers, microgrids and merchant providers of distributed energy resources (DER). This panel explores how technology, IT infrastructure, communications and data analytics can help utilities manage the transition and plan for future changes in this new regulatory environment.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Water and waste water

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

201901 **What utilities are doing about non-revenue water**

With some utilities losing up to 30 percent of the clean water produced, the mismanagement of water resources has become apparent. Non-revenue water (NRW) is defined as water that has been “lost” before reaching the customer. NRW represents more than just leaks in a distribution system. It also accounts for leaks of data, misinformation and meter reading. As utilities invest in chemical costs, energy usage and operations for each gallon of water produced, NRW turns into a major expense. Hear what the City of Houston and other municipalities are doing about this looming problem.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

201902 **Planning for your water future**

The demands of population growth and socioeconomics on global water resources have required communities and industries around the world to focus on the future of water availability. Some states, municipalities and industries are meeting water challenges through new technology, data gathering, infrastructure design changes, water conservation and new resource management. Leaders from various industries discuss the solutions they are turning to when planning for their water future.

Thursday, March 5, 2015

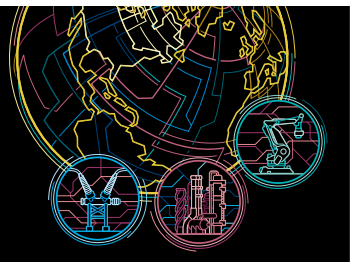
10:00 a.m. - 11:30 a.m.

201903 **11,000,000 GPM: The story of the New Orleans Permanent Canal Closure Project**

On Aug 29, 2005 Hurricane Katrina impacted the U.S. Gulf Coast with devastating results. With 50+ levee failures in New Orleans, over 80% of the city was flooded impacting 134K homes and displacing 254K residents. A total of 17 mega pumps driven by Baldor’s innovative vertical gearmotors, will support three pumping stations that will protect New Orleans during similar events in the future. Once fully operational, these stations will be able to pump >10 million gallons per minute! That is enough water to fill an Olympic-sized swimming pool in 3.63 sec or the Superdome in < 90 min.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Industry forum
Wind and solar energy

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

202001 **CEOs share insights on wind and solar**

There is no denying that wind and solar will play a major role in tomorrow's energy landscape. Wind, solar and other renewable energy sources are already being used across the US to provide a cleaner, more economical source of energy. Meet two CEOs who are helping drive this change as they discuss trends in this industry and share insights on the future of renewables for the country.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

202002 **Winds of change: an update on the wind market in North America**

At the end of 2013, there were over 13 gigawatts (GW) of construction starts on wind projects in the US. In this session, experts track the buildout of these projects over 2014 and 2015.

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

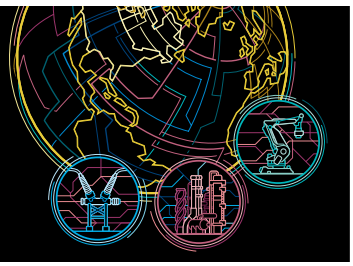
202003 **Where will solar power show up next?**

Solar energy is abundant, clean and scalable for installations of any size. Whether at home, at the office or even in an industrial scale utility, solar power is proving to be a low-cost energy alternative. This new phase for solar is a result of technology advances paired with the growing demand for affordable energy. A panel of experts defines the solar landscape of tomorrow and the impact it will have on the grid.

This page intentionally left blank

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



New and updated products
Discrete Automation & Motion

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

701001 **Collecting and analyzing motion, electrical and temperature data for better drive performance**
Every process industry producer has motion in common: drive control motors turn, take energy and produce heat. To keep production moving, those three factors must be monitored. This session introduces methodologies to collect motion, electrical and temperature data and then analyze it to produce key drive performance indicators. Indicators outside thresholds are prioritized and displayed so users can identify issues before motion is affected. These approaches also produce recommendations for continued smooth drive performance, even sending notifications when indicators exceed thresholds.

2:30 p.m. - 3:30 p.m.

701002 **Enhanced motor and mechanical power transmission solutions for food and beverage applications**
In the food and beverage industry, reliability and food safety are critical drivers of customer behavior related to motor and mechanical products. This session focuses on the application of these products in food environments, including innovative solutions to reduce costs and improve plant performance. Touching on everything from USDA/FDA regulations to the value of harsh duty seals, this discussion uncovers the drivers behind food and beverage decisions and how to improve business through the right solutions.

4:00 p.m. - 5:00 p.m.

701003 **Mechanical products specifically for the paper and forest Industries**
This presentation details new high value products that will lower the overall cost over the total product lifecycle. The paper and forest products industries require mechanical products that deliver high efficiencies and reliability while minimizing downtime. Case studies will show real world applications with increased uptime using mounted bearing seal technology, reduced installation and removal time with new mounting systems, increased efficiency in drive systems by eliminating chain drives, worm gears and belted drives.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

701004 **Increased reliability of air cooled heat exchangers: a direct drive solution for ACHE fans**
The maintenance cost and reliability of air cooled heat exchanger (ACHE) motors in refinery and chemical plants can be a major concern. With over 300,000 ACHE motors installed in the US, the opportunity to improve reliability is huge. Typically, ACHE motors connect to the fan with a belt and sheave arrangement that requires significant maintenance; also, they are located in areas that are difficult to access without special lifting equipment. Permanent magnet (PM) motor technology provides a direct drive solution to eliminate the belts and sheaves and reduce motor maintenance.

2:30 p.m. - 3:30 p.m.

701005 **Multi-standard fast charging: meeting the needs of more drivers, more quickly**
Electric cars and charging equipment rely on each other to grow the electronic vehicle (EV) market. With the number of plug-in models increasing, along with bigger batteries to charge, drivers are demanding the next generation of fast chargers to meet their needs and extend their driving range even further. This session reveals the latest in multi-standard charging technology, including the critical features and how-tos of fast charger installation and use.

4:00 p.m. - 5:00 p.m.

701006 **New options in SCR power controllers for resistive, inductive and infrared heating**
High performance technology is available today to power and control thermo-electric heating applications. This session encompasses a general overview of the technology, what types of industries and applications use thermo-electric heating, what products are available on the market (including the new ABB DCT880), features that users are asking for and where and when to apply this high performance technology.

New and updated products
Discrete Automation & Motion

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

701007 **Innovative energy efficient vertical pump drive solutions using gear motor technology**
In today's high volume pumping applications, energy efficiency and cost considerations are becoming more and more important. A new and unique solution uses low pole count induction motors and proven gear motor technology as an alternative to large, high pole count, synchronous motors for high volume, low head, vertical pumping applications. This innovative technology offers an efficient solution with lower capital costs and a smaller drive envelope for high power, low speed pumping applications.

2:30 p.m. - 3:30 p.m.

701008 **Smart Inverters: providing more than power to the grid**
Several solar inverter features enable photovoltaic (PV) generated power on today's utility grid. The existing distribution grids were designed only for handling customer loads, but with distributed energy resources such as solar they are being used for bi-directional distribution. The cost-effective implementation of smart inverter functions can improve the reliability and efficiency of the power grid.

4:00 p.m. - 5:00 p.m.

701009 **The future of human-robot collaboration**
Robots today are proven to provide unprecedented, repeatable quality in very efficient and safe ways. Imagine now to combine those benefits with a very versatile human that possesses fine skills and senses. This would allow for a high quality production line where robots cannot only detect a production fault but also ask their human counterparts for help in correcting those errors. In this session we will cover the latest developments that are making this a reality.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

701010 **Machine tending automation solutions**
This session showcases solutions in automation technology to optimize machine tool efficiency and enable manufacturing improvement while providing quick and easy installation and a friendly human/machine interface.

2:30 p.m. - 3:30 p.m.

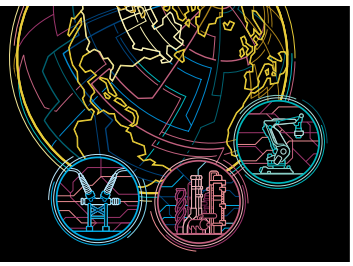
701011 **Using the cloud for solar condition and performance monitoring to drive down costs**
Technology exists today that can help drive down costs for solar operations. Solar monitoring and asset management services can help you efficiently operate your plant offsite. This session underscores lessons learned from the past 10 years in even the most cost-constrained market segments.

4:00 p.m. - 5:00 p.m.

701012 **Power electronics control upgrades 101: back to the future**
Make the most of your investment and extend the life of your existing power electronics (excitation and rectifier systems). ABB is pushing the limits and thinking outside the box with customized control upgrades.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



New and updated products
Low Voltage Products

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

701101 **Integrating micro drives and PLCs into an ABB-based control panel**
The two most common automation products in a control panel are a small drive and a programmable logic controller (PLC). This session traces the integration of those pieces into a UL508 control panel. It provides information on ABB small drives and PLCs, as well as the integration of a competitive PLC into an ABB-based control panel architecture.

2:30 p.m. - 4:30 p.m.

701102 **Water treatment: electrical solutions that actually help your facility endure • (NOTE: 2 hour session)**
Whether you are designing a new facility, adding on to an existing one or trying to maintain operations, selection of the electrical products is key to keeping the plant producing and staying within compliance. The latest reports from the Environmental Protection Agency (EPA) state that electrical systems need to be replaced every 15 to 25 years in water treatment facilities and lift stations. What if, with a different selection process, you could extend that by 5, 10 or even 20 years? How would that affect your bottom line and your responsibility to taxpayers in a municipal plant?

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

701103 **Emax2 critical power management applications**
Find out about the benefits of the Emax2 circuit breaker for the critical power market.

2:30 p.m. - 3:30 p.m.

701104 **Electrical solutions for a food and beverage facility**
Food safety is the number one concern in a food and beverage facility. In 2013, the US consumer spent $823 billion on food and beverages. This session emphasizes the top five problems a typical food and beverage facility deals with on a daily basis and the market drivers and trends, including the relative challenges end-users can face. Learn how to reduce operating costs, conserve energy and comply with state regulations with ABB product solutions for the food and beverage market.

4:00 p.m. - 5:00 p.m.

701111 **Surge protection and NEC article 708 critical operations power systems**
Emergency preparedness facilities, hospitals, data centers and similar buildings now fall within the category of critical facilities. These buildings must remain operational during the times at which its systems are experiencing the highest level of stress. Explore how surge protection products and safe, coordinated power distribution panel boards contribute to more reliable facilities.

New and updated products
Low Voltage Products

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

701106 **Greater reliability in delivery of service**

Electric utility companies are facing new electric grid operational challenges associated with population growth, increasing demand for electricity from special loads (electric vehicles, electronics), distributed generation, microgrids, extreme weather, retiring workforces and the use of telecom in the distribution system. These challenges can compromise system stability and reliability. This session presents distribution automaton solutions, including ABB's modernized solutions to improve your grid reliability, efficiency and flexibility.

2:30 p.m. - 3:30 p.m.

701107 **Cars and wayside: solutions that help keep rail capex and opex on budget**

With increased focus on rail, both the Infrastructure and the vehicles are under pressure to deliver performance that will last. The components used to connect, protect and support the conductors are crucial. Power, signal and communications cables are all part of the vast systems that keep equipment running and schedules met.

4:00 p.m. - 5:00 p.m.

701108 **Hazardous location LED lighting: has it lived up to expectations?**

An expert panel discusses the development and promise of LED lighting for hazardous locations. LED is compared to traditional methods of hazardous location lighting. The scotopic versus photopic debate raises the question of whether or not LED has met the claims made 5 years ago and, if not, when it will meet those claims.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

701109 **Engineered prefabricated solutions to enhance job site productivity**

Compressed project schedules and skilled labor shortages are causing electrical contractors to rethink their traditional methods of installation for greater productivity on the job site. The use of prefabricated assemblies provides a significant opportunity to not only save installation labor but also streamline the entire process of getting material to the jobsite. Through collaboration with their manufacturer partners, contractors can identify electrical rough-in assemblies that can be prefabricated and drop-shipped directly to the job site to meet the project schedule.

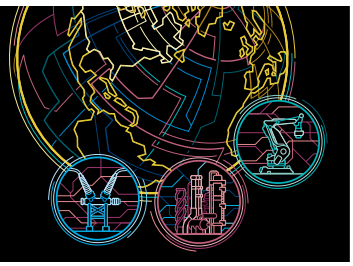
2:30 p.m. - 3:30 p.m.

701110 **Advantages of dielectric switches in extreme environment applications**

What are the advantages of a dielectric switch compared to other traditional methods? Based on material, environmental and application requirements, products using a dielectric insulation in switchgear applications provide superior performance to oil and SF-6 insulating materials. They allow for smaller footprints, use in submersible locations and lower maintenance costs. This session answers questions such as where these products should be used and what are their applications.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



New and updated products
Power Products

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

701201 **Lessons learned during application of MV GIS in oil and gas critical applications**
This case study features a real application of medium voltage (MV) gas insulated switchgear (GIS) in critical installations; namely, power system upgrades to existing offshore oil and gas platforms in Alaska. The consulting engineer on the project and the product application engineers review the differences between air insulated switchgear (AIS) and GIS, including the selection criteria, technical differences and installation and operational differences. They also share lessons learned from the project.

2:30 p.m. - 3:30 p.m.

701202 **Leveraging next generation reclosers to optimize your distribution grid**
With its communication and hardware capabilities, the GridShield recloser helps electric utilities meet today's requirements for safety, reliability and operational efficiencies while preparing for tomorrow's smart grid needs. Open standards and protocols, such as the International Electrotechnical Commission's IEC 61850 and distributed network protocols (DNP), give utilities the foundation for the interoperability and integration of equipment and systems. This session highlights smart grid implementations, such as fault-detection-isolation-restoration and distributed generation integration.

4:00 p.m. - 5:00 p.m.

701203 **Dry-type technologies transcend past limitations**
Historically, dry-type transformers were limited to 34.5 kV and lower efficiency levels compared to liquid filled transformers. Through intense research and development, ABB has exceeded past limitations. The safety and environmental friendliness of dry-type transformers are now available for more markets and applications than ever before. This session explores these technological advances and success stories where customers are reaping the benefits of ABB's culture of innovation.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

701204 **Introducing FOCS, an instrument transformer optic solution that enables digital substations**
Digital substations are gaining traction, with real world commercial installations being accepted among utilities. Main enablers for this technology are non-conventional instrument transformers and standalone merging units, utilizing IEC 61850 process bus communication. This session discusses basic application variants, results and field experiences involving the ABB FOCS sensor family, combined with the flexibility and modularity of the SAM600 process bus IO system. Both products allow for optimized and efficient deployment of process bus components in the switchyard.

2:30 p.m. - 3:30 p.m.

701205 **Reducing footprint requirements and project costs with 26-inch wide MV switchgear**
Today's environment requires replacing existing medium voltage (MV) air insulated switchgear in areas that modern 36-inch wide switchgear cannot accommodate. An alternative is to employ a narrow design switchgear solution, such as ABB's new ReliaGear ND. Learn how to lower project costs with narrow design switchgear. This session relates real-life problems that were advantageously solved with narrow design switchgear.

4:00 p.m. - 5:00 p.m.

701206 **Addressing the need for physical transformer security**
With the emerging focus on protecting the power grid from both physical attacks and natural disasters, transmission and distribution grid operators and manufacturers must begin to think differently. Many utilities are now creating response plans for future equipment that is impervious to these attacks and natural disasters, while also considering how to protect their installed fleets. This session considers perspectives from utilities and grid operators on the forefront of grid security as well as what manufacturers are doing to improve security.

New and updated products
Power Products

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

701207 **Liquid filled transformer fluid options and their impact on transformer design and life expectation**
This session covers the investigations, calculations and measurements that identify the special material characteristics needed to design the core and windings of transformers for an alternative to mineral oil. It also considers other factors in the selection, design and determination of the voltage and current ratings of key components (such as bushings and tap-changers) in liquid filled power transformers. In addition, this session identifies design changes required because of the properties of alternative fluids.

2:30 p.m. - 3:30 p.m.

701208 **Increased reliability and efficiency with the DS1 synchronous capacitor switch**
Utilities are constantly working to improve voltage regulation to reduce distribution system losses as well as meet mandatory voltage tolerance requirements. Capacitor banks, both substation based and pole mounted, are widely used for this purpose. Conventional switching schemes for substation capacitor banks require separate capacitor switches, inrush reactors and surge arresters. ABB's new DS1 capacitor switch utilizes solid state technology and synchronous switching to eliminate the need for supplemental equipment.

4:00 p.m. - 5:00 p.m.

701209 **Next generation oil-free and paper-free condenser bushings**
Increase operating safety and reliability, while reducing the cost of outages, maintenance and collateral damage, with the next generation of oil-free and paper-free condenser bushings. Learn about type O Plus Dry bushings, the most reliable technology available for bushings.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

701210 **Integrated automation solution for a power distribution network**
Often smart grid applications consist of products and solutions from different venders. Issues can arise if the products / systems are not fully integrated or do not work well together on the same distribution network. Based on published ABB patent US20140149101, this session discusses the requirements, challenges and methods to integrate fault detection, isolation and restoration (FDIR), volt/var control and voltage optimization (VVO), load balancing and load shedding in one product.

2:30 p.m. - 3:30 p.m.

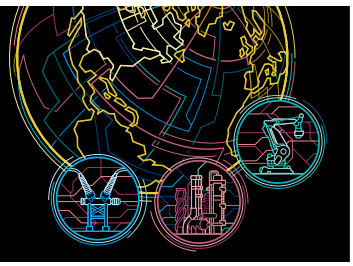
701211 **Transformers for oil and gas and other challenging environments**
Environments such as those encountered in the oil and gas industries pose challenging transformer reliability and safety concerns. During this session, the most recent possibilities for transformer safety and environmental hardening are reviewed.

4:00 p.m. - 5:00 p.m.

701212 **Reinforced dry MV transformers: more value for data center applications**
The world's hunger for data seems insatiable. Whether national security or online movie streaming, the backbone of the data revolution is the infrastructure of data centers and their critical power systems. ABB introduces the transient voltage resistant transformer, which ensures power for critical computing and is designed to be robust enough to survive frequent fast switching as data centers are upgraded and maintained.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



New and updated products
Power Systems

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

701301 **Steam turbine EHC system life extension**

Today's evolving power generation marketplaces are increasing demands on existing steam turbine/generator assets. Steam turbine electrohydraulic control (EHC) systems play a critical role in meeting these demands; and the proper maintenance and care of these systems ensure successful operation and availability of the steam turbine. This session explores EHC fluid testing and conditioning, EHC fluid changes, hydraulic supply system enhancements, trip system upgrades, component maintenance, equipment refurbishment, EHC system flushing and related topics.

2:30 p.m. - 3:30 p.m.

701302 **High penetration renewable power microgrids**

To reduce greenhouse gas emissions, lower the kWh cost of energy to their customers and wean themselves from the use of fossil fuels, many remote and island communities are investing in renewable generation. However, these renewable sources present challenges to power grid operators. The greatest obstacle has been grid instability caused by output intermittencies. This session showcases a commercialized solution and explains how grid operators can leverage this technology to fully utilize available renewable energy resources.

4:00 p.m. - 5:00 p.m.

701303 **Innovations in Relion protection and control and introduction to SDM600 for advanced data management**

Open standards and support for cyber security compliance are critical in today's networks. The new Relion 670 series, which offers multi-object protection for digital substations, works together with substation data management SDM600 to ensure that systems run the latest software and to manage the collection and collation of disturbance data. Discover how the SDM600 can serve as the gatekeeper to the automation network where fragmented directory policies risk exposing critical vulnerabilities and where centralized security logging and account management is essential.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

701304 **Symphony Plus: enhancing plant control system security**

ABB's systems are designed with security in mind. This session explains how ABB's organizational approach ensures that cyber security is properly addressed during product development and highlights the security features and capabilities built into Symphony Plus to enable the concepts of secure by design, secure by default and secure in deployment.

2:30 p.m. - 3:30 p.m.

701305 **S+ Operations**

S+ Operations is the human/machine interface (HMI) for the supervision and operation of all Symphony Plus control systems as well as a SCADA solution for distributed applications like water management networks, solar power installations and wind farms and fleets. Designed for improved operator effectiveness, S+ Operations provides an intuitive, easy-to-use environment to facilitate process monitoring and control, fault mitigation and optimization. In addition to providing an overview of the key features of S+ Operations, this session shows what's new in S+ Operations 2.0.

4:00 p.m. - 5:00 p.m.

701306 **Overview of high voltage direct current (HVDC) technologies for reliable transmission systems**

Transmission systems have been relying on two main technologies for transferring power: alternating current (AC) and direct current (DC). Both have served the transmission systems well, with AC being more mature and common in applications. HVDC technologies have been evolving to complement the AC systems and provide feasible solutions to upgrade the infrastructure. This session focuses on HVDC technologies, mainly current source converters and voltage source converters, with applications and features such as black start.

New and updated products
Power Systems

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

701307 **System standardization for the evolving energy storage market**

As the energy storage market matures, aligning product development with customer needs is essential. This session illuminates ABB's approach to system standardization for hardware, controls and applications. It introduces ABB's EssPro power conditioning system (PCS) product line and the standard controls, operation modes and applications for this dynamic market.

2:30 p.m. - 3:30 p.m.

701308 **S+ Control and I/O**

S+ Control and I/O is a comprehensive suite of standards-based hardware and software that meets the requirements for total plant control. The portfolio includes the SD Series (Symphony DIN) and HR Series (Harmony Rack). The energy efficient SD Series features modular DIN rail packaging; flexible, high-performance, Ethernet-based plant network; intelligent electrical and field device integration; PROFIBUS, HART, IEC61850 (MMS and GOOSE) and Modbus TCP communication protocols; and an integrated turbine control solution.

4:00 p.m. - 5:00 p.m.

701309 **Critical power applications for microgrids**

The latest innovation in microgrid technology addresses the high reliability needs of critical power applications. Critical power users cannot afford even a momentary interruption or degradation of power; such users include data centers, hospitals, mining, oil and gas refineries and emergency response operations. This session assesses current practices used to create ultra-high reliability for critical power applications.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

701310 **Tools for modeling static var compensators (SVCs) in PSS/E**

tatic var compensators (SVCs) are increasingly used by utility transmission planners to solve a variety of capacity and reliability issues related to voltage and reactive support. This session focuses on the documentation and use of standard models for SVCs in power system simulators for engineering (PSS/E) and PSLF power systems analysis software, with examples of model parameters that have been set to address actual SVC applications.

2:30 p.m. - 3:30 p.m.

701311 **S+ Engineering**

Based on the Composer platform, the S+ Engineering tool brings together many automation aspects into one environment. With its unified engineering workbench, S+ Engineering provides flexibility in engineering, empowering EPCs and end users with the tools and methods to reduce project design cycles, shorten commission and start-up times and minimize operational maintenance costs. The recently released S+ Engineering 1.0 offers all the necessary functionality needed to engineer, configure, administrate, secure, commission and maintain your S+ system.

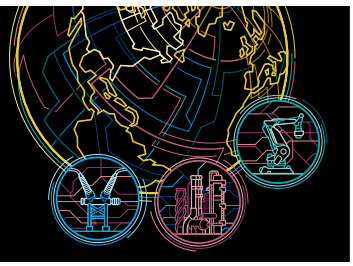
4:00 p.m. - 5:00 p.m.

701312 **Symphony Plus condition monitoring**

The power generation and process industries depend on the reliable and predictable operation of rotating machinery. Nearly every plant monitors its critical and essential rotating machinery assets with a continuous online protection system. Symphony Plus' condition monitoring products integrate powerful hardware with intelligent software. When used along with a proactive maintenance policy, they can reduce and often eliminate costly machine failures. ABB has solutions for continuous improvement that help increase your plant's uptime and profitability.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



New and updated products
Process Automation

Monday, March 2, 2015

2:30 p.m. - 3:30 p.m.

701402 **Solve system and process issues fast with automated analysis and remote-enabled access to expertise**
Demand for advanced system and process expertise is growing, and the question for producers is how to access and deliver this expertise, notably in remote locations. ABB created ServicePort to bring process expertise to customer sites through a secure, remote connection that helps diagnose, implement and sustain system and process performance. Learn how automated data gathering and analysis can help you swiftly address system and process issues. Wherever your site is, whenever support is needed, these tools deliver process expertise safely, securely and proactively.

4:00 p.m. - 5:00 p.m.

701403 **Freelance DCS: product news and update**
Learn about Freelance DCS's new features designed to enhance engineering efficiency and maximize return on investment, including its ease of use, reliability, value for your money, scalability and ease of upgrading.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

701404 **Introduction to the new Navigator 500 series analyzer: multiple parameters, one solution**
The Navigator 500 series offers a new and improved way to measure key parameters in the power industry, specifically sodium, dissolved oxygen and hydrazine. The unique platform offers the flexibility of multi-stream or multi-parameter analysis by means of one easy-to-use transmitter. The session highlights each parameter as well as key benefits and features for the Navigator 500 series.

2:30 p.m. - 3:30 p.m.

701405 **Application libraries for COG process control and safety**
This session reviews the application libraries used in the oil, gas and petrochemical industries, their global distribution and their customer value in all the phases of automation system design, implementation and maintenance. The libraries are designed for the 800xA system and AC800M controller family. Newly added features in the latest release are covered as well as the roadmap for 2015 and beyond.

4:00 p.m. - 5:00 p.m.

701406 **Offshore production applications and solutions provided by K-TEK level products**
Over the past 35 years K-TEK Products has positioned itself as a true leader in oil and gas production level measurement, worldwide. K-TEK magnetic level gauges, magnetostrictive transmitters and guided wave radar are now considered the standard for many international oil and gas production companies. These products provide the reliability and accuracy needed in harsh environments.

New and updated products
Process Automation

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

701407 **System 800xA version 6 overview and update**

System 800xA's latest release is all about protecting customers against cyber threats, lowering their total cost of ownership and improving their personnel's productivity. Hear about the latest advancements in 800xA and its climb to be the most successful process automation system on the market today. In addition, a panel of experts answers questions on the upgrade process and new capabilities in version 6.

2:30 p.m. - 3:30 p.m.

701408 **New 800xA networks portfolio: making systems safer, more secure and more reliable**

Industrial control systems depend more and more on Ethernet-based networks. In addition to an increase in use of Ethernet for system infrastructures and mobility, the use of communications protocols such as PROFINET, IEC 61850 and Ethernet/IP, is also growing. ABB has launched its own portfolio of network equipment for 800xA - 800xA networks. This new set of switches and routers for wired and wireless applications can make your system safer, more secure and more reliable.

4:00 p.m. - 5:00 p.m.

701409 **Increased plant insight and productivity using Decathlon software**

The effective operation of industrial plants requires insight into big data so that the right key performance indicators (KPIs) are displayed, monitored and contribute to improvements. Decathlon software makes it easy for stakeholders to access and analyze data at their desktops, tablets or smart phones. Decathlon software offers high capacity and secure collection of data, with interactive dashboard report and analysis tools, smart intelligent search functions running on any device and much more.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

701410 **Enhanced multiphase flow measurement by Vega Isokinetic Sampling**

Thanks to a partnership with TEA Sistemi, ABB provides Vega Isokinetic Sampling (VIS), a high-performing yet compact meter, able to successfully manage the most challenging multiphase stream conditions. ABB VIS is the ideal solution for monitoring the flow rates of produced oil, gas and water close to the wellhead. VIS provides the same accuracy as conventional test separators in a product-sized gamma-free device. ABB's VIS is the new generation of multiphase flow meter (MPFM) tailored for wet gas applications and able to provide outstanding accuracy in the most challenging regions.

2:30 p.m. - 3:30 p.m.

701411 **The compact product suite: powerful products for your automation needs**

ABB's suite of control products are available for each process automation need. Best-in-class engineering tools, human/machine interfaces (HMI), controllers, I/O, process panels and recorders provide only what you need for your package unit or skid solution.

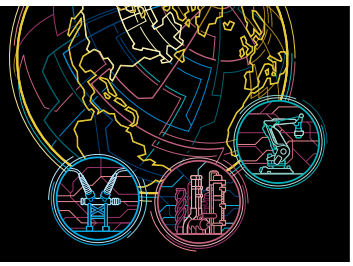
4:00 p.m. - 5:00 p.m.

701412 **Implementing a secure wireless strategy in a process control environment**

Many traditional systems using physically isolated, proprietary wired networks are evolving towards integrating open standard, internet protocol (IP) based architectures built on wireless networks. Like all networks, wireless IP process control networks come with potential vulnerability to cyber attacks. These cyber security challenges can be overcome by using a layered protection approach and best practices, including tools and techniques developed by the enterprise security community to protect security conscious networks, such as government agencies and financial institutions.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Distribution Automation

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

801001 **Using real-time phasor plots to diagnose wiring problems**
Real-time phasor plots are used to diagnose wiring issues during commissioning of transformer protection, when multiple sets of currents and voltages with phase shifts between windings are connected to the relay. This session demonstrates a phasor plotting tool to diagnose swapped phases, reversed polarity connections and incorrect phase shift between windings.

2:30 p.m. - 3:30 p.m.

801002 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE • (NOTE: 1.5 hour session)**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

4:00 p.m. - 5:00 p.m.

801003 **Easy to implement IEC 61850**
This hands-on session focuses on the use of IEC 61850. The IEC 61850 protocol supports a method to directly exchange data between two or more intelligent electronic devices (IEDs). The concept is based on sending a multicast over the Ethernet. Whoever needs the information, detects the telegram by its source address, reads the telegram and deals with it. In this session's exercise a load can be fed from two sources; only one source can be connected at a given time.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801004 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE • (NOTE: 1.5 hour session)**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay. 1.5 hour session.

1:00 p.m. - 2:00 p.m.

801005 **Easy to implement IEC 61850**
This hands-on session focuses on the use of IEC 61850. The IEC 61850 protocol supports a method to directly exchange data between two or more intelligent electronic devices (IEDs). The concept is based on sending a multicast over the Ethernet. Whoever needs the information, detects the telegram by its source address, reads the telegram and deals with it. In this session's exercise a load can be fed from two sources; only one source can be connected at a given time.

2:30 p.m. - 3:30 p.m.

801006 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

4:00 p.m. - 5:00 p.m.

801007 **Using real-time phasor plots to diagnose wiring problems**
Real-time phasor plots are used to diagnose wiring issues during commissioning of transformer protection, when multiple sets of currents and voltages with phase shifts between windings are connected to the relay. This session demonstrates a phasor plotting tool to diagnose swapped phases, reversed polarity connections and incorrect phase shift between windings.

Technical training
Distribution Automation

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801008 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE • (NOTE: 1.5 hour session)**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

1:00 p.m. - 2:00 p.m.

801009 **Using real-time phasor plots to diagnose wiring problems**
Real-time phasor plots are used to diagnose wiring issues during commissioning of transformer protection, when multiple sets of currents and voltages with phase shifts between windings are connected to the relay. This session demonstrates a phasor plotting tool to diagnose swapped phases, reversed polarity connections and incorrect phase shift between windings.

2:30 p.m. - 3:30 p.m.

801010 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

4:00 p.m. - 5:00 p.m.

801011 **Easy to implement IEC 61850**
This hands-on session focuses on the use of IEC 61850. The IEC 61850 protocol supports a method to directly exchange data between two or more intelligent electronic devices (IEDs). The concept is based on sending a multicast over the Ethernet. Whoever needs the information, detects the telegram by its source address, reads the telegram and deals with it. In this session's exercise a load can be fed from two sources; only one source can be connected at a given time.

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

801012 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE • (NOTE: 1.5 hour session)**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

1:00 p.m. - 2:00 p.m.

801013 **Easy to implement IEC 61850**
This hands-on session focuses on the use of IEC 61850. The IEC 61850 protocol supports a method to directly exchange data between two or more intelligent electronic devices (IEDs). The concept is based on sending a multicast over the Ethernet. Whoever needs the information, detects the telegram by its source address, reads the telegram and deals with it. In this session's exercise a load can be fed from two sources; only one source can be connected at a given time.

2:30 p.m. - 3:30 p.m.

801014 **Automatic transfer scheme (ATS) via IEC 61850 GOOSE**
An automatic transfer scheme (ATS) assists electric power system control and automation operations. In a main-tie-main bus configuration of two independent sources with a normally open tie breaker, ATS can automatically restore a bus affected by loss of its main source. Automatic retransfer occurs by opening the tie breaker and closing the affected main breaker once the source returns. This session shows how to develop a generic object oriented substation event (GOOSE) ATS scheme; it requires a basic understanding of power system protection philosophy, PCM600 software and the REF615 relay.

4:00 p.m. - 5:00 p.m.

801015 **Easy to implement IEC 61850**
This hands-on session focuses on the use of IEC 61850. The IEC 61850 protocol supports a method to directly exchange data between two or more intelligent electronic devices (IEDs). The concept is based on sending a multicast over the Ethernet. Whoever needs the information, detects the telegram by its source address, reads the telegram and deals with it. In this session's exercise a load can be fed from two sources; only one source can be connected at a given time.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX

Technical training
Drives, PLCs, Servos and Motion

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801101 **Use ABB AC500 PLC as an EtherCAT master for control of Microflex e150 and Motiflex e180 servo drives (NOTE: 2 hour session)**
AC500 PM59x programmable logic controllers (PLCs) can perform real-time motion control of MicroFlex e150 and MotiFlex e180 AC servo drives via EtherCAT. This hands-on session details the use of Control Builder Plus and MINT Workbench software from the Automation Builder software suite to define the hardware setup suitable for EtherCAT motion control of a single MicroFlex e150 and MotiFlex e180. Learn how to write an AC500 PLC program to perform motion on this drive.

4:00 p.m. - 5:00 p.m.

801102 **ACS550 AC drive configuration: hands-on experience**
This hands-on laboratory reviews the ACS550 AC drive and demonstrates the key software characteristics that make it the optimal solution for pump and fan applications, including an energy savings calculator. This session gives you access to the ACS550 demo case and the opportunity to commission the drive from start to finish and then edit parameters to configure the drive for application-specific tasks.

Tuesday, March 3, 2015

10:00 a.m. - 12:30 p.m.

801103 **ACS880 AC drive configuration: hands-on experience • (NOTE: 2.5 hour session)**
This hands-on laboratory reviews the ACS880 AC drive and demonstrates the key software characteristics that make it the optimal solution for any industrial application. This session gives you access to the ACS880 demo case and the opportunity to commission the drive from start to finish and then edit parameters to configure the drive for application-specific tasks.

2:30 p.m. - 4:30 p.m.

801104 **ACS880 AC drive configuration: hands-on experience • (NOTE: 2 hour session)**
This hands-on laboratory reviews the ACS880 AC drive and demonstrates the key software characteristics that make it the optimal solution for any industrial application. This session gives you access to the ACS880 demo case and the opportunity to commission the drive from start to finish and then edit parameters to configure the drive for application-specific tasks.

Wednesday, March 4, 2015

10:00 a.m. - 12:30 p.m.

801105 **Fieldbus communications protocols: hands-on experience • (NOTE: 2.5 hour session)**
This hands-on laboratory summarizes communication protocols for industrial applications with ABB's AC and DC drives and the PC tools they use. It discusses various protocols and then gives you an opportunity to configure and establish communications control with the drive using Modbus TCP/IP communications and PC tools for the ACS800. Learn how to use the associated drive's PC tool through an instructor-led, hands-on session and through a self-directed laboratory for establishing the communications link.

2:30 p.m. - 4:30 p.m.

801106 **DCS800 DC drive configuration: hands-on experience • (NOTE: 2 hour session)**
Discover the key software and performance characteristics that enable the DCS800 DC drive to perform a multitude of motor control applications. This hands-on laboratory gives you access to the DCS800 demo case and the opportunity to commission the drive from start to finish and then edit parameters to configure the drive for application-specific tasks.

(see next page for Thursday schedule)

Technical training
Drives, PLCs, Servos and Motion

Thursday, March 5, 2015

10:00 a.m. - 12:30 p.m.

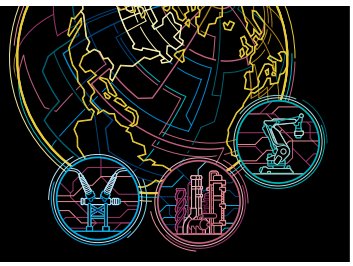
801107 **Introduction to Automation Builder, Ethernet communications with an AC500 PLC controlling ABB drives (NOTE: 2.5 hour session)**
This hands-on laboratory focuses on the basics of the AC500 programmable logic controller (PLC) configuration using Control Builder Plus (part of the Automation Builder software suite) and enables you to create your own basic session to communicate and control ABB standard drives.

2:30 p.m. - 4:30 p.m.

801108 **Using ABB AC500 PLC and CP600 HMI via Ethernet connections • (NOTE: 2 hour session)**
This hands-on laboratory lets you create your own basic program using an ABB AC500 programmable logic controller (PLC) to communicate with the CP600 human/machine interface (HMI) over Ethernet connections. The HMI screens represent a simple motor control circuit. You use a remote software tool to control and explore the HMI project. All of these tools are part of the Automation Builder software suite.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Essential Automation

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

801201 **Advanced Freelance 2013 programming and introduction to Freelance formulation**
Learn how to achieve user-defined function blocks and faceplates. Also learn about the four types of reports that are available In Freelance 2013 and the basic configuration of Freelance formulation.

2:30 p.m. - 3:30 p.m.

801202 **Compact Control Builder: programming basics for AC800M**
This session introduces programming for the Compact Control Builder for AC800M and the use of process libraries and communication using access variables.

4:00 p.m. - 5:00 p.m.

801203 **Panel Builder 800: programming basics for version 6**
In this hands-on session, program the Panel Builder 800 to communicate with AC800M using a memory membrane system (MMS), and learn the basics of building graphics using standard libraries and configuration to set up communication with AC800M. Find out how data can be exchanged using the built-in drivers.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801204 **Compact HMI: programming basics • (NOTE: 1.5 hour session)**
This session covers the configuration and connectivity of the system, PG2 graphics and the architecture of the compact human/machine interface (HMI).

1:00 p.m. - 2:00 p.m.

801205 **Compact Control Builder: programming basics for AC800M**
This session introduces programming for the Compact Control Builder for AC800M and the use of process libraries and communication using access variables.

2:30 p.m. - 3:30 p.m.

801206 **Panel Builder 800: programming basics for version 6**
In this hands-on session, program the Panel Builder 800 to communicate with AC800M using a memory membrane system (MMS), and learn the basics of building graphics using standard libraries and configuration to set up communication with AC800M. Find out how data can be exchanged using the built-in drivers.

4:00 p.m. - 5:00 p.m.

801207 **Introduction to configuration and data analysis software of videographic recorders**
This session consists of configuration and data analysis of ScreenMaster videographic recorders. During the session, a hands-on exercise guides you in setting up and configuring a videographic recorder to an application, then analyzing and reviewing the collected real-time data and reviewed using DataManagerPro software and its unique analysis features.

Technical training
Essential Automation

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801208 **Compact HMI: programming basics • (NOTE: 1.5 hour session)**
This session covers the configuration of the system, PG2 graphics and the architecture of the compact human/machine interface (HMI).

1:00 p.m. - 2:00 p.m.

801209 **Introduction to configuration and data analysis software of videographic recorders**
This session consists of configuration and data analysis of ScreenMaster videographic recorders. During the session, a hands-on exercise guides you in setting up and configuring a videographic recorder to an application, then analyzing and reviewing the collected real-time data and reviewed using DataManagerPro software and its unique analysis features.

2:30 p.m. - 3:30 p.m.

801210 **Advanced Freelance 2013 programming and introduction to Freelance formulation**
Learn how to achieve user-defined function blocks and faceplates. Also learn about the four types of reports that are available In Freelance 2013 and the basic configuration of Freelance formulation.

4:00 p.m. - 5:00 p.m.

801211 **Panel Builder 800: programming basics for version 6**
In this hands-on session, program the Panel Builder 800 to communicate with AC800M using a memory membrane system (MMS), and learn the basics of building graphics using standard libraries and configuration to set up communication with AC800M. Find out how data can be exchanged using the built-in drivers.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

801212 **Compact Control Builder: programming basics for AC800M**
This session introduces programming for the Compact Control Builder for AC800M and the use of process libraries and communication using access variables.

2:30 p.m. -3:30 p.m.

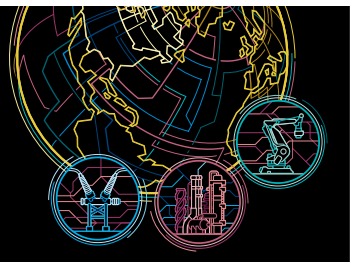
801213 **Introduction to configuration and data analysis software of videographic recorders**
This session consists of configuration and data analysis of ScreenMaster videographic recorders. During the session, a hands-on exercise guides you in setting up and configuring a videographic recorder to an application, then analyzing and reviewing the collected real-time data using DataManagerPro software and its unique analysis features.

4:00 p.m. -5:00 p.m.

801214 **Advanced Freelance 2013 programming and introduction to Freelance formulation**
Learn how to achieve user-defined function blocks and faceplates. Also learn about the four types of reports that are available In Freelance 2013 and the basic configuration of Freelance formulation.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Low Voltage Products 1

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801301 **Corrosion: extending the life of your electrical system • (NOTE: 2 hour session) CEU CREDIT**
This session investigates the effects of corrosion on the performance of electrical systems; the science, types and results of corrosion; and methods and techniques to protect electrical system infrastructures.

4:00 p.m. - 5:00 p.m.

801302 **Russellstoll power connections in hazardous applications in the oil and gas industry**
A pin and sleeve electrical interconnection solution provides maximum safety, durability and performance for portable power centers, mobile equipment and other mining applications in dry, damp, wet or marine conditions and hazardous locations.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801303 **NEC code changes • (NOTE: 1.5 hour session) CEU CREDIT**
This session examines all the changes to the new National Electric Code (NEC) 2014, focusing on areas that have been most affected by the 2014 changes and the overall direction of safety.

1:00 p.m. - 3:00 p.m.

801304 **Grounding and bonding: Blackburn compression and connectivity • (NOTE: 2 hour session) CEU CREDIT**
This course explains the science, applications and techniques for installing and maintaining electrically sound connections and details the changes to National Electric Code (NEC) 2014 for grounding and bonding.

4:00 p.m. - 5:00 p.m.

801320 **Resettable circuit protection**
Did you know that ABB is credited with inventing the first resettable circuit protection device? Take a look at the original technology behind the original Hugo Stotz design and learn more about ABB's future innovations in miniature circuit breaker technology.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801305 **Increased operator safety • (NOTE: 1.5 hour session) CEU CREDIT**
End users today spike or cut cable to verify it is not energized. Discover how to eliminate the need to pull or replace cable for that purpose by using a direct 600A, 25kA rated ground connection with a removable protective cap.

1:00 p.m. - 3:00 p.m.

801306 **Corrosion: extending the life of your electrical system • (NOTE: 2 hour session)**
This session investigates the effects of corrosion on the performance of electrical systems; the science, types and results of corrosion; and methods and techniques to protect electrical system infrastructures.

4:00 p.m. - 5:00 p.m.

801307 **Play the Kindorf challenge**
Build a trapeze assembly using 1 5/8-inch strut and try to beat the time it takes to build the same assembly using the 1½-inch Kindorf Modular Metal Framing System. A standard channel has a height of 1 5/8 inches, a width of 1½ inches and hole spacings of 1 7/8 inches. Kindorf has consistent measurements throughout (1½ inches by 1½ inches, with 1½-inch hole spacings). This modular system can save time, reduce waste and eliminate the need for field drilling and welding.

(see next page for Thursday schedule)

Technical training
Low Voltage Products 1

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

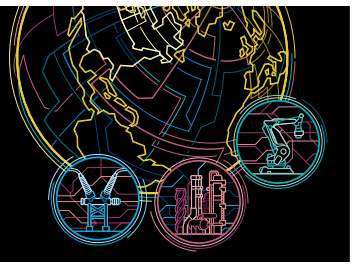
801308 **NEC code changes • (NOTE: 1.5 hour session) CEU CREDIT**
This session examines all the changes to the new National Electric Code (NEC) 2014, focusing on areas that have been most affected by the 2014 changes and the overall direction of safety.

1:00 p.m. - 3:00 p.m.

801309 **Pluto Safety PLC for machine safety applications • (NOTE: 2 hour session)**
This session explores the use of the Pluto Safety programmable logic controller (PLC) to simplify the safety circuit. The Pluto Manager software makes complex safety circuits more flexible and powerful while maintaining the highest levels of safety and the lowest cost. The session includes hands-on programming of simulated applications. Bring your own computer to the session.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Low Voltage Products 2

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801310 **Softstarters and the universal motor controller: intelligent motor control • (NOTE: 2 hour session)**
Gain a full understanding of various softstarter functions and how to apply them, including innovative approaches to controlling pump, compressor, chiller, conveyor, fan, mixer and crusher applications. Drives applications are compared. This session is half lecture and half hands-on laboratory.

4:00 p.m. - 5:00 p.m.

801311 **UL 508a panels: power circuit protection**
This session is an intermediate to advanced level class that defines products and selection criteria for short circuit protective devices used for panel disconnect. It covers breakers and disconnects (fusible and nonfusible).

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801312 **Save time, increase safety • (NOTE: 1.5 hour session)**
The Elastimold Shrink-Fit cable joint combines the best elements of the various cable splicing methods into a cost-effective pre-molded joint that eliminates the use of ripcords or integral braids. The joint contours itself around the splice while it pushes the pieces of the plastic core out of both sides.

1:00 p.m. - 3:00 p.m.

801313 **ABB control panel solutions • (NOTE: 2 hour session)**
Panel builders must source the right control product for each application, given cost pressures, labor costs and more. The combination of ABB and Thomas and Betts brand products provides control panel builders with a single source for their control panel needs, including circuit breakers, motor starters, contactors, programmable logic controllers (PLCs), drives, wire duct and TyWraps. ABB can help panel builders lower their costs and build more profitable control panels.

4:00 p.m. - 5:00 p.m.

801314 **Play the HEX-FLEX challenge**
Try your luck with the HEX-FLEX challenge. Contestants will be timed as they perform two HEX-FLEX crimps on pre-stripped flexible wire using T&B color-keyed lugs and a 15-ton battery operated crimping tool. The contestants then connect the wire to a 3-phase ABB panel, and the three best times will be posted on a leader board.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801315 **Grounding and bonding: Blackburn compression and connectivity • (NOTE: 1.5 hour session) CEU CREDIT**
This course explains the science, applications and techniques for installing and maintaining electrically sound connections and details the changes to National Electric Code (NEC) 2014 for grounding and bonding.

1:00 p.m. - 3:00 p.m.

801316 **Surge protective devices • (NOTE: 2 hour session) CEU CREDIT**
This session examines the science of electrical surges and where they originate, with a review of new UL terminology for surge protection devices (SPDs), the operation of surge protection devices and applications of SPD technology.

4:00 p.m. - 5:00 p.m.

801317 **NEC ground fault requirements for industrial equipment**
Explore section 230.95 of the National Electrical Code (NEC) to understand the need for ground fault protection for equipment, and review some common applications for ground fault equipment technologies.

(see next page for Thursday schedule)

Technical training
Low Voltage Products 2

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

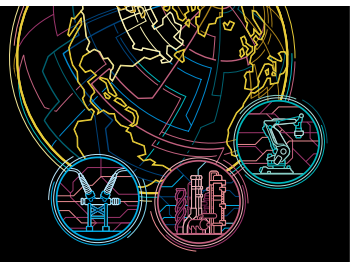
801318 **Coordinating trip devices • (NOTE: 1.5 hour session)**
Gain a full understanding of selective coordination using the latest technology circuit breakers. This session defines short circuit current ratings in light of the latest code requirements.

1:00 p.m. - 3:00 p.m.

801319 **Arc flash: the dangers and recommended safe behaviors working around electrical hazards • (NOTE: 2 hour session)**
This session goes beyond the theoretical to delve deeply into regulations regarding electrical and arc flash safety and how to apply them in real-world situations. It also details differences between the 2012 National Fire Protection Association (NFPA) 70E standard and the 2009 version.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Power 101

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

801401 **Technology solutions for smarter grids**
In the future more robust power delivery systems will be required. Drivers include renewable energy integration as well as new loads, such as electric vehicles. This session introduces participants to technology solutions that will help meet new demands for a smarter grid.

2:30 p.m. - 4:30 p.m.

801402 **Overview of power generation, transmission and distribution • (NOTE: 2 hour session)**
This session is targeted to new engineers and professionals in the power industry, providing a basic understanding of electric power generation, transmission and distribution systems, including the roles of major equipment.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

801403 **Introduction to distribution transformers for residential and industrial applications**
This session covers distribution transformers for residential, commercial and industrial applications. Technologies include pole mounted, pad mounted and dry type units. The session surveys transformer construction, key design considerations and the concept of transformer losses.

2:30 p.m. - 3:30 p.m.

801404 **Distribution feeder equipment for grid optimization**
This session reviews equipment on the distribution system, encompassing distribution substation breakers, reclosers, line switches and fused cutouts, including the roles of each device and how they work together to minimize system disturbances.

4:00 p.m. - 5:00 p.m.

801405 **Insulation coordination and surge protection**
This session reviews the classification of insulation systems by basic insulation level (BIL) and the operation of surge arresters on the power system. Learn about various surge voltage wave shapes and the corresponding arrester characteristic to consider for adequate protection. The session also describes surge arrester design options and best application practices.

Technical training
Power 101

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801406 **Overview of power generation, transmission and distribution • (NOTE: 1.5 hour session)**
This session is targeted to new engineers and professionals in the power industry, who will gain a basic understanding of electric power generation, transmission and distribution systems, including the roles of major equipment.

1:00 p.m. - 2:00 p.m.

801407 **Introduction to substation transformers**
In explaining the function of substation transformers and basic transformer construction, this session discusses transformer ratings KVA, temperature rise, voltage, basic insulation level (BIL), impedance, overload ratings and transformer losses. Common transformer accessories for monitoring, cooling, tap changing and external connection options are also reviewed.

2:30 p.m. - 3:30 p.m.

801408 **High voltage substation equipment**
This session about high voltage equipment in the substation addresses power breakers, their role in the system, the difference between live and dead tank breakers, transformers and the range of ratings available.

4:00 p.m. - 5:00 p.m.

801409 **Maintaining substation transformers and high voltage equipment**
The service opportunities to maintain and upgrade substation transformers and breakers encompass installation and commissioning, maintenance inspections, lifecycle assessments, remote monitoring and repair options (field versus factory).

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

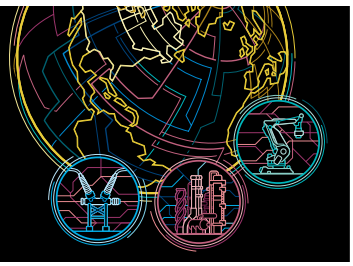
801410 **Introduction to protection and control**
Hear about the role of relays for the protection and control of power systems, including relay classifications, relay applications, basic protection principles and relaying philosophy. Learn how to identify the Institute of Electrical and Electronics Engineers (IEEE) device numbers for various types of protective functions and about IEEE and International Electrotechnical Commission (IEC) symbols on circuit diagrams.

2:30 p.m. - 3:30 p.m.

801411 **Manage outages before they manage you**
Utilities today are faced with unprecedented challenges in managing outages, including an increase in the number and severity of unplanned events, increased consumer demand for accurate and timely communications, complex networks and new regulatory requirements. The traditional system and approach to outage management are not designed to handle these complex issues. This session will focus on solutions that integrate IT and OT technologies and address the end-to-end outage lifecycle and how this enables utilities to improve reliability and customer satisfaction in a cost effect manner.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Power Services

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

801501 **Intelligent monitoring solutions for high voltage breakers, transformers and MV switchgear**
Solution intelligence makes the difference in condition-based and remote monitoring solutions. This session demonstrates ABB's newest solution for power assets (circuit breakers, power transformers and switchgear). Continuously fed data keeps an eye on the equipment even when it is remote. From a dynamic health score to real-time results that yield root cause analysis of problems, ABB's solution uses the power of data to drive down operation and management (O&M) costs while improving reliability and availability.

2:30 p.m. - 3:30 p.m.

801502 **Repair and overhaul of ABB high voltage breaker operating mechanism**
Proper mechanism maintenance is one of the key factors to maintaining an abundance of reliable energy during the life of your high voltage circuit breaker, gas insulated switchgear (GIS) or generator circuit breaker (GCB). During this hands-on training session, learn how to diagnose common mechanism issues and how to overhaul and repair ABB type HMB (hydraulic-spring) mechanisms.

Tuesday, March 3, 2015

1:00 p.m. - 3:00 p.m.

801503 **High voltage breaker advanced diagnostics and maintenance options for reliability and cost control (NOTE: 2 hour session)**
High voltage SF6 circuit breaker maintenance has expanded into many options for diagnostic maintenance. This hands-on session details cost-effective maintenance strategies to maximize high voltage (HV) breaker longevity and reliability using both internal and external inspections. The session has two sections: traditional breaker maintenance options and new diagnostic maintenance options. Radiography is the X-ray inspection and evaluation of SF6 switchgear. It typically reduces outage costs and time by 50% or more.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801504 **Generator circuit breaker (GCB) condition monitoring system • (NOTE: 1.5 hour session)**
State-of-the-art technology is used to check the condition of a generator circuit breaker (GCB), and this session explains the theory and application developed to track wear and tear. The device also tracks SF6 gas leakage, for reporting to the Environment Protection Agency (EPA), and the main generator bus conditions.

1:00 p.m. - 2:00 p.m.

801505 **Intelligent monitoring solutions for high voltage breakers, transformers and MV switchgear**
Solution intelligence makes the difference in condition-based and remote monitoring solutions. This session demonstrates ABB's newest solution for power assets (circuit breakers, power transformers and switchgear). Continuously fed data keeps an eye on the equipment even when it is remote. From a dynamic health score to real-time results that yield root cause analysis of problems, ABB's solution uses the power of data to drive down operation and management (O&M) costs while improving reliability and availability.

2:30 p.m. - 3:30 p.m.

801506 **Repair and overhaul of ABB high voltage breaker operating mechanism**
Proper mechanism maintenance is one of the key factors to maintaining an abundance of reliable energy during the life of your high voltage circuit breaker, gas insulated switchgear (GIS) or generator circuit breaker (GCB). During this hands-on training session, learn how to diagnose common mechanism issues and how to overhaul and repair ABB type HMB (hydraulic-spring) mechanisms.

(see next page for Thursday schedule)

Technical training
Power Services

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

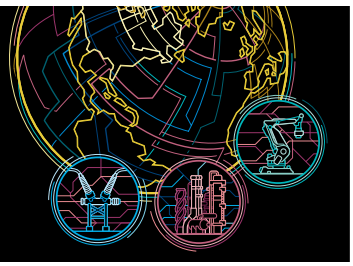
801507 **Generator circuit breaker (GCB) condition monitoring system • (NOTE: 1.5 hour session)**
State-of-the-art technology is used to check the condition of a generator circuit breaker (GCB), and this session explains the theory and application developed to track wear and tear. The device also tracks SF6 gas leakage, for reporting to the Environment Protection Agency (EPA), and the main generator bus conditions.

1:00 p.m. - 3:00 p.m.

801508 **High voltage breaker advanced diagnostics and maintenance options for reliability and cost control (NOTE: 2 hour session)**
High voltage SF6 circuit breaker maintenance has expanded into many options for diagnostic maintenance. This hands-on session details cost-effective maintenance strategies to maximize high voltage (HV) breaker longevity and reliability using both internal and external inspections. The session has two sections: traditional breaker maintenance options and new diagnostic maintenance options. Radiography is the X-ray inspection and evaluation of SF6 switchgear. It typically reduces outage costs and time by 50% or more.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Process engineering 101

Monday, March 2, 2015

1:00 p.m. - 2:00 p.m.

801601 **Intelligent low voltage motor control centers**
Downtime can prove extremely costly in critical process applications. The protective and troubleshooting functions possible with intelligent motor control centers improve productivity and minimize downtime. This session looks at technology considerations, configuration types and cost advantages possible with intelligent motor control center applications.

2:30 p.m. - 3:30 p.m.

801602 **Ten rules to successful pH measurement**
pH measurement and control is fundamental to achieving effective and long-lasting water treatment and quality. ABB addresses the 10 best practice rules that, when applied to pH measurement and control, ensure the best performance and results from your pH measurement equipment and process control.

4:00 p.m. - 5:00 p.m.

801603 **Flow metering: a guide to proper selection and practice**
Unravel the mysteries of flow technology selection, learn how different flow meters work and when (and when not) to use them. Quickly get up to speed on the basics of flow metering, including the flow pioneers, terminology, installation practices, flow profiles, flow disturbances and flow meter selection. Get a solid understanding of the many nuances associated with the selection of flow meters and associated products.

Tuesday, March 3, 2015

1:00 p.m. - 2:00 p.m.

801604 **What do you need to know about cyber security?**
Cyber security isn't just about geopolitics, the banking system or the energy grid. Most cyber security issues are more basic, such as unsuspecting employees opening innocent-looking files that are really viruses or malware on a home PC that makes it onto a flash drive taken into work. This session addresses what you need to know about cyber security, but didn't know you should ask, such as how to begin addressing cyber security when you have no budget or resources; how to initially assess your situation; and how determine first steps to improve (useful when you need to ask for a budget).

2:30 p.m. - 3:30 p.m.

801605 **Low or medium voltage drives: considerations for selecting the right drive for your application**
Operationally, a medium voltage drive is almost indistinguishable from a low voltage drive. The differences lie in topologies, protection schemes, sensing, monitoring and other application-specific concerns. Find out when it makes sense to choose low or medium voltage drive technology for your application.

4:00 p.m. - 5:00 p.m.

801606 **Three keys to designing safe, reliable and efficient substations for heavy industrial facilities**
US manufacturing is experiencing a resurgence, thanks in part to an abundance of natural gas that has created new opportunities for many industries, particularly in the oil and gas, petrochemical and steel sectors. As these facilities expand their capacity, they need more reliable substations to safely and dependably meet their power needs for years to come. By looking at the key drivers outlined in this session, you will be able to identify and implement the right substation design to meet your goals and objectives.

Technical training
Process engineering 101

Wednesday, March 4, 2015

1:00 p.m. - 2:00 p.m.

801607 **Staying alert without being alarmed: managing alarm systems for improved operator response**
This session examines alarm management practices, performance assessments and opportunities for improvements. Learn about evaluation methods for alarm data, operational practices, control room environment, alarm design and configuration. This information can be used to assess alarm system performance relative to desired baseline levels and identify areas for improvement. This session presents industry guidelines and standards, as well as typical issues and potential improvements to help meet industry guidelines, improve operator responses and optimize alarms.

2:30 p.m. - 3:30 p.m.

801608 **Assessing proper grounding and power distribution for improved system performance and reliability**
Unexplained intermittent operation, process trips and high failure rates of equipment can result from incorrect installation or poor quality power. Although equipment may operate reliably in one plant or one part of a plant, it may experience frequent problems in another location. A good first step in identifying and correcting ground faults and power quality deficiencies is to audit your installation for compliance with site planning manuals, the National Electric Code, IEEE 1100 and other standards. Learn how, with the same equipment used by ABB field service engineers.

4:00 p.m. - 5:00 p.m.

801609 **Understanding calibration and field verification of flow instruments**
This session clearly defines calibration, configuration and verification when referring to field instruments. It then reviews many of the field verification options for flow instrumentation and explains how to identify the best method.

Thursday, March 5, 2015

1:00 p.m. - 2:00 p.m.

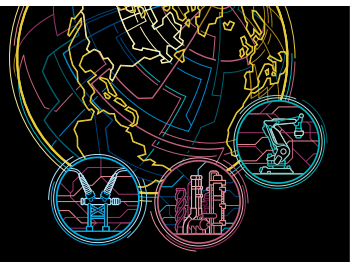
801610 **Important issues in industrial boiler control and how the EPA's MACT Rules affect you**
Various metrics can be used to assess boiler performance in terms of reliability, efficiency and performance of key control loops. Diagnostic methods, such as inspections of boiler equipment and control logic, testing and data analysis, can be used to assess current boiler performance and compare that performance to expectations. Learn about typical problems associated with boiler equipment, instrumentation and controls; improvements that can increase operating efficiency and reliability; and the Environmental Protection Agency's rule known as Boiler MACT.

2:30 p.m. - 3:30 p.m.

801611 **High power gearing selection: making the right choices on a critical investment**
Gear reducers used in industrial applications are getting larger in power rating and size as users seek to maximize productivity. These high power gear reducers can be a significant investment, so making the right choices during the gear reducer selection process is important to ensure the best overall value and longevity of operation. This session explains the unique and sometimes challenging considerations for making high power gearing selections.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
Symphony Plus

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801701 **Symphony Plus operations • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, find out about the Symphony Plus human/machine interface, the Symphony Plus architecture, the function of the different components, navigation within the SPlus Operation Explorer and graphic elements.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801702 **Symphony Plus hardware • (NOTE: 1.5 hour session)**
This hands-on technical training session introduces the Symphony Plus architecture and the functions of different components, including S+ Communications, setup of the S+ controllers, basic function codes and configuration changes using engineering tools.

1:00 p.m. - 3:00 p.m.

801703 **Symphony Plus operations: advanced engineering • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, find out how to set up OPC tags, create reports from a history server and set up network distribution classes. This session provides laboratory exercises and networked computers to help simulate the environment discussed.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801704 **Symphony Plus hardware • (NOTE: 1.5 hour session)**
This hands-on technical training session introduces the Symphony Plus architecture and the functions of different components, including S+ Communications, setup of the S+ controllers, basic function codes and configuration changes using engineering tools.

1:00 p.m. - 3:00 p.m.

801705 **Symphony Plus operations • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, find out about the Symphony Plus human/machine interface, the Symphony Plus architecture, the function of the different components, navigation within the SPlus Operation Explorer and graphic elements.

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

801706 **Symphony Plus operations • (NOTE: 1.5 hour session)**
In this 2-hour hands-on technical training session, find out about the Symphony Plus human/machine interface, the Symphony Plus architecture, the function of the different components, navigation within the SPlus Operation Explorer and graphic elements.

1:00 p.m. - 3:00 p.m.

801707 **Symphony Plus operations: advanced engineering • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, find out how to set up OPC tags, create reports from a history server and set up network distribution classes. This session provides laboratory exercises and networked computers to help simulate the environment discussed.

This page intentionally left blank

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX

Technical training
System 800xA Extended Automation 1

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801801 **System 800xA engineering using ControlBuilder • (NOTE: 2 hour session)**
This 2-hour, hands-on technical training session introduces the 800xA system, basic system architecture and fundamental configuration skills using the ControlBuilder engineering tool.

Tuesday, March 3, 2015

10:00 a.m. - 11:30 a.m.

801802 **Cyber security for ABB automation systems • (NOTE: 1.5 hour session)**
This hands-on technical training session provides information about cyber security services used to protect your ABB system. Topics include patch management, antivirus, malware remediation and disaster recovery. Laboratory exercises are associated with the patch management portion of this session.

1:00 p.m. - 3:00 p.m.

801803 **System 800xA human/machine interface with PG2 graphics • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, learn about the 800xA console and PG2 graphics, including the operator workplace, graphic elements, faceplates and graphic displays.

Wednesday, March 4, 2015

1:00 p.m. - 3:00 p.m.

801804 **System 800xA engineering using ControlBuilder • (NOTE: 2 hour session)**
This 2-hour, hands-on technical training session introduces the 800xA system, basic system architecture and fundamental configuration skills using the ControlBuilder engineering tool.

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

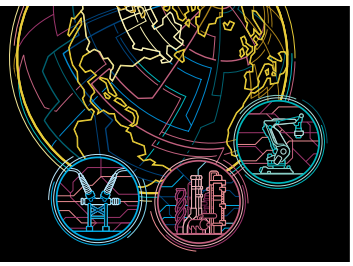
801805 **Cyber security for ABB automation systems • (NOTE: 1.5 hour session)**
This hands-on technical training session provides information about cyber security services used to protect your ABB system. Topics include patch management, antivirus, malware remediation and disaster recovery. Laboratory exercises are associated with the patch management portion of this session.

1:00 p.m. - 3:00 p.m.

801806 **System 800xA human/machine interface with PG2 graphics • (NOTE: 2 hour session)**
In this 2-hour hands-on technical training session, learn about the 800xA console and PG2 graphics, including the operator workplace, graphic elements, faceplates and graphic displays.

Register today at www.abb.com/apw

Harnessing the power of change
Automation & Power World
March 2-5, 2015 | Houston, TX



Technical training
System 800xA Extended Automation 2

Monday, March 2, 2015

1:00 p.m. - 3:00 p.m.

801807 **System 800xA alarm management • (NOTE: 2 hour session)**
This session explores advanced features of alarm management in 800xA, including priority, grouping, shelving, hiding, response and analysis.

Tuesday, March 3, 2015

1:00 p.m. - 3:00 p.m.

801808 **System 800xA alarm management • (NOTE: 2 hour session)**
This session explores advanced features of alarm management in 800xA, including priority, grouping, shelving, hiding, response and analysis.

Wednesday, March 4, 2015

10:00 a.m. - 11:30 a.m.

801809 **Introduction to System 800xA • (NOTE: 1.5 hour session)**
This session touches on many key components in System 800xA, including architecture, features/functions, graphics, integration and configuration.

1:00 p.m. - 3:00 p.m.

801810 **System 800xA alarm management • (NOTE: 2 hour session)**
This session explores advanced features of alarm management in 800xA, including priority, grouping, shelving, hiding, response and analysis.

Thursday, March 5, 2015

10:00 a.m. - 11:30 a.m.

801811 **Introduction to System 800xA • (NOTE: 1.5 hour session)**
This session touches on many key components in System 800xA, including architecture, features/functions, graphics, integration and configuration.

1:00 p.m. - 3:00 p.m.

801812 **System 800xA alarm management • (NOTE: 2 hour session)**
This session explores advanced features of alarm management in 800xA, including priority, grouping, shelving, hiding, response and analysis.