

**2011 OSIsoft T&D Users Group
Meeting Agenda - Final**
 Doubletree Hotel Philadelphia
 Philadelphia, Pennsylvania
 September 21-23, 2011



Wednesday, September 21

07:00 – 08:20	Breakfast	
08:30 – 11:30	PJM Control Center Tour (Hotel lobby for bus transportation by 8:30)	
11:30 – 13:00	Registration and Lunch	
13:00 – 13:10	Welcome and T&D Users Group Community Update	Dag Reppen – SRP (T&D UG Chair) Ann Moore - OSIsoft
13:10 – 13:40	Keynote – The PJM RTO and Smart Grid	Mike Bryson – Executive Director, System Operations, PJM
13:40 – 14:30	PI System Roadmap	Jay Lakumb - OSIsoft
14:30 – 14:50	Break	
14:50 – 15:30	How CAISO Uses PI System for Reliability, Transmission, Generation, Renewables and Smart Grid Vision	Hani Alarian - CAISO
15:30 – 16:10	How We-Energies Uses PI System for Transmission and Distribution	Jessica Banike, - We Energies Amanda Pachniak – We Energies Rick Stegehuis – We Energies
16:10 – 16:50	PSE&G CMMS – The Foundation for Underground Network Monitoring and Smart Grid Modernization	Richard Wernsing, - PSE&G Angela Rothweiler – PSE&G
16:50 – 17:10	Partner Introduction	Business Partners
17:30 – 21:00	OSIsoft/Partner Demo Exhibition/Hospitality	

Thursday, September 22

07:30 – 08:20	Breakfast Special Session (OSIsoft Company Update and Q&A)	Bernard Morneau - President, OSIsoft
08:30 – 09:10	EPRI Smart Grid Relay Lab-A Smart Grid Needs A Smart Utility	John Gillerman – SISCO Pat Brown – EPRI
	PI for use in WAMS (Wide Area Measurement System)	Ralph Mackiewicz – SISCO Matt Heere – OSIsoft
09:10 – 09:50	PECO Smart Grid and Smart Meter Program and the Role of PI System	Glenn Pritchard – PECO/Exelon
09:50 – 10:10	Break	
10:10 – 10:50	Federation of PQ Monitors with PI System for Regulation Assessment of Voltage and Reactive Power	David Santiago – ConEd Dan Sabin – Electrotek Concepts
10:50 – 12:00	PI System Upgrade/Migration Experience Sharing	
	<ul style="list-style-type: none"> • PI HA (High Availability) • Windows Security (WIS, SSO, Active Directory, etc.) • PI System 2010 Upgrade Case Study#1 • PI System 2010 Upgrade Case Study#2 • Summary 	Dag Reppen – SRP Matt Rivett – PJM Andi Greisel – PGE Angela Rothweiler – PSE&G and Matt Heere –OSIsoft Jay Lakumb - OSIsoft
12:00 – 13:20	Lunch	
13:20 – 14:00	Definition of MDUS and its place in an AMI solution	Mark McCollum – Consumers Energy
14:00 – 14:40	Cyber Security - more than NERC CIP	Bryan Owen – OSIsoft Jonathan Gray, Principal Investigator - Idaho National Laboratory
14:40 – 15:00	Break	
15:00 – 15:40	“Security-Focus” Panel Session	Moderator: Bryan Owen – OSIsoft Panelists: Josh Axelrod – Alert Enterprise Utility Speaker - TBA Speaker TBA – North American Electric Reliability Corporation (NERC)
15:40 – 16:50	T&D Users Group Roundtable	All
16:50 – 17:00	Closing and 2012 T&D Meeting	Dag Reppen – SRP Ann Moore - OSIsoft

18:00 – 21:30 **Microsoft/OSIsoft Sponsored Offsite Dinner/Party**

Continental Mid-town
1801 Chestnut Street
<http://www.continentalmidtown.com/>

Friday, September 23

07:30 – 08:30 **Breakfast**

08:30 – 14:00 **Training and PI System Demo
(Lunch @12:00)**

Laurie Dieffenbach, Curt Hertler, Jay
Lakumb – OSIsoft

Presentation Abstract and Training Outlines

Keynote – The PJM RTO and Smart Grid:

Mike Bryson, Executive Director, System Operations, PJM

PJM will present a welcome and keynote speech, including PJM background, high level overview of PJM operations, markets and planning, what Smart Grid is to PJM and the role of OSIsoft PI system at PJM.

PI System Roadmap:

Jay Lakumb, Product Manager-T&D Liaison, OSIsoft

The PI System continues to grow in 2011 with the introduction of several products and capabilities. PI Coresight is a new client product which is “the fastest and easiest way to visualize your PI System data”. PI for StreamInsight, which leverages Microsoft StreamInsight, is a new analytics product that allows you to apply analytics to a stream of events. PI Event Frames is a new data type built on PI Asset Framework which helps you find process data related to important events. In addition, OSIsoft is introducing PI Server 2010 R3 in Q4 which helps all customers move forward to the latest PI Data Archive and PI Asset Framework. This presentation will cover the roadmap for all of these recent and upcoming releases to the PI System.

How CAISO Uses PI System for Reliability, Transmission, Generation, Renewables and Smart Grid Vision:

Hani Alarian, California Independent System Operator (CAISO)

California Independent System Operator (CAISO) manages the flow of electricity, ensures reliable operation of the grid, and facilitates market for day-ahead, real-time energy & ancillary services in California. This presentation will demonstrate how CAISO uses PI System to support operations and grid reliability and manages renewable integration, including situational awareness visualization displays used on the dispatcher’s consoles 24/7, on engineer’s desktops for day-to-day operations support, on over 80-foot wide video wall stretching in the new control center, and on web portal for external market participants, government entities and regulatory agencies. It will cover CAISO Smart Grid vision and plan for PI System, such as synchrophasor technology and California Climate Change Initiatives, including wind, solar, smart meters, energy storage, and demand response, etc. It will also show how to utilize PI System along with other advanced technology to operate the grid reliably, securely and efficiently and facilitate effective, open markets that engage and empower consumers while meeting California’s policy target to integrate renewable resources, reduce greenhouse gas emissions, and secure energy independence. In CAISO’s new control center (since November 1, 2010) a dedicated renewable-only desk (first of its kind) was created. While California currently has more wind generation, solar is starting to pick up. The challenge with solar is clouds, which can disrupt solar generation output, dust and air moisture content are problematic as well. The renewable desk manned 24/7 by one operator on 12-hour shift was created exactly to manage these challenges. At the same time, CAISO also introduced a new web portal, allowing anyone to see how much solar and wind are being generated in the state and how much energy is being produced at any given time, in real-time. CAISO is well positioned to monitor the growing amount of renewable energy joining the state’s electric grid and respond to the anticipated 50,000 MW of demand peak.

How We-Energies Uses PI System for Transmission and Distribution:

Jessica Banike, We Energies

Amanda Pachniak, We Energies

Rick Stegehuis, We Energies

We Energies provides electric service to customers in portions of Wisconsin and Michigan’s Upper Peninsula. We also serve natural gas customers in Wisconsin and steam customers in downtown Milwaukee. This presentation will describe our corporate PI growth and our existing system architecture. Additionally, it will describe how PI System is used by our 24x7 Electric System Operations (ESO) group, which oversees the bulk power system, and by engineers in our Distribution Operations (DO) group. Prior to the implementation of PI System, ESO had very limited trending and historical data tools, and real-time system operators primarily relied on tabular EMS displays. Since installation of the PI System with interface to EMS, system operators now have access to much greater capability for historical data review, post-event analysis, and real-time displays that improve situational awareness. An overview of the PI System-based operating tools that have been developed by the Electric System Operations group will be given. Engineers in Distribution Operations are also using PI System-based tools for event analysis and historical data review. An overview of the different ways PI System is used by distribution planning and operations support engineers will also be presented.

PSE&G CMMS – The Foundation for Underground Network Monitoring and Smart Grid

Modernization : Richard Wernsing – Manager Electric Asset Strategy, Public Service Electric & Gas (PSE&G)

Angie Rothweiler – Principle Engineer, Asset Integration and System Policy, PSE&G

The calendar-based preventive maintenance & reactive corrective maintenance face challenges, i.e. no predictive maintenance strategy, significant liability risk and system outage potential from equipment failure, and limited assessment for determining asset condition and maintenance efficiency. PSE&G PI System based CMMS (Computerized Maintenance Management System) provides the mechanism to address these challenges, shift maintenance activities from reactive to proactive through the integration from various data sources and the use of multiple-method condition monitoring and analysis. By utilizing the PI analytics and visualization tools, PSE&G was able to transform the data into intelligence, and present it in a dashboard web portal form. The presentation will demonstrate the design and implementation of asset strategy, system configuration, condition assessment algorithms, and how the system leads to an integrated enterprise information center which enables concise decision making. Based on CMMS foundation and PI System infrastructure, PSE&G now has launched Underground Network Monitoring Project and Smart Grid Modernization Projects by utilizing the some advanced smart grid technologies to further achieve measurable improvements in reliability for underground cables, underground network assets and distribution operations.

EPRI Smart Grid Relay Lab-The Smart Grid Needs A Smart Utility:

John Gillerman, SISCO

Pat Brown, Senior Project Manager, EPRI

EPRI is currently working on real solutions to real issues that confront the power industry. This presentation will first focus on what utilities need to do to implement the Smart Grid from an organizational point of view. While to date the industry has been focused on deploying technology, without sufficient review of business practice, smart grid benefits cannot be fully realized. Topics to be discussed include:

- Overview of current smart grid projects
- Issues related to an overly technical focus
- Benefits of a business process focus
 - Operations and maintenance use cases
- Steps towards a Smart Utility
 - The role of modeling in business process redesign
 - How data modeling standards such as the IEC Common Information Model and 61850 can help
 - Managerial issues related to creating a Smart Utility

Then it will get down to discussing what EPRI is actually doing in the Smart Grid relay lab in Knoxville, TX (like testing PMU data sharing without concentrators, implementing a CIM SCADA interface and “translating” 61850 to CIM) and where a data historian and model historian fit in.

PI for use in WAMS (Wide Area Measurement System):

Ralph Mackiewicz, Vice President, SISCO

Matt Heere, Center of Excellence, OSisoft

With the increasing application of C37.118 with Phasor Measurement Units (PMUs), Wide Area Measurement/Monitoring Systems (WAMS) are bringing new data management challenges to T&D. New and emerging technologies like IEC 61850-90-5 are presenting new challenges to which systems must adapt and evolve. Even off-line data from disturbance recorders using COMTRADE will need to be managed. High data volumes, high data precision, and time synchronization all must be effectively handled at the data layer. This presentation will discuss the role PI can play in managing PMU data. Capabilities will be outlined, and recommendations for where to use PI will be presented.

PECO Smart Grid and Smart Meter Program and the Role of PI System:

Glenn Pritchard, PECO/Exelon

PECO is developing and implementing one of the most comprehensive Smart Grid solutions that will deliver improved operations, distribution, energy efficiency and new customer programs. This session will review PECO's SG/SM (Smart Grid/Smart Meter) Program and some of the specific projects that make up the program, including the communications network, data management solutions and the Conservation Voltage Reduction project, etc. It will also demonstrate how PI System fits in and is utilized in various initiatives to support the Program.

Federation of PQ Monitors with the PI System for Regulation Assessment of Voltage and Reactive Power:

Davis Santiago, The Consolidated Edison Company of New York (ConEd)

Dan Sabin, Electrotek Concepts

Con Edison has developed a new application for analyzing, reporting, and alarming related to voltage regulation and reactive power regulation in its area substations. The application evaluates how well the recorded voltage matches the predetermined scheduled voltage. The scheduled voltage for a substation is a

function of the time of day, day of week, and amount of total substation load. The application also assesses voltage regulator tap position uniformity, load balance, and reactive power balance for all of the transformers within a given substation. In order to complete its assessment, Con Edison developed an application that federates data from power quality monitors with data from RTU sensors stored in the PI System. The application employs statistical process control techniques in order to detect unusual variation that is flagged in reports and sent via alarms. One goal of the application development is to ensure optimal control of the voltage regulation process. The presentation will include a problem and application overview; examples of analysis, reports, and e-mail notifications; and a demonstration using live data.

PI System Upgrade/Migration Experience Sharing:

PI HA (High Availability): Dag Reppen, Salt River Project (SRP)

SRP supplies water and power to the Salt River Valley and large portions of the Phoenix Metropolitan area. SRP's control center dispatchers manage and control about 7,000 peak MW and 300+ Stations and RTU's. SRP has recently gone through an upgrade process from a redundant PI System configuration to a fully integrated HA PI System configuration. Dag will be sharing with us SRP's experiences of this upgrade done by in-house, the challenges, successes and lessons learned.

Windows Security (WIS, SSO, Active Directory, etc.): Matt Rivett, PJM

Upgrading to PI Server 3.4.380 or later gives users the option of using Microsoft Active Directory for user authentication and management. PJM has implemented this strategy, moving away from the traditional PI user and group security model. A discussion of the steps involved in the process is presented. In particular, attention to the benefits of a good AD group structure and testing methodology are highlighted.

PI System 2010 Upgrade Case Study#1: Andi Greisel, Portland General Electric (PGE)

PGE owns nearly 2800 MW of generating capacity, 1500 pole-miles of transmission line, and supplies electricity to over 800,000 Oregon customers in a 4,000 sq. mile service territory. As part of their regular server vintage schedule, PGE upgraded from PI Server 3.4.375, operating on 32-bit Windows 2003 Server, to PI System 2010, operating on virtualized 64-bit Windows 2008 R2 Server. This presentation will share how PGE performed the PI System 2010 upgrade in-house, and a discussion of lessons-learned and suggestions for others interested in a DIY upgrade.

PI System 2010 Upgrade Case Study#2: Angela Rothweiler, Public Service Electric & Gas (PSE&G) and Matt Heere, OSIsoft

As part of PSE&G CMMS Program roadmap and expansion, PSE&G has undertaken a PI System upgrade project, including PI System 2010 upgrade (from version 3.4.364), SharePoint MOSS-Webparts 2010 migration, MDB (over 70,000 modules for all the substation equipment asset models) to AF conversion, etc. A successful upgrade process needs good planning (who and what would be involved, etc.), testing (i.e. using virtual machine to do the testing?), and deployment phases (coaching and training, etc.). This presentation will share the upgrade process, experience, lessons-learned and the benefit of PI System 2010, as well as provide some advice and suggestion.

Summary: Jay Lakumb, OSIsoft

As follow up to the PI System Roadmap presentation, this summary will discuss the commercial and technical aspects of migrating to the upcoming PI Server 2010 R3. We will review the migration path for all customers, no matter which package you have or version of PI Server you are currently running.

Definition of MDUS and it's place in an AMI solution:

Mark McCollum, Consumers Energy

Consumers Energy is in the planning phases of implementing an AMI solution. OSIsoft's Meter Data Unification & Synchronization (MDUS) is in the center of this solution and utilizes a traditional PI time series database along with smart connector interfaces, several Asset Framework (AF) servers and the Utilities Gateway to interact with SAP, the Head End (meter data collection system) and other systems. This solution will have the ability to collect unprecedented amounts of meter data including intervals, registers and meter events. This presentation will focus on defining the MDUS in terms of the SAP Lighthouse Council's vision, defining the purpose and functionality of the MDUS and how it interacts with other components in an AMI solution.

Cyber Security – more than NERC CIP:

Bryan Owen, Cyber Security Manager, OSIsoft

Jonathan Gray, Cyber Security Principal Investigator, Idaho National Laboratory (INL)

We see rapidly escalating interest in cyber security, especially in T&D and other critical infrastructure sectors where the PI System sits in the middle (attached between the network and the control system). Although there is a lot of compliance activity that perhaps is not effective, we do see solid strategies. We believe that developing best practices in collaboration with entities like Homeland Security, Department of Energy Labs, Microsoft, and top tier companies including the T&D user group will be the most effective counter as security is a process not a project. In this joint presentation we will provide an update on cooperative research with Idaho National Lab.

“Security-Focus” Panel Discussion:

Moderator: Bryan Owen, Cyber Security Manager, OSIsoft

Panelists:

Josh Axelrod, Director of Project Management, Alert Enterprise

Speaker (TBA), Utility

Speaker (TBA), North American Electric Reliability Corporation (NERC)

As grid modernization continues more intelligence and communication will be distributed to substations. The panel discussion examines some substation physical and cyber security issues that must be solved. It will also discuss lessons learned and the demonstration from a NERC sponsored proof of concept initiative for modern protection of ‘smart’ and secure substations.

Training Outlines:

Topic#1: PI Coresight

Laurie Dieffenbach, Product Manager, OSIsoft

Don't miss this opportunity to experience OSIsoft's newest visualization tool, PI Coresight, which provides an intuitive web based user interface to analyze your PI System data. This soon to be released product allows users to experience new ways to interact with the PI System, including integrated searching, intuitive controls, streamlined user interaction, as well as extended visual charting tools. You will be surprised at how easy it can be to discover, capture, and share your findings with others. Find out about the newest addition to our suite of client products.

Topic#2: Business Analytics with your PI Data Using Microsoft PowerPivot

Curt Hertler, Marketing Manager, OSIsoft

The release of PI OLEDB Enterprise 2010 and Microsoft PowerPivot for Excel 2010 provide an exciting combination of new technologies supporting advanced data analysis and enterprise awareness. These tools bring the power of multidimensional data analysis to the forefront of every PI user's innovation. During this session we will work through the following steps toward building a PowerPivot report for business insight using the PI Infrastructure.

- Designing the AF asset model
 - Review of useful features supporting multidimensional analysis
 - Data aggregation considerations
- Developing views to extract data using PI OLEDB Enterprise 2010
 - Introduction to PI SQL Commander
 - Building queries
 - Transpose function wizard
 - Creating dataset views
- Using PI AF datasets in PowerPivot
 - Importing datasets
 - Establishing relationships
 - Adding calculations using Data Analysis Expression Language (DAX)
- Designing a PowerPivot report
 - Tables and charts
 - Slicers
 - Formatting measures
- Posting a PowerPivot report in SharePoint 2010 Enterprise
 - The PowerPivot Gallery
 - Scheduling updates

Topic#3: PI StreamInsight

Jay Lakumb, Product Manager, OSIssoft

Microsoft StreamInsight is a new Complex Event Processing (CEP) engine from Microsoft that allows you to apply analytics to streams of events. It is a low-latency engine with which users can process and analyze data using Microsoft .NET and the natural query semantics of Language Integrated Query (LINQ).

PI for StreamInsight enables you to perform analytics on PI Data using Microsoft StreamInsight. In this session, we will present examples using both products.

Topic#4: PI Event Frames

Jay Lakumb, Product Manager, OSIssoft

PI Event Frames is a new capability of the PI System planned for release in Q4. An Event Frame is a new data type that stores an event's start and end times along with other related data that you can define. We will show how PI Event Frames lets you look up process data relevant to important events. The initial release delivers an infrastructure for developing applications and provides the basis for future PI Event Frames functionality throughout the PI System. We will demonstrate the value of PI Event Frames by showing partner applications which leverage PI Event Frames today. Finally, we will present the roadmap for Event Frames features throughout the PI System.