



# Energy Managers Workshop

Tuesday, May 21, 2013

## ENERGY MANAGERS WORKSHOP SCHEDULE

**8:00** - Opening Remarks – James Eggebrecht, Texas A&M University

**8:15 - 9:15 a.m.** *Selling Your Management on an Energy Program* Fred C. Schoeneborn, FCS Consulting Services Inc.

**9:15 - 9:45 a.m.** *Energy Efficiency: Employees Care if they are Aware* Richard Feustel, Briggs and Stratton Corporation

**10:15 - 11:00 a.m.** *Boiler MACT Energy Assessment Implementation* James Robinson, DES Global LLC

**11:00 - 11:45** *Uphill or Downhill: How Shall the Rock of Energy Efficiency Roll?* Christopher Russell, Energy Pathfinder Management Consulting LLC

**11:45 - 12:45 p.m.** – Lunch in Iberville Room

**12:45 - 1:30 p.m.** *Measuring and Benchmarking Industrial Energy Management Performance* Peter Garforth, Garforth International llc

**1:30 - 2:15 p.m.** *Software Tools and Training Program: For the Efficient Design and Operation of Industrial Processes* Eric Soucy, Natural Resources Canada

**2:45 - 3:45 p.m.** *EnPI Tool* Thomas Wenning and Nasr Alkadi, Oak Ridge National Laboratory, and Vestal Tutterow, Project Performance Corporation

**3:45 - 4:30 p.m.** *Wireless Suitcase* Nasr Alkadi and Thomas Wenning, Oak Ridge National Laboratory

## “Selling your Management on an Energy Program”

Fred Schoeneborn, FCS Consulting Services Inc.



**Fred C. Schoeneborn**, CEM, CEA is president of FCS Consulting Services, Inc. During his 38 year career with Mobil Oil Corporation he created and managed a Global energy management program. Since 2000 Fred has worked as an independent consultant assisting Fortune 100 companies establish their energy programs. Fred supports the EPA ENERGY STAR program by assisting ENERGY STAR partners in improving their energy efficiency. In addition, he conducts energy assessment workshops for the DOE Oak Ridge National Lab and in 2010 conducted a monthly series of Implementation web-conferences for the DOE Save Energy Now program. In 2005 the ACEEE (American Council for Energy-Efficient Economy) recognized Fred as a “Champion of Energy

Efficiency.”

### Topic Discussion

Senior management support is the glue that holds an energy program together. Management needs to feel that the energy program is of value to the company, that it is worth their time to support this perceived "non-core" effort and that there is something in it for them..

With senior management support a strategic energy program can be sustained, even as management changes.

Fred, in his role as the Global Energy Manager for Mobil Oil, had to "SELL" senior management as he created and managed Mobil's energy program. He will show the tricks he used in order to have management support the energy program.

## “Energy Efficiency: Employees Care if they are Aware”

Richard D. Feustel, C.E.M. Corporate Energy Manager, Briggs & Stratton Corporation



**Richard Feustel** has worked in the energy field for more than 20 years as an engineer, trainer, and manager. He initiated, developed and led the energy departments for Mercury Marine and currently for Briggs & Stratton. He is the driving force for waste reduction saving more \$1M for each company in the first year and each subsequent year.

Richard was pivotal in Mercury Marine and Briggs & Stratton receiving the State of Wisconsin Governor’s Award for Excellence in Energy Efficiency in 2006 and 2009 and has twice received the Environmental Stewardship Award for lighting efficiency. Most

recently, Richard was the driving factor in Briggs & Stratton winning the 2012 WGBA Leadership In Sustainability and Energy Efficiency Award and the 2012 AEE International Renewable Energy Project of the Year for generating electricity from the engines they test. Through his efforts, Briggs & Stratton is now recognized as a Save Energy Now LEADER (Better Buildings - Better Plants partner) and the 2011 Alliance to Save Energy Galaxy Award winner. They remain committed to reducing their energy intensity by 25% over the next 10 years.

Richard was featured as the “The Energy Manager” in the cover article of Compressed Air Best Practices magazine. He was recognized as the International Energy Manager of the Year for 2011 by the Association of Energy Engineers.

Richard co-founded the Wisconsin Chapter of the Association of Energy Engineers in 2007 and AEE Regional Vice President leading 8 states.

Richard is a US Navy veteran with 23 years of dedicated service as a nuclear submarine officer and is certified by the Department of Energy as a nuclear engineer. Richard holds a Masters degree in Operations Research, and a Bachelors in Nuclear Engineering and another in Aviation Management.

### **Topic Discussion**

Employees are critical to the sustainability of a quality energy management program. Energy projects and big dollar savings can be done, but without educated employee support, energy efficiency improvements will be short-lived or even disregarded. This presentation will discuss how Briggs & Stratton has created and grown their energy management program with presentation of real world examples of energy awareness that have and continue to work.

## “Measuring and Benchmarking Industrial Energy Management Performance”

Peter Garforth, Garforth International llc.



**Peter Garforth** leads a specialist consultancy based in Toledo, Ohio, and Brussels, Belgium. He advises major companies, cities, communities, property developers and policy makers on developing competitive approaches that reduce the economic and environmental impact of energy use. His specialty has been in profitable business development implementing energy productivity. He effectively strives to ensure that any recommended investment approach has a sound business basis and reflects the larger movements in the energy market. Peter is well-connected in the energy productivity business and regulatory community around the world. Peter has long been interested in energy productivity as a profitable business opportunity and has a considerable track record establishing successful businesses and programs in the United States, Western and Eastern Europe, Indonesia, India, Brazil, China and elsewhere. He has held senior management roles around the world at Honeywell, Landis & Gyr (now Siemens) and, most

recently was Vice-President of Strategy for Owens Corning, the largest US manufacturer of insulation and other materials.

### Topic Discussion

Breakthrough energy performance for a complex manufacturing site can only be achieved when all elements of energy supply, distribution and use are managed as a single interdependent system. This requires a site-wide approach to energy master planning that takes a multi-year view of efficiency retrofits, changes in energy management practices, reconfiguring energy distributing and supply and even investing in basic changes in manufacturing processes to reduce energy risks. The energy plans must be tied to changes in investment decision making to avoid the sporadic cherry picking that is so often the pattern of energy efficiency projects.

The session will walk through the steps used to develop an integrated site energy plan for a specific site in the USA belong to a major global company. The energy plan is aimed at achieving a 50% increase in energy productivity accompanied by reduced pricing volatility risks and substantial reductions in greenhouse gases. It will explain how individual energy sub-projects are bundled together and prioritized such that combined effect is substantially greater than when taken individually. It will discuss how investments are assigned over a number of years to ensure the long term results are achieved. The fundamental impact this kind of energy has on management and operating teams will also be addressed.

## "Uphill or Downhill: How Shall the Rock of Energy Efficiency Roll?"

Christopher Russell, Energy Pathfinder Management Consulting, LLC



**Christopher Russell** is a nationally-recognized expert in the planning, justification, and evaluation of business-sector energy cost control initiatives. He served as the politically-appointed energy manager for the Howard County, Maryland government. He has documented and evaluated energy management practices at dozens of facilities, and has advised corporations, utilities, trade associations, and government agencies in the planning and promotion of industrial energy programs. His reader-friendly publications include “The Industrial Energy Harvest” (2008) and “North American Energy Audit Program Best Practices” (2010). He is recognized by the Association of Energy Engineers both as a Certified Energy Manager and as a Carbon Reduction Manager. He is a capstone advisor to graduate students in the Georgetown University School of Continuing Studies (Real Estate). Christopher is on the Advisory Board for the

Texas A&M Industrial Energy Technology Conference. He holds an MBA and a Master of Arts from the University of Maryland, and a Bachelor of Arts from McGill University of Canada. For more information: [www.energypathfinder.com](http://www.energypathfinder.com).

### Topic Discussion

This presentation will address the challenge of making energy efficiency proposals more compelling. Much has been said in recent years about top management support, but that approach has practical limits. Energy efficiency is still widely perceived by many as a "pill to be swallowed."

An alternative perspective performs philosophical jiu jitsu – leveraging the financial weight of inaction against industries who resist the positive business outcomes of energy efficiency. What I offer is not survey research, but rather a reasoned opinion that is the product of past research.

## “Wireless Suitcase”

### Dr. Nasr Alkadi



**Dr. Nasr Alkadi** has 20 plus years of energy management experience in both U.S. and internationally. Currently, Dr. Alkadi is working as an energy efficiency expert in Oak Ridge National Laboratory's Energy and Transportation Science Division. In this capacity, Dr. Alkadi provides technical support for the DOE's Advanced Manufacturing Office (AMO) National Energy Program in the US Industrial Sector. This includes Technology R&D and Technology Deployment. Dr. Alkadi conducts technology deployment activities that promote better energy management and best practices to capture U.S. competitive advantage. In addition, Dr. Alkadi is member of the Nationwide Demand Response and Storage Integration Study Team that aims at investigation and deployment of demand response potentials and

technologies in US. Between the years of 2003 and 2009, Dr. Alkadi led energy management efforts in General Motors Corporation (GMC), where he developed unique solutions for reducing process energy consumption that have been proven successful and applied globally among several corporate affiliated plants and resulted in multimillions of dollars of energy savings. He has worked in several energy and environmental projects with the USAID, DOE-IAC program, the Commission of European Communities (CEC), and the Japanese International Corporation Agency (JICA). He received a B.S. and M.S. in mechanical engineering from Cairo, Egypt, and his PhD in industrial engineering with a focus on energy management from West Virginia University. Dr. Alkadi is a Certified Energy Manager (CEM) and Certified Demand Side Manager (CDSM) by the American Association of Energy Engineers (AEE). Nasr is the editor in chief of the international journal of energy technology and policy (IJETP), Inderscience publishers, UK. His research interests are in the areas of energy management, green manufacturing, and concurrent engineering.

### Topic Discussion

Please join us for an overview and demonstration of the U.S. Department of Energy's (DOE) industrial wireless suitcase.

Wireless sensor technologies are a cost-effective option for monitoring and controlling energy use in manufacturing. Compared to conventional “wired” instrumentation, wireless sensors offer the ability to gather data where previously impractical, lower installation and maintenance costs, reduce health and safety risks, allow for easy replacement and upgrading, and provide faster measurement and verification of process improvements. When deployed throughout an industrial facility, wireless sensors can enable managers to quickly identify manufacturing energy losses, manage peak electrical demand, and facilitate system optimization.

Over the past year, the DOE's Advanced Manufacturing Office has supported the development and demonstrations of an industrial-wireless suitcase. The wireless suitcase is used to support assessment activities in the DOE's Better Plants In-Plant Trainings. Plant demonstrations have been performed to help

promote industry-wide deployment of reliable, secure, rugged, wireless sensors to facilitate data collection and process monitoring and control. The suitcase has been developed to non-invasively measure key plant performance parameters such as voltage, current, flow rates, pressure, chemical concentration and temperature. In addition, the wireless sensor system has been built to comply with the ISA 100 standard, meaning it can successfully operate in the presence of interference commonly found in harsh industrial environments (e.g., noisy radio frequency) for in-process monitoring and control.

Topics that will be covered include:

- An overview of industrial wireless sensors
- An overview of the development of the wireless suitcase
- A case study of the suitcase's field use and applications
- A demonstration of the wireless suitcase
- Where to find additional resources

## “EnPI Tool”

Tom Wenning, Oak Ridge National Laboratory



**Thomas Wenning** is a program manager at the US Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL) with over 6 years of direct industrial energy efficiency experience. As a member of ORNL's Energy and Transportation Science Division, Mr. Wenning manages ORNL's domestic and international industrial energy efficiency technology assistance and deployment activities. He also supports the DOE's Better Buildings, Better Plants program and the Federal Energy Management Program by providing industrial sites with technical assistance activities, energy assessments and training, and energy management guidance. Mr. Wenning co-manages the DOE's Industrial Assessment Center program; he has also led numerous international industrial energy efficiency workshops, trainings, and assessments on behalf of the DOE.

### Topic Discussion

Please join us for a demonstration of the U.S. Department of Energy's (DOE) Energy Performance Indicator baselining tool (EnPI V3.0). The EnPI V3.0 is a publicly-available regression-based tool developed by DOE to help plant and corporate managers establish a normalized baseline of energy consumption, track annual progress of intensity improvements, energy savings, Superior Energy Performance (SEP) EnPIs, and other EnPIs that account for variations due to weather, production, and other variables. The tool is designed to accommodate multiple industrial users including Better Buildings, Better Plants Program and Challenge Partners, SEP participants, and non-manufacturing facilities such as data centers.

The EnPI tool is built on regression analysis which is a statistical technique that estimates the dependence of a variable (typically energy consumption for energy use and intensity tracking) on one or more independent variables, such as ambient temperature, while controlling for the influence of other variables at the same time. Regression is commonly used throughout industry for estimating energy savings through the measurement and verification of energy projects and programs, and has proven to be reliable when the input data covers the full annual variation in operating conditions. A properly used regression analysis can provide a reliable estimate of energy savings resulting from energy improvement strategies and projects by accounting for the effects of variables such as production variation and weather.

The EnPI tool aids users in identifying key variables affecting facility energy performance and will calculate a modeled plant energy consumption based on the independent variables selected for regression. The EnPI tool provides users with a normalized view of energy performance along with SEP and Better Plants Program metrics. Finally, the tool also allows corporate managers to roll plant level energy data and metrics up to a corporate level to determine corporate energy performance.

Topics that will be covered include:

- An overview on using regressions for energy tracking
- A demonstration of how to use the EnPI tool
- How to use the EnPI tool to calculate energy performance indicators, using both normalized and non-normalized energy data
- How the tool aligns with the Better Plants and SEP Programs (as well as your own)
- Where to find additional resources

## “Boiler MACT Energy Assessment Implementation”

James E. Robinson, DES Global, LLC



**James E. Robinson** PE, P.Eng., CEM, CEP is a founding member and Principal Project Engineer at DES Global, LLC. He is responsible for projects in the US and Canada with over 35 years of experience in the design, construction and automation of industrial powerhouses. During that time he had various design, construction, and startup responsibilities at Catalytic Engineering and Construction, Honeywell PMSD, B&W, Gotaverken, Kvaerner, and Siemens Westinghouse. The objective of his work has been the application of advanced controls and in particular Energy Management and Reporting Systems (EMRS) to reduce facility operating cost, reduce emissions and improve overall system reliability. In addition he is a board member of IETC and the Pennsylvania Smart Energy Initiative (SEI).

### Topic Discussion

Boiler MACT requires a one-time energy assessment of the facility utility system supplied from the affected steam sources or adoption of an ISO 50001 program. This session will discuss the updating of existing assessments and executing new assessments to Boiler MACT compliance. Special attention will be paid to benchmarking and the energy efficiency credits possible to off-set emission limits.

## “Software Tools & Training Program: For the Efficient Design and Operation of Industrial Processes”

Eric Soucy, Eng., EMBA



**Eric Soucy**, Eng., EMBA is currently Director of the Industrial Systems Optimization program at the CanmetENERGY Research Centre in Varennes, Quebec, for the Department of Natural Resources Canada. He is responsible for preparing business cases to capture the reasoning for initiating projects, defining long-term strategic plans for R&D programs and developing partnerships with universities, research centers, manufacturers, consultants and others aimed at developing methods and tools to optimize industrial processes. He manages a group of around 30 researchers and engineers. The Industry program at CanmetENERGY-Varennes is the Canadian Centre of Expertise in Process Integration and it has helped the Canadian industry to achieve major energy gains and related GHG emission reductions while improving productivity since early 2000. Eric holds a Bachelor’s Degree in Electrical Engineering from the École de Technologie Supérieure and an Executive MBA from the John Molson School of Business at Concordia

University. He has over 20 years of experience in the energy R&D sector.

### **Topic Discussion**

Process Integration (PI) and Data Mining (DM) are powerful tools for the efficient design and operation of industrial processes. CanmetENERGY and its partners have developed the *INTEGRATION* and *EXPLORE* software tools, along with technical courses, to help Canadian industries improve their energy performance and productivity. The *INTEGRATION* software uses a systems approach to optimizing thermal energy use in process industries. It assists engineers in quickly identifying sources of thermal inefficiencies and in evaluating heat recovery opportunities as well as what-if scenarios, which in turn makes PI studies easier, faster and more affordable. The *EXPLORE* software uses advanced data analysis techniques to understand and reduce process variability and to identify the most critical variables affecting process performance. These state-of-the-art tools are key enablers in analyzing industrial systems and processes, and in evaluating a range of energy efficiency projects. This presentation will address the unique capabilities of these said tools to quickly assess the viability of heat recovery projects and to analyze large and complex data sets in order to help achieve energy gains, improve and maintain process performance and monitor KPIs using a systems approach.

\* The order of the presentations is subject to change.