

Western Regional Dialogue Meeting on Industrial Energy Efficiency and Combined Heat & Power: Summary of Comments and Recommendations

On October 29, 2013, a diverse group of about 100 stakeholders gathered in Salt Lake City, Utah, for a “Western Regional Dialogue Meeting on Industrial Energy Efficiency (IEE) and Combined Heat and Power (CHP).” Participants contributed a variety of recommendations for accelerating the implementation of energy efficiency practices and technologies, including CHP. The workshop was hosted by the U.S. Department of Energy (DOE) and the Southwest Energy Efficiency Project (SWEET).¹

The meeting was structured around a series of three panel discussions with input from other attendees. The first panel addressed industrial energy efficiency, the second addressed combined heat and power, and the third panel addressed both IEE and CHP. The panelists and moderators are listed at the end of this document. The DOE was a co-sponsor of the meeting, but does not necessarily endorse any of these recommendations. Following is a summary of the main comments and suggestions from the discussions.

Recommendations for Accelerating IEE Improvements

The industrial sector accounts for more than 30% of all energy consumed in the United States, and for many manufacturers, energy costs can affect overall competitiveness. While U.S. manufacturing facilities have made progress at improving energy efficiency over the past several decades, there is still abundant potential for more cost-effective energy savings. Panelists and attendees raised several types of suggestions to help increase energy efficiency at industrial facilities, as well as suggestions for utility programs, public utility commissions, and the DOE.

Utility Demand-side Management (DSM) Programs

- Energy Trust of Oregon (ETO) has been offering programs in strategic energy management (SEM) for the last 5 years, with over 80 customers so far. ETO is working with all of these companies on an on-going basis. Developing energy information models is a centerpiece of these efforts. The number of companies involved, and the impacts of the SEM programs will grow over next 10 years.

¹ The meeting was also hosted by the State and Local Energy Efficiency Action (SEE Action) Network, a state- and local-led effort facilitated by the U.S. Department of Energy and the U.S. Environmental Protection Agency. Its goal is to achieve all cost-effective energy efficiency by 2020. The SEE Action Network has several working groups, one of which is the industrial energy efficiency and combined heat and power working group. For more information, see <http://www1.eere.energy.gov/seeaction/>

- The goal of SEM programs is to move away from individual measures towards overall performance-based incentives based on actual savings.
- Natural gas DSM programs are typically provided only to residential and small and medium-size businesses that are full service customers. In most states and most utilities, there are no programs for large companies (known as “transportation-only” customers) that buy natural gas on the wholesale market. PG&E is an exception; it does collect DSM fees from transportation-only customers, which makes it possible for those customers to participate in PG&E’s natural gas incentive programs.
- Natural gas utilities could ask large industrial (transportation-only) customers to opt-in to the natural gas DSM fund, and thereby qualify for incentives for energy efficiency projects involving natural gas savings. If several large customers chose to opt-in to the programs in this way, then perhaps other companies would follow their example. This would help address the large gap in DSM programs and incentives for thermal projects for larger industrial customers.
- Utilities could expand their incentive programs to include sub-metering and other energy monitoring equipment, so that companies could do a better job at identifying opportunities for new projects, operation and maintenance (O&M) improvements, and measuring energy-saving progress.
- Measurement and verification (M&V) requirements should not make the process of completing an application for a custom incentive overly complicated. Perhaps the concerns about free-ridership are over-exaggerated. The main concern should be to help customers identify and fund energy efficiency projects, and to make the incentive process relatively simple and user-friendly.
- Utilities should offer industrial energy efficiency programs, not just programs for commercial and industrial (C&I) customers combined. This would allow programs to be better designed to suit the needs of industrial customers; e.g., programs that offer technical assistance by experts in specific industrial processes.

State Officials and Public Utilities Commissions

- Supporters of energy efficiency need to find ways to tell better stories to governors, energy offices, legislators and PUC commissioners about the value of industrial energy efficiency in saving jobs and saving money. We need to avoid allowing energy efficiency to get caught up in political battles like solar energy has. Energy efficiency should be bi-partisan. It’s conservative in nature because it is competitive, saves jobs and is a low-cost form of energy.

- Energy efficiency supporters need to find new ways to advance utility energy efficiency programs through market-based approaches, without government mandates.
- Industrial companies do not speak the same language as utilities; energy efficiency supporters need to help them understand that the benefits of efficiency programs accrue to all customers. Also, we need to make sure utilities design good programs that work for industrial customers. We should enlist industrial consumers to help with telling a better story to state officials and utility commissions about the system and societal benefits of IEE.

Department of Energy (DOE)

- DOE's tools and technical resources are very useful and should be maintained. The DOE certifications for specialists are respected credentials.
- DOE could better engage with state agencies to clarify how its vision is aligned with the state's vision for energy efficiency, so that utilities do not get conflicting messages.

Industrial facilities

- Strategic energy management (SEM) provides the backbone for JR Simplot's energy management program.
- SEM is a workforce training program; people are trained and prepared to do more complex things such as pursuing CHP.
- It's important for energy managers to learn to make the business case for energy efficiency. Businesses don't like to spend money, they like to earn money. Show managers the historical energy consumption, and projections for next 5-10 years, with increasing energy prices. Compare to the energy costs with a 25% energy savings goal factored in and highlight the cost savings. In the case of JR Simplot, energy efficiency would save \$170 million over 10 years. Also highlight for managers that energy efficiency is also a leading indicator of productivity, and 95% of a company's greenhouse gas emissions typically come from energy consumption.
- It's important to communicate and celebrate small successes. When anybody does something simple to save energy, celebrate that. This helps make them more engaged. It also helps to compare the energy performance of plants with other plants, using simple charts. To plant managers, energy performance then becomes a competition. JR Simplot also holds an annual energy summit for the energy efficiency champions at each site.

- Incentive structures in a company help drive behavior. Reward employees who identify and help implement energy saving measures.
- JR Simplot tries to partner with everybody that offers useful assistance – utilities, the DOE, EPA, etc.
- Hiring interns is very cost-effective. JR Simplot achieved a 41:1 return on investment for one recent intern who helped implement several energy-saving projects.

Recommendations for Accelerating CHP Implementation

In August 2012, President Obama issued an Executive Order, “Accelerating Investment in Industrial Energy Efficiency,” which included the goal of installing 40 GW of new, cost-effective CHP in the U.S. by 2020.² Panelists and attendees raised several types of suggestions to help increase implementation of CHP, including suggestions on removal of barriers, utility incentive programs and financing options.

Removal of disincentives

- Utility standby charges are the biggest obstacle to CHP implementation in many cases. Most CHP systems operate in parallel with the grid, so there is definitely a cost to the utility, but the standby rates should be reasonable. For example, standby rates should take into account the reality that not all CHP and other distributed generation systems on a utility’s grid will go down at the same time.
- A few states still allow utilities to charge exit fees if a facility installs a CHP system; these can be a big disincentive.
- Lack of interconnection standards can be a big challenge or deterrent. This is an issue in Arizona, for instance, which still doesn’t have standardized or streamlined interconnection procedures.
- Oregon attempted to address all the barriers to CHP on the electric side. They looked at standby rates, PURPA contracts, interconnection rules and more. However, removal of barriers is not sufficient to get significant new CHP capacity installed; financial incentives are also essential, given the basic economics of CHP in many places.

² See <http://www.whitehouse.gov/the-press-office/2012/08/30/executive-order-accelerating-investment-industrial-energy-efficiency>

Utility incentive programs

- A handful of electric and gas utilities currently offer incentives for CHP. Southwest Gas in Arizona has a good program, for example.
- In Oregon, larger incentives are available because of the state's energy efficiency resource standards (EERS), which include requirements for CHP.
- Electric utilities will not be interested in encouraging CHP if it doesn't help them to meet their goals and if they don't receive appropriate financial incentives (such as decoupling or some other form of lost revenue recovery, which many utilities receive for other energy efficiency programs).

Role of utility commissions/state policies

- Energy Efficiency Resource Standards (EERS) which specify or allow CHP as a way to achieve compliance can be very effective. For example, Ohio SB 315, signed in to law in 2012, requires investor-owned utilities to meet the EERS and provides a strong incentive for CHP.
- Renewable standards that include waste heat to power (one type of CHP) are also effective.
- Commissions have a narrow role: laying out what industrial customers and third-party developers should be able to do, and how the electric utilities can stay financially healthy.
- It is possible that CHP could be encouraged through the new carbon emissions standards on existing power plants that EPA is developing, if the regulations are structured properly.
- The CHP Guide recently published by the SEE Action Network describes specific state policies to promote CHP. The SEE Action Network will be running series of state workshops with commissions on the policies discussed in guide. They'd like to also include industrial customers and utilities. (The guide is available for download at http://www.southwestchptap.org/Data/publications/see_action_chp_policies_guide.pdf)

Models of ownership or financing

- In one innovative model for financing and overcoming other barriers to CHP projects, the utility owns and operates the system, and sells the heat and electricity to the large customer. This arrangement was implemented successfully at a Florida hospital by a municipal utility, Gainesville Regional Utility (GRU). The utility was well-positioned to own and operate the CHP system for the customer, since it provided both natural gas and electricity. In addition to economics, the hospital was very concerned about reliability because it was located in a

hurricane zone. Therefore, the system was designed to allow the hospital to operate as an island in case of power outages, which it has done on over 40 occasions in the ten years since the CHP system was installed.

- In another model, third-party CHP developers own and operate a CHP system on a customer's site and sell the power and heat to the customer. As in the first model, this is another way of helping customers overcome the challenges of financing the CHP system on their own.
- Tax credits can also help. In the past five years, Oregon has provided \$56 million in tax credits, covering up to 30% of project costs. The energy loan program in Oregon has also been helpful for CHP. Since 1979, the program has provided \$39 million in low-interest loans for CHP projects.

Moderators and Panelists

Christine Brinker, Senior Associate, Southwest Energy Efficiency Project. Christine is the Director of the U.S. DOE Southwest Combined Heat and Power Technical Assistance Partnership (CHP TAP), hosted by the Southwest Energy Efficiency Project. She has worked with the U.S. DOE Southwest CHP TAP (and its previous iterations) since its founding in 2004, and has worked in the field of CHP and industrial energy efficiency for 15 years.

Patti Case, Vice President, ETC Group. Patti has been Vice President of ETC Group since its start-up in 1988. She leads ETC Group's industrial practice which focuses on identifying and capturing energy efficiency opportunities in large and medium sized industrial operations ranging from chemicals and mining to food processing and medical products manufacturing.

Kim Crossman, Industry and Agriculture Sector Lead, Energy Trust of Oregon. Kim focuses on program design and strategy to reduce the energy intensity of Oregon industries. Kim has developed and managed efficiency and renewable energy projects and programs for 13 years, providing clean energy solutions for industrial, institutional and large commercial businesses.

Todd Currier, Assistant Director, Washington State University Extension Energy Program. Todd is the leader of WSU's activities in building science and research, building code development and implementation, energy efficiency upgrades for middle income homes and small businesses, renewable energy programs and technology, program evaluation, and industrial energy efficiency.

Howard Geller, Executive Director, Southwest Energy Efficiency Project. Howard is the founder and Executive Director of the Southwest Energy Efficiency Project (SWEET), a public interest organization that promotes energy efficiency programs and policies in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. Howard is the former Executive Director of the American Council for an Energy-Efficient Economy (ACEEE) based in Washington, D.C.

Mike Lewis, Senior Advisor, Sustainable Development, Rio Tinto Kennecott. Mike works with internal and external stakeholders to further Kennecott's commitment to social well-being, environmental stewardship, economic prosperity and strong corporate governance. Mike has led and participated in a number of initiatives at Kennecott, including alternative energy projects, sustainable development analysis of capital projects, and site employee transportation and visitation programs.

Ed Mardiat, Principal, OnSite Energy & Power, Burns & McDonnell. Ed has focused his efforts over the past 18 years in the areas of marketing and project development of on-site energy projects. Burns & McDonnell is an employee-owned firm that has more than 114-years of power generation, utilities and infrastructure experience.

Kris Mayes, Faculty Director, Sandra Day O'Connor College of Law, Arizona State University; former Chairman, Arizona Corporation Commission. Kris is the Founding Director of the Utility of the Future Center and the Program on Law and Sustainability at Arizona State University. At the Utility of the Future Center, Kris has been assisting multiple utilities in thinking through the regulatory and business consequences of a more decentralized energy system. Prior to arriving at ASU, Kris served two terms as an Arizona Corporation Commissioner, from 2003 to 2010.

Siva Sethuraman, Senior Program Manager, Industrial, Agricultural and Water Programs, Pacific Gas & Electric. Siva's current and past roles have focused on industrial and agricultural energy efficiency products, programs and emerging technologies. In his current role as the Manager for PG&E's Industrial/Ag/Water programs, Siva oversees PG&E's overall strategy for achieving program goals in these areas.

Lisa Schwartz, Director, Oregon Energy Office. The Energy Office's mission is to reduce the long-term cost of energy for Oregonians. Lisa manages the planning and analysis to help prepare the state for future energy needs, staffing of the Energy Facility Siting Council, technical and financial assistance for energy projects, the cleanup of the Hanford nuclear site, and state preparedness to respond to emergencies at energy facilities.

Don Sturtevant, Corporate Energy Manager, JR Simplot. Don manages the energy portfolio for over twenty industrial facilities in Simplot's AgriBusiness, Land and Livestock, and Food Group Divisions. In this role, Don successfully developed and integrated a company-wide energy optimization program that is endorsed by the CEO and senior corporate leadership.

Roger Weir, Energy Manager (retired), ATK Aerospace Systems. Before retiring in 2013, Roger was Corporate Energy Coordinator for ATK-Alliant Techsystems. In this role, Roger established the ATK Corporate Energy Team and helped to direct the energy plans and programs at 24 ATK locations across the country. Roger is a current member of the Utah Office of Energy Development's Industrial Energy Efficiency Committee.

Ryland Whitaker, Energy Utilization Engineer, Southwest Gas. Ryland focuses on HVAC engineering for commercial and residential buildings, power generation engineering, and demand-side management. Ryland has worked for Southwest Gas for 12 years and has been a professional engineer for 10 years.