

Better Buildings, Better Plants—Partnering with U.S. Industry to Drive Energy Efficiency Improvements

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ABSTRACT

The U.S. Department of Energy's (DOE's) Better Buildings, Better Plants Program is a national partnership initiative to improve energy efficiency in the industrial sector. The program includes more than 150 companies, representing roughly 11% of the total U.S. manufacturing footprint, as well as several water and wastewater treatment organizations. This paper provides an overview of the program, presents industrial energy efficiency trends identified by the program, and discusses new program initiatives to respond to industry needs. In particular, this paper highlights Better Plants' achievements in the following areas:

- **Innovative energy-saving strategies:** A select group of Better Plants Partners is working with DOE to share solutions to key barriers impeding progress on energy efficiency, including external financing approaches and employee engagement initiatives.
- **Energy performance data:** A key challenge for manufacturers is developing defensible systems to track energy performance in environments where production and other factors frequently change. DOE has developed a rigorous data collection and analysis process for program Partners.
- **Supply chain energy efficiency:** On a life cycle basis, many companies are finding that the majority of the energy used to make their products is consumed by their suppliers. DOE is piloting an initiative to work with program Partners to improve the energy efficiency of their supply chains.
- **Water use efficiency:** As concerns about water scarcity grow, more companies are including water savings targets in their sustainability strategies. DOE is working with a subset of Partners to set water goals and collect and share their solutions with the market.

Introduction: The Better Buildings, Better Plants Program

The industrial sector accounts for one-third of all energy consumption in the United States—more than any other sector—and across the country, manufacturers spend more than \$200 billion annually to power their plants (EIA 2014). While U.S. manufacturers have an impressive history of improving energy efficiency, significant energy-saving opportunities still exist. Cost-effective savings of 20% or more are possible for this sector, which could lead to annual energy savings of almost \$50 billion (McKinsey & Co. 2009). However, a number of well-known barriers—such as lack of senior management attention, inadequate capital budgets, and insufficient information on how to identify and implement energy efficiency opportunities—continue to impede progress toward greater industrial energy efficiency.

The U.S. Department of Energy (DOE), through the Better Buildings, Plants Program and Challenge (Better Plants), is working with manufacturing partners to overcome these barriers and

drive greater savings in the industrial sector. Better Plants is part of a family of programs organized under President Barack Obama’s Better Buildings Initiative (BBI), a multi-sector effort with the overarching goal of improving the energy efficiency of commercial and industrial buildings in the United States by 20% over ten years.

Better Plants is the BBI component focused on the industrial sector. As of May 2015, almost 160 industrial organizations are partnering with DOE through Better Plants. The program counts Partners from almost all segments of the U.S. industrial sector, with primary metals and chemicals being the most heavily represented—see Table 1. Partners set energy-saving goals that typically aim to reduce energy intensity by 25% over a 10-year period across all U.S. manufacturing operations. The program has grown considerably, with the number of participating facilities increasing from around 1,900 in 2010 to more than 2,300 today—see Figure 1.

Table 1. Better Plants Partners by Manufacturing Sector, May 2015.

Industry	Total Program Partners
Primary Metals	25
Chemicals	20
Fabricated Metal Products	15
Transportation Equipment	13
Food	11
Paper	11
Industrial Machinery	11
Utilities: Water, Sewage, and Other Systems	10
Computer and Electronic Products	7
Electrical Equipment, Appliances, and Components	7
Miscellaneous Manufacturing	6
Nonmetallic Mineral Products	5
Plastics and Rubber Products	4
Printing and Related Support	3
Furniture and Related Products	3
Beverage and Tobacco Products	2
Textile Product Mills	1
Alternative Fuels, Direct Selling	1
Warehousing and Storage	1
Telecommunications	1
Food Services and Drinking Places	1
Total	158

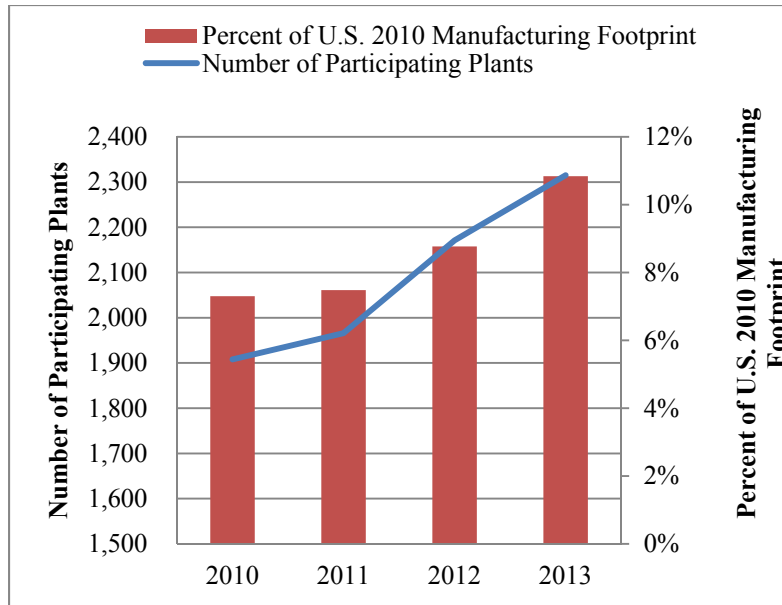


Figure 1. Better Plants Program growth over time.

A subset of 28 Better Plants Partners have stepped up to the Better Plants Challenge. In addition to setting energy efficiency goals, these Challenge Partners commit to added transparency regarding their energy performance data, which is made publicly available through a DOE website. DOE also works closely with Challenge Partners to document their energy efficiency best practices in two online formats: “showcase projects,” which are near-term demonstrations of significant energy savings at an individual facility, and “implementation models,” which document corporate-level initiatives that Challenge Partners have implemented to help them overcome major barriers to energy efficiency. Both formats provide guidance to help other organizations leverage Challenge Partners’ successful energy-saving strategies.

For Partners in both the Better Plants Program and Challenge, DOE provides the following:

- **National recognition** to highlight Partners’ leadership, including a feature on the DOE website, annual recognition letters from DOE management, invitations to special events, and media opportunities. Partner success stories are also highlighted in DOE newsletters and other publications. Challenge Partners receive enhanced recognition for their efforts in light of the increased detail and transparency they provide.
- **Technical support** through a Technical Account Manager (TAM), an energy efficiency expert who helps Partners develop energy management plans, identify energy-saving opportunities, and track energy performance metrics. TAMs also guide Partners in the use of DOE’s energy performance tools and connect them to additional resources at the federal, state, or local level.
- **“In-Plant Training” opportunities**, which are three to four-day training sessions on common energy use systems (e.g., pumps and steam) led by subject matter experts. Partners apply to host these events and typically permit other partners to participate.
- **Energy-saving resources**, such as software tools and other technical resources from DOE, states, utilities, and other partner organizations. Partners are also given priority

access to DOE technical resources, including no-cost energy assessments for small- and medium-sized manufacturers from Industrial Assessment Centers (IACs) located at 24 universities around the country and combined heat and power (CHP) screenings.

Progress to Date

Realizing Significant Energy Savings

When companies join Better Plants, they make organizational commitments to pursue energy efficiency across all of their U.S. manufacturing operations. As a result, the close to 160 Partners represent about 2,300 facilities and roughly 11% of the total U.S. manufacturing footprint. These Partners have helped the program record an average annual energy intensity improvement rate of about 2.4%, encompassing 4 years of data collection. This is higher than many government estimates of business-as-usual improvement rates for the U.S. industrial sector. On a cumulative basis, Partners have reported saving about 320 trillion British thermal units (TBtu) and almost \$1.7 billion in energy costs as of fall 2014. Cumulative avoided carbon dioxide emissions, as reported by Partners, equal about 18.5 million metric tons, which is roughly equivalent to annual emissions from 4.9 coal-fired power plants or 1.7 million U.S. homes' energy consumption or 3.9 million passenger vehicles. See Table 2 for more information.

Table 2. 2014 Better Plants Program snapshot

Accomplishment	Total
Approximate number of facilities	2,300
Percent of U.S. manufacturing energy footprint*	11%
Reported savings	Amount
Cumulative energy savings (TBtu)	320
Cumulative cost savings (million)	\$1,700
Cumulative avoided carbon dioxide emissions (million metric ton)	18.5
Average annual energy intensity improvement rate	2.4%

*Excludes water and wastewater treatment plant Partners.

Achieving Program Goals

The program's collective savings are indicative of individual Partners' success. In 2013, five Better Plants Partners reached the initial program goal of reducing energy intensity by at least 25%. Eleven Partners followed suit in 2014. Many of those high-achieving Partners were encouraged to build on their good work and set new energy intensity reduction goals. Establishing new goals with Partners that have met their initial 25% target promotes continuous improvement in energy efficiency and keeps them motivated and engaged in the program.

DOE prefers that Partners set a new 10-year, 25% corporate-wide target with a baseline year that matches the "achievement year," or the year in which the Partner met its target. However, DOE recognizes that Partners' past accomplishments may make achieving an additional 25% improvement difficult. In general, when Partners request a goal below 25% over 10 years, DOE uses publicly available data sources to arrive at a mutually agreed-upon target

that is above the business-as-usual trend line for the sector in question, but below 2.5% per year. DOE has used studies and analyses from the Energy Information Administration to estimate business as usual projections (EIA 2013), the EPA's ENERGY STAR for Industry Program to compare energy intensity values (ENERGY STAR 2015), and DOE bandwidth studies to estimate potential savings opportunities (DOE 2010), all within individual sectors.

Improving Energy Performance Data Analysis

Gathering accurate, comprehensive energy data is a key attribute of Better Plants. Every year, TAMs help Partner companies compile data across their enterprises. When it is time to submit individual data reports, TAMs ensure the methodology conforms to program requirements. DOE then publicly shares the aggregate information, which is an important gauge of the program's impact, via an annual progress report. During this cycle, DOE asks for absolute consumption values across the organization and percent improvement in energy efficiency.

Measuring energy intensity improvement in a manufacturing setting is a challenge for Better Plants Partners because of the corporate-wide commitment required by the program, but DOE offers its partners assistance every step of the way. Partners that make different products across different facilities are usually unable to measure energy intensity using a single unit of output across all their different plants. Companies also face additional challenges when they add or remove facilities, which is relatively common over the 10-year life of the program commitment. DOE has established a set of flexible protocols, tools, and resources to help companies calculate and report energy performance improvement. Partners use one of three approaches to calculate energy intensity.

- **Regression-Based Approach:** This is the most rigorous approach and can provide the most accurate results when applied effectively. It utilizes regression analysis to provide normalized facility-level energy consumption and annual and total changes in energy intensities that account for the effects of variables such as changes in production and weather. This provides energy managers with a better window into how they use energy at the facility and whether their energy management efforts are succeeding. Facility-level energy intensity improvement metrics are then compiled at the corporate level. The corporate "roll up" is performed by calculating a weighted average of the facility-level improvement rates in percentage terms. The corporate metric is represented as a "unitless" percent change. An advantage of this approach is that companies can track energy intensity at the facility level and roll up those numbers into an understandable and statistically valid corporate-wide metric, even when different products are made at different facilities. The plant-level analysis conducted under the Regression-Based Approach tracks the measurement and verification protocol developed for DOE's Superior Energy Performance (SEP) program, without the requirement for third-party verification. About a quarter of Better Plants Partners utilize this approach.
- **Facility-Level Approach:** This is simpler than the Regression-Based Approach because it does not require the use of regression analysis to normalize for independent variables such as weather and production. Under this approach, facility-level energy intensity metrics are usually calculated as a ratio of energy consumed per unit of output. The facility-level improvement metrics are then rolled up to the corporate level using the same weighted average method employed in the Regression-Based Approach. A

disadvantage of this approach is the inability to distinguish between energy reductions due to improvement activities and reductions due to factors such as production volume changes and weather. This is the most common approach utilized by Better Plants Partners. A little less than half use this method.

- **Corporate-Level Approach:** This is the most basic approach and is generally only acceptable when facility-level data is not readily available. This approach requires that the company use a uniform production unit as its energy intensity denominator across all facilities, or default to a non-production metric such as revenue. A major disadvantage is that it does not allow for any visibility into facility-level performance, which can impede a corporate energy manager's ability to allocate resources, reward high-performing facilities, and hold non-performing facilities accountable. A little over a quarter of partners use this approach.

These protocols are described in greater detail in the Better Plants *Energy Intensity Baseline and Tracking Guidance* document, which is distributed to all partners and also available to the public online (Better Buildings, Better Plants 2015). DOE's goal is to work with partners to move as many of them as possible to the regression-based approach. Understanding there are drawbacks to the facility-level and corporate-level approaches, many companies join Better Plants with no systematic way of measuring energy consumption and energy intensity over time. Starting with the facility or corporate-level approach can be a good starting point for these companies that can be improved upon over time.

To further help Partners, especially with the Regression-Based Approach, DOE developed a free online software tool that is also available to the public. The Energy Performance Indicator (EnPI) tool is a regression analysis-based tool to help plant and corporate managers establish a normalized baseline of energy consumption and track annual progress of intensity improvements; energy savings; and other EnPIs that account for variations due to weather, production, and other variables.

Uncovering Trends in Industrial Energy Efficiency

Through Better Plants' work with its Partners, the program serves as a window into industry and has identified several trends in industrial energy efficiency:

- **Manufacturers are becoming more creative in financing energy efficiency projects:** For example, Challenge Partner 3M established a capital set aside fund specifically for energy efficiency projects that would otherwise have failed to meet the company's investment criteria. After benchmarking industry energy efficiency project-funding practices, Nissan both extended its project payback threshold and also established a capital set aside fund. General Motors is a rare case of a manufacturer working with third-party Energy Service Companies to fund energy efficiency projects. Finally, as described further below, Challenge Partner HARBEC is taking a novel, longer-term approach to energy project financing.
- **Leading companies are now looking beyond their organizations to engage suppliers, customers, and other value chain partners:** For example, companies such as Challenge Partners Ford, Legrand, United Technologies, and Johnson Controls started programs to encourage greater energy efficiency in their franchises and suppliers, as described later in

this paper. Better Plants is seizing on this industry interest to establish a supply chain pilot, which is described in the “Advancing New Initiatives” section below.

- **Energy efficiency is increasingly just one part of broader corporate sustainability strategies, with water being an important emerging area of focus:** For example, Challenge Partner Harbec is using a rain collection pond that was built originally for fire suppression purposes as a cooling medium, offsetting water evaporated from its cooling towers. Several partners are participating in a new water use efficiency pilot program offered through the Better Buildings to facilitate water reduction and the sharing of best practices (described in further detail below).

Highlighting Innovative Energy-Saving Strategies

Two very important outputs from Better Plants are the implementation models and showcase projects developed by Challenge Partners. By capturing the successful strategies used by leading companies and documenting them online, other companies and organizations are able to emulate or replicate them to improve their energy efficiency.

Implementation Models

Implementation models document initiatives that Better Plants Challenge Partners have put in place at the corporate level to overcome persistent barriers to energy efficiency. Several implementation models address solutions to financial barriers. For example, Harbec adopted a new financing method to fully capture the economic and environmental benefits of large-scale energy projects that would otherwise be discouraged by short-term valuations. Companies typically have a short payback threshold for financing such projects—usually insisting that projects pay for themselves in energy savings within 1–3 years. For energy projects, however, Harbec evaluates the financial impacts over the entire course of the project’s expected life. In practice, this means the company is willing to fund any energy project that pays for itself over the life of the project, which can sometimes span 10 years or more. This innovative financing method has led to the approval and construction of a variety of successful energy projects, including two on-site wind turbines and an on-site CHP generating plant.

Another important theme is that more companies are beginning to engage value chain partners to improve energy efficiency outside of their directly owned plants, buildings, and operations. For example, Ford Motor Company’s national Go Green Program provides independently owned and operated Ford dealerships with facility energy assessments that identify opportunities to reduce energy consumption, including possible technology investments and system upgrades. After starting with just three dealerships in 2010, the program now includes approximately 1,700 member dealerships. The first 270 Go Green dealership assessments identified potential average annual savings of \$33,000 per dealership, equating to a 27% reduction in energy with a 3.5-year payback. Ford helps dealerships gain access to financial resources such as utility rebates, tax incentives, and Ford pricing rates on energy efficiency products. To further incentivize dealerships to implement energy-saving projects, Ford is partnering with DOE to provide joint recognition to high-achieving dealerships.

Johnson Controls is taking a similar approach with key suppliers. Through its supplier efficiency program, the company is providing small- and medium-sized suppliers with energy

management tools, training, and on-site technical assistance. Johnson Controls' experts visit supplier sites to lead on-site assessments, share efficiency checklists and tools, and provide guidance on developing business cases for capital improvements. The on-site assessments follow an industry practice known as "energy hunts," which Johnson Controls has used successfully for years to engage facility staff across its plants in identifying and implementing low-cost or no-cost energy-saving measures. Energy hunts at supplier facilities have resulted in average savings estimates of 5%–10%.

Showcase Projects

Showcase projects are near-term demonstrations of significant energy savings at an individual Better Plants Challenge Partner facility. As part of DOE's effort to recognize Partner achievements and generate greater visibility for energy efficiency upgrades, DOE officials visit showcase project sites to drive media attention.

For example, Cummins Inc.'s showcase project features its Jamestown Engine Plant in Lakewood, New York. Beginning in January 2012 and going through 2015, Cummins is conducting a deep energy retrofit project at the 995,000-square-foot facility. Major improvements include a two-megawatt solar installation and three regenerative dynamometers that recover energy from engine testing and help power the facility. Energy efficiency components of the retrofit project include heating and cooling upgrades, compressed air optimization, and controls upgrades. Cummins anticipates that the energy-efficiency-specific measures alone will result annually in 250 billion British thermal units in energy savings and \$1.4 million in cost savings.

General Mills' showcase project discusses the company's new heat recovery system at its 1-million-square-foot Cedar Rapids, Iowa, plant. This plant is the company's largest manufacturing facility, producing more than 70 million cases of ready-to-eat food annually, including cereals, fruit snacks, and frosting. The new heat recovery system builds on these energy efficiency gains with three upgrades: (1) heating ingredient water using "free" waste heat in multiple stages, (2) using flash steam to regenerate a desiccant wheel for packaging dehumidification, and (3) installing coil run-around loops to reduce dehumidification costs. In total, the heat recovery projects are expected to save General Mills about \$500,000 a year in energy costs, resulting in a payback period of slightly more than three years.

Advancing New Initiatives

Supply Chain Pilot

Better Plants Partners' efforts to improve energy efficiency throughout their supply chains spurred DOE to launch a new pilot in 2014 to help. DOE, in consultation with Partners, recognized that significant energy-saving opportunities exist within industrial supply chains. Around 40%–60% of a manufacturing company's energy and carbon footprint can reside upstream in its supply chain—from raw materials, transport, and packaging to the energy consumed in manufacturing processes (Brickman and Ungerman 2008).

Through this Supply Chain Pilot, DOE collaborates with a select group of Better Plants Partners to extend the benefits of energy efficiency to their suppliers. Partners are leveraging Better Plants Program resources and encouraging suppliers to collectively set, track, and meet energy savings goals that typically involve reducing energy intensity by 25% over 10 years. To date, Better Plants Partners Legrand and United Technologies Corporation have recruited eight and six suppliers, respectively:

- Legrand
 - Chapco, Inc.
 - Coilplus Inc.
 - Complete Design & Packaging
 - Durex, Inc.
 - Lynam Industries, Inc.
 - Magnetic Metals Corp.
 - Rowley Spring & Stamping
 - Stanley Spring & Stamping Corp.
- United Technologies Corporation
 - GKN Aerospace
 - MB Aerospace
 - Hitchiner Manufacturing Co. Inc.
 - RTI International Metals, Inc.
 - Weber Metals, Inc.
 - Selmet, Inc.

By joining Better Plants, the participating suppliers make the same commitments as other Partners—setting an energy baseline, setting performance improvement goals, and reporting energy improvement data in a standardized format. They establish a relationship with a TAM who can provide basic energy efficiency awareness and education, assistance in putting an energy tracking system in place, and advice on other energy-related resources. DOE organizes and conducts a series of energy management webinars for the suppliers and provides them with priority access to free, one-day energy audits from the Department’s university-based IACs.

Importantly, DOE agrees to collect and analyze energy performance improvement data reported by participating suppliers. Each year, DOE provides the Partner with a report that summarizes energy efficiency progress made by its group of suppliers. This leverages the expertise DOE has developed over the last 4 years in managing the data collection and analysis process for the now 150+ companies participating in Better Plants.

Next steps for the Supply Chain Pilot include recruiting more Partner companies to participate and collecting data from those suppliers already participating. The data reporting will allow DOE to gauge whether suppliers are beginning to see any improvements in energy performance, which is the primary goal of the initiative. The reporting process will also be important to determine the difficulty for suppliers to collect and report the data, which may lead to different guidance or tools being provided to help the suppliers fulfill this requirement.

Water Use Efficiency Pilot

Through the Water Savings Pilot, established in 2014, the Better Plants Program is helping companies demonstrate successful approaches to saving water and decreasing their utility bills. The commercial and industrial sectors account for more than 25% of the withdrawals from public water supplies, and many organizations in these sectors may have savings opportunities of 20%–40%. The efficient use of water resources results in lower operating costs, a more reliable water supply, and improved water quality. Because energy is required to

transport and treat water, saving water also saves energy. Through this pilot, DOE is working with a diverse group of Challenge Partners to expand their resource management strategies to include water in addition to energy, set water savings goals (see Table 2), track progress, and showcase solutions.

Table 2. Water pilot partners and savings goals

Company	Water intensity reduction goal	Baseline year
Cummins	40% by 2020	2010
Ford	30% by 2015	2009
General Motors	20% by 2020	2010
Harbec	Water neutral by 2015	2013
Nissan	2% by 2016	2013
Saint-Gobain	6% by 2016	2012
United Technologies	40% by 2015*	2006

*United Technologies has set an absolute water intensity reduction target.

As companies strategize to meet these new targets, several questions arise regarding selection of facilities and water sources to focus on, industry practices for baselining and tracking water use, methods for identifying cost-effective water reduction actions, and the resources and organizations available for helping companies establish water reduction programs.

One of the key issues Partners face is that water is relatively inexpensive; water-saving projects thus often fail to clear internal investment hurdles. Better Plants Partners are adopting several strategies to overcome this barrier. Companies are finding that activities such as conducting a simple water balance can reveal low-cost water-saving opportunities. For example, detecting and repairing a one-gallon-per-minute leak can equate to as much as 500,000 gallons per year of water savings. Simple steps such as operating rinse equipment to specified water requirements rather than over-rinsing can result in substantial savings. Partners are also able to realize water savings by considering water efficiency in the design and procurement of new processes or equipment. In these cases, the water savings are an additional benefit to a project rather than being the sole benefit.

Partners involved in the water pilot are developing several other innovative water-saving solutions. For example, Harbec is using a rain collection pond that was built originally for fire suppression purposes as a cooling medium, offsetting water evaporated from its cooling towers. This pond will help the company meet its goal of “water neutrality.” Cummins is evaluating the “true cost of water,” and has built an internal tool that considers and calculates all the costs associated with water consumption, including the cost of the volume of water used, the costs of energy consumption and chemical treatment required for using the water, and the business risk associated with losing access to suitable water.

Partnering with Water and Wastewater Treatment Organizations

In December 2014, the Better Plants Program began partnering with water and wastewater treatment plants—facilities that face unique challenges in managing energy use. Ten

organizations have signed on as part of this initiative, with a pledge to reduce energy intensity by 25% over 10 years:

- Bucks County Water and Sewer Authority (Challenge Partner)
- Delta Diablo
- Encina Wastewater Authority
- Ithaca Area Wastewater Treatment Facility
- Los Angeles Bureau of Sanitation
- Los Angeles Department of Water and Power (Challenge Partner)
- Narragansett Bay Commission
- Pima County Regional Wastewater Reclamation Department
- St. Petersburg Water Resources Department
- Victor Valley Wastewater Reclamation Authority (Challenge Partner)

DOE is working with this group of Partners to evaluate and refine appropriate metrics for energy intensity. Through initial conversations, water utilities appear to be using one of two metrics to measure energy intensity: a flow-based metric, typically expressed as kilowatt-hours consumed per million gallons treated per day, or a pollutant-based metric, usually expressed as kilowatt-hours per pound of biological oxygen demand (BOD) removed.

Better Plants Partners in the sector have been receptive to applying both metric options, depending on the size of their facilities and their primary function. So far, larger facilities have been more inclined to select flow as the main driver, and smaller facilities have more frequently chosen BOD. A flow-based metric makes more sense for primary processing, when wastewater is filtered and treated, while the secondary process is tied more to BOD removal. DOE is collecting both flow and BOD data to determine the relative validity of these metrics before choosing one to employ program-wide.

Promoting Strategic Energy Management through SEP

Promoting strategic energy management and enhancing the links between Better Plants and SEP is an emerging program priority. DOE is continuing to work with a select group of Better Plants Partners through the Better Buildings Industrial SEP Accelerator, with two engagement opportunities: (1) the Ratepayer-Funded Pathway partners with utilities and energy efficiency program administrators that agree to promote deployment of SEP to manufacturers across their service territories; and (2) the Enterprise-Wide Pathway offers Partners an opportunity to implement International Organization for Standardization (ISO) 50001 and SEP enterprise-wide, such as across a corporation, business unit, or multiple plants, to achieve greater energy cost savings at lower cost. DOE is also expanding its In-Plant Training offerings in 2015 to educate participants on SEP and ISO 50001.

Conclusion

By partnering with leading companies and organizations, the Better Plants Program has achieved substantial success in developing and implementing innovative energy-saving strategies, tracking and collecting energy performance data, promoting supply chain energy efficiency, and addressing water use efficiency. The program demonstrates the power of public-private partnerships in addressing critical issues in the industrial sector such as energy and water

use. DOE provides the necessary resources and support to help Partners reach their energy and water efficiency targets. In addition, DOE highlights innovative energy-saving strategies successfully used by Partners, allowing other companies and organizations to leverage those same strategies to improve their energy efficiency.

Building on the program's success, DOE is increasing the program's scope to achieve even greater energy savings. In 2015, DOE plans to expand the Supply Chain Pilot and water and wastewater treatment partnerships. DOE will also strive to better connect Partners with complementary DOE resources, such as the national network of IACs, CHP deployment efforts, and SEP.

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