Executive Summary

The industrial sector accounts for more than 30% of all U.S. energy consumption,[1] resulting in an annual energy bill of about $200 billion.[2] But there are significant energy-efficiency opportunities for industry, which can lead to cost savings, reduced carbon emissions, and improved global competitiveness. Since 2009, the U.S. Department of Energy's (DOE) Better Buildings, Better Plants Program and Challenge (Better Plants) has partnered with manufacturers and water utilities to seek out and capture these energy efficiency opportunities. Partners set a specific goal, typically to reduce energy intensity by 25% within 10 years across their U.S. operations. A smaller number of leading partners have joined the higher-level Better Plants Challenge and are openly sharing their energy performance data and energy-efficiency solutions in addition to setting an energy-saving goal. DOE provides all Better Plants partners with technical assistance to achieve their goals and national recognition for their leadership.

To date, Better Plants has grown to encompass 179 manufacturing and water and wastewater treatment partners. Since last year's progress update, 25 industrial organizations joined the program and 7 joined the Better Plants Challenge—the highest growth in any year since the beginning of Better Plants. The partnership now includes more than 2,500 facilities spread across all 50 states, Washington, D.C., and Puerto Rico, representing 11.4% of the total U.S. manufacturing energy footprint.

In 2015, Better Plants partners made significant strides in energy efficiency, reporting estimated cumulative energy savings of 600 trillion British thermal units (TBtu) and $3.1 billion in energy costs (see table 1).[3] Ten partners met their 25% energy-intensity reduction goals (see page 4) and are already working to sustain and expand their energy-efficiency achievements.

In the past year, Better Plants also made exciting new investments for partners by intensifying its focus on water savings with the release of a water management primer (see page 7) and developing new training opportunities, including an option for companies to exchange energy teams and perform treasure hunts at each other's facilities (see page 8). Additionally, DOE is improving several online tools to better assist industry in managing their energy use.

Figure 1: Program Growth Over Time

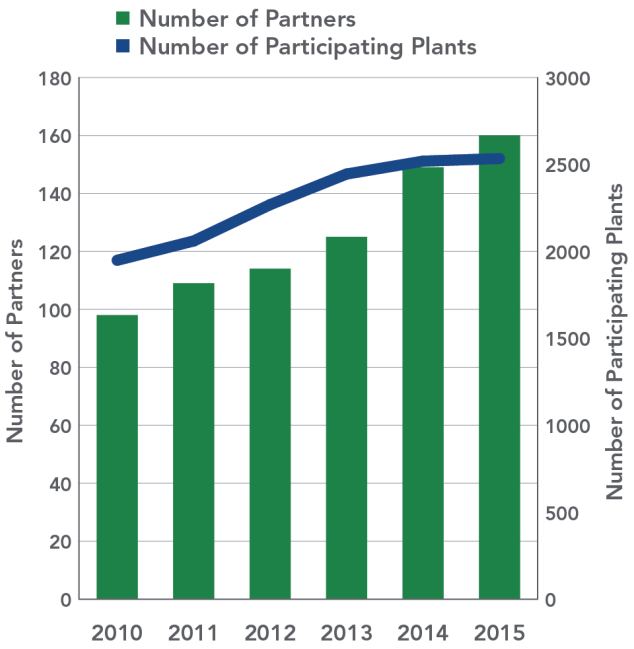


Table 1: Better Plants Snapshot, September 2016

Partnership Size	Total
Number of Partner Companies	179
Approximate Number of Facilities	2,500
Percent of U.S. Manufacturing Energy Footprint	11.4%
Reported Savings through 2015	
Cumulative Energy Savings (TBtu)	600
Cumulative Cost Savings (Billions)	$3.1
Cumulative Avoided CO_2 Emissions (Million Metric Tons)	34.7
Average Annual Energy-Intensity Improvement Rate	3.0%

Driving Change Across a Diverse Industry

Manufacturing is a vital part of the U.S. economy, accounting for 12.3 million workers, or 9% of the workforce.[4] As a whole, the industrial sector is the most diverse sector in the U.S. economy in terms of energy consumption, energy sources, foundational technologies, and products. Better Plants partners reflect that diversity, hailing from almost every part of industry and every corner of the country. They range from small, single-facility operations with annual energy budgets of less than $1 million to members of the Fortune 100, the largest U.S. corporations by gross revenue, with annual energy spending in the hundreds of millions of U.S. dollars (see figure 3).

In 2015, the U.S. industrial sector still faced some headwinds. According to the Manufacturers Alliance for Productivity and Innovation (MAPI), the U.S. industrial sector has yet to fully recover from the 2008-2009 recession.[6] Meanwhile, lower prices for energy, especially natural gas, brought many benefits to the industrial sector but made the returns on investment from energy efficiency theoretically less compelling. However, Better Plants partners continue to aggressively pursue energy efficiency, which is driving tremendous value in their companies. And the future of U.S. manufacturing looks very bright; Deloitte and the U.S. Council on Competitiveness' 2016 Global Manufacturing Competitiveness Index indicated that the United States is expected to be the most competitive manufacturing nation by the end of the decade. As part of that Index, cost competitiveness and advanced manufacturing technologies—such as smarter, connected products and 3D printing—were highlighted by manufacturing executives as key to unlocking future competitiveness.[7]

Better Plants partners continue to demonstrate that energy efficiency investments improve competitiveness. Across the program, partners recorded a 3% average annual energy intensity improvement rate since the program's launch.[8] Ten partners achieved or surpassed their energy-intensity improvement goals of 25% this year within the ten-year program period. Energy-efficiency progress varied across manufacturing sectors. Figure 5 shows the average change in energy intensity in 2015 for a select group of the largest manufacturing sectors within Better Plants. Sector sizes are represented by number of plants (x-axis) and energy consumption footprint in trillion Btus (circle size). The industrial machinery sector, with more than 300 facilities, was a top-performing sector in Better Plants last year with an average energy-intensity improvement rate of 4.5%. Another large part of Better Plants—the energy-intensive chemicals sector—achieved an impressive 2.4% improvement rate.

Figure 2: Regional Distribution of Better Plants Facilities[5]

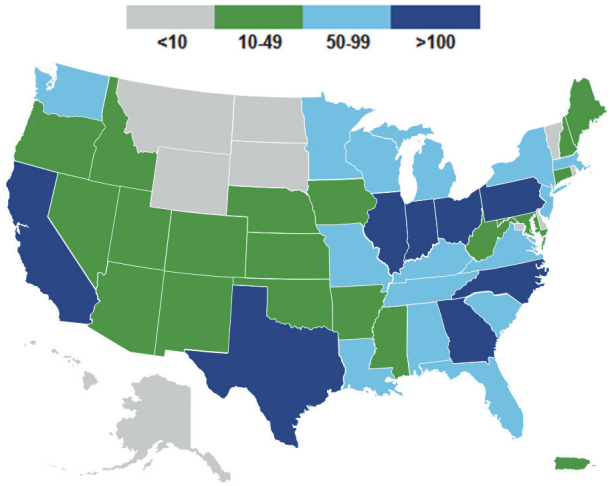
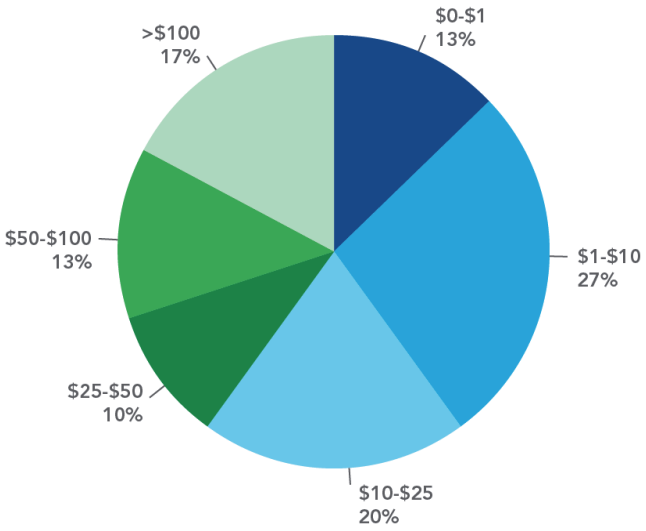


Figure 3: Better Plants Partners' Estimated Annual Energy Spending (in Millions of U.S. Dollars)



In today's economic climate, Better Plants partners recognize the value of energy efficiency and are following through by investing significant capital to improve energy performance. For example:

- Celanese Corporation completed a boiler replacement project at a large plant that yielded total plant-wide annual energy savings of approximately 6% and energy cost savings of just under 19%.

- United Technologies Corporation (UTC) began expanding and renovating a research facility, with energy use intensity expected to improve by 8% across the facility and by 20% in the area directly affected by the renovation.

- Victor Valley Wastewater Reclamation Authority replaced a conventional anaerobic digester with a co-digestion and recuperative sludge thickener, enabling the agency to produce 150% more biogas to be used in two combined heat and power (CHP) units.

Efforts like this are paying off in a big way: Better Plants partners have reported estimated cumulative avoided carbon dioxide (CO_2) emissions of almost 35 million metric tons (see table 1), the equivalent of more than one year's emissions from the City of Chicago (see figure 4).[9]

Better Plants also expanded its impact this year through the water and wastewater treatment sector. A total of 20 water and wastewater treatment agencies have now joined Better Plants (eight in the Better Plants Challenge), including two of the United States' largest and most complex water systems—those serving the cities of Los Angeles and New York. Water and wastewater treatment agencies face relatively high energy costs as a proportion of total operating costs, making energy efficiency all the more important for them.

Figure 4: Estimated Cumulative Avoided CO_2 Emissions Are Roughly Equivalent to One Year's Emissions From:

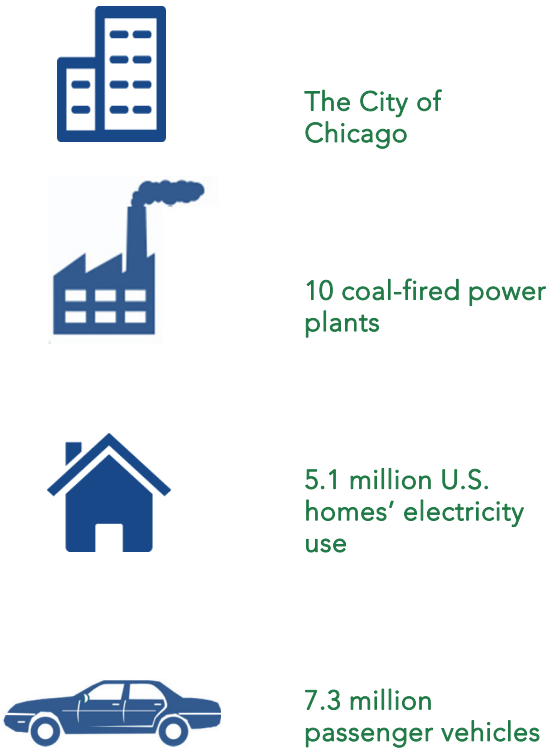
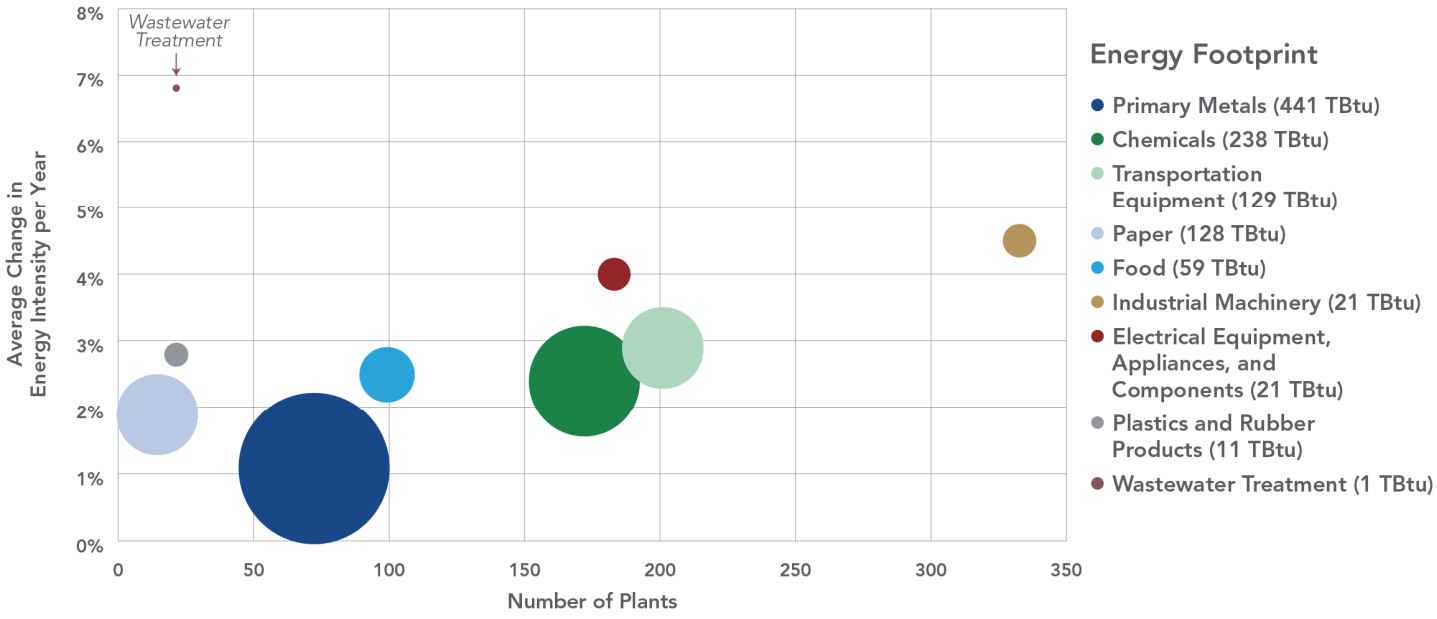


Figure 5: Average Energy-Intensity Improvement for Selected Sectors by Number of Plants and Energy Footprint



Celebrating Achievement

Better Plants Program and Challenge partners made extraordinary strides in reducing energy intensity in 2015. Two Better Plants Challenge partners and eight program partners met their energy goals of reducing energy intensity by at least 25% within 10 years—saving money, reducing harmful emissions, and strengthening their competitiveness in the process. There are now 35 Better Plants energy goal achievers since the start of the program.

Better Plants Challenge Goal Achievers

27%
energy intensity improvement in three years

30%
in five years

Better Plants Program Goal Achievers

35%
in five years

26%
in ten years

26%
in six years

32%
in four years

32%
in six years

35%
in nine years

26%
in nine years

28%
in six years

In Their Words: Goal Achievers

Nissan proudly incorporated the Better Plants Challenge within the Nissan Green Program's strategies to yield greater than a 25% energy intensity reduction goal. The partnership with Better Plants provided Nissan access to industry best practices and beneficial tools and resources.

– Chris Goddard, Energy and Environmental Engineering Manager, Nissan North America

Cummins has benefited greatly from the benchmarking and peer learning from Better Plants' water program as well as its focus on data tracking.

– Nichole Morris, Global Water Resource and Environmental Leader, Cummins Inc.

Welcoming New Partners

A wide array of industrial organizations joined the Better Plants Program and Challenge in 2015. New partners included suppliers to existing partner Lockheed Martin, water and wastewater treatment agencies in states from Arizona to Virginia, and brand-name companies like L'Oréal USA and Campbell Soup Company.

Better Plants Program

Alexandria Renew Enterprises

Armstrong Flooring

Bosch Rexroth

Campbell Soup Company

Cascade Engineering Technologies, Inc.

Charter Steel

City Of Phoenix Water Services Department

Clearwater Engineering, Inc.

Co-Operative Industries Aerospace & Defense

Des Moines Water Works

FMC Corporation

Harva Company

Honda

Jedco, Inc.

L'Oréal USA

Massachusetts Water Resources Authority

Mulgrew Aircraft Components, Inc.

Parker Hannifin

Research Electro-Optics

Savage Precision Fabrication

Tri-State Plastics, Inc.

Vanguard Space Technologies

Vermeer

W. L. Gore And Associates

Western Lake Superior Sanitary District

Highlighting the Leaders: Better Plants Challenge

This year, seven organizations joined the Better Plants Challenge, bringing the total number of Challenge partners to 37. In addition to setting energy-efficiency goals, Better Plants Challenge partners commit to sharing their solutions and successes with other organizations, including energy efficiency solutions in the form of "showcase projects," which are near-term demonstrations of significant energy savings at an individual facility, and "implementation models," which document corporate-level inititatives (such as Lennox International's work to reduce energy use in leased spaces, as described on the bottom of this page).

Bath Electric, Gas & Water Systems

Provider of electric, gas, water, and waste water services for the Village of Bath, New York.

BD

New Jersey-based manufacturer of medical devices and instrument systems.

C. F. Martin & Company

Guitar manufacturer that has been family-owned and operated for six generations.

Electrolux

Manufacturer of more than 50 million home appliance products for customers every year.

Encina Wastewater Authority

Wastewater treatment service for more than 400,000 residents in northwestern San Diego County in California.

City of Grand Rapids Resource Recovery Facility

Treats an average of 14 billion gallons of wastewater annually for the city and 10 nearby communities.

Orange Water and Sewer Authority

Public, non-profit agency that provides water services to the Carrboro-Chapel Hill community in North Carolina.

Lennox International Reduces Energy Use in Leased Spaces

Lennox International has a portfolio of 150 leased distribution spaces. Lennox staff, however, realized that the classic split incentive barrier could impede energy-efficiency progress at these spaces. As the tenant, Lennox paid the energy bills, but had limited incentive to invest in capital upgrades to buildings it did not own. Conversely, the building owners did not pay the monthly energy bills and therefore had no obvious motivation to invest in energy projects that would reduce those bills. Lennox overcame this barrier by working with a lighting technology provider to set lighting specifications for its leased facilities and negotiating with its landlords to split the costs of lighting upgrades.

Learn more at the Better Buildings Solution Center: betterbuildingssolutioncenter.energy.gov.

Lennox International's leased regional distribution center in Houston, Texas. Photo courtesy of Lennox International.

Expanded Opportunities to Save Energy: Water Savings Initiative

Eight Better Plants Challenge Partners—Cummins, Ford, General Motors, HARBEC, Nissan, Saint-Gobain Corporation, Toyota, and UTC—have committed to water-savings targets in addition to their energy targets. Water efficiency is a crucial and logical complement to energy efficiency; because energy is used to transport and treat water, saving water also saves energy. Water efficiency can also lead to lower overall operating costs, a more reliable water supply, and improved water quality.

The commercial and industrial sectors account for more than 25% of the withdrawals from public water supplies and industrial organizations can have water savings opportunities of anywhere between 20% and 40%. Better Plants assists Water Savings Initiative partners by providing technical guidance on water data tracking, water management best practices, and related issues. Partners also share replicable water-savings solutions with their peers—such as HARBEC's showcase project, below. Two partners—Cummins and UTC—have already met their water-savings goal and are working to sustain and expand their progress.

Water Savings Goal Achievers

Cummins

45%

reduction in water intensity in five years

United Technologies

43%

reduction in water intensity in nine years

Water Management Primer Released

Better Plants worked with an initial group of water savings initiative participants to better understand key details of their successful water management efforts, including the metrics used to track progress, their motivations, and specific projects and activities implemented to achieve water savings. These insights were summarized in a paper, *Developing a Corporate Water Management Strategy for Manufacturers*, which is a key resource for other industrial organizations developing new, or seeking to improve existing, water management programs.

Learn more at the Better Buildings Solution Center: betterbuildingssolutioncenter.energy.gov/resources/corporate-water-management-strategy-manufacturers.

HARBEC's Water Retention Pond Cuts City-Supplied Water Use by 34%

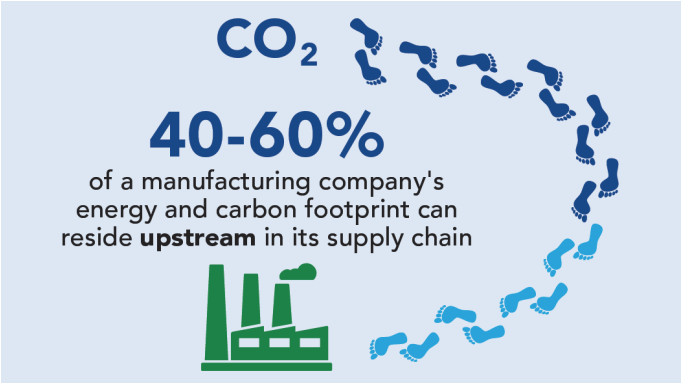
When faced with an insurance requirement to implement a sprinkler system for fire suppression purposes, HARBEC decided to dig a water retention pond in lieu of installing a water tank. The pond collects rainwater diverted from the partner facility's roof and parking lot and has the capacity to provide 1.2 million gallons annually. In addition to supplying the company's sprinkler system, the pond now helps meet cooling needs for the facility's evaporative cooling towers. HARBEC has a goal of becoming water neutral, which it defines as eliminating the use of municipally-supplied water for all purposes except drinking and hand-washing.

Learn more at the Better Buildings Solution Center: betterbuildingssolutioncenter.energy.gov.

A view of HARBEC's 1.2 million gallon-capacity water-retention pond. Photo courtesy of HARBEC.

Expanded Opportunities to Save Energy: Supply Chain Initiative

Between 40% to 60% of a manufacturing company's energy and carbon footprint can reside upstream in its supply chain.[10] Recognizing this opportunity, more and more leading manufacturers are working to drive energy savings in the supply chain, which can lead to cost savings, improved business resiliency, and better environmental outcomes.



Better Plants provides guidance and technical assistance to partners to help them improve energy efficiency throughout their supply chains. Through the Supply Chain Initiative, Better Plants partners Legrand, UTC, and new participant Lockheed Martin encourage their suppliers to leverage program resources and collectively set, track, and meet energy savings goals.

Participating suppliers have priority access to no-cost energy assessments from DOE's Industrial Assessment Centers (IACs; see page 9) and have taken full advantage. To date, 12 assessments have been conducted for supplier facilities since 2014, resulting in recommendations with collective potential savings of $1.1 million and an average simple payback of less than a year. Several suppliers have already begun implementing projects from the IAC recommendations, including fixing compressed air leaks, optimizing motor systems, and installing new light fixtures.

UTC's supplier cohort reported an average energy intensity improvement rate of 6.4% in 2015. Better Plants is looking to build on the Supply Chain Initiative's success going forward by offering regular webinars to suppliers targeted at addressing their unique challenges.

Expanded Opportunities to Save Energy: New In-Plant Trainings

In-Plant Trainings (INPLTs) are three to four-day workshops led by DOE experts that train participants on how to identify, implement, and replicate energy-saving projects. Partners typically host an on-site training session at one of their facilities. Upon completion, participants can receive a DOE certificate indicating earned professional development hours. Technical expertise gained through the INPLTs help partners overcome common, critical barriers to adopting energy management practices and technologies, such as lack of technical expertise and insufficient senior management buy-in for implementing energy-saving projects.

Since 2011, Better Plants has conducted more than 60 INPLTs, covering compressed air, energy treasure hunts, fans, process heating, pumps, and steam, with more than 850 participants. The INPLTs have identified more than $14 million in potential energy savings. Additional INPLTs on water and wastewater treatment, refrigeration, and strategic energy management are being developed.

Nissan North America and Toyota Host a Treasure Hunt Exchange In-Plant Training

Treasure Hunt Exchange INPLTs are a chance for a plant's energy team to examine opportunities for energy savings at another plant. The first such INPLT took place at a Nissan North America facility in Decherd, Tennessee, and Toyota facility in Huntsville, Alabama, in May 2016. Each partner's energy teams spent three days at each plant evaluating process and cross-cutting systems to uncover energy-savings opportunities. The teams uncovered potential annual energy cost savings of $284,000 at the Decherd plant and more than $331,000 at the Huntsville plant.

Nissan's and Toyota's energy teams. Photos courtesy of Nissan North America and Toyota.

Expanded Opportunities to Save Energy: Technical Assistance

A host of market and non-market barriers—such as lack of awareness, organizational culture, and cost concerns—can stand in the way of industrial organizations pursuing greater energy efficiency. Better Plants helps partners break through these barriers by providing them not only with technical assistance and recognition for their progress, but also access to other valuable DOE technical assistance programs. These programs can expand and enhance their energy-efficiency efforts in partnership with Better Plants.

Superior Energy Performance®
U.S. DEPARTMENT OF ENERGY

Better Buildings®
U.S. DEPARTMENT OF ENERGY

Superior Energy Performance and ISO 50001

DOE is supporting partners who achieve ISO 50001 through its eGuide tool and Superior Energy Performance (SEP) program. SEP provides guidance, tools, and protocols to quantify and verify energy savings from the ISO 50001 standard. Better Plants partners 3M, Bosch Rexroth, Bridgestone Americas, Inc., Cummins, HARBEC, MedImmune, Nissan, Schneider Electric, and Volvo have all certified facilities to SEP.

Learn more at energy.gov/ISO50001.

Better Buildings Accelerators

Better Buildings Accelerators are designed to demonstrate specific innovative policies and approaches that will accelerate investment in energy efficiency. Each Accelerator is a targeted, short term, partner-focused activity. There are nine active Accelerators, covering such topics as strategic energy management in industry, CHP for resiliency, and resource recovery and energy efficiency in wastewater treatment plants.

Learn more at betterbuildingsinitiative.energy.gov/accelerators.

U.S. DEPARTMENT OF ENERGY
CHP Deployment Program

Industrial Assessment Centers

The Industrial Assessment Centers (IACs) are university-based teams around the country that provide no-cost energy assessments for small- and medium-sized manufacturers. Better Plants partners receive priority access to IAC assessments, which typically uncover potential savings equal to between 5% and 7% of plant-wide energy consumption. More than 17,000 IAC assessments have been conducted since 1976.

Learn more at energy.gov/IAC.

Combined Heat and Power

DOE provides CHP deployment resources and direct project-specific technical assistance to transform the U.S. market for CHP, waste heat to power, microgrids and district energy throughout the United States. With regional Combined Heat and Power Technical Assistance Partnerships (CHP TAPs), DOE provides market opportunity analysis, education and outreach support, and technical assistance for end-users considering CHP technologies for their facility.

Learn more at energy.gov/CHP.

Looking Ahead

Better Plants partners are proving that industrial energy-efficiency measures pay off—often with high returns at relatively low risk. By following through on pledges to improve energy intensity, partners are helping to cut energy waste, create jobs, reduce air pollution, and improve the competitiveness of the entire U.S. manufacturing sector. Better Plants will work to empower partners even further in 2017 and beyond through a renewed focus on technology transfer from DOE and the National Laboratories to the manufacturing sector. New initiatives and programs under development include:

- **Technology Transfer:** Better Plants will pilot an "Industry Day" at the Oak Ridge National Laboratory to show partners various ongoing and experimental research activities. Industry Day can help develop ideas for energy-savings solutions that could move partners toward both the Better Plants goal and their own internal corporate sustainability goals. Going forward, Better Plants anticipates developing a structured approach that will provide partners with the option of visiting National Laboratories with their energy and research and development personnel to learn about cutting-edge technology development in areas with direct industrial relevance, such as additive manufacturing, advanced materials, and smart sensors.

- **Diagnostic Equipment Loan Program:** Better Plants will offer a wide variety of diagnostic equipment for partners for temporary use, free of charge. Example instruments include combustion analyzers to quantify the amount of excess oxygen in combustion process exhaust, and ultrasonic leak detectors to identify leaks in compressed air or steam systems. Partners would be free to use equipment for internal energy investigations, project implementation measurement and verification, or simply testing before buying instruments separately. For more information, contact BetterPlants@ee.doe.gov.

- **Recognition:** Better Plants intends to offer new recognition opportunities, stimulate the submission of new partner solutions, and create more publicity opportunities for both partners and the program.

- **Integration With DOE Programs:** Better Plants will debut opportunities to better navigate DOE programs and resources, starting with Advanced Manufacturing Office R&D funding opportunities, but also including technology to market programs, the Loan Programs Office, and the Lab Impact Initiative. Engagement with these programs will take place through webinars and other presentation vehicles.

- **Expanded Better Buildings Solution Center:** The online Better Buildings Solution Center currently houses more than 400 energy-efficiency solutions tested and proven by partners in the Better Buildings Initiative. Solutions are searchable by topic, barrier, sector, technology, and more. Through 2017, DOE will add more solutions covering key topics from across sectors and other resources. Visit the Better Buildings Solution Center at betterbuildingssolutioncenter.energy.gov.

- **2017 Better Buildings Summit:** The next annual Better Buildings Summit is scheduled for May 15-17, 2017, in Washington, D.C. Registration will open in late 2016. The 2016 Summit drew more than 900 participants and featured more than 300 presentations covering 100 unique topics from the commercial, industrial, public, multifamily, residential, and data center sectors. Now in its fourth year, the Summit brings together partners from across the Better Buildings Initiative to share best practices and solutions to common energy-efficiency barriers.

- **Enhanced Role at Industrial Conferences:** Better Plants has had a longstanding presence at annual events such as the ACEEE Summer Institute on Industry, Industrial Energy Technology Conference, and World Energy Engineering Congress. DOE will continue to work to improve the experience of participating partners by tailoring session content, facilitating networking opportunities, and otherwise implementing partner feedback.

Endnotes

1. U.S. Energy Information Administration (EIA), *Annual Energy Outlook 2016*, Table: Energy Consumption by Sector and Source, https://www.eia.gov/forecasts/aeo/data/browser/#/?id=2-AEO2016&cases=ref2016~ref_no_cpp&sourcekey=0.

2. EIA, *Annual Energy Outlook 2015 With Projections to 2040*, http://www.eia.gov/forecasts/aeo/pdf/0383(2015).pdf.

3. Energy performance data cited in this report is based on DOE-reviewed individual annual reports submitted by Better Plants Partners. DOE will sometimes exclude from its final metrics data reports that raise technical or other issues that cannot be resolved in consultation with partners. These include, but are not limited to, reports that use inappropriate or inconsistent methodologies to calculate energy intensity, contain missing or incomplete data, or show changes in energy intensity that do not accurately reflect energy-efficiency actions undertaken by the partner. As new information comes in, DOE will sometimes revise or delete erroneous data reports that were previously submitted by partners. This can result in changes to previously published program-wide metrics.

4. National Association of Manufacturers, Top 20 Facts About Manufacturing, http://www.nam.org/Newsroom/Top-20-Facts-About-Manufacturing.

5. Map is based on 2014 Better Plants Program and Challenge partners' facilities data.

6. Manufacturers Alliance for Productivity and Innovation, U.S. Industrial Outlook: Manufacturing Still Recovering, https://www.mapi.net/forecasts-data/us-industrial-outlook-manufacturing-still-recovering.

7. Council on Competitiveness and Deloitte, *2016 Global Manufacturing Competitiveness Index*, http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Manufacturing/gx-global-mfg-competitiveness-index-2016.pdf.

8. The average annual energy-intensity improvement rate is calculated by first dividing each partner's total improvement rate by the number of years spanning their baseline to their most recent reporting year, then taking an average of these values across the program weighted by baseline energy consumption.

9. Cumulative avoided CO_2 emissions are calculated by first estimating primary energy savings by fuel type using an energy savings distribution based on DOE Energy Savings Assessments data collected from 2006 to 2011. Then, avoided CO_2 emissions are calculated by multiplying primary energy-savings by fuel type with fuel-specific CO_2 conversion factors provided by EIA and the U.S. Environmental Protection Agency (EPA). Emissions equivalencies are calculated using the EPA Greenhouse Gas Equivalencies Calculator, http://www.epa.gov/cleanenergy/energy-resources/calculator.html. The City of Chicago's CO_2 emissions data is derived from CDP, https://data.cdp.net/Cities/Citywide-Emissions-2016-Map/iqbu-zjaj.

10. C. Brickman and D. Ungerman, "Climate Change and Supply Chain Management," *McKinsey Quarterly*, July 2008.

Partners as of September 2016

3M*
AbbVie Inc.
Alcoa Inc.
Alexandria Renew Enterprises
Amcor Rigid Plastics
ArcelorMittal USA
Armstrong Flooring
AT&T*
Ball Corporation
Bath Electric Gas and Water System
BD
Bentley Mills*
BIC Graphic USA Manufacturing Co., Inc.
Bosch Rexroth
BPM, Inc.*
Bradken
Bridgestone Americas, Inc.
Briggs & Stratton Corporation
Buck Company
Bucks County Water and Sewer Authority (BCWSA)
C. F. Martin & Company
CalPortland Company
Campbell Soup Company
Carlton Forge Works
Carus Chemical Company
Cascade Engineering Technologies, Inc.
Celanese International Corporation*
Chapco Inc.
Charter Steel
Chippewa Valley Ethanol Company
Citrus World, Inc
City of Grand Rapids Water Resource Recovery Facility
City of Phoenix Water Services Department
Clearwater Engineering, Inc.
Co-Operative Industries Aerospace and Defense
Coilplus Inc.
Comau Inc.
Commercial Metals Company
Complete Design and Packaging
Cummins, Inc.*~
Daikin Applied Americas*
Darigold
Davisco Foods
Delta Diablo
Denison Industries
Des Moines Water Works
Didion Milling
Dow Chemical Company
DSM North America
Durex Inc.
EARTH$_2$O
Eastman Chemical Corporation
Eaton Corporation
Eck Industries
Electrolux
Encina Wastewater Authority
Expera Specialty Solutions*
Flambeau River Papers
FMC Corporation
Ford Motor Company
General Aluminum Manufacturing Company
General Dynamics Ordnance and Tactical Systems Scranton Operation*
General Electric
General Mills
General Motors
General Sheet Metal Works, Inc.
GKN Aerospace Services
Golden Renewable Energy, LLC
Goodyear Tire and Rubber Company, U.S. Tire Plants
Graphic Packaging*
HARBEC, Inc.*
Harley-Davidson
Harrison Steel Castings Co.
Harva Company
Haynes International
Hitchiner Manufacturing Co. Inc.
HNI Corporation
Holcim (US) Inc.*
Honda North America
Huntsman Corporation
Ingersoll Rand*
Ingevity*
Intel
International Paper
Intertape Polymer Group
Ithaca Area Wastewater Treatment Facility
J.R. Simplot
JBT Corporation
Jedco, Inc.
Johnson & Johnson*
Johnson Controls
Johnson Matthey Emission Control Technologies Division
Kent County Department of Public Works
Kenworth Truck Company
Kingspan Insulated Panels, Inc.*
L'Oréal USA
Land O' Lakes
Legrand North America*
Lennox International*
Lineage Logistics
Lockheed Martin
Los Angeles Bureau of Sanitation
Los Angeles Department of Water & Power
Lynam Industries Inc.
Magnetic Metals Corp.
Manitowoc Grey Iron Foundry
Mannington Mills
Marquis Energy
Marquis Energy Wisconsin
Massachusetts Water Resources Authority
MB Aerospace East Granby
McCain Foods USA, Inc.
MedImmune
Metal Industries, Inc.*
Mohawk Industries
Mulgrew Aircraft Components, Inc.
Narragansett Bay Commission
Navistar International
Neenah Foundry
Nissan North America, Inc.*
Novati Technologies
Novelis Inc.
NY DEP – Bureau of Wastewater Treatment
O'Fallon Casting
OFD Foods, Inc.
OMNOVA Solutions Inc.
Orange Water and Sewer Authority
Oshkosh Corporation
OSRAM SYLVANIA*
Owens Corning
Pactiv
PaperWorks Industries
Parker Hannifin
Patrick Cudahy, Inc.
Patriot Foundry & Castings*
PepsiCo
Pima County Regional Wastewater Reclamation Dept.
PPG Industries
Procter & Gamble*
Quad/Graphics, Inc.
Raytheon Company
Research Electro-Optics
Richmond Industries Inc.
Roche Diagnostics Operations*
Rowley Spring and Stamping
Saint-Gobain Corporation
Savage Precision Fabrication
Schneider Electric
Selmet, Inc.
Shaw Industries Group, Inc.*
Sherwin-Williams*
Solberg Manufacturing, Inc.
Sony DADC
Spirax Sarco, Inc.
St. Petersburg Water Resources Department
Stanley Spring & Stamping Corporation
Steelcase, Inc.
SunOpta, Inc.
TE Connectivity*
Tenaris
Texas Instruments*
Textron
ThyssenKrupp Elevator*
Toyota Motor Engineering and Manufacturing North America*
TPC Group
Tri-State Plastics, Inc.
United Technologies Corporation*~
Vanguard Space Technologies
Vermeer
Verso Paper Corporation
Victor Valley Wastewater Reclamation Authority*
Volvo Group North America*
W. L. Gore and Associates
Waupaca Foundry
Weber Metals Inc.
Western Lake Superior Sanitary District
WestRock
Weyerhaeuser*
Whirlpool Corporation

KEY

Bold – Better Plants Challenge Partner
Underline – New Partner
Asterisk* – Energy Goal Achiever
Tilde~ – Water Goal Achiever

DOE/EE-1471