

The Better Buildings Initiative announced by President Obama in December 2011 is a broad, multi-strategy initiative designed to reduce by 20% the energy intensity in the commercial and industrial sectors by 2020, catalyze revolutionary change in energy use, achieve billions in energy bill savings, and create high quality American jobs. A cornerstone of the initiative, the Better Buildings Challenge, is a public-private partnership program in which leading organizations commit to improve the energy intensity of their building portfolios by at least 20% over 10 years and share their strategies and results with the market. This Progress Update summarizes the significant progress being made by these market leaders.

More than 110 organizations have taken the Better Buildings Challenge. Over half are Commercial and Industrial Partners that represent more than 2 billion square feet of real estate across diverse public and private sectors. Almost one-quarter are cities and counties who, as Community Partners, engage both publicly- and privately-owned facilities throughout their communities in their commitment. A network of Financial

and Utility Allies assist Partners in overcoming financial and data access barriers. The Federal Government is also meeting a challenge and demonstrating leadership, having met one-quarter of its \$2 billion goal in performance contracting by the spring of 2013.

The Better Buildings Challenge Partners and Allies have made significant progress in the first year of the program. More than 50 showcase projects and nearly 40 implementation models have been completed or are underway highlighting innovative, aggressive, and realistic strategies for realizing energy savings. More than \$1.1 billion, or two-thirds of committed financing has been extended to energy efficiency improvements. Partners are demonstrating that improvements in energy intensity of more than 2.5% per year across their broad portfolios are achievable and cost effective. Such improvements would total 5% over 2 years and 7.5% over 3 years, growing to more than 20% over 10 years. If all U.S. commercial and industrial buildings and facilities improve at this rate, savings would total more than \$80 billion per year, after 10 years.

Better Buildings Challenge Snapshot (Figure 1)

| Partners and Allies | Commitments | Progress | Average Annual Savings |
|---|--|---|---|
| Public and Private Commercial Partners 66 Commercial real estate, healthcare, hospitality, food service, retail organizations, state and municipal governments, K-12 schools, and higher education institutions | <ul style="list-style-type: none"> • 2+ billion square feet • 300+ manufacturing facilities • 25 communities engaging with business leaders | Showcase Projects: <ul style="list-style-type: none"> • 69 identified • 49 complete • 7 in development Implementation Models: <ul style="list-style-type: none"> • 65 identified • 17 complete • 9 in development | <ul style="list-style-type: none"> • 2.5% energy intensity • \$58 million |
| Industrial Partners 12 Energy-intensive to light manufacturing | | | |
| Community Partners 25 Municipalities working with their business communities | | | |
| Financial Allies 14 | <ul style="list-style-type: none"> • \$1.7 billion in financing | <ul style="list-style-type: none"> • \$1.1 billion extended • 2 implementation models complete • 2 in development | NA |
| Utility Allies 3 Investor-owned and public power | <ul style="list-style-type: none"> • Provide customers with easy access to energy bill data; help customers increase energy savings in millions of building square feet | <ul style="list-style-type: none"> • 5 implementation models complete | NA |
| Federal Agencies | <ul style="list-style-type: none"> • \$2 billion in performance contracting | <ul style="list-style-type: none"> • \$560 million awarded | NA |

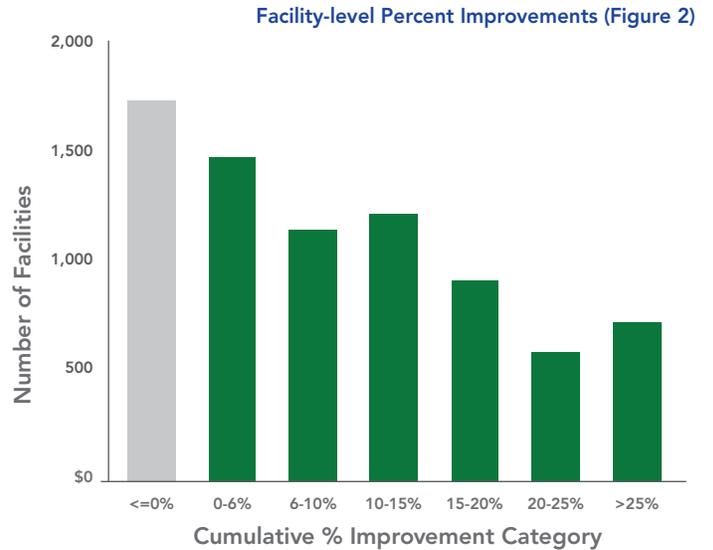
Setting Aggressive Goals and Delivering Results in 2012

Partners in the Better Buildings Challenge commit to transparently share information on the energy intensity of their portfolios to document their progress toward their commitment, show what is possible through portfolio-wide energy management, and link their strategies to results. Progress is measured against a baseline year and through improvements in energy intensity (see text box). Progress based on the first year of Partner submitted information is very promising. On average, Partners improved the energy intensity, or energy performance, of their portfolios by more than 2.5% per year since their baseline years, in line with President Obama's goal to reduce by 20% the energy intensity in the commercial and industrial sectors by 2020. The energy performance improvements equate to 8.5 trillion Btus and \$58 million in savings per year.

Better Buildings Challenge Partners are actively managing data across their entire portfolio of buildings, which is integral to identifying performance issues and reducing energy bills. Partners have provided detailed information on 7,700 facilities to date; more than 1,300 of these facilities have been improved by 20% or more, and another 2,100 have been improved by 10% or more since their baseline years, as shown in the chart titled Facility-level Percent Improvements (see Figure 2). Twenty percent have yet to show improvement (represented by the grey bar in Figure 2) and may indicate facilities that can be improved as the Better Buildings Challenge continues.

Multi-measure, whole-building approaches are often required to achieve significant energy savings. Different types of improvements and the associated savings are further documented through Partner showcase projects, many of which have savings targets of 20, 30, or 40% and which span many building types including stores, fire stations, libraries, civic centers, hotels, dormitories, historic buildings, manufacturing facilities, and others. Partners will continue providing showcase project and energy intensity data as it becomes available.

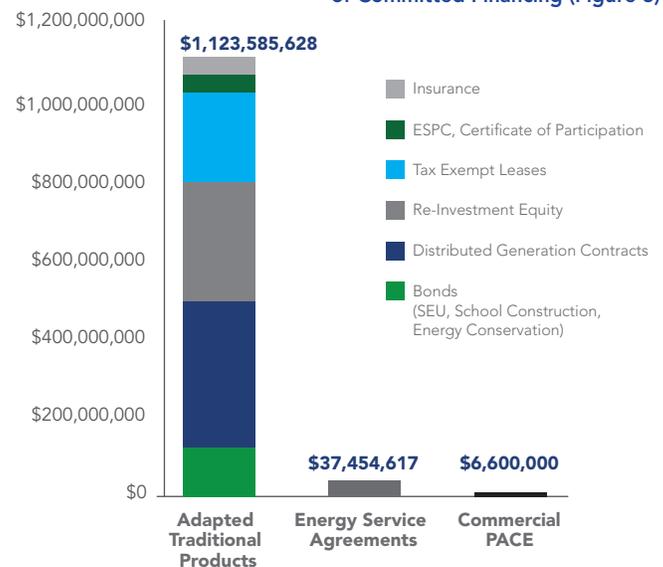
Better Buildings Challenge Financial Allies have committed \$1.7 billion in financing to deliver innovative financing solutions and products for energy efficiency upgrades. To date, these 14 Financial Allies have closed deals on more than \$1.1 billion in financing across the financial instruments shown in Figure 3.



Understanding Energy Use Intensity (EUI)

Program progress is measured in terms of energy use intensity (EUI) to account for changes in Partner portfolios over time. For commercial buildings, EUI is generally measured in terms of energy use per square foot, and can be useful in comparing energy use of facilities of different sizes. Industrial facilities also use EUI to measure progress, but alternative EUI metrics are generally used to reflect the outputs and processes at the plants. Some common metrics for measuring energy intensity in industrial facilities include energy use per pound of product, vehicles manufactured, labor hours, or dollars of revenue. For both commercial and industrial facilities, EUI values are commonly adjusted to account for changes in weather from year to year and changes in operating conditions over time.

Financial Allies Have Closed Deals for Two-Thirds of Committed Financing (Figure 3)



Leading the Way

Better Buildings Challenge Partners are following through on their commitments to leadership, energy efficiency, and transparency. The organizations listed below are among those leading the way. Not only have these Partners shared solutions they are using to successfully drive energy savings throughout their portfolios, but they have shared facility-level information and completed showcase projects.

KOHL'S

Kohl's, with a 112 million square foot commitment and more than 1,000 stores in the United States, has made managing energy use a key strategy for driving savings and conserving resources. Through its Finance and Energy Team Partnership implementation model, Kohl's shares its strategy for overcoming the barrier of acquiring internal financing for energy efficiency projects, which has reduced energy costs by an estimated \$50 million between 2006 and 2010. Kohl's has achieved a 7% reduction in energy intensity since its 2008 baseline year. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings/kohls>

FORESTCITY

Forest City Enterprises, a national real estate ownership, management, and development corporation with more than \$10 billion in total assets, made a 14 million square foot commitment that integrates energy and sustainability strategy into core business practices. At the South Bay Galleria Mall in Redondo Beach, CA, Forest City is expected to obtain a 20% reduction in both electric usage and operating costs, and will leverage its new smart building controls system to participate in a regional demand-response program. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings/forest-city>



IHG (InterContinental Hotels Group) franchises, leases, manages, or owns over 4,600 hotels and more than 674,000 guest rooms in nearly 100 countries and territories and has committed 13 million square feet to the Better Buildings Challenge. IHG has a comprehensive online sustainability system called "IHG Green Engage." This system provides hotels with information about conserving resources and saving money. IHG shares its system for communicating with hotel guests through its Innovation Hotel implementation model and social media outlets, which allows it to address guest recommendations, thus applying a collaborative approach to sustainability efforts. If all the hotels in IHG's 4,600-strong portfolio adopted the system, the estimated total savings for hotel owners could be over \$300 million. IHG directly controls approximately 100 buildings, and more than half of these have shown a reduced energy use intensity since 2010. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings/intercontinental-hotels-group>



The City of Atlanta has united with the business and nonprofit community, representing 55 organizations and 78 buildings, to implement a comprehensive energy upgrade program for downtown buildings to meet the goal of improving energy performance a minimum of 20% by 2020. At the Boisfeuillet Jones – Atlanta Civic Center, the city expects to achieve a 25% reduction in energy intensity. Atlanta has achieved a 9% reduction in energy intensity since its 2009 baseline year. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings/atlanta>



Legrand, a global specialist in electrical and digital building infrastructures, committed to a 25% reduction in energy intensity across 5 plants, and another 9 non-manufacturing facilities. Through its implementation model on submetering, Legrand demonstrates how it reduced its base load power use at one facility 14% in three months through a modified HVAC schedule and altered building occupancy sensors. Legrand has achieved a 29% reduction in energy intensity since its 2009 baseline year. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings-better-plants/legrand>

Leading the Way (continued)



3M, a diversified technology company serving customers and communities with innovative products and services operating in more than 65 countries, committed to a 25% reduction in energy intensity across 94 plants. So far, 3M has committed \$1 million in each of the past two years to its set aside fund, allowing for the rapid implementation of energy efficiency projects. 3M has achieved a 23% reduction in energy intensity since its 2005 baseline year. Learn more: <http://www4.eere.energy.gov/challenge/partners/better-buildings-better-plants/3m>



Metrus Energy, a full-service specialty finance company with energy efficiency retrofit and building upgrade projects at commercial, industrial, and institutional facilities, has committed to financing over \$75 million in projects. To date, Metrus Energy has committed \$7.7 million across four facilities to finance energy efficiency retrofits through its Efficiency Services Agreement program. Learn more: <http://www4.eere.energy.gov/challenge/allies/financial-allies/metrus-energy>



Clean Fund LLC and Renewable Funding have partnered to finance energy efficiency and renewable energy upgrades to Prologis' Pier 1 Headquarters building. Through the GreenFinance SF program created by Renewable Funding, Clean Fund committed \$1.4 million in Commercial Property Assessed Clean Energy (PACE) funds. Clean Fund is a specialty finance company providing PACE project financing, and has committed to financing \$50 million in projects. Renewable Funding is a financial services, technology, and program management firm specializing in innovative approaches to financing clean energy and energy efficiency projects, and has committed to financing \$200 million in projects. Learn more: <http://www4.eere.energy.gov/challenge/allies/financial-allies/clean-fund> and <http://www4.eere.energy.gov/challenge/allies/financial-allies/renewable-funding>



Los Angeles Department of Water and Power (LADWP), the nation's largest municipally-owned utility, has committed to offer automated data uploads and coordinate multi-measure program offerings for its customers. With its implementation model, LADWP shows how a partnership with another utility allowed them to efficiently deploy multiple electric, water, and gas customer incentive programs to residential and commercial customers in their joint territory. Learn more: <http://www4.eere.energy.gov/challenge/allies/utility-allies/ladwp>



Southern California Edison (SCE), one of the nation's largest investor-owned utilities, has committed to 5% energy savings across its commercial customer class by 2015. With its On-Bill Financing (OBF) implementation model, SCE provides a solution to the upfront capital cost barrier in conducting energy efficiency projects. SCE's OBF program has issued over \$10 million in loans and has commitments in place for another \$20 million. The loans issued thus far have supported energy efficiency projects with projected savings of 17 GWh and 2.8 MW. Learn more: <http://www4.eere.energy.gov/challenge/allies/utility-allies/southern-california-edison>



Pacific Gas and Electric Company (PG&E) has committed to provide commercial building energy efficiency multi-measure programs that will reach 30 million square feet of its commercial customer class by 2015. Through its implementation model, PG&E encouraged 53,000 whole building owners to benchmark their buildings and engage in active energy management. Learn more: <http://www4.eere.energy.gov/challenge/allies/utility-allies/pg&e>

Spanning Diverse Portfolios

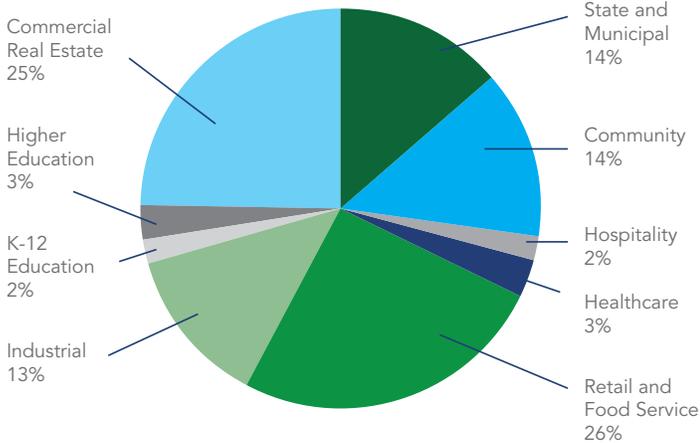
Representing the building and industrial stock in the United States, Better Buildings Challenge Partners span different business sizes, industry sectors, business models, government types, and educational institutions. For example, Figure 4 shows the percent of the total floor area of all Partners that is represented by each market sector.

There is also significant diversity in size of organization and portfolio, as reflected in Figure 5. Among higher education Partners, for example, Allegheny College is at one end of the range with 1.3 million square feet and Michigan State University at the other with 20 million

square feet. Among state and municipal government Partners, Gillette, WY has committed 190,000 square feet to the Better Buildings Challenge and the State of North Carolina 123 million square feet. Industrial Partners' commitments span from Nissan North America's 3 plants to Saint-Gobain's 118 plants.

Better Buildings Challenge Partners and Allies can be found across the United States. Partners and Allies have headquarters located in 36 different states and the District of Columbia. The map below (Figure 6) shows the location of Partner showcase projects, broken out by Partner type.

Percent of Floor Area by Market Sector (Figure 4)



Range of Portfolio Commitment by Market Sector (Figure 5)

| Smallest | Sector | Largest |
|---------------------|-------------------------|---------------------|
| 5 million sq. ft. | Commercial Real Estate | 100 million sq. ft. |
| 14 million sq. ft. | Retail and Food Service | 173 million sq. ft. |
| 24 million sq. ft. | Healthcare | 30 million sq. ft. |
| 10 million sq. ft. | Hospitality | 24 million sq. ft. |
| 1.3 million sq. ft. | Higher Education | 20 million sq. ft. |
| 700,000 sq. ft. | K-12 School | 24 million sq. ft. |
| 409,000 sq. ft. | Community | 90 million sq. ft. |
| 190,000 sq. ft. | State and Municipal | 123 million sq. ft. |
| 3 plants | Industrial | 118 plants |

U.S. Map with Showcase Projects (Figure 6)



Spotlight: Progress Across a Wide Range of Partners

The Partners listed below demonstrate the diverse array of business types and portfolio sizes that are participating in the Better Buildings Challenge. Each of these organizations is overcoming barriers and driving greater energy efficiency through a commitment to managing energy data across their facilities.



With a commitment of 173 million square feet and more than 850 **commercial buildings**, Macy's has the largest program square footage commitment to date. Since its baseline year of 2009, this department store retail company has achieved a 15% reduction in energy intensity, and nearly 600 buildings achieved reductions of between 10-30% in that time. These savings have been achieved by combining technological solutions, such as the use of LED technology for accent lighting, with an advanced Energy Information System, and by supporting a culture committed to results.



As a **Community Partner**, the District of Columbia's 90 million square foot commitment includes both District-owned and privately held buildings in its downtown core. To achieve its goal of engaging the local community in reducing energy consumption, DC utilized its Sustainable DC community-wide planning initiative, legislation, and public-private partnerships. The District is also working with the utility company Pepco, a participant in the Obama Administration's Green Button Program, to acquire details on energy usage in local government buildings. Through these efforts, the District has been able to share energy data from nearly 40 million privately held square feet with the program so far, in addition to District-owned properties.



Michigan State University's commitment of 20 million square feet includes a wide range of **higher education** facility types and sizes, from the 380,000 square foot Veterinary Medical Center, to the 190,000 square foot Plant Biology Laboratory building, to multiple 500 square foot storage facilities. Since its baseline year of 2010, the university has achieved a 10% reduction in energy intensity, made possible in part through its commitment to submetering as many buildings as possible, and conducting a continuous auditing program of new or newly adjusted systems to ensure efficiency is sustained.



In collaboration with Leading by Example Program goals and initiatives, the Commonwealth of Massachusetts is working aggressively to meet its Better Buildings Challenge goal of reducing state government agency energy use intensity by 20% by 2020. Energy savings are tracked in the **state's** flagship data tracking tool, Mass Energy Insight, and through the ARRA funded real-time metering program, the Enterprise Energy Management System (EEMS), which have enabled the Commonwealth to share comprehensive and detailed energy data with the Better Buildings Challenge for more than 65 million square feet of public space. Since the state's baseline fiscal year of 2009, Massachusetts has achieved an 8% reduction in its energy intensity. Massachusetts will be targeting energy efficiency across more than 50 million square feet of public buildings. The state has also established the Clean Energy Investment Program (CEIP), an internal financing mechanism that uses state bonding authority to finance efficiency projects and uses the savings to pay back the bonds.



Alcoa uses about 40 trillion Btus of energy per year to power 29 **industrial plants**, making it one of the largest energy consumers in the Better Buildings, Better Plants Challenge. Since its baseline year, Alcoa has improved its energy intensity by about 12%, with a 1% improvement coming in 2012. Alcoa has deployed a mix of new technologies and low-cost operational changes to achieve its energy savings. The company recently completed a new, highly efficient recycling plant, for example, and frequently conducts energy kaizens to hunt for low- and no-cost efficiency opportunities at existing plants.



HEI Hotels & Resorts is a hospitality owner and operator of more than 40 well-known **upscale and luxury hotels**, and has achieved a 9% reduction in energy intensity since its 2008 baseline year across more than 10 million square feet. HEI's main energy management tracking tool, the Energy Looking Glass (ELG) dashboard, addresses the barrier of lacking centralized energy information. The ELG tool analyzes key variables such as weather normalized utility consumption and hotel occupancy. It also tracks and compares energy use across each facility. Staff training, effective deployment of capital funds, aggressive capture of State & Utility sponsored rebate programs, employee incentives, and organizational teamwork are other key parts of HEI's energy efficiency strategy.



Portland Public Schools, Oregon, has achieved a 10% reduction in energy intensity across 8 million square feet since its 2009 baseline year, with a 7% reduction achieved in 2012 alone. This **K-12 educational institution** is working to improve energy efficiency across 105 facilities. Nearly two-thirds of these facilities have achieved energy reduction figures of 6% or greater by implementing a range of energy efficiency upgrades and taking advantage of project financing opportunities that include energy savings performance contracts.



Transwestern is a privately-held **real estate firm** specializing in agency leasing, property and facilities management, tenant advisory, capital markets, research, and sustainability, and has committed 78 million square feet. Pennzoil Place in Houston, TX and 815 Connecticut Avenue in Washington, DC are examples of the significant energy savings that Transwestern is achieving across its portfolio. These facilities are expected to achieve 19% and 45% energy savings, respectively. Transwestern's Good, Better... BEST Standards of Sustainability implementation model addresses common barriers to identifying individual buildings that excel in energy efficiency and sustainability, and assisting properties to achieve goals and promote continuous improvements.

What's Next? Learning from Leaders to Accelerate Adoption of Successful Strategies

Better Buildings Challenge Partners are doing more than reducing energy and saving money across their portfolios—they are leaders in sharing their successful approaches to overcoming specific obstacles. Partners are putting in significant efforts to create blueprints of success for others to follow—these models include specific information on the strategy, organizational processes, and outcomes that were utilized to achieve and maintain energy savings goals.

The Department of Energy is helping to share and spur the adoption of these approaches through additional Better Buildings partnerships:

The Better Buildings Alliance includes more than 200 organizations, representing almost 10 billion square feet of commercial building space in both the public and private sectors. These organizations work in collaboration with the Department of Energy through Project Teams focused on specific technology and market-related

solutions that are then adopted by members. Members are asked to set an energy-saving goal (encouraged to be at least 2% per year), provide updates on progress toward that goal, and implement at least one Better Buildings solution per year.

The Better Buildings, Better Plants Program now includes more than 100 manufacturers, covering more than 1,400 plants, which account for about 5% of the total U.S. manufacturing energy footprint. The Department of Energy works with these companies to establish energy performance metrics, outline supporting data collection and analysis, and organize plant-level training. Better Buildings Challenge Partners are providing important solutions to drive faster adoption of these strategies.

To learn more about Better Buildings Challenge participants and their energy efficiency projects, go to: www.energy.gov/betterbuildingschallenge. In addition, follow us on Twitter: @BetterBldgsDOE.

Better Buildings Challenge Partners and Allies

As of May 17, 2013

Corporate Partners

Ascension Health★★
Best Buy
CBRE
Cleveland Clinic Foundation★
Forest City Enterprises★★★
Green Sports Alliance
HEI Hotels & Resorts★★★
IHG★★★
Jones Lang LaSalle★
Kohl's Dept. Stores★★★
Lend Lease★★
Macy's★★
PNC Financial Services Group★
Prologis★
RREEF Real Estate
Shorenstein Properties★★
Staples★★
TIAA-CREF★★★
Transwestern★★
USAA Real Estate★
Walgreens Co.★
Wyndham Worldwide★★★

State and Municipal Partners

Arlington County, VA★★
Arvada, CO
Atlanta, GA★★★
Beaverton, OR★★
Chicago, IL★
Clark County, NV★
Cleveland, OH★★
Columbia, MO★
District of Columbia★★

Delaware★★★
Denver, CO★
East Hartford, CT
El Paso, TX★★
Fort Worth, TX
Gillette, WY
Hall County, GA
Hillsboro, OR★★
Houston, TX★★
Huntington, NY★
Iowa★
Kauai County, HI
Kitsap County, WA★
Knoxville, TN★
Los Angeles, CA★★
Maryland
Massachusetts★★
Medford, MA★★
Milwaukee, WI★
Minnesota★
New Castle County, DE
North Carolina★★
Omaha, NE
Pittsburgh, PA★
Placer County, CA
Roanoke, VA★★
Rochester, NY★
Sacramento, CA
Santa Fe, NM
Seattle, WA★
Spokane County, WA★
Thurston County, WA
Toledo, OH
West Palm Beach, FL
Will County, IL★
Worcester, MA★

Education Partners

Allegheny College★
Camas School District★★

Delaware State University
Douglas County School District★★
Dysart Unified School District
Fort Atkinson School District★★
Houston Independent School District
Kentucky Community and Technical College System
Mesa County Valley School District
Michigan State University★★
Portland Public Schools★★
Poudre School District★★
University of CA, Irvine★★★
University of Hawaii at Manoa
University of Utah★

Industrial Partners

3M★★★
Alcoa, Inc.★★★
Briggs & Stratton★★
Cummins Inc.★★
GE
Johnson Controls★
Legrand★★★
Nissan North America★★
Saint-Gobain Corp.★★
Schneider Electric★
J.R. Simplot★

Financial Allies

Abundant Power★
AFL-CIO★
Blue Hill Partners
Citi★

Clean Fund★★
Energi★
GE Capital
Green Campus Partners★
Greenwood Energy★
Metrus Energy★★
Renewable Funding★
Samas Capital
SCIEnergy★
Ygrene

Utility Allies

Los Angeles Dept. of Water and Power★
Pacific Gas and Electric Company★
Southern California Edison★

New Partners

Boston, MA
Ford Motor Company
Indian River Central School District
New York Presbyterian Hospital
Parmenter Realty Partners
Rhode Island
Sprint
Starbucks Coffee Company
The Tower Companies
University of Pittsburgh Medical Center

Key

- ★ Accomplishment(s):
 - facility-level data reported
 - showcase completed
 - implementation model completed