



Partnering for the Future: Leadership, Innovation, and Proven Solutions

PROGRESS REPORT 2021

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Cover photos feature the following Better Buildings partners [left to right, top to bottom]: Owens Corning; Target; TE Connectivity; The University of Virginia; Whole Foods Market; Gunderson Health System; Arvada, CO; MetLife Investment Management; Shari’s Cafe & Pies; The Wendy’s Company; ArcelorMittal; State of Maryland; Whirlpool Corporation; Hannaford Supermarkets; REI; L’Oréal; University of Maryland Medical Center; Chesapeake College.



Through *Better Buildings, Better Plants*, leading organizations across the U.S. are demonstrating their commitment to use energy more efficiently. In partnership with DOE, they are sharing the solutions needed to tackle our climate crisis, create jobs, and build healthy, safe, and thriving communities.”

Jennifer M. Granholm
Secretary, U.S. Department of Energy

Partners working with the U.S. Department of Energy (DOE) in the Better Buildings Initiative set ambitious goals and contribute the kinds of real-world energy, water, and waste solutions that are accelerating our future toward a clean energy economy. Through their leadership and commitment to transparency, partners demonstrate effective strategies to help address our climate emergency, create jobs, and promote healthy, safe, and thriving communities.

This past year, building owners and plant managers faced significant new barriers to energy efficiency caused by the COVID-19 pandemic. These challenges included dramatic fluctuations in occupancy levels, the need for increased ventilation, the repurposing of budgets, and layoffs and staffing disruptions. Despite these difficulties, many partners continued to prioritize energy efficiency and found ways to meet the challenge of operating during a pandemic, while taking advantage of reduced occupancy in buildings and plants to make upgrades.

In the past year, Better Buildings partners:

- ▶ **Achieved Impressive Energy and Cost Savings**
The 950+ private and public sector Better Buildings partners have collectively saved more than 2.2 quadrillion British thermal units (QBTU) of energy since the start of the program. This amounts to a savings of more than \$13 billion and 130 million tons of CO₂. Partners also have reduced their water use by more than 10.2 billion gallons.
- ▶ **Shared Solutions and Collaborated to Overcome Barriers**
Partners shared portfolio-wide, clean energy strategies and real-world solutions with the marketplace. Best-practice efficiency measures that have been implemented in buildings and plants are highlighted in peer-to-peer events and featured in the tools, in-plant trainings, and other resources distributed by DOE.
- ▶ **Advanced Innovative New Technologies**
Partners tested, validated, and helped disseminate new energy-, water-, or waste-saving technologies in their buildings and plants. They participated in technology campaigns led by experts from DOE's National Labs and signed up for technical field validation studies.
- ▶ **Embraced New Opportunities**
Many partners have also set waste and water reduction goals to complement their energy reduction commitments. Additionally, more than 50 partners joined a pilot effort to demonstrate pathways to achieve low carbon emissions from building and manufacturing operations by leveraging on-site and off-site renewables and other low carbon energy generation options.

DOE and its partners are exploring new strategies and solutions in four key areas essential to building a more efficient and cost-effective energy future:



MARKET LEADERSHIP

More than 360 *Better Buildings Challenge* partners have saved more than \$6 billion since program inception.



BETTER INFORMATION

More users explored the resources on the *Better Buildings Solution Center*, leading to 50% more visitors over the past year.



WORKFORCE DEVELOPMENT

More than 2,400 workers participated in *In-Plant Trainings* since 2011, identifying \$50 million in potential savings, and nearly 40 organizations have joined the new *Workforce Accelerator*.



INNOVATION AND EMERGING TECHNOLOGIES

More than 220 organizations signed up for the latest *Better Buildings Technology Campaigns*.

Better Buildings Solution Center

DOE's *Better Buildings Solution Center* is the place to find proven and cost-effective energy, water, and waste efficiency solutions by barrier, building type, sector, technology, and more. There are now more than 3,000 solutions contributed by partners and others available online.

The latest Solution Center resources are highlighted throughout the pages of this report. These include:

- ▶ New or updated information hubs and portals on key topics and 10 new toolkits designed to help you take action. [SEE PAGES 9-10](#)
- ▶ Case studies and new resources for waste reduction and water savings. [SEE PAGES 13-15](#)
- ▶ Examples of partners prioritizing energy equity. [SEE PAGE 18](#)
- ▶ Sector-specific partner solutions. [SEE PAGES 19-38](#)



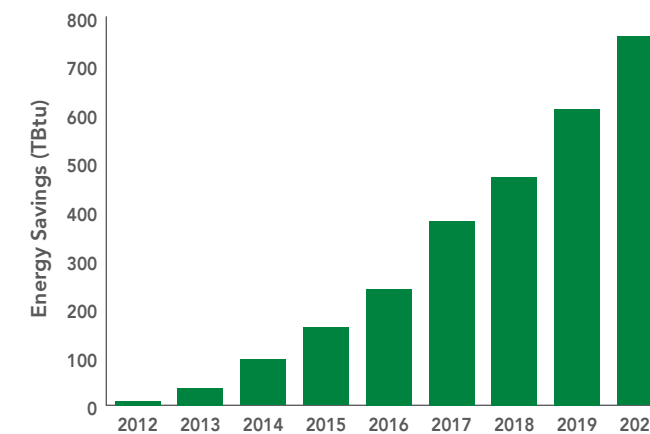
Partners represent more than 30 of the country's Fortune 100 companies, 12 of the top 25 U.S. employers, 12% of the U.S. manufacturing energy footprint, and 13% of total commercial building space, as well as 17 Federal agencies, 8 national laboratories, and more than 80 state and local governments spanning the nation.

More than 950 organizations participate in the Better Buildings Initiative. They represent market leaders in nearly every sector, including industrial, commercial, public, education, multifamily, and residential. These organizations include state and local governments and school districts that serve the nation's citizens, as well as nearly one-third of the Fortune 100 companies that provide millions of jobs and help fuel the economy.

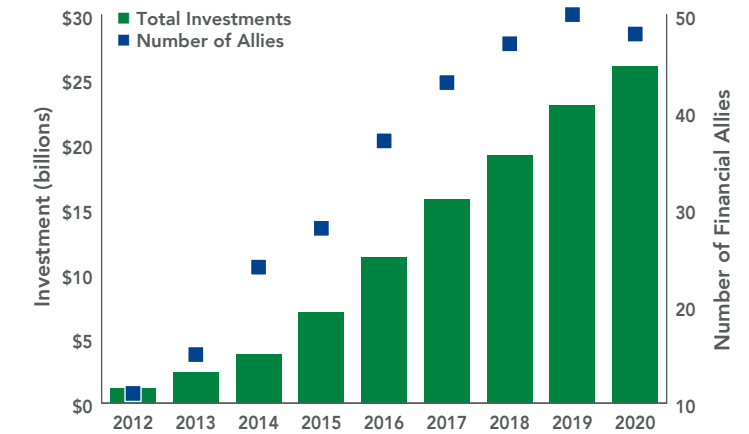
- ▶ Better Buildings partners have achieved the following:
 - More than 360 partners have joined the Better Buildings, Better Plants Challenge, collectively reporting 760 trillion Btu (TBtu) in energy savings and more than \$6 billion in cost savings to date.
 - Through 2020, Challenge partners have shared energy performance results for more than 40,000 properties and are saving an average of more than 2% in energy per year.
 - More than 10 new partners have joined the Better Buildings, Better Plants Challenge in the past year.
- ▶ Nearly 250 Better Plants partners located in all 50 states have reported 1.7 QBtu in energy savings and more than \$8 billion in cost savings to date.
 - More than 15 new partners have joined Better Plants in the past year.
 - There are more than 300 industrial sector solutions on the Solution Center.
- ▶ Financial Allies extended more than \$26 billion since the start of the program, including more than \$3 billion in the past year. Allies have now surpassed their commitments by more than \$14 billion.
- ▶ The Smart Energy Analytics Campaign closed in 2020, with participants projected to save \$95 million annually through the use of Energy Management Information Systems (EMIS) technologies and ongoing monitoring practices.
- ▶ More than 50 partners joined the new Low Carbon Pilot to demonstrate different pathways for achieving low carbon emissions in buildings and manufacturing facilities.
- ▶ More than 400 organizations to date have joined the Better Buildings Residential Network, with 28 new members joining and nearly 300,000 home energy upgrades completed in the past year.
- ▶ Through DOE's strategic energy management activities, more than 50 organizations have worked to develop energy management systems that are consistent with ISO 50001.

Despite unprecedented difficulties caused by COVID-19, partners in the Better Buildings Initiative continue to demonstrate leadership by prioritizing energy reduction approaches that positively impact communities and economies across the nation. Since 2012, Challenge partners have saved enough energy to power nearly 9 million homes in the United States for one year. Savings in some sectors were higher than usual due to temporary building closures and reduced building occupancy (e.g., commercial real estate, K-12 schools), while savings for other sectors were lower due to people spending more time at home (e.g., multifamily properties).

Better Buildings Challenge Cumulative Energy Savings



Total Investment and Ally Growth by Year



Overall Better Buildings Initiative Results to Date			
Energy Saved	2.2 QBtu	Square Feet	12.5 billion
Dollars Saved	\$13.5 billion	Industrial Facilities	3,200
Avoided CO ₂ Emissions (metric tons)	133 million	Funding Extended by Allies	\$26 billion
Water Savings (gallons)	10.2 billion	Partner Solutions Available Online	3,000

Better Buildings Partners by Program					
Better Buildings, Better Plants Challenge	INDUSTRIAL SECTOR	COMMERCIAL SECTOR	PUBLIC SECTOR	MULTIFAMILY SECTOR	FINANCIAL ALLIES
	52 Partners	98 Partners	76 Partners	92 Partners	48 Allies
Better Buildings Alliance		950+ UNIQUE PARTNERS		Better Plants	
165+ Partners				240+ Partners	
Better Buildings Accelerators			Other Better Buildings Partners		
285+ Partners			50+ Partners		

Energy Savings Challenge Goal Achievers



49%

BRIDGE Housing is a multifamily partner located in San Francisco, CA. It committed 10 million square feet and has a baseline of 2010.



23%

City of Orlando, FL, committed nearly 5.7 million square feet and has a baseline of 2011.



28%

Pasadena Independent School District, TX, committed 10 million square feet and has a baseline of 2018.



21%

Cleveland Housing Authority is a multifamily partner located in Cleveland, TN. It committed 295,000 square feet and has a baseline of 2016.

Steelcase

26%

Steelcase, Inc., is an industrial partner located in Grand Rapids, MI. It committed 5 facilities and has a baseline of 2010.



20%

Walgreens is a retail partner located in Deerfield, IL. It committed 100 million square feet and has a baseline of 2011.



25%

Ford Motor Company is an industrial partner located in Dearborn, MI. It committed 22 facilities and has a baseline of 2011.



15%

Owens Corning is an industrial partner located in Toledo, OH. It committed 62 facilities and has a baseline of 2018.



25%

Orange Water and Sewer Authority is an industrial partner located in Carrboro, NC. It committed 7 facilities and has a baseline of 2013.

Water Goal Achiever



23%

University of Nebraska Medical Center is a commercial partner located in Omaha, NE. It committed 6.8 million square feet and has a baseline of 2012.

Financial Allies Goal Achievers



\$616 MILLION

Bostonia Partners has surpassed a goal of \$500 million in financing for energy efficiency and/or renewable energy. It is headquartered in Boston, MA.



\$18 MILLION

Allumia has surpassed a goal of \$15 million in financing for energy efficiency and/or renewable energy. It is headquartered in Seattle, WA.

In the coming year, DOE and its partners will help drive transformative change on the issues that matter most as the nation strives to address its energy and environmental challenges. By focusing on the topics below, DOE will support healthy, safe, and thriving communities. DOE will also be working through Better Buildings, Better Plants to showcase successful energy-reduction projects benefiting disadvantaged communities as well as other ways to ensure greater equity and technical assistance where it is needed.

Working with Partners in a Pilot Effort to Reduce Carbon Emissions

Buildings and manufacturing plants account for roughly two-thirds of U.S. CO₂ emissions.¹ Many organizations recognize that enterprise-wide carbon reduction goals are central to efficient operations and robust financial performance. Through Better Buildings, Better Plants, DOE is working with industry leaders to explore low carbon pathways. Over the next two years, DOE and its partners will collaborate in a Low Carbon Pilot to identify an array of approaches to decrease carbon emissions from building and manufacturing operations and will share these solutions with the market.

Building a Strong Energy Workforce

Millions of Americans work on the energy infrastructure that powers the United States and in the buildings that power our economy. To keep our nation moving forward, that infrastructure needs to be maintained by a skilled workforce. Through Better Buildings, DOE partners with organizations to support and grow our energy efficiency workforce by connecting it to training, education, and job opportunities. These opportunities are available on the Better Buildings Solution Center and through the activities of the Better Buildings Workforce Accelerator.

Focusing on Key Technology Areas

Through the Better Buildings Alliance, DOE will continue helping organizations explore and apply cutting-edge technologies through the following campaigns and partnerships:

- ▶ **Integrated Lighting Campaign.** Exploring advanced uses of sensors and controls in lighting and the integration of lighting with other building and business systems.
- ▶ **Building Envelope Campaign.** Encouraging the use of building envelope tools and technologies to create more energy-efficient buildings.
- ▶ **EMIS Technology Research Team.** Pursuing additional research on machine learning applications for commercial building controls and EMIS.
- ▶ **IoT (Internet of Things) Upgradeable Lighting Challenge.** Creating a partnership of end users, utilities, and specifiers to accelerate the widespread adoption of IoT-upgradeable luminaires.



Recent Highlights

- ▶ More than 50 partners across sectors have joined the new [Better Buildings Low Carbon Pilot](#), committing to pursuing low carbon emissions strategies at two or more buildings or plants in two years.
- ▶ More than 100 organizations joined the four latest [Better Buildings Accelerators](#) to speed up investments in efficiency and tackle persistent barriers in the areas of workforce development and packaged combined heat and power (CHP) while making infrastructure upgrades in critical sectors like wastewater and correctional facilities.
- ▶ More than 20 organizations are participating in the [Design and Construction Allies program](#), launched in October 2020, to enable routine design and delivery of zero-ready buildings and identify and address barriers to delivering more zero-ready buildings.



Market Leadership



Better Information



Recent Highlights

- ▶ Over 35,000 users have accessed the [Better Buildings Financing Navigator](#) since its launch for energy efficiency and renewable energy financing solutions.
- ▶ The [E-Learning Center](#) provides access to dozens of sustainability and energy reduction training and educational opportunities provided by DOE and Better Buildings Affiliates.
- ▶ The [Better Plants Online Learning Series](#) helps educate Better Plants partners on topics from energy management technologies to measuring and tracking energy data.
- ▶ The [Better Buildings Webinar Series](#) and [on-demand webinar library](#) offer more than a hundred presentations on topics such as financing, renewables, and resilience.

Organizations collaborate with DOE through the following Better Buildings Initiative partnership programs:

- ▶ Better Buildings Challenge
- ▶ Better Buildings, Better Plants
- ▶ Better Buildings Alliance
- ▶ Better Buildings Accelerators



- ▶ Better Buildings Residential Network
- ▶ Strategic Energy Management
- ▶ Home Energy Score
- ▶ Technology Campaigns
- ▶ High-Impact Technology Field Validations
- ▶ Better Buildings Technology Teams
- ▶ Industrial Energy Management Workforce

Recent Highlights

- ▶ Participants in the [Smart Energy Analytics Campaign](#) leveraging EMIS technologies are projected to reduce energy use by more than 4 TBtu across more than 550 million square feet.
- ▶ [Building Envelope Campaign \(BEC\)](#) participants submitted buildings totaling nearly 1 million square feet, with envelope improvements expected to result in an energy savings of over 7 million kBtu per year.
- ▶ The [Industrial Technology Validation \(ITV\)](#) pilot launched to help partners assess the performance of new technologies in a real-world industrial environment.

Innovation and Emerging Technologies



Workforce Development



Recent Highlights

- ▶ The [Workforce Development Portal](#) launched on the Solution Center to provide job seekers with the resources and information they need to take meaningful steps toward pursuing an impactful career in energy efficiency.
- ▶ Participants in the [Better Buildings Workforce Accelerator](#) are working to raise the level of building science and energy efficiency knowledge in the nation's workforce by improving building science curricula in education and training systems and showcasing career opportunities and pathways.
- ▶ [Better Plants In-Plant Trainings \(INPLTs\)](#) were converted to virtual trainings to help partners whose employees are working remotely continue to uncover energy savings opportunities within their plants.



Click on the menu to navigate directly to the Better Buildings Solution Center



SOLUTIONS ▾ PROGRAMS & PARTNERS ▾ EVENTS & WEBINARS ▾ LEARN MORE ▾

EXPLORE BY TOPIC ▾ BROWSE SOLUTION TYPES ▾ TOOLKITS ▾ FINANCING NAVIGATOR RESILIENCE CHP ▾ RENEWABLES COVID-19

Renewable Energy Resource Hub

The Renewable Energy Resource Hub is a one-stop shop for organizations, providing dozens of tools, resources, and best practices to help them learn about renewable energy. Incorporating renewables like solar and wind can help already efficient organizations pursue further sustainability and emissions reduction goals.

FIND RENEWABLE ENERGY SUPPORT:

- ▶ Renewables basics
- ▶ The business case and making renewable energy work for you
- ▶ Financing for your renewable energy projects
- ▶ Resources to address physical limitations



Technology Validation

Field Validation Results

This resource provides information about completed and ongoing technology field validations, demonstrating the use of innovative technologies through robust testing, measurement, and verification. Field validations occur in occupied, operational buildings so that organizations can use the findings to make better decisions. Data and outcomes from completed field validation tests are available for the following technologies: HVAC, lighting, building envelope, data management, plug loads, refrigeration, and water.

Industrial Technology Validation Pilot

The Better Plants program partnered with Lawrence Berkeley National Lab (LBNL) and Oak Ridge National Lab (ORNL) to launch a new Industrial Technology Validation (ITV) pilot to help industry better identify and evaluate innovative technologies by hosting field validation testbeds. The pilot's initial phase opened exclusively to Better Plants partners who wanted to test innovative energy-, water-, or waste-saving technologies in their plants.

COVID-19 Building Operations Resources

This resource center provides guidance from Better Buildings partners, affiliates, and other organizations to help address the unprecedented energy-use impacts created by COVID-19. The resources include information and strategies for building operations and maintenance to mitigate negative impacts and take advantage of new opportunities.

RESOURCE CATEGORIES

- ▶ Energy Implications
- ▶ Ventilation, Filtration, and Other HVAC
- ▶ Waste Systems and Plumbing
- ▶ Virtual Events and Webinars



Workforce Development Portal



This portal contains a collection of guides, trainings, on-demand webinars, and links to related organizations designed to help people looking to start or advance a career in energy efficiency. Resources are available for both for recent graduates and established professionals.

RESOURCE CATEGORIES

- ▶ Career Guidance
- ▶ Curricula and Credentials
- ▶ Continuing Education and Training
- ▶ Internships and Opportunities

New Solution Center Toolkits

Better Buildings toolkits contain guidance, resources, and proven best practices for overcoming common barriers to financing, technology implementation, data management, and more. Some toolkits are born from the work of Accelerator partners, while others are generated from other program activities. Ten new toolkits were created in the past year:

- ▶ [Commercial PACE Financing for New Construction](#)
- ▶ [Data Center Accelerator Toolkit](#)
- ▶ [Energy Treasure Hunts](#)
- ▶ [Finance & Resilience Roadmap Toolkit](#)
- ▶ [Making the Business Case for Energy Efficiency in Commercial Buildings](#)
- ▶ [Smart Energy Analytics Campaign Toolkit](#)
- ▶ [Smart Labs Accelerator Toolkit](#)
- ▶ [Understanding Plug and Process Load Controls for Your Buildings](#)
- ▶ [Upgrade Your Interior Lighting to High-Efficiency Solutions](#)
- ▶ [Upgrade Your RTU to High-Efficiency](#)
- ▶ [Wastewater Energy Management Toolkit](#)

Better Buildings Accelerators are targeted, short-term, partner-focused efforts to address persistent barriers to efficiency. The goal of each Accelerator is to speed up investment in energy efficiency by demonstrating what's possible through the development of related toolkits, case studies, and market research.

Completed Accelerators

Nearly 20 Accelerators have been launched to date, more than half of which have completed their work. Visit the [Accelerator landing page](#) on the Solution Center for resources and materials available to help overcome barriers in the following topic areas:

- ▶ Building Energy Data Analysis
- ▶ CHP for Resiliency
- ▶ Clean Energy for Low-Income Communities
- ▶ Combined Heat and Power for Resiliency
- ▶ Data Centers
- ▶ Energy Data
- ▶ Energy Savings Performance Contracting
- ▶ Home Energy Information
- ▶ Home Upgrade Program
- ▶ Industrial Superior Energy Performance
- ▶ Outdoor Lighting
- ▶ Smart Labs
- ▶ Sustainable Wastewater Infrastructure of the Future
- ▶ Zero Energy Districts
- ▶ Zero Energy Schools

Packaged Combined Heat and Power Accelerator

Partners are validating a 20% or more reduction in installation times and total project costs for pre-engineered, technically validated packaged CHP systems.



HIGHLIGHTS

- ▶ Nearly 40 Packagers and 25 Solution Providers have contributed to the Packaged CHP eCatalog, which was launched in February 2019.
- ▶ More than 270 recognized packaged CHP offerings are now available in the eCatalog, including 120 added in the past year.
- ▶ There are more than 340 registered users of the eCatalog.

Sustainable Corrections Accelerator

Partners are leveraging energy and water efficiency, renewable energy, and storage technologies to achieve portfolio-wide energy savings of 20% and create replicable solutions to catalyze energy resilience in the corrections sector.



HIGHLIGHTS

- ▶ The Accelerator was launched in January 2021 with 16 partners, including 15 states and one county, representing one-quarter of the nation's prisons.
- ▶ Partners are currently building and reinforcing their data management systems, implementing tools and processes to help them evaluate their facilities' current energy and water performance, track their progress, and analyze the data to inform their facility upgrade decision-making.

Sustainable Wastewater Infrastructure Accelerator 2.0

Partners are advancing sustainable water resource recovery facilities through data management, energy efficiency improvements, advanced technology integration, and project financing.



HIGHLIGHTS

- ▶ Launched in October 2020, the Accelerator's 19 signatory partners from the state and local government sectors have committed to achieving energy savings and implementing next-generation technologies around renewable energy, resource recovery, and advanced data management.
- ▶ Participants are building off the success of SWIFt Phase 1, through which facility partners reduced their total energy consumption by almost 7% in three years and put plans in place for 30% long-term energy savings.

Workforce Accelerator

Partners are working to increase interest in building energy efficiency careers, improve curricula, and streamline career pathways to these careers.



HIGHLIGHTS

- ▶ Since the Accelerator's launch in June 2020, nearly 40 partners have joined the effort.
- ▶ Accelerator partners have set goals to train more than 37,000 workers.
- ▶ Training, education, and job opportunities highlighted by the Accelerator are available on the [Better Buildings Workforce Development Portal](#).
- ▶ DOE established an online learning community for more than 100 participating partners to collaborate and access shared resources.

The United States generates 2.7 billion tons² of industrial solid waste and more than 290 million tons³ of municipal solid waste per year.



The [Better Buildings Waste Reduction Pilot](#) explores the intersection between waste and energy. More than 45 organizations in the pilot contribute to resources that improve waste reduction, maintain competitiveness, and save money. Sectors represented in the pilot include a wide range of manufacturers, healthcare organizations, commercial real estate companies, retailers, multifamily organizations, and governments.

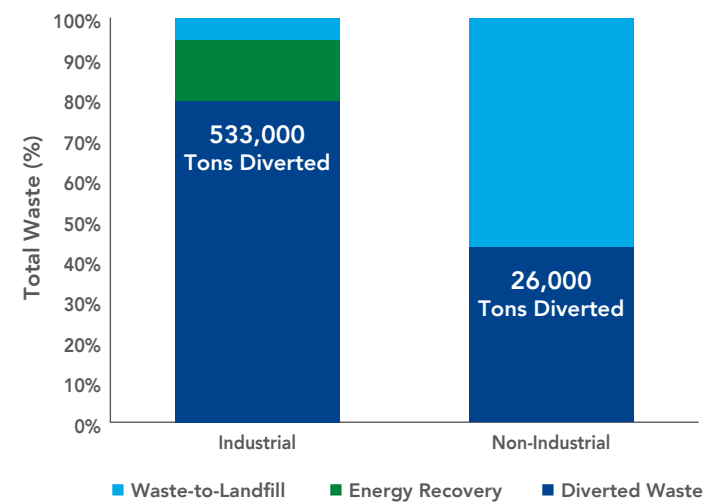
In the past year, pilot participants:

- ▶ Contributed to a new [resources page](#) that highlights solutions for organizations looking to increase waste diversion, decrease source generation, recover energy, and create financial savings.
- ▶ Participated in working groups on the following topics:
 - Best practices on plastic waste reduction and recycling in the industrial sector, and exploration of software tools and other advances from DOE's Advanced Manufacturing Office R&D Consortia.
 - Outreach and engagement strategies, leading to the development of a [fact sheet](#) summarizing key best practices related to outreach and engagement in the commercial sector.
 - Data and measurement barriers and solutions, covering issues like data availability, accuracy, and analytics in the commercial sector.
- ▶ Hosted a [peer exchange](#) for healthcare and pharmaceutical companies to discuss shared challenges, opportunities for improvement, and successes in their respective sectors.

Increasing Waste Diversion

In 2020, a number of industrial and non-industrial partners saw reductions in their waste due to COVID-19 impacts on production at manufacturing facilities and reduced occupancy at many commercial and government buildings. Industrial partners have improved diversion rates through process optimization, materials reuse, and employee engagement. Non-industrial partners utilize tenant engagement, signage campaigns, and composting and recycling programs, but often have less control over waste brought on-site.

Waste Management for Industrial and Non-Industrial Reporting Pilot Partners, 2020



SOLUTION CENTER CASE STUDIES: IMPROVING WASTE REDUCTION

Armstrong Flooring

Lifecycle Analysis to Model Energy and Resource Use

INDUSTRIAL SECTOR

In addition to recycling certain types of plastic films that would otherwise be landfilled, Armstrong Flooring has been using lifecycle assessment as a roadmap to improve its products and minimize energy and resource consumption in its production processes. The lifecycle analysis approach includes:

- ▶ Running iterative scenarios to assess the impacts of the ingredients in a product's "recipe" and connect the product to the most environmentally friendly materials available from the supply chain.
- ▶ Modeling the impacts if a waste stream goes to a landfill and if there is any energy recovery potential before the waste stream ends up there.
- ▶ Breaking down the carbon sources within a product to see how the carbon footprint changes depending on how different materials are used to make it.

Steelcase, Inc.

"Hack the Pack" Finds New Ways to Use Materials More Efficiently

INDUSTRIAL SECTOR

Steelcase formed a design-thinking workshop called "Hack the Pack," bringing together a cross-functional team to find ways to change product packaging. The one-day workshop included 11 participants from seven groups and focused on:

- ▶ Reducing the number of wood reinforcements in one package design, saving over 13,000 pounds per year. Further testing is ongoing to see if wood reinforcements can be removed completely.
- ▶ Eliminating the use of foam in two types of packaging, making the packs 99% cardboard and widely recyclable.

Sprint

Systematic Approach to Waste Management

RETAIL, FOOD SERVICE, AND GROCERY SECTOR

Sprint, now part of T-Mobile, has a goal to divert 50% of its operational waste stream (as measured in volume) from the landfill by 2025. Its approach includes the following:

- ▶ Following the five R's: refuse, reduce, reuse, rot, recycle.
- ▶ Emphasizing education and behavior change by keeping communications fresh and interesting.
- ▶ Regularly monitoring each facility's diversion rate to identify shifting behavior or equipment needs.
- ▶ Adjusting service levels and rate optimizations as headcount or project activity changes.
- ▶ Segregating old corrugated cardboard for the hauler and offering paper shredding to employees.

Beaverton, OR

User Testing for Effective Waste Signage

LOCAL GOVERNMENT SECTOR

The City of Beaverton, OR, conducted user testing to develop effective and easy-to-understand waste signage. A diverse group of multifamily residents and community-based organizations contributed, with residents providing feedback via printed surveys and over the phone.

Results showed that the best design contained the following features:

- ▶ Individual colorful photographs for items that are both accepted and not accepted.
- ▶ Images included in garbage decal and enclosure signage.
- ▶ Brief wording for items that are both accepted and not accepted.



Through 2020, partners have saved a total of 9 billion gallons, which is enough water to fill more than 15,000 Olympic-sized swimming pools.

The efficient use of water 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. DOE is working with partners through the Better Buildings Water Savings Initiative to set water reduction goals and share proven solutions for overcoming water reduction barriers. The Better Plants program also launched a new In-Plant Training offering to help manufacturers understand the true costs of water and assess water efficiency opportunities.

Water Goal Achievers to Date



Leadership in Action

- ▶ **Bridgestone Americas, Inc.**, launched a campaign to eliminate the use of hot water from the tire curing process and replace it with a nitrogen process, resulting in an annual reduction of more than 15,000 metric tons of CO₂ emissions and nearly 13 million gallons of water saved, with a 3.6-year payback.
- ▶ **Stanford University's** cutting-edge District-Level Heat Recovery System transformed the university's energy supply from a natural-gas-powered cogeneration plant to an electricity-powered heat recovery plant, reducing campus greenhouse gas emissions by nearly 70% and potable water use by 15%.

SOLUTION CENTER CASE STUDY

University of Nebraska Medical Center (UNMC)

UNMC achieved its water goal this year after achieving 23% water savings across a portfolio of nearly 7 million square feet. In addition to establishing an employee engagement program, the partner improved cooling tower efficiency and replaced non-recirculating cooling systems on freezers, MRI machines, and electron microscopes, among other measures. UNMC has set ambitious 2030 goals to achieve net-zero emissions, net-zero waste, and reduce water use by 120 million gallons to achieve net-zero water.



Through Better Buildings, DOE recognizes partners to celebrate their achievements and accelerate the adoption of their best practice approaches. Here are some examples of partners recognized in the past year:

State of Maryland

- VIDEO HIGHLIGHT
- VIRTUAL TOUR
- PROGRESS ALERT
- MEDIA COVERAGE

In December 2020, DOE and Maryland staff virtually toured the state's Western Maryland Railway Station, a historic site recognized by DOE for saving more than 20% annually on energy costs compared to a 2016 baseline. Maryland staff outlined several of the state's efficiency strategies for reaching and exceeding its Better Buildings Challenge goal.



Iron Mountain Data Centers

- VIDEO HIGHLIGHT
- VIRTUAL TOUR
- PROGRESS ALERT
- MEDIA COVERAGE

In March 2021, DOE and Iron Mountain Data Centers (IMDC) staff virtually toured three data centers to showcase the company's cutting-edge energy efficiency technologies. Since joining the Better Buildings Challenge in 2016, IMDC met its first goal of saving 20% in energy costs and has set a new goal of improving data center power usage efficiency by 30% over a five-year period across three data centers—or nearly 600,000 square feet of built space. At the Boyers, PA, data center located inside a former limestone mine, IMDC achieved nearly 35% annual energy savings by using geothermal energy combined with a high-efficiency chiller plant.



Ford Motor Company

- VIDEO HIGHLIGHT

In April 2021, Ford Motor Company created a virtual tour of its Central Energy Plant (CEP) at the Dearborn Research and Engineering Center. A three-way partnership between Ford Motor Company, DTE Electric, and DTE Energy Services, the plant was named a 2020 Better Plants Better Project Winner for its efficiency upgrades and technological improvements that are on track to yield a 50% reduction in energy and water use. Ford Motor Company achieved its energy reduction goal this year, with 25% savings from a 2011 baseline.



DOE uses the following platforms to recognize partner successes and share the latest program news:



The partners in DOE’s Better Buildings Initiative represent virtually every sector of the American economy. In improving energy, water, and waste efficiency, these organizations are creating new jobs and contributing to a cleaner environment.

Better Buildings partners are:



In the past year, partners also had to contend with the impacts of the COVID-19 pandemic, as described below. The Sector Spotlights in the pages that follow include examples that illustrate their leadership, along with the latest resources developed through Better Buildings to help them and others.

Better Buildings partners are increasingly complementing their energy reduction strategies with renewable energy and setting aggressive carbon-reduction goals to drive change within their organizations. Nearly half of the Better Buildings Challenge partners, for example, have public enterprise-wide carbon or renewable energy goals, and many other partners without public goals are piloting significant clean energy projects. Partners have begun to implement various decarbonization strategies to reduce their emissions, such as the following:

- ▶ Using carbon emissions to assess energy projects.
- ▶ Increasing the use of electric vehicles.
- ▶ Engaging with the supply chain to reduce scope 3 emissions.
- ▶ Electrifying building stock.
- ▶ Installing solar photovoltaic (PV) panels on roofs during upgrades.
- ▶ Purchasing green power where available.
- ▶ Using energy storage solutions to aid in grid demand and increase resiliency.

limited their energy consumption during times of closure by adjusting lighting, heating, and cooling to match reduced occupancy levels. Partner data show that the higher education sector showed the greatest reduction in energy use compared to 2019, followed by the retail and K–12 sectors.

- ▶ Counter to expectations, many **multifamily** partners either found increased energy savings or experienced energy use increases of 5% or less during the pandemic. This trend may be because many residents in multifamily housing are essential workers or senior citizens.
- ▶ Because of their position on the front lines of the pandemic, **healthcare** sector partners experienced increased activity because of COVID care, while also seeing decreased activity in nonessential medical procedures. The net effect compared to the previous year was minimal change in energy consumption.

Equity in Energy

Better Buildings partners are demonstrating that investing in energy improvements within disadvantaged communities can result in significant energy savings, while providing more equitable benefits. In the multifamily sector, for example, nearly 90 Better Buildings Challenge multifamily partners provide energy-efficient, affordable housing to 550,000 low- to moderate-income households. These partners have cumulatively reduced their properties’ energy intensity by 5%, which equals \$34 million in cost savings on tenant and owner energy bills and U.S. Department of Housing and Urban Development (HUD) utility allowance expenses, while improving indoor environmental quality and the health and comfort of residents.

In the K–12 sector, 57% of schools (about 700 sites across 25 school districts) in the Better Buildings Challenge are classified as Title I, a federal proxy for low income based on the percentage of students eligible for free and reduced-price lunch. DOE is conducting research for targeted opportunities to promote deeper energy savings and clean energy investments at Title I schools to help address inequities in disadvantaged communities.

PARTNER CASE STUDY

Low-Income Energy Affordability

STATE GOVERNMENT SECTOR

The **State of Rhode Island** and **Commonwealth of Kentucky** leveraged DOE’s **Low-Income Energy Affordability (LEAD) Tool** to prioritize energy affordability and clean energy in low-income housing. Created through the Clean Energy for Low-Income Communities Accelerator (CELICA), the tool identifies counties with the highest energy burden so funds can be more equitably allocated to support home repairs, weatherization upgrades, and other energy efficiency solutions. CELICA was created to help state and local partners across the nation meet their goals for increasing uptake of energy efficiency and renewable energy technologies in low- and moderate-income communities. Partners committed \$335 million to help 155,000 low-income households access energy efficiency and renewable energy benefits, collecting resources and lessons learned into the **CELICA toolkit**.

PARTNER CASE STUDY

Housing for Health Fund

MULTIFAMILY SECTOR

Three Better Buildings partners, **East Bay Asian Local Development Corporation (EBALDC)**, **Kaiser Permanente**, and **Enterprise Community Partners**, are part of the San Francisco Bay Area’s Housing for Health Fund, an initiative that works to preserve housing affordability and improve the health of low-income families through energy efficiency and healthy home upgrades. EBALDC implements energy efficiency retrofit measures while working with Enterprise to administer health action plans to identify health gaps in housing and surrounding communities. Kaiser Permanente has invested \$15 million in the fund and will match up to \$35 million in additional funds raised by Enterprise.

PARTNER CASE STUDY

Greening Affordable Housing

MULTIFAMILY SECTOR

Four Multifamily Challenge partners—**Jonathan Rose Companies**, **REACH CDC**, **Aeon**, and **Rural Ulster Preservation Company**—contributed to a 2020 book titled “Blueprint for Greening Affordable Housing.” The book examines how green building principles can be incorporated into affordable housing design, construction, and operations to provide housing stability while reducing environmental and climate impacts. The partners provided best-practice case studies detailing innovative technical approaches, the latest financing strategies, and adherence to green building certification requirements to provide high-performing, healthy buildings for low-income families. Green affordable housing projects are an example of restorative environmental justice that addresses human needs for both housing and a healthy environment.

244
UNIQUE SECTOR PARTNERS

52
CHALLENGE PARTNERS

192
BETTER PLANTS PARTNERS

3,200+ FACILITIES

\$8.2 BILLION SAVED SINCE 2009

The U.S. industrial sector accounts for more than 30% of the nation's energy consumption—equivalent to the eighth-largest economy in the world in terms of gross domestic product.⁴ An increasing number of industrial organizations are pursuing innovative solutions to improve energy performance to cut costs and improve competitiveness. While Better Plants started with just 32 partners, it has since grown to encompass nearly 250 partners who have committed to setting ambitious energy, water, and waste efficiency goals.

In response to the COVID-19 pandemic, DOE, through the Better Plants program, created new resources and developed alternative approaches for sharing solutions and best practices, including the following:

- ▶ Highlighted partner best practices for dealing with COVID-19 in a new guide, "Industrial Energy Management During a Pandemic."
- ▶ In spring 2020, launched an [Online Learning Series](#) to connect industrial partners with a variety of energy management principles, resources related to specific technological focus areas, and tools to measure and track energy data.
- ▶ Piloted a [Virtual Cohort of In-Plant Trainings](#) on industrial refrigeration systems and wastewater treatment operations, among other topics.
- ▶ Published a [Science-Based Targets \(SBT\) guide](#) on how energy savings can translate to an SBT goal with the help of Better Plants tools and resources, and a "QuickStart" guide introducing energy efficiency for small to medium manufacturers.

Energy Goal Achievers That Repledged

The following partners demonstrated significant leadership by setting follow-up energy reduction goals after achieving their original Better Plants goals.



[VIEW ALL BETTER PLANTS GOAL ACHIEVERS](#)

[VIEW 2020 BETTER PLANTS PROGRESS UPDATE](#)

*CHALLENGE PARTNER ~MET SECOND GOAL

Leadership in Action

The Better Practice and Better Project Awards recognize partners for innovative and industry-leading accomplishments in implementing and promoting practices, principles, and procedures of energy management and for implementing energy efficiency projects. Award winners include the following:

- ▶ **3M** implemented a real-time, batteryless steam trap cloud monitoring system that saves more than 10 million pounds of steam per year.
- ▶ **Bendix Commercial Vehicle Systems** developed a zero waste-to-landfill certification process that led to a 98.5% reduction in the total waste sent to landfill in one year.
- ▶ **Celanese Corporation** created a sustainability checklist that is being rolled out for all new capital projects greater than \$50,000 across the company.
- ▶ **Flowers Foods, Inc.**, redesigned and rebuilt an existing bread plant to produce organic bread that includes a variety of sustainability features that reduced annual energy and water consumption by more than 22% and 64%, respectively.
- ▶ **General Motors** established an "Energy and Carbon Optimization (ECO) Toolbox" that has helped identify cumulative annual energy savings opportunities of more than \$2 million at six sites so far.
- ▶ **Graham Packaging** upgraded a facility air and water management system that led to an 11% reduction in annual electricity usage.
- ▶ **Lineage Logistics** cultivated and empowered an innovative data science team that has earned 13 patents and saved millions of dollars in annual energy costs through advancements in energy operations and technology adoption.
- ▶ **Lockheed Martin** optimized a facility's cogeneration system and central utility plant, saving more than \$3 million in annual energy costs with a 2.3-year payback.
- ▶ **Nissan North America** upgraded air handling unit-controls to enable automatic maintenance of temperature and air quality, saving more than \$200,000 and 1,800 metric tons of CO₂ per year.
- ▶ **Owens Corning** implemented an advanced HVAC control system at two facilities that optimizes the use of outside air and adjusts equipment sequences and setpoints, saving a combined \$350,000 per year.
- ▶ **Saint-Gobain Corporation** created a "Green Awards" program to highlight and recognize individual researchers for their sustainability-related R&D projects.
- ▶ **Steelcase, Inc.**, launched a "Hack the Pack" workshop with a cross-functional team to reimagine product packaging, saving more than 13,000 pounds of wood reinforcements a year and completely eliminating the use of foam packaging for two products.
- ▶ **SugarCreek Packing Co.** utilized a sonic imaging tool to improve leak detection surveys in a plant's compressed air system, leading to energy cost and non-energy benefits totaling \$60,000 per year.
- ▶ **Tyson Foods** leveraged Virtual In-Plant Trainings on industrial refrigeration systems to help identify annual energy savings opportunities of more than \$4 million.

ITEAM PRIZE

In 2020, DOE recognized eight individuals from six Better Plants partner companies in the [Individuals Taking Energy Action in Manufacturing \(ITEAM\) Prize](#) competition. The ITEAM prize recognizes energy managers and employees on the plant floor who recognize the importance of saving energy and who implement innovative solutions to improve efficiency in their facilities, strengthening their company's competitiveness and driving cost savings in the process.

The ITEAM prize winners were employees of the following Better Plants partner organizations:

- ▶ [3M](#)
- ▶ [Bentley Mills](#)
- ▶ [Charter Steel](#)
- ▶ [Eastman Chemical](#)
- ▶ [Saint-Gobain Corporation](#)
- ▶ [Toyota](#)



U.S. DEPARTMENT OF ENERGY



75
UNIQUE
SECTOR
PARTNERS

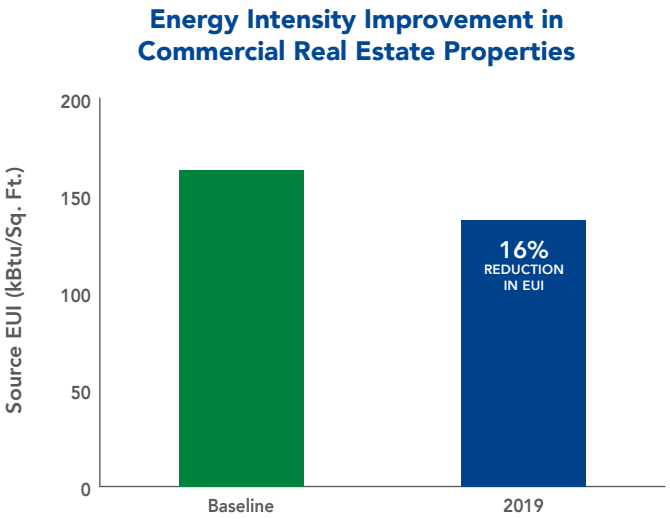
23
CHALLENGE
PARTNERS

52
ALLIANCE
PARTNERS

6.6 BILLION SQUARE FEET

\$430 MILLION SAVED SINCE 2011

Office, warehouse and storage, and service buildings together account for nearly 50% of all commercial buildings and more than 40% of total commercial building floor space.⁵ While the demand for warehouse, storage, and distribution space has continued to climb with the growth of e-commerce in the past year, commercial real estate (CRE) partners also had to contend with the impacts of COVID-19. While some CRE properties experienced limited impact, most office properties experienced significant reductions in the number of workers present in the facilities. As offices sat empty for most of 2020, some companies took the opportunity to complete energy efficiency projects—including LED lighting retrofits and HVAC system preventive maintenance—and delve into submetering analytics to better understand building energy usage.



In the past year, DOE, through CRE partners, explored the following innovative technologies and new approaches to make their buildings healthier, safer, and more energy efficient:

- ▶ Sharing proven solutions on topics like renewables, low carbon, and climate risk assessments to address the intersection of efficiency and resilience.
- ▶ Publishing information about the co-benefits of energy efficiency on indoor air quality and ways to promote health, comfort, and productivity.
- ▶ Building a tool to help companies understand benchmarking and building energy performance standards to align with new state and local policies, and how to leverage compliance efforts into achieving Environmental, Social, and Governance goals.

Energy Goal Achievers to Date



Leadership in Action

- ▶ **Colliers** achieved more than 45% annual energy savings while maintaining optimal tenant comfort at **Park Tower** in Tampa, FL, by installing energy-efficient equipment and implementing sustainability education programs, achieving LEED® certification.
- ▶ **Kilroy Realty Corporation** achieved carbon neutral operations at the end of 2020, fully addressing the Scope 1 and 2 greenhouse gas emissions associated with the operations of its buildings.
- ▶ **The Urban Land Institute** contributed the **Blueprint for Green Real Estate** to support real estate owners and investors with accelerating their sustainability programs, and to aid developers looking for ways to integrate sustainability into their overall development strategies.
- ▶ **LBA Realty** created a climate risk assessment process to identify and mitigate climate risk factors for existing buildings and those undergoing acquisition, generating property-level resilience plans to respond to the identified risks.
- ▶ **The Tower Companies** participated in the DOE and Berkeley Lab smart building technology field validation initiative using Prescriptive Data's Nantum OS software, which employs machine learning and artificial intelligence algorithms to optimize real-time operational efficiency.
- ▶ **Lendlease** shared strategies for portfolio-wide savings through sustainable design methods, technology, and water conservation, and showcased these strategies by achieving more than 20% savings at its **Island Palm Communities**, part of the Military Housing Privatization Initiative.
- ▶ **Highwoods Properties** completed retrofits at **PPG Place** in Pittsburgh to upgrade chillers and lighting and improve the controls and pumping systems for the outdoor ice rink, achieving nearly 30% energy savings, 25% water savings, and \$950,000 in energy cost savings.

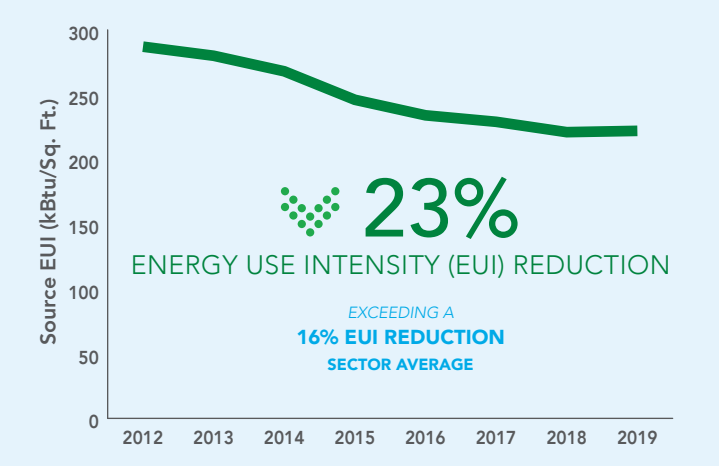
The following data center partners previously met their goal to improve the power usage effectiveness of their facilities:

- ▶ **Digital Realty Trust**
- ▶ **Iron Mountain Data Centers**
- ▶ **eBay Inc.**
- ▶ **Sabey Data Center Partners**
- ▶ **Intuit**
- ▶ **Waste Management**

CASE STUDY

Columbia Association

Columbia Association implemented a broad energy management program that included lighting retrofits between 2013 and 2016, with the replacing of all metal halide fixtures with high-output T5 fluorescent lighting throughout the portfolio. The partner also installed a 60kW CHP generator in 2016 and began deploying 170 kW of on-site solar PV at nine facilities in 2017. Columbia Association leveraged resources available through DOE's Advanced RTU Campaign to implement two pilot projects for high-efficiency RTU replacements. The success of the initial projects led to the implementation of a replacement plan across the building portfolio.



35
UNIQUE
SECTOR
PARTNERS

10
CHALLENGE
PARTNERS

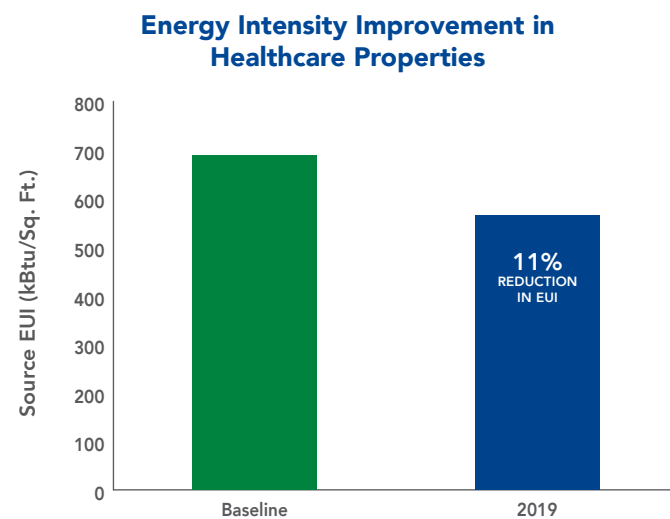
25
ALLIANCE
PARTNERS

495 MILLION SQUARE FEET

\$310 MILLION SAVED SINCE 2011

The healthcare industry has been shifting the model of care in recent years from inpatient to outpatient facilities and increasing access to mobile clinics and telehealth. During 2020, the COVID-19 pandemic accelerated that shift. According to the American Medical Association, health professionals are seeing 50 to 175 times the number of patients via telehealth than they did in 2019.⁶ Healthcare properties have faced additional demands during the pandemic, but many also had fewer non-urgent patients in the facilities. As a result, Better Buildings healthcare partners experienced nearly level energy use in 2020 compared to previous years.

The shift to telehealth will likely continue post-pandemic, and the Better Buildings program will work with partners to learn how that shift affects energy use and what resources will help support their energy efficiency progress.



In the past year, Better Buildings has engaged with healthcare partners around the following sector priorities:

- ▶ Demonstrating energy efficiency and zero energy ready design as strategies for resilience planning, including how to use microgrids.
- ▶ Supporting energy efficiency as a priority within shifts in healthcare services and a changing model of care, including increased focus on outpatient services, telemedicine, and mobile clinics.
- ▶ Demonstrating how using data analytics and continuing research on co-benefits and occupant health can help inform decision-making and make the business case for energy efficiency.

The sector also created a new landing page to highlight healthcare resources for zero energy ready design for resilience, creating a sustainable culture within a changing model of care, and strategies for communication and getting buy-in.

Energy Goal Achievers to Date



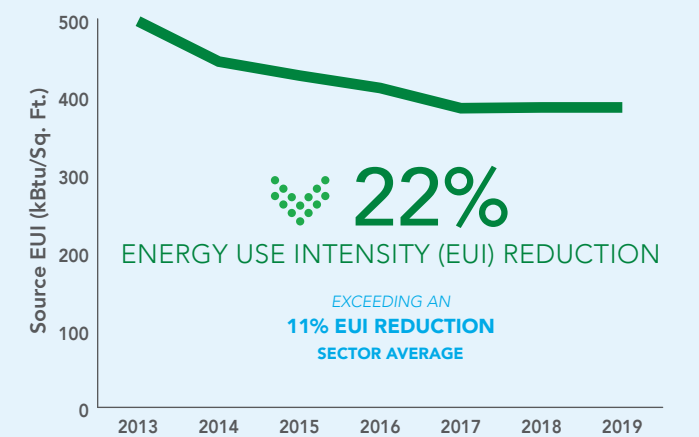
Leadership in Action

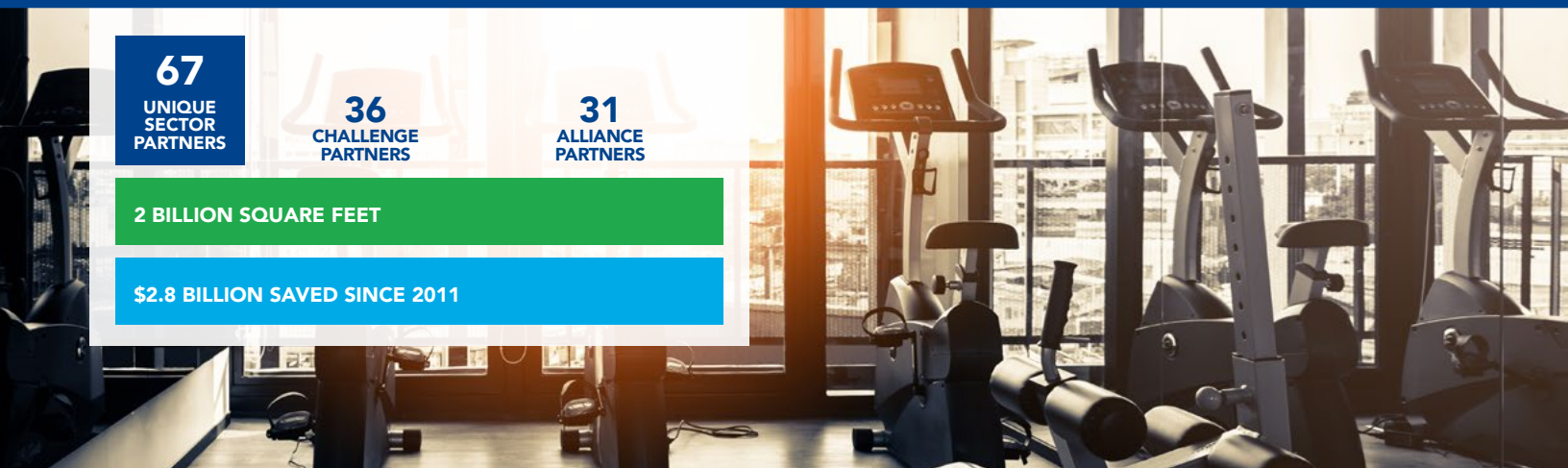
- ▶ **Kaiser Permanente's** medical office building in Santa Rosa, CA, became the first healthcare facility in the United States to achieve net-zero status by combining energy-efficient technologies like electric heat pumps and electrochromic windows with on-site power generation from a 617-kW solar PV system.
- ▶ **NewYork-Presbyterian Hospital** started a resilience-planning scoping exercise for a feasibility study regarding the use of a microgrid system at the Allen Hospital, including the requirements for a power and backup system configuration and right-sizing of the system.
- ▶ **Montefiore Medical Center** developed a comprehensive recycling program to achieve an 11% reduction in "red bag" tonnage and reduce thousands of pounds of e-waste, medical devices, and batteries. The approach included auditing operating rooms, right-sizing waste bins, and reducing waste at the source.
- ▶ The **American Society for Healthcare Engineering** helped healthcare facility managers navigate difficulties related to sustainability and the built environment caused by the pandemic by developing a COVID-19 Recovery resource portal.
- ▶ The **University of Nebraska Medical Center (UNMC)** made headway on its emissions-based goals by installing nearly 1,500 solar PV panels on several buildings, including the Maurer Center for Public Health, bringing energy savings of 50% and saving \$30,000 on energy costs. UNMC also became the first healthcare water goal achiever by reducing its water usage by 23% from a 2012 baseline.
- ▶ **Cleveland Clinic Foundation** met its energy reduction goal and extended it to 40% by 2030. The partner completed LED lighting retrofits across its facilities, implemented air change setbacks in operating rooms, trained caregivers and new hires, and engaged caregivers to support and champion sustainability.
- ▶ **Physicians Realty Trust ("DOC")** developed a now-standard approach of including a cost recovery clause for energy efficiency upgrades benefiting the tenant, earning Gold-level recognition from Green Lease Leaders. DOC joined the Better Buildings Challenge, committing 4.5 million square feet to a 20% energy savings goal by 2030.

CASE STUDY

UW Health

UW Health has reduced its energy use by nearly 25% since joining the Challenge, achieving its goal six years ahead of schedule. The hospital system began benchmarking energy use in 2010, and its success was obtained through measures such as installing lighting controls and making LED lighting upgrades, making HVAC scheduling changes and installing HVAC occupancy sensors, installing high-efficiency equipment, and implementing demand reduction strategies. UW Health has set a follow-on goal of achieving an additional 10% improvement over 10 years.

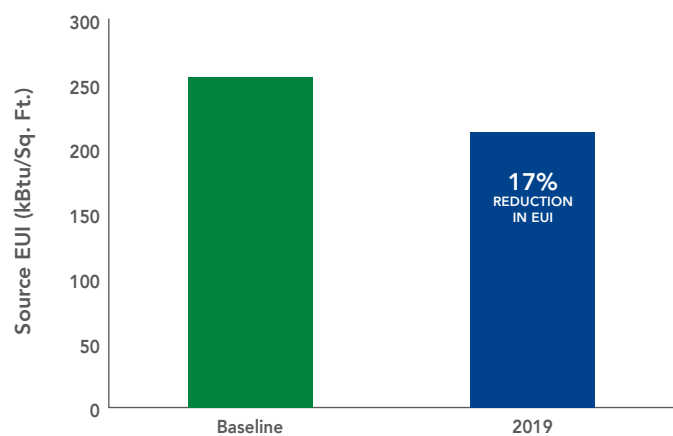




The retail, food service, and grocery (RFSG) sector spends over \$41 billion on energy costs per year,⁵ so when the COVID-19 pandemic resulted in reduced operating hours and extended closures in many facilities, the sector faced new challenges with how to still manage energy efficiently while adapting to ongoing operational changes. Some RFSG companies were deemed essential businesses and remained open during the past year, while others dealt with on-and-off-again closures due to local regulations—yet, through it all, RFSG partners maintained a focus on energy performance and found new opportunities to operate their buildings efficiently.

RFSG partners saw opportunities for recalibrating their building systems in order to ensure energy was not wasted while operating empty facilities. Yet, some RFSG partners experienced increases in energy consumption

Energy Intensity Improvement in Retail, Food Service, and Grocery Properties



as their e-commerce grew to meet customer needs and back-of-the-house operations expanded. During a year of shifting priorities and new challenges in building operations, RFSG partners have shown a continued commitment to energy efficiency. During the past year, Better Buildings has focused on the following priorities:

- ▶ Optimizing operations for health, wellness, and safety to complement energy efficiency efforts.
- ▶ Identifying low- and no-cost energy-saving strategies and accessing alternative financing options for more costly energy efficiency measures.
- ▶ Assessing the effectiveness and applicability of new technologies or products.
- ▶ Making the business case for energy efficiency in commercial buildings.
- ▶ Addressing energy efficiency challenges and innovations in warehouses and distribution centers.

Energy Goal Achievers to Date



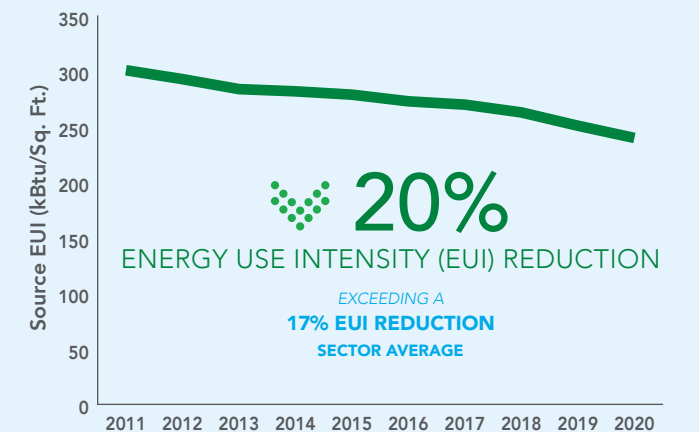
Leadership in Action

- ▶ **H&M** improved its store energy efficiency by collaborating with landlords and utilities to apply incentive dollars to retrofit HVAC rooftop units, saving approximately \$2,500 per store annually.
- ▶ **Kohl's** worked with the National Renewable Energy Lab to complete a Grid-Interactive Efficient Building (GEB) Value Potential Analysis to identify GEB opportunities across its portfolio that could achieve deeper carbon emissions reductions, additional cost savings, and improved building resiliency.
- ▶ **Life Time** underwent a full process of commissioning and validation during the pandemic shutdowns, recalibrating building management systems and rescheduling over 5,000 pieces of equipment to avoid electricity and natural gas waste. The company saved \$16 million on energy costs for the year and is continuing to improve its commissioning process while striving to be best in class for managing assets, reducing energy, and serving its members.
- ▶ **The Paradigm Group** and **Twin Coast Enterprises**, both franchisees of **The Wendy's Company**, joined the Challenge by committing to reduce energy use intensity (EUI) by 20% per transaction across a total of 54,000 square feet of restaurant space.
- ▶ **Qurate Retail Group** committed 12 million square feet of distribution center space and 2 million square feet of office space to the Challenge, becoming the first e-commerce focused partner in the program.
- ▶ Waste Reduction Pilot participant **Sprint**, now part of T-Mobile, tracked waste at over 400 properties during 2019 and achieved a waste diversion rate of 41% as a result of implementing a systematic approach to waste management.
- ▶ **Ulta Beauty** earned Gold-level recognition from Green Lease Leaders for developing an energy management program and leasing approach that rely on collaboration with landlords for efficient build-out standards.
- ▶ **The Wendy's Company** rolled out a pilot project to install new building automation system software and HVAC equipment upgrades at over 100 locations that will reduce maintenance needs and better control temperature and humidity for optimal comfort and energy use at the targeted locations.
- ▶ The Assessing and Reducing Plug and Process Loads (PPL) in Retail Buildings guide was updated to reflect the latest technologies and processes for cost-effectively reducing PPL energy impacts in retail buildings.

CASE STUDY

Walgreens

Being one of the first retail partners to join the Better Buildings Challenge, **Walgreens** has steadily reduced the EUI across its 100 million square-foot portfolio over the past decade. The retailer implemented multiple strategies—including upgrading HVAC equipment and installing optimized lighting solutions in its stores—to achieve a 20% EUI improvement in FY 2020 from a FY 2011 baseline. As an essential business, Walgreens remained fully operational throughout the pandemic and continued improving the energy efficiency of its facilities.



26
CHALLENGE PARTNERS

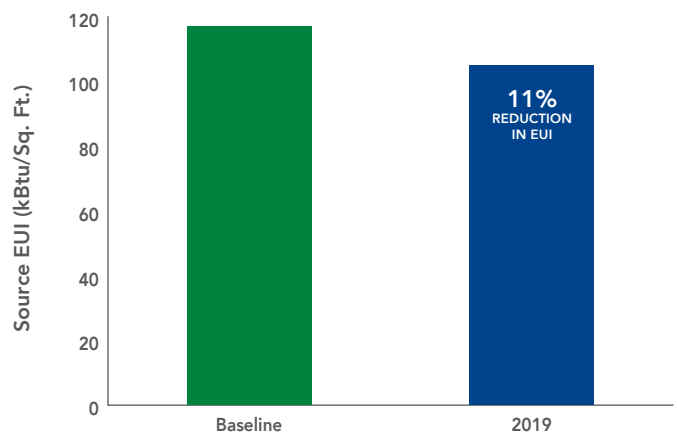
185 MILLION SQUARE FEET

\$80 MILLION SAVED SINCE 2011



K-12 school buildings consume more than 0.8 QBtu each year, at a cost of approximately \$8 billion,⁵ and have the potential to save \$2 billion annually through a 20% improvement. K-12 school leaders faced numerous challenges related to COVID-19 in 2020 due to the shifting occupancy models of in-person, hybrid, and remote learning, as well as impacts to operations and maintenance systems. While some districts experienced a rise in energy consumption from increased use of air circulation systems in facilities, others reported reduced consumption due to unoccupied buildings. Despite these hurdles, Better Buildings partners demonstrated flexibility and resilience as they upgraded HVAC equipment, increased air filtration, and shifted staff to meet increased cleaning and maintenance needs. Where budgets allowed, districts proceeded with energy efficiency improvements and the construction of new schools.

Energy Intensity Improvement in K-12 Schools



Leadership in Action

Six K-12 sector partners demonstrated their ongoing dedication to energy reduction by setting a second Challenge goal:

- ▶ **Anne Arundel County Public Schools, MD**, achieved its 20% energy savings goal three years early and increased its goal to a 30% energy reduction by 2026.
- ▶ After meeting its 20% energy reduction goal nine years early in 2018, **Bullitt County Public Schools, KY**, set a 35% goal by 2026 from its 2013 baseline.
- ▶ **Indianapolis Public Schools, IN**, achieved a 20% energy savings six years ahead of schedule and set a 40% energy reduction goal by 2025 across its nearly 8 million square-foot portfolio.
- ▶ **Parkway School District, MO**, achieved a 20% energy savings six years ahead of schedule and set a 35% energy reduction goal by 2025 across its 3 million square-foot portfolio.
- ▶ **Poudre School District, CO**, met its 20% energy and water reduction goals in 2016 and added a second energy goal of 20% by 2030 from a 2019 baseline.
- ▶ **River Trails School District 26, IL**, achieved its 20% energy reduction goal in 2015, 11 years ahead of schedule. The district set a new goal to reduce consumption 30% by 2026, demonstrating its commitment to continuous improvement.

Two K-12 partners were featured in DOE's Energy Data Management Guide:

- ▶ **Poudre School District, CO**, integrated energy data management into its organizational structure by establishing the Energy Conservation Program and implementing a range of energy efficiency projects, saving more than \$615,000 per year between 1993 and 2012 and positioning it to achieve its Better Buildings Challenge goal in 2016.
- ▶ **Portland Public Schools, OR**, redirected 46 hours of staff time per month previously spent reviewing utility bills by implementing a data management program. A cost-benefit analysis was conducted for school officials to show how this system better manages energy use and costs across its facilities.

Energy Goal Achievers to Date

- ▶ Anne Arundel County Public Schools, MD
- ▶ Bullitt County Public Schools, KY
- ▶ Camas School District, WA
- ▶ Indianapolis Public Schools, IN
- ▶ Parkway School District, MO
- ▶ Pasadena Independent School District, TX
- ▶ Poudre School District, CO
- ▶ River Trails School District 26, IL

CASE STUDY

Parkway School District, MO

Parkway School District, MO, expanded the district's exterior LED lighting program to half of all its schools, and used both a building automation system and data analytics platform to implement HVAC projects. Parkway also incorporated renewable energy into its portfolio, with at least 25 kWh of solar PV installed on each school building and an additional 75 kWh array added across four sites in 2019. It expects to reduce annual energy consumption by nearly 70% at one elementary school (achieving near net-zero energy levels) through renovations, and it installed a geothermal energy system with 120 vertical wells to provide natural heating and cooling at a high school.

25% EUI REDUCTION | EXCEEDING A 11% EUI REDUCTION SECTOR AVERAGE

CASE STUDY

Anne Arundel County Public Schools, MD (AACPS)

AACPS uses advanced monitoring and controls to manage 98% of its 117-building portfolio from a centralized location. New and upgraded schools are retrofitted with the latest technologies to enable the district to maximize energy savings and maintain optimum energy efficiency. The district continually installs upgraded lighting systems and is exploring ways to adopt solar PV where feasible, such as the 1.4 MW ground mount system consisting of 4,000 panels installed at Fort Smallwood Facilities.

21% EUI REDUCTION | EXCEEDING AN 11% EUI REDUCTION SECTOR AVERAGE



85
UNIQUE
SECTOR
PARTNERS

50
CHALLENGE
PARTNERS

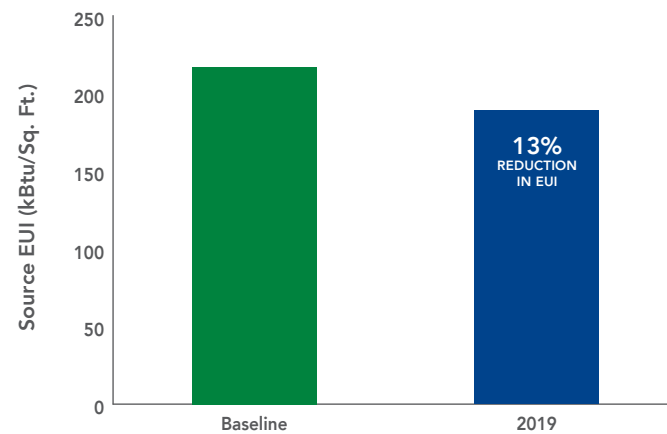
38
ACCELERATOR
PARTNERS

760 MILLION SQUARE FEET

\$950 MILLION SAVED SINCE 2011

State and local government buildings consume 1.1 and 2 QBTu each year, respectively,⁵ and have the potential to save \$2.1 billion and \$3.7 billion annually through a 20% improvement. State and local governments have emerged as energy efficiency leaders through their pursuit of ambitious sustainability goals despite the challenges faced in 2020 due to COVID-19. State and local governments prioritized health and safety protocols while simultaneously optimizing their building operations to be better suited for the decrease in occupancy. Public sector partners are leading by example for encouraging energy savings, reducing energy in municipal facilities, implementing innovative policies that target new and existing buildings, increasing renewable energy adoption, and building resilience throughout their communities.

Energy Intensity Improvement in State and Local Government Properties



Leadership in Action

- ▶ **Alexandria, VA**, has continued to improve energy efficiency for city-owned facilities and worked to reduce energy consumption by retrofitting 3,000 streetlamps, equivalent to 30% of the city's streetlights. These changes resulted in an energy savings of more than 900 MWh annually.
- ▶ **Houston, TX**, and the **State of Maryland** were featured in a new DOE resource that provides public sector organizations with a seven-step approach to establish a robust and sustainable energy data management program. The Energy Data Management Guide features proven practices from more than 30 Better Buildings Challenge partners that can be replicated to produce sustained energy savings of 2% per year and a culture of accountability and high performance.
- ▶ **Knoxville, TN**, is on track to reduce community-wide carbon emissions by 80% by 2050. The city pushed to invest \$1.6 million in solar projects and completed a citywide street lighting upgrade, changing 30,000 light fixtures to use LEDs to reduce energy usage and meet the city's carbon-free energy goals.
- ▶ **Hillsboro, OR**, implemented ambitious energy saving measures with the community to meet its 20% energy savings goal four years ahead of schedule. This includes establishing the South Hillsboro High-Performance Building Partnership in 2015, designed to spur above-code development by packaging existing and new incentives to advance sustainable design and leverage cutting-edge technologies. Hillsboro set a new Challenge goal to further reduce energy usage 20% by 2025.
- ▶ **San Diego, CA**, and partners implemented deep efficiency and renewable energy practices at three local libraries integrating energy efficiency, and solar and other demand-side resources, resulting in significant energy and carbon reductions, exemplified by the 36% reduction in EUI and 38% reduction in carbon emissions from 2020 to 2021 at Serra Mesa-Kearny Mesa Library.

Energy Goal Achievers to Date

- ▶ Atlanta, GA
- ▶ Beaverton, OR
- ▶ Chattanooga, TN
- ▶ Chicago, IL
- ▶ Delaware
- ▶ Fort Lauderdale, FL
- ▶ Hillsboro, OR
- ▶ Margate, FL
- ▶ Maryland
- ▶ North Carolina
- ▶ Orlando, FL
- ▶ Roanoke, VA
- ▶ Rochester, NY
- ▶ West Palm Beach, FL

CASE STUDY

State of North Carolina

The **State of North Carolina** worked with DOE to use National Renewable Energy Laboratory's REopt Lite tool to analyze solar PV and storage at eight critical facilities, which demonstrated how energy efficiency could reduce resilience microgrid costs at one site by over \$400,000. After achieving its original Better Buildings Challenge goal five years ahead of schedule, North Carolina recommitted to a new goal of a 30% overall reduction by 2028 for its nearly 140 million square-foot portfolio of state buildings.

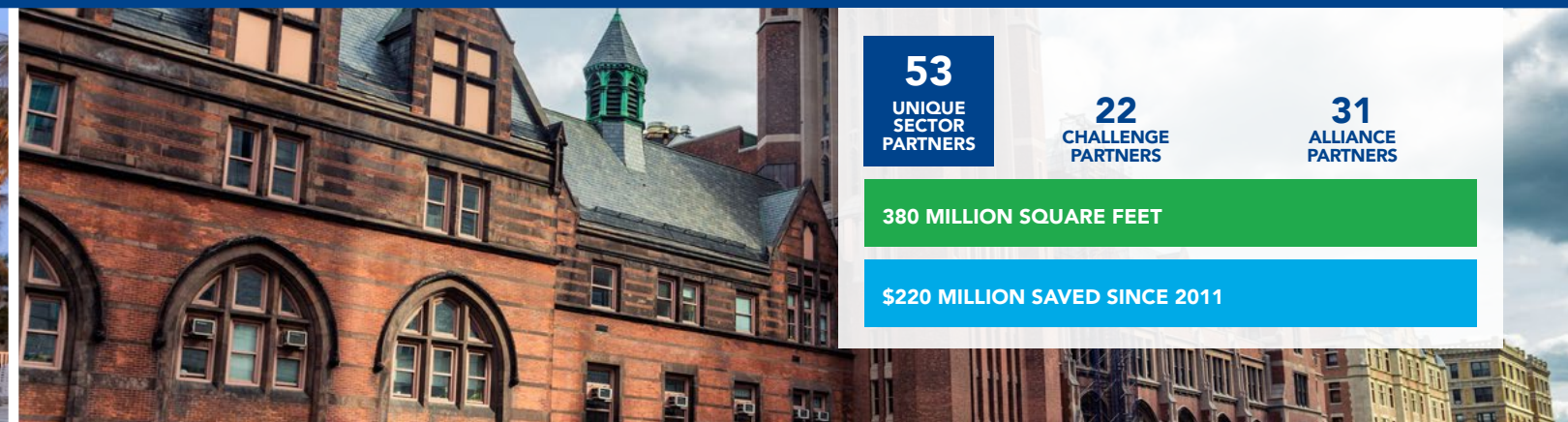


CASE STUDY

Milwaukee, WI

Milwaukee, WI, utilized the State and Local Planning for Energy (SLOPE) Platform and the Low-Income Energy Affordability Data (LEAD) Tool to inform its work on the Milwaukee City-County Joint Task Force on Climate and Economic Equity, which is charged with making recommendations to achieve community-wide net-zero greenhouse gas emissions by 2050, while mitigating racial and income inequality. Milwaukee lacked data to achieve its energy and climate goals, so it leveraged SLOPE and LEAD to identify end-use sectors with the biggest impact on reducing emissions, the most cost-effective renewable technologies in the county over time, and the highest energy-burdened areas to target with efficiency investments.





As travel restrictions and stay-at-home orders were put in place, the hospitality sector was one of the first industries visibly impacted by the COVID-19 pandemic. Over the past year, the occupancy rate for hotels in the United States fell to roughly 44%, which is below the 50% occupancy threshold that most hotels need to break even.⁷ Despite these financial constraints, hoteliers have continued to adapt by prioritizing deep cleaning and investing in new technologies to allow for contactless interaction without losing sight of their goals to reduce energy use and make their buildings operate more efficiently. Throughout the past year, sector partners have engaged in the following efforts:

- ▶ Hotels have also been able to find opportunities to expedite previously planned renovations. With more than 60% of U.S. travelers wanting to stay in eco-friendly hotels, hoteliers are hopeful that these upgrades will lead to a competitive advantage when travel returns to normal. Better Buildings hospitality partners are adapting and saving energy during the pandemic and sharing their approaches with the marketplace.
- ▶ Energy management best practices related to indoor air quality, operational efficiency, and occupant comfort are more relevant than ever. Better Buildings convened with various hospitality organizations to share best practices on how hospitality operations can reduce the risks of airborne infectious disease transmission.

Energy Goal Achievers to Date



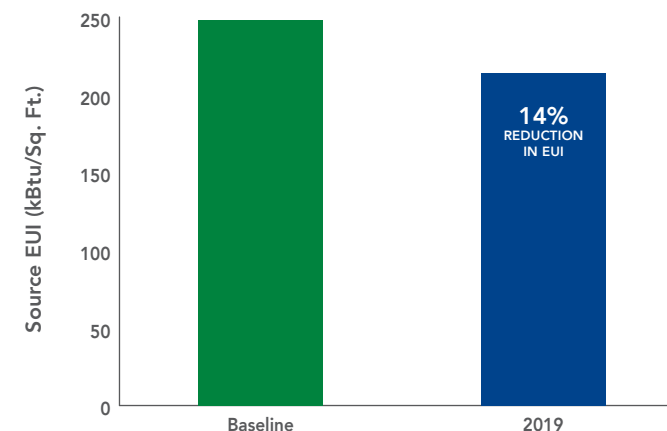
Leadership in Action

- ▶ Past hospitality goal achievers include **Loews Hotels & Co.** and **Las Vegas Sands Corp.**, both of which have reduced energy use by nearly 25% across portfolios of more than 12 and 19 million square feet, respectively.
- ▶ **Loews Hotels & Co.** and the **IHG Hotels & Resorts** joined Pacific Northwest National Laboratory's ISO 50001 Training Cohort to drive deeper energy savings across their portfolios.
- ▶ **Travel + Leisure Co.** has continued to see franchised hotels use this past year as an opportunity to expedite previously planned renovations and implement energy-efficient upgrades like LED retrofits and energy management thermostats.
- ▶ **Loews Hotels & Co.** creatively identified opportunities to cut back on energy, water, and gas consumption during periods of lower occupancy. Through these operational changes, Loews managed to save roughly \$7 million in energy costs without any impact on guest experience.
- ▶ **IHG Hotels & Resorts** launched a new 10-year sustainability plan called Journey to Tomorrow. Within the plan, IHG is targeting 100% of new-build hotels to operate with very low or zero carbon emissions.
- ▶ **Hilton** trained its hotels to adopt techniques to conserve resources in times of low occupancy. Hilton has continued to cut resource consumption at its hotels in line with its Travel with Purpose 2030 Goals.

The higher education sector spends over \$6 billion on annual energy costs and totals about 5 billion square feet of floorspace. The sector has faced ongoing challenges during the past year due to the pandemic's impacts on staff resources and budgets. Energy solutions that are low or no-cost are taking on greater importance, with nearly all schools planning on a financially conservative approach for the time being. Financing options that minimize upfront payments such as energy savings performance contracts or power purchase agreements are also increasingly important.

In the past year, sector partners have shared best practices for operating healthy buildings and campuses during COVID-19, along with approaches for deploying zero energy buildings. Over 400 higher education institutions have formally committed to reducing carbon emissions, and on-site renewable energy is a priority for schools to both meet these goals and engage students. Some institutions are also pursuing microgrids with the ability to island, establishing more resilient power supply in case of electric grid disturbances resulting from wildfires, flooding, or other extreme events.

Energy Intensity Improvement in Higher Education Properties



Leadership in Action

- ▶ **Pace University** successfully balanced safety and efficiency in response to COVID-19, realizing energy savings of 30–40% by cycling air conditioning, replacing faulty steam traps, conducting energy audits during unoccupied times, and ensuring setbacks were operating as intended.
- ▶ **Community College of Allegheny County** implemented a network-wide power management system across 4,000 personal computers located in campus computer laboratories and the campus data center, realizing annual energy savings of nearly 75% and \$70,000 on costs.
- ▶ **Towson University** achieved 35% energy savings as part of an overhaul of its Residence Tower by installing a high-performance variable refrigerant flow mechanical system, advanced lighting systems, and thermally broken glazing with lightweight, insulated cladding.
- ▶ **Stanford University** developed an Energy and Climate Plan to support its 80% emissions reduction goal and lay out a path for becoming completely carbon free by prioritizing energy efficiency in new and existing buildings and decarbonization of its energy supply.

Energy Goal Achievers to Date





92
CHALLENGE PARTNERS

655 MILLION SQUARE FEET
(710,000 HOUSING UNITS)

\$200 MILLION SAVED SINCE 2009

7 OUT OF THE 10 LARGEST
PUBLIC HOUSING AUTHORITIES

Driven by economic and demographic factors, multifamily rental housing is playing an increasingly important role in the nation's housing. Thirty-five percent of all households now rent, and more than 60% of all rental housing, totaling 30 million households, is in the multifamily sector.⁵ However, efficiency measures are far less likely to be installed in multifamily rentals than in any other type of housing, leaving significant energy savings unrealized.⁸ Studies estimate that energy efficiency could cut the multifamily affordable housing sector's electricity usage by as much as 26%, based on data from a sample of states.⁹

The multifamily building sector played a critical role this year in addressing the health and safety challenges presented by the COVID-19 pandemic. Unlike other sectors, which typically saw a decline in building occupancy, the multifamily sector saw families spending more time at home, and building operators were challenged as never before to ensure adequate ventilation and air filtration while implementing new protocols for safe handling of in-unit repairs and deferring planned facility upgrades.

The sector faces two additional challenges: the growing affordability gap and increased vulnerability to climate change. The share of low-cost rental units continues to decline either through gentrification, removals, or rent increases: Since 1990, the low-cost share of the national rental market has declined from 37% to 25%. As a result, 24% of U.S. renter households—about 20 million—now spend more than 50% of their annual income on housing.¹⁰ Energy efficiency and renewable energy upgrades serve as an effective strategy to slow these trends and preserve affordability.

Meanwhile, as climate change increases the frequency and intensity of severe weather, 23 million renter households (53%) live in urban heat islands where temperatures are at least three degrees warmer than in surrounding areas.¹¹ Multifamily Challenge partners are leading the sector in low- or net-zero carbon solutions: Six partners have set portfolio-wide carbon reduction goals, while many are pursuing solar PV with battery storage, co-gen CHP, and other resiliency measures.

Energy Goal Achievers to Date



THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD) WORKS WITH DOE TO SUPPORT MULTIFAMILY SECTOR PARTNERS, PROVIDING INCENTIVES AND TECHNICAL ASSISTANCE FOR UTILITY BENCHMARKING AND PLANNING PORTFOLIO-WIDE INVESTMENTS IN ENERGY AND WATER EFFICIENCY.


Leadership in Action

- ▶ **New York City Housing Authority (NYCHA)** plans to transition to all electric buildings by 2050, moving away from steam heating and other fuels, a key strategy of its Climate Mitigation Roadmap. The plan will also improve critical infrastructure, incentivize residents to reduce energy usage, and reduce energy waste. NYCHA's announcement is in response to New York City's Local Law 97 requirement, which aims to reduce greenhouse gas emissions by 40% by 2030 and 80% by 2050.
- ▶ **EAH Housing** has reduced carbon emissions in Marin County by 73 tons per year since 2010 by installing high-efficiency heat pumps, installing solar PV at more than 40 properties, and building new properties to LEED standards. EAH received the Green Business Award by the San Rafael, CA, Chamber of Commerce for its sustainability leadership.
- ▶ **National Housing Trust (NHT)** completed a \$7.5 million retrofit of Mass Place Apartments, a 160-unit property in Washington, DC, which included a high-efficiency central plant, insulated roof system, building automations, LED lighting, water efficiency measures, and air sealing improvements designed to collectively reduce energy use by 20% annually.
- ▶ **New Bedford Housing Authority** began a \$12.7 million energy performance contract that is expected to provide \$19.6 million in energy and water cost savings over its 16-year term. The project, involving 1,500 households across 15 housing developments, will produce 2.4 MW of solar PV generation and includes water- and energy-saving measures.
- ▶ **Trinity Management** is subscribing four large properties in Rhode Island to a community solar net metering program and expects \$17,000 per year in cost savings resulting from a 25% net metering credit on its monthly electricity bill.
- ▶ **WinnCompanies** achieved 28% annual energy savings by installing ENERGY STAR® gas-fired split HVAC systems, ENERGY STAR appliances, direct vent hot water heaters, LED lighting, and high-efficiency windows at Atlantic Gardens Apartments. The property earned Enterprise Green Communities certification.
- ▶ **Peabody Properties** realized annual electric and gas cost savings of \$1.75 million at its properties in 2019–2020 as a result of participation in Massachusetts's LEAN Multifamily energy retrofit program for affordable housing, reaching a milestone of \$20 million in LEAN funding allocated to no-cost energy retrofits for its portfolio of communities.

CASE STUDY

Tenderloin Neighborhood Development Corporation (TNDC)

TNDC in San Francisco became both an energy and water Goal Achiever in 2019, with 21% savings in energy and water consumption across a portfolio of 2,500 affordable housing units. TNDC achieved its energy savings by implementing HVAC, LED lighting, and appliance upgrades at over 10 properties and by offsetting energy usage through solar thermal and solar PV projects. Since 2019, TNDC has made portfolio-wide commitments through the Challenge to reduce carbon emissions 50% by 2029 and reduce landfill waste 60% by 2029.



27%
EUI REDUCTION

EXCEEDING A
5% EUI REDUCTION
SECTOR AVERAGE

48

UNIQUE
SECTOR
ALLIES

\$3+ BILLION FINANCED SINCE 2020

\$26 BILLION FINANCED SINCE 2012

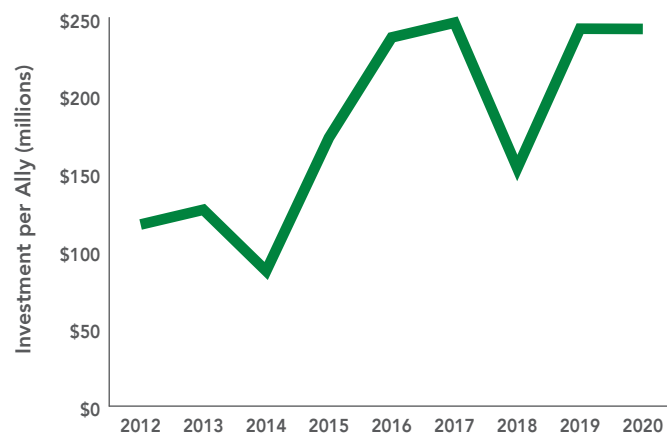


The financial services sector faced unique challenges in the past year as borrowers responded to sudden changes in occupancy patterns caused by the COVID-19 pandemic. Financial organizations had to think creatively and adapt their models to serve a rapidly changing market, which is reflected in the continued growth in off-balance sheet financing, such as efficiency-as-a-service. It also led to the adaptation of property assessed clean energy (PACE) markets to expand access to retroactive PACE financing, allowing companies to recapitalize and free up crucial resources in response to changes in building occupancy. The uneven economic impact of COVID-19 underscores the need for financing mechanisms that provide equitable access to efficiency projects. In the past year, Better Buildings Financial Allies helped address the following priorities:

- ▶ Building owners in low-income or underserved communities can face myriad hurdles that impact their ability to access financing for clean energy projects. The sector developed a set of resources that demonstrates how creative financing solutions help overcome these barriers, whether they are navigating HUD approval processes or installing community solar.
- ▶ The efficiency-as-a-service (EaaS) model has been a rapidly growing financing option in the energy financing market over the past decade; however, the model is commonly misunderstood with a variety of models and terminology in use. The sector developed an EaaS taxonomy to provide owners clarity and guidance on various components of EaaS approaches and to facilitate the adoption of standardized contract structures.
- ▶ An "Efficiency-as-a-Service vs. Energy Savings Performance Contracting" fact sheet was published to help building owners better understand and distinguish between these common options for implementing energy efficiency retrofits.

Financial Allies maintained significant growth in the face of economic turbulence, with 2020 investments averaging more than 200% of investments made in 2012.

Average Clean Energy Investments of Financial Allies



Leadership in Action

- ▶ **Prologis** issued green bonds with an aggregate total of \$2.5 billion to support its energy efficiency and GHG reduction targets, using proceeds from the bonds for investments that annually save more than 26,000 MWh and reduce more than 17,000 metric tons of CO₂ per year.
- ▶ **Redaptive** implemented a multi-site EaaS program with Iron Mountain, resulting in annual energy savings of \$750,000 across 174 sites.
- ▶ **Greenworks Lending** financed the first commercial PACE project in the state of Delaware, a \$3.9 million loan for a historic building that will save an estimated \$14 million over the course of the project's lifetime.
- ▶ **King County Housing Authority** installed \$20 million in energy and water conservation measures at 38 properties from 2016 to 2018, generating an estimated \$50 million in HUD utility subsidy incentives over 20 years. This project included the successful navigation of a complex HUD approval process.
- ▶ **Sol Systems** created an initiative with Microsoft that includes Sol System's first community investment fund to expand Microsoft's renewable generation portfolio. This portfolio will focus on communities disproportionately impacted by climate change and includes support for job creation and training.
- ▶ **Commercial PACE** eclipsed the \$2 billion mark in cumulative investment across the entire market, and Better Buildings Allies are playing a significant role in driving the growth of the industry:
 - **Connecticut Green Bank** surpassed 300 closed projects, which are estimated to save more than \$270 million and reduce energy consumption by 5 TBtu over the lifetime of the projects.
 - **Petros PACE Finance** originated 30% more deal volume in the first half of 2020 than in all of 2019, proving that the momentum for clean energy finance was not dampened by COVID-19.
 - **Ygrene Energy Fund** closed its 10th securitization of PACE assets, bringing the aggregate total of its securitization transactions to \$2 billion.
 - **Clean Fund LLC** closed the largest commercial PACE deal in the United States as of January 2020, totaling nearly \$55 million.

Financial Ally Goal Achievers to Date



The COVID-19 crisis impacted residential energy efficiency by limiting the ability of program representatives to enter homes amid Americans' apprehension during the pandemic. This resulted in innovations such as remote home assessments. Concurrently, Americans worked and spent more time at home, resulting in greater recognition of the need for energy efficiency to save money, make homes more comfortable, and improve the health of homes.

This renewed focus on residential energy efficiency is being demonstrated by the continued engagement of state and local governments, businesses, utilities, nonprofits, and other stakeholders through the Better Buildings Residential Network. In 2020, the network organized 20 Peer Exchange calls with over 2,700 participants to share innovative strategies and best practices for energy-efficient homes. This year, the network has planned Peer Exchange calls addressing priorities of the Biden Administration, such as environmental justice within the sector.

Leadership in Action

- ▶ More than 24,000 Home Energy Scores have been produced in **Portland, OR**, as part of a city ordinance requiring home energy information to be included in real estate listings. Each Home Energy Score includes a prioritized list of energy efficiency upgrades that could collectively reduce the city's carbon emissions.
- ▶ Better Buildings Residential Network member **CLEARresult** implemented more than 263,000 home energy upgrades across 22 states during FY 2020, with 20% of the upgrades completed in low-income homes.
- ▶ Better Buildings Residential Network member **Building Performance Institute** introduced the Healthy Housing Principles Certificate and Reference Guide to educate community health workers, home inspectors, realtors, and others about the "Keep It" principles for healthy homes.
- ▶ The **Pacific Northwest National Lab** presented DOE's residential HVAC Smart Diagnostic Tool Campaign to the Advanced Heat Pump Coalition, leading to a partnership between DOE and the Northwest Energy Efficiency Alliance that will pursue connected commissioning initiatives.



293,400+	Energy efficiency upgrades completed by 400+ Better Buildings Residential Network members
150,900+	Home Energy Scores completed since 2012
65,900+	Homes upgraded in 2020 by Home Performance with ENERGY STAR® Sponsors

PROGRAM HIGHLIGHTS

- ▶ Nearly 950,000 homeowners have improved the comfort and efficiency of their homes through the **Home Performance with ENERGY STAR® (HPwES)** program over the past decade, saving an average of \$500 per year on energy costs. Projects completed by HPwES Sponsors in 2020 alone are saving households over \$35 million annually on their energy costs and reducing CO₂ emissions by 200,000 metric tons per year.
- ▶ More than 1,500 homes received national recognition from **DOE's Zero Energy Ready Home Program** during the first half of 2020, bringing the total recipients of Housing Innovation Awards through this program to 6,000+ homes since 2013.
- ▶ **Home Energy Score** reached a milestone in January 2020 when it recorded its 150,000th score, largely due to support by several jurisdictions to include Home Energy Scores in residential home sales, and by utilities that have included the Score as part of other in-home services.

The Federal Government is the single largest U.S. energy consumer, with more than 360,000 buildings and 600,000 vehicles. In FY 2019, it used 1.3 quads of primary energy at a cost of more than \$18 billion.¹² Buildings and facilities represent nearly 60% of the government's total energy use, with vehicles and equipment accounting for the remaining 42%, in terms of primary (source) energy use. Agencies estimated and reported almost \$7 billion of potential cost-effective investments that would result in energy savings.¹³

There is a significant opportunity and responsibility for the Federal Government to cut its energy and water costs. The Federal Energy Management Program (FEMP) facilitates savings opportunities and supports agency efforts to be more efficient, resilient, sustainable, and secure by providing access to carbon-free solution sets, tools, training, guidance, and resources that optimize energy and water infrastructure.

Leadership in Action

- ▶ Launched an interactive web version of the **Technical Resilience Navigator** to help organizations manage the risk to critical missions from disruptions in energy and water services.
- ▶ Released the **Facility Audit Decision Tree**, a selection framework to determine the best audit approaches to evaluate Federal facilities for energy- and water-saving opportunities.
- ▶ Published the **Solar Photovoltaics in Severe Weather: Cost Considerations for Storm Hardening PV Systems for Resilience** report, which provides an estimate of cost premiums for 13 storm hardening measures for PV systems.
- ▶ Updated the **REopt Lite tool**—used to evaluate distributed energy resources—to evaluate combined heat and power, thermal energy storage and absorption chilling, along with emissions accounting, campus and electric vehicle load modeling, and third party financing.
- ▶ Launched the **Healthy Buildings Toolkit**, which includes guidance and tools to baseline a Federal building's Indoor Environmental Quality (IEQ) and develop a customized IEQ and energy efficiency cost-benefit analysis to improve a building's performance.



\$1.2 BILLION	Total Federal investment in facilities infrastructure energy efficiency government-wide in FY 2019
2.4 TRILLION BTU PER YEAR	Estimated annual energy savings from FY 2019 investment
\$65 MILLION	Estimated annual energy cost savings from FY 2019 investment
\$842 MILLION	Efficiency investment awarded in FY 2020 under FEMP-managed performance contracts (DOE IDIQ)

PROGRAM HIGHLIGHTS

- ▶ Delivered more than 40,000 hours of accredited training through FEMP's **Training Catalog, webinars, and the annual Energy Exchange technical training workshop**, enabling energy and water management professionals to earn 750 continuing education units (CEUs). New on-demand trainings included a 7-module Utility Energy Savings Contracting webinar series and an expanded Electric Vehicle Champion Training series.
- ▶ Announced \$11 million for 16 Federal agency projects under the **Assisting Federal Facilities with Energy Conservation Technologies (AFFECT)** grant program. The AFFECT grants will leverage almost \$440 million in performance-contracting-related investment with no additional cost to the government to install traditional energy efficiency and innovative resilient energy conservation measures, such as battery energy storage systems with microgrid controls.

COMMERCIAL

Abbott Northwestern Hospital
 AKSAN United Fortune, Inc.*
Allina Health
 American Family Insurance
Anthem, Inc.*
 Army & Air Force Exchange Service
Ascension*
 AtSite
 Baptist Memorial Hospital Desoto
 Beaumont Health System
 Belk, Inc.
 Berkshire Residential Investment
Best Buy*
 Bon Secours St. Francis Health System
 Briad Wenco*
 Brixmor Property Group
 Broward Health North
 Calhoun Management*
 Carlisle, LLC*
 Catholic Health Initiatives
 CBRE
 CC Frost Properties, Ltd.
 CentraCare Health
 Chipotle Mexican Grill
CKE Restaurants Holdings, Inc.*
 Clarion Partners
Cleveland Clinic*
 Coffee & Bagel Brands
 Colliers International
Columbia Association*
 Commonwealth Partners*
 Community Services Agency & Development Corporation

Costco Wholesale Corporation
 Cotti Foods Corporation*
 Cox Enterprises
 Crate & Barrel
 Cushman and Wakefield
 Dacra Development
 DaVita
 Delight Restaurant Group*
 Denver West
 Dunkin' Brands
DWS*
*Empire State Realty Trust**
 Equity One Inc.
 First Potomac Realty Trust
 Food Lion
 Gables Residential
 Glenborough
 Guam Memorial Hospital Authority
 Gundersen Health System
 H&M
 Hackensack Meridian Health*
 Hamra Enterprises*
 Hannaford
The Hartford Financial Services Group, Inc.*
Havertys*
 Hawaiian Airlines*
 HealthSouth
 Highwoods Properties*
 Hilton*
 Hines
 The Home Depot
 Hoover Foods*
 Hospital Corporation of America
 Hudson Pacific Properties

Hyatt Hotels Corporation
 IBM
 IHG Hotels & Resorts
 Inova Health System
 JAE Restaurant Group*
 Jamestown*
 JBG Smith*
 JCPenney
 Jones Lang LaSalle
 Kaiser Permanente
 Kessinger/Hunter & Co.
 The Kessler Collection
 Kilroy Realty*
 Kimco Realty Corporation
Kohl's Department Stores*
 Lamey-Wellehan Shoes
 LaSalle Investment Management
Las Vegas Sands Corporation*
 LBA Realty*
 Legacy Health
Lendlease*
 Liberty Property Trust
 Life Time*
 Lincoln Harris
 Living City Block
Loews Hotels & Co*
 Lowe's
 Lush Cosmetics*
 Luxottica North America
Macy's*
 The Malcolm Bryant Corp.
 Marriott International
 Mayo Clinic
 McDonald's Corp.
 MC Realty

Mesa Lane Partners, LLC
 MetLife Investment Management*
 MGM Resorts International*
 Montefiore Medical Center*
 Mountain West Wendy's*
 Neema Hospitality
 Newmark Grubb Knight Frank
 NewYork-Presbyterian Hospital*
 Nike*
 North Shore-Long Island Jewish Health System
Nuveen Real Estate (formerly TH Real Estate)
 Oregon Health & Science University
 Panda Restaurant Group, Inc.
The Paradigm Group
Parkland Health & Hospital System
 Parkway Properties*
 Parmenter Realty Partners*
 PetSmart
*Physicians Realty Trust**
 PNC Financial Services Group*
 Primary Aim, LLC*
 Principal Real Estate Investors
 Prologis*
 Promar Corporation*
 Providence Health & Services
 Prudential Financial, Inc.
 Publix
*Qurate Retail Group**
 Regency Centers
 Regions Bank
 REI
 Related Companies
 Retail Properties of America

Ryan Companies US, Inc.
 Saunders Hotel Group*
Shari's Cafe & Pies*
 Sharpe Properties Group, LLC
 Sheetz Inc.*
Shorenstein Properties LLC*
 Siemens
 Southwestern Vermont Health Care
Sprint (now a part of T-Mobile)*
Staples*
 Starbucks Coffee Company*
 Stream Realty Partners, L.P.
 Studley
 Summa Health System
 Suncoast Credit Union*
 Tar Heel Capital*
 Target
 TH Real Estate (TIAA)*
 Tishman Speyer
The Tower Companies*
 Transwestern
 Travel + Leisure Co.*
Twin Coast Enterprises
 Ulta Beauty
 University of California, Irvine Health
 University of Maryland Medical Center*
University of Nebraska Medical Center*
 University of Pittsburgh Medical Center (UPMC)*
 University of South Alabama Medical Center
 University of Utah Health Care
 U.S. Navy CNIC Facilities and Acquisitions

U.S. Space and Rocket Center
USAA Real Estate*
UW Health*
 Vornado
Walgreens*
 Walmart
 The Walt Disney Co.
 Washington REIT*
 Wawa
 Welltower
 Wen-GAP, LLC*
 Wend-Rockies Inc.*
Wendium of Florida, Inc.*
 The Wendy's Company*
 WenMarr Management Company, LLC*
 Westchester Medical Center
 The Westfield Group
 Whole Foods Market*
 Wyndham Hotels and Resorts
 Yum! Brands

KEY

- ▶ Partners with names in **bold** are energy, water, or Accelerator goal achievers
- ▶ Partners with a ***** have taken the Better Buildings Challenge
- ▶ Partners with names in *italics* are new to Better Buildings

DATA CENTERS

CenturyLink, Inc.*
Digital Realty Trust*
eBay Inc.*
 Intel*
Intuit*
Iron Mountain Data Centers*
Sabey Data Center Properties*
 Virtustream
Waste Management

EDUCATION

Adams 12 - Five Star Schools, CO
 Alachua County Public Schools, FL*
 Albuquerque Public Schools, NM*
 Alexandria City Public Schools, VA*
 Allegheny College*
 Amity School District, CT
Anne Arundel County Public Schools, MD*
 Arizona State University
 Arlington County School District, VA
 Aurora Public Schools, CO*
 Bard College*
 Boulder Valley School District, CO
Bullitt County Public Schools, KY*
Camas School District, WA*
 Carleton College
 Case Western Reserve University
 Catholic University of America*
Chesapeake College*
 Clark Atlanta University
 Colorado School of Mines
 Community College of Allegheny County*

Cornell University
 Douglas County School District, CO
 Douglas County School District, NV*
 Duke University
 Dysart Unified School District 89, AZ*
 Emory University
 Evergreen Public Schools, WA*
 Fairfax County Public Schools, VA*
 Florida A&M*
 Fort Worth Independent School District, TX*
 Georgia Institute of Technology
 Grand Valley State University
 Hackensack University Medical Center*
 Hermosa Beach City School District, CA
 Hillsboro School District, OR*
 Horry County Schools, SC
 Indiana University
Indianapolis Public Schools, IN*
 Kansas City Public Schools, MO*
 Los Angeles Unified School District, CA*
 Loyola University
 Madison City Schools, AL*
 Manchester School District, NH*
 Massachusetts Institute of Technology
 Mesa County Valley School District, CO*
Michigan State University*
 Morehouse College*
 Northwestern University*
 Pace University*
Parkway School District, MO*

Pasadena Independent School District, TX*
 Penn State University*
 Portland Public School District, OR*
 Portland State University
Poudre School District, CO*
 Ramapo College
River Trails School District 26, IL*
 San Francisco Unified School District*
 San Mateo Community College District
 School District of Philadelphia, PA
 Sewanee: The University of the South*
 Stanford University
 Stevens Institute of Technology*
Towson University*
 Tulane University
 University of California, Berkeley*
 University of California, Davis
University of California, Irvine*
 University of California, Merced
 University of Colorado Boulder
 University of Hawaii at Manoa*
 University of Illinois, Chicago
 University of Maryland
 University of Massachusetts Medical School
 University of Miami
 University of Minnesota
 University of New Hampshire
 University of South Carolina
 University of Tulsa*
University of Utah*
 University of Virginia*
 University of Wisconsin

Washington College*
 Washington University in St. Louis*
 Washtenaw Community College
 Xenia Community Schools, OH*

FINANCIAL ALLIES

Abundant Power Group*
 Advantage Energy Capital Partners, LLC*
AFL-CIO Housing Investment Trust*
 All American Investment Group*
Allumia*
 Alturus*
Bank of America*
BioStar Renewables*
 Blue Hill Partners LLC*
 BlueFlame Energy Finance*
Bostonia Partners LLC*
 Byline Financial Group*
 Centrica Business Solutions*
Citi*
 Citizen Energy*
CleanFund LLC*
 Commercial Power Partners, LLC*
Community Investment Corporation*
Connecticut Green Bank*
EDF Renewable Energy*
Energi*
 Enhanced Capital*
Enterprise Community Partners*
 Flywheel*
 Greenworks Lending*
Hannon Armstrong*

The Hartford Steam Boiler Inspection and Insurance Co.*
Hawaii Green Infrastructure Authority*
 Lever Energy Capital*
LISC*
 Low Income Investment Fund*
Metrus Energy*
New York City Energy Efficiency Corporation*
 Onsite Utility Services Capital*
PACE Equity*
 Petros PACE Finance LLC*
Redaptive*
Renew Energy Partners*
Renew Financial*
 Samas Capital*
 Skyview Ventures*
Sol Systems*
 Southeast Capital & Finance*
Sparkfund*
 Structured Finance Associates, LLC*
 Triple Bottom Line (TBL) Foundation*
 Urban Ingenuity*
Ygrene Energy Fund*

INDUSTRIAL

3M*
 AbbVie Inc.
 Agropur
 Alcoa*
 Alexandria Renew Enterprises*
Alumalloy Metalcastings
 Amcor
 American Mitsuba

ArcelorMittal USA
Archer Daniels Midland
 Armstrong Flooring, Inc.
 Asama Coldwater Manufacturing
AstraZeneca
AT&T
 Autoliv
 Avon Lake Regional Water
 Ball Corporation
 BD*
 Bendix Commercial Vehicle Systems
Bentley Mills*
Boardman Foods
 Bosch Rexroth
BPM, Inc. (Badger Paper Mills, Inc.)
Bradken
 Bridgestone Americas, Inc.
 Briggs & Stratton*
 Bristol-Myers Squibb*
 Buck Company
Bucks County Water & Sewer Authority*
 California Portland Cement Company (d.b.a. CalPortland)
 Campbell Soup
Cardington Yutaka Technologies*
 Carlton Forge Works
 Cascade Engineering Technologies, Inc.

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Celanese International Corporation***C. F. Martin & Co., Inc.
(Martin Guitar)***

Chapco Inc.
Charter Steel
Chippewa Valley Ethanol Company
Citrus World, Inc. (formerly Florida's Natural Growers)
City of Charleston, SC, Water System
City of Grand Rapids Water Resource Reclamation Facility*
City of Phoenix Water Services Department
City of Roseville, Environmental Utilities Department

Clearwater Engineering

Coilplus Inc.

Comau Inc.

Commercial Metals Company
Commercial Vehicle Group
Co-Operative Industries Aerospace & Defense
Cooper Standard

Cummins, Inc.*

Custom Glass Solutions

Daikin Applied Americas, Inc.

Darigold*
Delta Diablo
Denison Industries
Des Moines Water Works*
Deschutes Brewery
Didion Milling
Dixline Corporation
Donsco Inc.
Dow Chemical
DSM North America

Durable Products

Durex Inc.

Earth2O (d.b.a. The Sweetwater Company Inc.)

East Penn Manufacturing Co.

Eastman Chemical Company*

Eaton Electric

Eck Industries

Electrolux*

Encina Wastewater Authority*

Estée Lauder

**Expera Specialty Solutions
(Thilmany Mill)**

Flambeau River Papers

FLEXCO

Flowers Foods

FMC Corporation

Ford Motor Company*

Fort Wayne City Utilities - City of Fort Wayne

GB Manufacturing

General Aluminum Manufacturing Company

**General Dynamics Ordnance
and Tactical Systems**

General Electric*

General Mills***General Motors***

General Stamping & Metalworks

Gibraltar Industries

GKN Aerospace Services Structures

Golden Renewable Energy, LLC

Goodyear Tire & Rubber Company

Graham Packaging

**Graphic Packaging
International, Inc.**

Great Lakes Crystal Technologies

HARBEC*

Harley-Davidson Motor Company

Harrison Steel Castings Co.

Harva Company

Haynes International

HNI Corporation/Allsteel

Honda

Huntsman Corporation

Imerys Carbonates North America

Ingersoll Rand***Ingevity**

Intel

International Paper Company

Intertape Polymer Group

Intralox LLC

Ithaca Area Water Wastewater Treatment Agency*

JBT Corporation

Jedco, Inc.

Johnson Controls***Johnson & Johnson****Johnson Matthey**

J.R. Simplot*

Kent County Levy Court

Kenworth Truck Company

Kingspan Insulated Panels, Inc.

Krage Manufacturing

KYB Americas Corporation

Lafarge-Holcim*

Land O'Lakes

Leggett & Platt, Incorporated

Legrand***Lennox International***

Lineage Logistics*

Lockheed Martin*

L'Oréal*

Los Angeles Bureau of Sanitation

Los Angeles Department of Water and Power*

Lynam Industries Inc.

Magnetic Metals Corp.

MAHLE Engine Components USA

Manitowoc Grey Iron Foundry

Mannington Mills

Marquis Energy

Marquis Energy Wisconsin

Massachusetts Water Resources Authority

MB Aerospace East Granby

McCain Foods USA, Inc.

McWane, Inc.*

MEKRA Lang

Metal Industries, Inc.

Miami-Dade Water & Sewer Department

Michael Foods

Michels Corporation

Mitsubishi Electric Automotive America

Mohawk Industries

Mulgrew Aircraft Components, Inc.

Narragansett Bay Commission

Navistar International Corporation

ND Paper Inc.

Neenah Foundry

**NEW Water (Green Bay
Metropolitan Sewerage District)***

Newman Technology

Nissan North America*

Novati Technologies

Novelis

NSK Americas

NYC DEP - Bureau of Wastewater Treatment

Occidental Chemical Corporation

O'Fallon Casting

OFD Foods

OMNOVA Solutions Inc.

Orange Water and Sewer Authority*

Oshkosh Corporation

Osram Sylvania**Owens Corning***

Ozinga Bros.

Pactiv

Paperworks Industries

Parker Hannifin

Patrick Cudahy**Patriot Foundry & Castings**

PepsiCo

Perrone Aerospace

Pharmavite*

Philadelphia Water Department

Pima County Regional Wastewater Reclamation Department

Plastics Engineering Company (Plenco)

PPC Broadband

PPG

Procter & Gamble

Quad/Graphics, Inc.

Raytheon

Research Electro-Optics

Richmond Industries Inc.

Roche Diagnostics Operations

Rowley Spring and Stamping

Saint-Gobain Corporation*

Saputo Dairy Foods

Savage Precision Fabrication

Schneider Electric*

Sears Manufacturing Company

Selmet, Inc.

Shape Corporation

Shaw Industries

Sheboygan Regional Wastewater Treatment Facility

Sherwin Williams

Silgan Closures

Silgan Containers

Silgan Plastic Food Containers

SL Tennessee

Solberg Manufacturing Inc.*

Sony DADC

Southwest Cheese

Spirax Sarco, Inc.

St. Petersburg Water Resources Department

Stanley Spring and Stamping

Steelcase, Inc.

Stellantis

Sugar Creek Packing Co.

Sun-Opta Foods, Inc

Tarkett USA

TE Connectivity*

Tenaris

Texas Instruments

Texas Nameplate Co.

Textron, Inc.

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*Thermo Fisher Scientific**

ThyssenKrupp Elevators

TitanX Engine Cooling, Inc.

Toyota Motor Engineering & Manufacturing North America, Inc.*

TPC Group LLC

Tri-State Plastics, Inc.

Tyson Foods

United Mechanical and Metal Fabricators (U-MEC)

United Technologies Corporation*

Valmont Industries

Vanguard Space Technologies

Vermeer

Verso Corporation

Victor Valley Wastewater Reclamation Authority*

Vitro Architectural Glass

Volvo Group North America*

Waupaca Foundry

Weber Metals Inc.

Western Lake Superior Sanitary District

Westrock

Weyerhaeuser

Whirlpool Corporation

W. L. Gore and Associates

Xerox*

*Zebra Technologies Corporation**

Zimmer Biomet

MULTIFAMILY

2LifeCommunities*

ACTION-Housing Inc.*

Aeon*

AHEAD, Inc.*

Atlanta Housing Authority*

Beacon Communities*

Boston Housing Authority*

The Boston Land Company*

Bozzuto Management Company*

BRIDGE Housing Corporation*

Cambridge, MA, Housing Authority*

Caritas Communities, Inc.*

Cascap, Inc.*

Century Housing*

The City of Hickory Public Housing Authority*

Cleveland Housing Authority*

Codman Square Neighborhood Development Corporation*

CommonBond Communities*

The Community Builders, Inc.*

Community Housing Partners*

Community Roots Housing*

Consecrea Housing Network*

Corcoran Management*

Cuyahoga Metropolitan Housing Authority*

Danville Development*

EAH Housing, Inc.*

East Bay Asian Local Development Corporation*

The Economic Development Authority of the City of Mankato, MN*

Eden Housing*

The Evangelical Lutheran Good Samaritan Society*

Fort Wayne Housing Authority*

Foundation Communities*

FS Energy*

Gary Housing Authority*

Gateway Management Services, LLC*

High Desert Housing*

Homes for America*

Housing Authority of Baltimore City*

Housing Authority of the City of Bristol, CT*

The Housing Authority of the City and County of Denver*

Housing Authority of the City of Helena, MT*

Housing Authority of the City of Palatka, FL*

Housing Authority of the City of Philadelphia, PA*

Housing Authority of the City of San Buenaventura, CA*

Housing Authority of Knox County, IN*

Human Good*

Jamaica Plain Neighborhood Development Corporation*

Jersey City, NJ, Housing Authority*

Jewish Community Housing for the Elderly*

Jonathan Rose Companies*

Keene Housing*

Kier Property Management*

King County Housing Authority*

Korman Residential Properties, Inc.*

LINC Housing Corporation*

Lucas Metropolitan Housing Authority*

*Maloney Properties**

Manhattan Housing Authority*

McCormack Baron Salazar*

Mercy Housing, Inc.*

Michigan City Housing Authority*

Minneapolis Public Housing Authority*

National Church Residences*

New Bedford Housing Authority*

New York City Housing Authority*

NewLife Homes*

NHP Foundation*

NHT/Enterprise Preservation Corporation*

Peabody Properties, Inc.*

Preservation of Affordable Housing*

Puerto Rico Public Housing Administration*

REACH CDC*

The Renaissance Collaborative*

Retirement Housing Foundation*

Rockford Housing Authority*

Rural Ulster Preservation Company*

San Antonio Housing Authority*

Satellite Affordable Housing Associates*

Schochet Companies*

The Silver Street Group and Housing Management Resources, Inc.*

*Standard Communities**

Stewards of Affordable Housing for the Future

Tampa Housing Authority*

Tenderloin Neighborhood Development Corporation*

Trinity Housing Corporation of Greeley, CO*

Trinity Management*

Truth or Consequences Housing Authority*

Utica Municipal Housing Authority*

Village of Hempstead Housing Authority*

Vistula Management Company*

Volunteers of America

Washington, DC, Housing Authority*

Wesley Housing Corporation*

Windsor Locks Housing Authority*

WinnCompanies*

Wishrock Investment Group*

Yolo County, CA, Housing Authority*

STATE & LOCAL

Alabama

Albany, NY

Alexandria, VA*

Anchorage, AK

Arlington County, VA*

Arvada, CO*

Atlanta, GA*

Austin, TX

Bayfield County, WI

Beaverton, OR*

Boston, MA*

Boulder, CO

Boulder County, CO

Broward County, FL

California

Cambridge, MA

Chattanooga, TN*

Chicago, IL*

Chula Vista, CA*

Cincinnati, OH

Clark County, NV*

Cleveland, OH*

Colorado

Columbia, MO*

Columbus, OH

Commonwealth of Pennsylvania

Connecticut

Cook County, IL*

DC Water

Dearborn, MI

Deerfield Beach, FL

Delaware*

Delaware Valley Regional Planning Commission

Denver, CO*

Des Moines, IA

Detroit, MI

District of Columbia*

Dubuque, IA

East Bay Municipal Utility District

El Paso, TX*

Evanston, IL

Flint, MI

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Florida
Fort Lauderdale, FL*
Fort Worth, TX*
 The Fresno Energy Performance District
 Gary, IN
 Gillette, WY*
 Greater Lawrence Sanitary District
 Hall County, GA*
Hampton Roads Sanitation District
Hawaii
 Hawkeye Area Community Action Agency
Hillsboro, OR*
 Hoboken, NJ
 Holland, MI
Houston, TX*
 Huntington, NY*
Huntington Beach, CA
Illinois
 Indiana
 Iowa
 Kansas
 Kansas City, MO
 Kauai County, HI*
Ketchum, ID
 King County, WA*
 Knoxville, TN*
 Knoxville Utilities Board
 Little Rock, AR
Little Rock Water Reclamation Authority
 Local Government Commission
Los Angeles, CA*
 Los Angeles County, CA

Loudoun Water
Louisiana
Lowell, MA
 Manchester, NH*
Maine
Margate, FL*
Maryland*
Massachusetts*
 Medford, MA*
Miami-Dade County, FL
Michigan
Michigan City, IN
 Milwaukee, WI*
 Minneapolis, MN
 Minnesota*
 Missouri
Montana
 Montgomery County, MD
 Montpelier, VT
Moscow, ID
 Nevada
 New Hampshire
 New Orleans, LA
 New York, NY
New York State Energy Research and Development Authority
Newark, NJ
North Carolina*
 North Dakota
Northeast Ohio Regional Sewer District
 Oakland, CA
Ohio
 Oklahoma

Oregon
Orlando, FL*
Pennsylvania
 Perry, IA
 Philadelphia, PA*
Phoenix, AZ
 Pittsburgh, PA*
 Placer County, CA*
Portland, ME
 Portland, OR
 Racine, WI
 Reno, NV*
Rhode Island*
 Richmond, VA
Roanoke, VA*
Rochester, NY*
 Saint Paul, MN
 Salt Lake City, UT*
 San Diego, CA*
 San Francisco, CA
San Luis Obispo, CA
 Santa Fe, NM*
 Santa Monica, CA
 Seattle, WA*
 Sonoma County, CA
South Burlington, VT
South Carolina
South Dakota
 Southeast Michigan Regional Energy Office
 Southern California Regional Energy Network
 St. Petersburg, FL
Takoma Park, MD

Tallahassee, FL
Telluride, CO
Tennessee
 Texas
 Utah
 Virgin Islands Energy Office
Virginia
Washington
 Washington State Transportation Improvement Board
West Palm Beach, FL*
 West Virginia
 Will County, IL*
 Wisconsin
 Worcester, MA*

UTILITY

AEP Ohio
 Arizona Public Service
 Atlanta Gas Light
 Austin Energy
 Baltimore Gas & Electric
Bonneville Power Administration
 California Energy Commission
 Commonwealth Edison
 Consolidated Edison
Efficiency Vermont
 Eversource
 Focus on Energy
 Kansas City Power & Light
 Long Island Power Authority
 National Grid
 Nicor Gas
 NSTAR/Northeastern

One Gas
 Orlando Utilities Commission
 Pacific Gas and Electric Company
 PECO
 Pennsylvania PUC
 Peoples Natural Gas
 Pepco
 Philadelphia Gas Works
 PSEG Long Island
 Puget Sound Energy
 Questar Gas
 Reliant/NRG
 Rocky Mountain Power
 San Diego Gas & Electric
 Southern California Edison
 Southern California Gas
 TECO
 Xcel Energy

PROGRAM AFFILIATES

2G Energy Inc.
 Aegis Energy Services
 Alliance to Save Energy
American Association of Blacks in Energy & Jonah Cooper LLC
 American Council for an Energy-Efficient Economy
 American Hotel & Lodging Association
 American Institute of Architects
 American Planning Association
 American Society for Healthcare Engineering
 American Society for Heating, Refrigerating, and Air-Conditioning Engineers

APPA - Leadership in Educational Facilities
 Appraisal Institute
 Arup
 Asian American Hotel Owners Association
 Association for Learning Environments
 Association for the Advancement of Sustainability in Higher Education
 Association of Energy Affordability
Association of Energy Engineers
Auburn University Rural Studio
 Biomass Thermal Energy Council
 BlocPower
 Build It Green
 Building Owners and Managers Association International
Building Performance Association
 Building Performance Institute
 The Bullitt Foundation
 C40
 California Regional Multiple Listing Service
 California Street Light Association
 Capstone Turbine Corporation
 Caterpillar Inc.
 Center for REALTOR® Technology
 City Zenith
 Clean Energy States Alliance
 CMTA, Inc.

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Commercial Real Estate Data Alliance	Environmental Defense Fund	International Facility Management Association	National League of Cities	<i>Roxbury Community College</i>
Community Action Partnership of Oregon	Ford Twin Cities Assembly Plant Redevelopment Project	<i>Interstate Renewable Energy Council</i>	National Multifamily Housing Council	Second Nature
Community Action Program of Evansville and Vanderburgh Counties	Franklin Energy Services LLC	IRES MLS	<i>National Society of Black Engineers</i>	Slipstream
<i>Confluence Communications</i>	Garfield Clean Energy Collaborative	Jacobs	NeighborWorks of Western Vermont	Smart Cities Council
Connex	GE Distributed Power	Kraft Power Corporation	<i>Network for a Sustainable Tomorrow</i>	Smart Energy Decisions
Consortium for Building Energy Innovation	GEM Energy LLC	Kresge Foundation	New Buildings Institute	<i>Smith Group</i>
CoreLogic	Global Cool Cities Alliance	<i>Lane Community College</i>	New Jersey Clean Energy Program (TRC Solutions)	The Solar Foundation
<i>The Corps Network</i>	Google	<i>Leddy Maytum Stacy Architects</i>	North American Sustainable Refrigeration Council	SOM
Couleecap Inc.	Governing Institute	<i>Longmont, CO</i>	<i>North America's Building Trades Unions</i>	Spire Inc.
Council of Multiple Listing Services	Green Building Alliance	MacAllister Power Systems	Northeast Energy Efficiency Partnerships	STAR Communities
<i>CPL Architects and Engineers</i>	Green Button Alliance	Martin Energy Group	Northeast-Western Energy Systems	Sterling & Wilson Cogen Solutions, LLC
<i>Cunningham Group Architecture</i>	Green Parking Council	Metropolitan Regional Information Systems	<i>Northwest Energy Efficiency Council</i>	Stewart and Stevenson Power Product LLC, Atlantic Division
<i>CUNY: The City University of New York</i>	Green Sports Alliance	Mid-America Regional Council	NYSERDA	<i>Strategic Energy Innovations</i>
<i>D.C. Sustainable Energy Utility</i>	GRID Alternatives	Midwest Energy Efficiency Alliance	Opportunity Council	Sun Valley EcoDistrict
Denver National Western Center	Groundswell	Midwest Real Estate Data	<i>P2S Inc.</i>	Surdna Foundation
DTE Energy	Hatch	<i>Mississippi Development Authority</i>	<i>PAE Engineers</i>	Sustainability Roundtable Inc.
Earth Advantage	Health Care Without Harm	NACUBO	Pearl National Certification	Sustainable Endowments Institute
EcoDistricts	Highland West Energy	NAIOP (Commercial Real Estate Development Association)	Pension Real Estate Association	Telecommunication Industry Association
Ecolibrium3	<i>Home Builders Institute</i>	National Apartment Association	Philips Lighting	Tennessee Valley Authority
Edison Electric Institute	Home Innovation Research Labs	National Association of Counties	PicketFence.com	Thermal Energy Corporation
EEtility	Home Performance Coalition	National Association of Real Estate Investment Trusts	Posigen	Unified Foodservice Purchasing Co-op, LLC
Elevate Energy	Homes.com	National Association of REALTORS®	Practice Greenhealth	Unison Energy, LLC
Emerald Cities Collaborative	ICLEI	National Association of Regional Councils	Public Technology Institute	United Illuminating
Energize Connecticut	ILLuminating Engineering Society of North America	National Association of State Energy Officials	The Real Estate Round Table	<i>Urban Green Council</i>
<i>Energy and Environmental Building Alliance</i>	<i>IMEG Corp</i>	National Association of Women in Construction	Real Estate Standards Organization	Urban Land Institute
The Energy Coalition	Institute for Market Transformation	National Co-op Grocers	Realtors Property Resource, LLC	Urban Sustainability Directors Network
Energy Efficiency for All/NRDC	Institute for Sustainable Communities	National Energy Education Development Project	Regional MLS	U.S. Green Building Council
Energy Foundation	<i>Integral Group</i>		Renewable Energy Transition Initiative	Vermont Energy Investment Corporation
Energy Outreach Colorado	International City/County Management Association		Retail Industry Leaders Association	Vizient Vote Solar
Enhabit	International District Energy Association		Rocky Mountain Institute	Water Environment Federation
			Roof Coatings Manufacturers Association	Western New York Manufacturing ZNE District

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