Stepping Up to the Challenge Together

PROGRESS REPORT 2022
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EXECUTIVE SUMMARY | Better Buildings Initiative

The U.S. Department of Energy’s (DOE) Better Buildings Initiative is a market transformation program through which partners collaboratively pursue ambitious energy, waste, water, and greenhouse gas (GHG) reduction goals. They share their real-world pathways for achieving significant savings in their buildings, industrial facilities, and multifamily homes. In doing so, they inspire others, demonstrate strategies to overcome common barriers, and catalyze significant progress in energy efficiency and decarbonization. The leadership of Better Buildings Initiative partners strengthens our economy, advances energy independence, and propels us forward to a clean energy future.

The more than 100 program partners represent more than 35 of the country’s Fortune 100 companies, more than 10 of the top 25 U.S. employers, 14% of the U.S. manufacturing energy footprint, and 13% of total commercial building space, as well as more than 100 state and local governments spanning the nation.

In the past year, Better Buildings Initiative partners:

▸ Advanced Decarbonization. More than 130 unique organizations have joined DOE’s Better Climate Challenge and Low Carbon Pilot programs. They are paving the way for others by accelerating energy efficiency, promoting new carbon technologies and retrofits, and reporting on their progress. DOE is providing technical assistance, facilitating peer-to-peer learning opportunities, and highlighting real-world, replicable solutions.

▸ Collaborated to Drive Technological Innovation. Through Better Buildings, partners joined working groups with peers and experts from DOE’s National Laboratories and elsewhere to discuss barriers, exchange best practices, and identify technical, organizational, and financial approaches that work across different building and plant types. This collaboration fosters a diverse network and advances the adoption of new technologies and strategies.

▸ Contributed Solutions to Benefit Others. Partners shared their approaches for achieving significant energy, water, and waste reductions across their portfolios of buildings and plants. They also began increasingly to share their pathways for decarbonizing their operations.

Making an Impact

Since the start of the Better Buildings Initiative, partners have collectively saved:

- 2.5 QBtu of energy
- $15.3 B dollars saved
- 155 M metric tons of CO₂ avoided
- 13.7 B gallons of water
- $28 B in energy efficiency and renewable energy projects

Announcing the Better Climate Challenge

100+ organizations have joined the Better Climate Challenge.

This national public-private partnership calls on organizations across the country to set bold, portfolio-wide greenhouse gas emissions reduction targets and share their innovative solutions across industries. DOE will drive progress towards these commitments by providing technical assistance and convening peer exchanges that support pathways to decarbonization, while elevating energy efficiency and prioritizing clean energy solutions.

Partnership programs like the Better Climate Challenge are key to reaching President Biden’s goal of a net zero emissions economy by 2050 through an equitable clean energy transition. If all organizations in the commercial, public, multifamily, and industrial sectors reduced their U.S. greenhouse gas emissions by 30%, it would save nearly 1.5 billion metric tons of CO₂ annually, more than the annual emissions from every home in the country.

Highlighting Solutions

DOE’s Better Buildings Solution Center is the place to find proven and cost-effective decarbonization, energy, water, and waste efficiency solutions. There are more than 3,000 solutions categorized by barrier, building type, sector, technology, and more. Many of the latest Solution Center resources are highlighted throughout the pages of this report. These include:

▸ Low Carbon Technology Strategies Toolkit
▸ Decarbonization Download videos
▸ Technology Research Team resources
▸ Design and construction resources
▸ Waste-to-energy calculator
▸ Water-efficiency resources
▸ Carbon financing resources

Gina McCarthy
White House National Climate Advisor

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

Marcia L. Fudge
Secretary, U.S. Department of Housing and Urban Development

Better Buildings Progress Report – 2022
Learn more at betterbuildingssolutioncenter.energy.gov
More than 900 organizations participate in the Better Buildings Initiative, representing market leaders in nearly every sector. These organizations include state and local governments that provide critical services, school districts that educate the nation’s students, and more than one-third of the Fortune 100 companies that provide millions of jobs and fuel economic growth.

Overall Results to Date

- ENERGY SAVED: 2.5 Quadrillion Btu
- DOLLARS SAVED: $15.3 Billion
- SQUARE FEET: 13.2 Billion
- INDUSTRIAL FACILITIES: 3,500
- AVOIDED CO₂ EMISSIONS: 155 Million Metric Tons
- WATER SAVED (GALLONS): 13.7 Billion
- FUNDING EXTENDED BY FINANCIAL ALLIES: $28 Billion
- PARTNER SOLUTIONS AVAILABLE ONLINE: 3,000+
- ENERGY PERFORMANCE DATA TRACKED: 40,000+ Properties
- HOME ENERGY SCORES™: 180,000+

Setting Goals and Achieving Results

- More than 345 organizations have set portfolio-wide energy reduction goals through the Better Buildings Challenge, and more than 90 partners have met one or more of those goals.
- More than 270 Better Plants industrial partners located in all 50 states have reported 1.9 QBtu in energy savings and more than $9 billion in cost savings to date.
- Better Buildings Financial Allies extended more than $28 billion for energy efficiency and renewable energy projects since the start of the program.
- More than 100 partners joined the new Better Climate Challenge, setting ambitious GHG emissions reduction goals and committing to share replicable pathways to decarbonization.

Better Buildings Initiative Partners by Sector

- 900+ UNIQUE PARTNERS
  - Industrial: 269
  - Commercial: 193
  - State and Local: 102
  - Multifamily: 92
  - Education: 74
  - Financial: 54
  - Utility: 24
  - Program Affiliates: 100

Total Investment and Financial Ally Growth by Year

- $0
- $5
- $10
- $15
- $20
- $25
- $30
- $35

Better Buildings Progress Report – 2022

Learn more at betterbuildingssolutioncenter.energy.gov
More than 90 Challenge partners have met an energy goal since the start of the program, 13 have met a water goal, and 27 Financial Allies have met a financing goal.

In the past year, program partners have contributed to more than 100 resources on the Better Buildings Solution Center and helped to deliver more than 85 webinars.

Better Climate Challenge commercial, public, and multifamily partners represent more than 1.1 billion square feet of building space, and industrial partners represent more than 1,750 industrial facilities.

Integrated Lighting Campaign participants reported saving approximately 4 million kWh through the implementation of advanced lighting systems.

Building Envelope Campaign participants reported saving approximately 9 million kBtu based on envelope technologies alone.

The Industrial Technology Validation (ITV) Pilot entered Phase 2 to test innovative and emerging decarbonization technologies in real-world industrial environments and catalyze widespread adoption across the market.

Additional Better Buildings Initiative partnership opportunities include the following:

- Better Plants Program
- Better Buildings Accelerators
- Low Carbon Pilot
- Better Buildings Alliance
- Better Climate Challenge Allies
- Better Buildings Residential Network
- Industrial Energy Management Workforce
- High-Impact Technology Field Validations
- Technology Teams and Campaigns
- Home Energy Score™

More than 250,000 unique visitors explored resources on the Better Buildings Solution Center in 2021 and spent nearly 20% more time on the site on average than the year before.

More than 5,000 attendees joined the Better Buildings Webinar Series in the past year and another 4,000 attended the 2021 virtual Better Buildings, Better Plants Summit.

The Better Plants Online Learning Series provided guidance on a range of new topics including energy intensity baselining and tracking, as well as understanding electric, natural gas, and water bills.
**ENERGY GOAL ACHIEVERS**

**LIFE TIME, INC.**
- 38%
- Cher hires, MN
- 16.2 M sq. ft. committed
- 2014 baseline

**BULLITT COUNTY PUBLIC SCHOOLS, KY**
- 35%
- Shepherdsville, KY
- 2 M sq. ft. committed
- 2013 baseline

**KNOXVILLE, TN**
- 26%
- 3.2 M sq. ft. committed
- 2010 baseline

**WILL COUNTY, IL**
- 23%
- 1.1 M sq. ft. committed
- 2009 baseline

**JAMAICA PLAINS NEIGHBORHOOD DEVELOPMENT**
- 22%
- Boston, MA
- 380,000 sq. ft. committed
- 2014 baseline

**DISTRICT OF COLUMBIA HOUSING AUTHORITY**
- 21%
- Washington, D.C.
- 5.7 M sq. ft. committed
- 2011 baseline

**WHOLE FOODS MARKET**
- 21%
- Austin, TX
- 12.3 M sq. ft. committed
- 2010 baseline

**FORT WORTH INDEPENDENT SCHOOL DISTRICT**
- 20%
- Fort Worth, TX
- 13.5 M sq. ft. committed
- 2016 baseline

**MINNEAPOLIS PUBLIC HOUSING AUTHORITY**
- 20%
- Minneapolis, MN
- 3.4 M sq. ft. committed
- 2013 baseline

**LEGRAND NORTH AND CENTRAL AMERICA**
- 14%
- West Hartford, CT
- 19 facilities
- 2016 baseline

**WATER GOAL ACHIEVERS**

**WENDIUM OF FLORIDA**
- 31%
- Miami, FL
- 18,500 sq. ft. committed
- 2018 baseline

**THE WENDY’S COMPANY**
- 25%
- Dublin, OH
- 1.25 M sq. ft. committed
- 2018 baseline

**RECOGNIZING GOAL ACHIEVERS**

**SECOND GOAL**

- 21%
- Washington, D.C.
- 5.7 M sq. ft. committed
- 2011 baseline

- **HOUSING AUTHORITY**
  - **DISTRICT OF COLUMBIA**

- 22%
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- 380,000 sq. ft. committed
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**SPOTTING PARTNERS**

**DOE recognizes Better Buildings, Better Plants partners through site visits, social media, and news stories. Celebrating partner achievements accelerates the adoption of their solutions.**

**In the past year:**

- **500+ PARTNER MENTIONS ON SOCIAL MEDIA**
- **100+ NEWS ARTICLES FEATURING PARTNERS**

**Seeing Progress in Person**

In March 2022, DOE Principal Deputy Assistant Secretary of Energy Efficiency and Renewable Energy Kelly Speakes-Backman and Jamestown staff toured Levi’s Plaza in San Francisco, CA to recognize electrification projects as part of Jamestown’s commitment to decarbonize building energy use across its national portfolio. In April 2021, Jamestown announced plans to achieve net zero energy by 2025 at Levi’s Plaza through energy efficiency, electrification retrofits, and renewable energy.

**Partners in the Headlines**

**WJZ-TV 13 – CBS BALTIMORE**

Maryland Joins Federal Program Pledging to Reduce State Government’s Greenhouse Gases by 50%

“Maryland has joined the U.S. Department of Energy’s Better Climate Challenge, pledging to reduce greenhouse gas emissions from state government operations by at least 50% within 10 years,’ Gov. Larry Hogan said.”

**AP NEWS**

Cleveland-Cliffs Partners with U.S. Department of Energy through Better Climate Challenge Initiative

“Cleveland-Cliffs Inc. has entered into a partnership with the U.S. Department of Energy (DOE) as part of the Better Climate Challenge initiative, a new government-sponsored effort challenging organizations to set ambitious, portfolio-wide GHG emission reduction goals.”
Through Better Buildings, DOE has increased its support for organizations pursuing decarbonization at the building and portfolio levels by providing technical assistance to Low Carbon Pilot participants and launching the Better Climate Challenge.

Low Carbon Pilot
DOE is working with 65 partners through the Low Carbon Pilot to explore facility-level pathways for reducing emissions from building and manufacturing operations and share these approaches with the market. Partners connect with DOE National Laboratory staff to identify and overcome barriers to decarbonization.

HIGHLIGHTS:
- Pilot participants are developing facility-level decarbonization action templates to demonstrate how they are achieving real-world emissions reductions.
- More than 10 peer exchange sessions were held connecting partners with industry experts on heat pumps, green bonds, renewable energy and natural gas, resilience, hydrogen, and electrification.

Better Climate Challenge
DOE launched the Better Climate Challenge to encourage organizations to set ambitious, portfolio-wide GHG emissions reduction goals. Partners pledge to reduce scope 1 and 2 GHG emissions across their U.S. building or plant portfolio by at least 50% over 10 years without the use of offsets, while also pursuing a bold energy efficiency target. Better Climate Challenge Allies help recruit and support partners and share solutions.

PARTNERS:
3M
Albany County, NY
Anthem, Inc.
Arizona Housing, Inc.
AVANGRID
Bard College
Bendix Commercial Vehicle Systems
BorgWarner Inc.
Brewery Vivant
BXP
California State University, Sacramento
The Chemours Company
Chula Vista, CA
Cleveland-Cliffs Inc.
Cleveland Clinic Foundation
Colorado State University
Columbia Association
Community Housing Partners
Cummins Inc.
Dallas, TX
Daihita
Deschutes Brewery
DSM North America
Eastman Chemical Company
Electrolux Home Products – North America
Empire State Realty Trust
Exelon Corporation
Fairfax County, VA
Ford Motor Company
Foundation Communities
General Electric (GE)
General Motors
Glens Falls, NY
Grand Rapids Water Resource Recovery Facility
Harley-Davidson Motor Company
Hewlett Packard Enterprise
Hillsboro, OR
Hilton
HNI Corporation
Homeowner’s Rehab Inc.
Honeywell
Ikea Retail U.S.
Ingersoll Rand
International Paper
Jamestown
Johnson Controls
King County Housing Authority
Kingspan Insulated Panels, Inc.
Knoxville, TN
Kohl’s, Inc.
KYB Americas Corporation
La Crosse, WI
LaSalle Investment Management
Lear Corporation
Legacy Vacation Resorts
Legrand North and Central America
Landsea
Link Logistics
Lopez-Dorada Foods
Los Angeles Department of Water and Power
Los Angeles Unified School District
Louisville, KY
Lumberton Family Farms
Madison, WI
State of Maryland
MetLife Investment Management
MGM Resorts International
Miami-Dade Water and Sewer Department
Mitsubishi Electric Automotive America
Montours Falls, NY
Nashville
Nissan North America
Orlando, FL
Pace University
Paramount Pictures
Philadelphia, PA
QTS Data Centers
River Trails School District 26, IL
Roanoke, VA
Sabey Data Centers
Saint-Gobain Corporation
San Diego, CA
Schneider Electric
Schochet Companies
Seattle Housing Authority
Siemens
Southampton, NY
Standard Communities
Stanley Black & Decker
Staples Inc.
Stryker
Synthomer
Tarkett USA Inc.
Tenderloin Neighborhood Development Corporation
The Tower Companies
Toyota Motor North America, Inc.
Trane Technologies
United Mechanical and Metal Fabricators Inc.
University of Chicago
University of Michigan
University of Virginia
UV Health
Volvo Group North America
Waupaca Foundry, Inc.
Whirlpool Corporation
Worcester, MA
Xerox Corporation
Zebra Technologies Corporation

ALLIES:
American Hotel & Lodging Association
American Society for Healthcare Engineering
APPA – Leadership in Educational Facilities
Association for the Advancement of Sustainability in Higher Education
Association of Energy Engineers
Building Owners & Managers International
ConnexFM
Elevate Energy
ICLEI: Local Governments for Sustainability
International Facility Management Association
North American Sustainable Refrigeration Council
The Real Estate Roundtable
Rewiring America
Second Nature
Stewards of Affordable Housing for the Future
Urban Land Institute
U.S. Green Building Council

If all organizations in the commercial, public, and industrial sectors reduced their U.S. greenhouse gas emissions by 50%, it would save nearly 1.5 billion metric tons of CO2e annually. More than the annual emissions from every home in the U.S.
The Better Buildings Solution Center is home to more than 3,000 proven and cost-effective decarbonization, energy, water, and waste efficiency solutions, many of which have been contributed by program partners. Nearly 250,000 people visited the Solution Center in 2021 with over 720,000 page views.

Visit the Solution Center to:
- Access technical tools and toolkits to advance decarbonization and increase energy, water, and waste reductions.
- Identify and secure financing for decarbonization and efficiency projects.
- Attend and explore webinars and challenges facing energy professionals, with experts leading the conversations on best practices, cost-effective strategies, and innovative approaches.
- Learn about peer exchange opportunities like the Water Savings and Waste Reduction networks, and how to become a Better Buildings partner.

Connecting Virtually

ACCELERATING BUILDING DECARBONIZATION: A WHITE HOUSE ROUNDTABLE WITH GOVERNMENT AND INDUSTRY

At the 2021 Better Buildings, Better Plants Summit, White House and Cabinet representatives from three agencies came together to announce new initiatives and talk with industry stakeholders about decarbonization, jobs, and new technologies.

Decarbonization Download

This video blog series highlights the important work of DOE’s partners who share takeaways, best practices, and actionable steps to reduce carbon emissions in buildings and plants.

5-minute conversations between partners and DOE leadership exploring:
- Why is decarbonization important to your organization?
- Who are your stakeholders, and do they care about decarbonization?
- What projects are you excited about?
- What challenges do you see in reducing carbon emissions?
- What would you say to other organizations considering this work?

5 QUESTIONS WITH...

PRESERVATION OF AFFORDABLE HOUSING (POAH)

Julie Klump of POAH, a multifamily housing partner, outlines how to harness passive housing design to cut carbon and increase resilience in multifamily buildings.

CITY OF ORLANDO

Ian Lahiff of the City of Orlando lays out strategies for the partnerships and collaboration that will help to maximize energy savings and cut carbon emissions with minimal roadblocks.

ZEBRA TECHNOLOGIES

Mani Balakrishnan of Zebra Technologies shares three tips to maximize carbon reduction and outlines how science-based targets can help your organization cut carbon emissions now.

STEELCASE

Mika demonstrates the outsized impact on carbon reduction that simple upgrades can have. Learn how tackling low-hanging fruit in energy efficiency can cut costs while reducing carbon emissions from operations and supply chains.

BARD COLLEGE

Bard College’s Taun Toay shows how to harness new technologies to decarbonize historic infrastructure and shares why he remains hopeful in the face of the climate crisis.
Collaboration is a core component of the Better Buildings program. Partners join working groups with their peers and technical experts to discuss barriers and exchange best practices. This focus on collaboration fosters a diverse network that benefits all participants.

Accelerators

Better Buildings Accelerators are targeted, short-term, partner-focused efforts to address persistent barriers to efficiency and other improvements. The goal of each Accelerator is to speed up investment in energy efficiency by demonstrating what’s possible and how through the development of toolkits, case studies, and market research. Nearly 20 Accelerators have been launched to date; visit the Accelerator landing page on the Solution Center to learn more.

The active Accelerators are:

**Packaged Combined Heat and Power (CHP) Accelerator**

DOE’s CHP Deployment Program works with partners to validate a 20% or more reduction in installation times and total project costs for recognized, pre-engineered packaged CHP systems. In the past year, roadmaps to incorporate packaged CHP were updated for more than 15 partners. Partners have also participated in the DOE Packaged CHP eCatalog to provide performance specifications for their systems, with more than 40 CHP Packages and 25 Solution Providers joining the eCatalog over the past two years.

**Sustainable Wastewater Infrastructure (SWIFT) Accelerator 2.0**

SWIFT engages wastewater treatment facilities (WWTFs) in a voluntary partnership to achieve 5% short-term and 25% long-term facility-wide energy savings, learn about financing opportunities for infrastructure upgrades, and implement advanced energy upgrades (e.g., energy efficiency, renewable energy, resource recovery, and advanced data management). SWIFT has more than 60 participating partners that represent more than 155 wastewater facilities across 34 states. SWIFT also launched the first-ever ‘50001 Ready’ cohort tailored to help WWTFs implement strategic energy management systems on their campuses.

**Workforce Accelerator**

Accelerator partners are working to increase interest in building energy efficiency careers, improve curricula, and streamline career pathways. During the first year of the Accelerator, partners hosted nearly 100 trainings to more than 36,000 participants and reached over 400,000 people with information about green building careers. The Accelerator team hosted workshops on reaching K-12 students and increasing workforce diversity, equity, and inclusion. It also matched eight partners to technical assistance providers who helped map curricula, determined skills gaps in existing programs, and aligned skills training to certifications.

**Technology Campaigns**

Technology Campaigns aim to accelerate the adoption of efficient building technologies by providing technical assistance, resources, and guidance on implementation best practices.

- Building Envelope Campaigns launched in 2020 to help improve the performance of building envelopes in both new and existing buildings, the campaign introduced a new envelope assessment tool and Building Envelope Performance (BEP) metric. In 2021, 14 participants were recognized for high performing building envelopes.
- Integrated Lighting Campaigns launched in 2020 to help facility owners and managers integrate advanced lighting controls and lighting systems with other building or business systems in their facilities. In 2021, 13 participants were recognized for exemplary projects in lighting.
- Visit the Technology Campaigns page on the Solution Center to learn more about these and other campaigns.

**Design and Construction Allies**

The Better Buildings Design and Construction Allies group includes architecture, engineering, and construction firms that are creating strategies to routinely deliver energy-efficient, low carbon buildings. Launched in October 2020, participants are publicly announcing measurable goals for high-performance design and delivery and informing the development of resources, including the following:

- Building Owners’ and Designers’ Guide to Federal Incentives for High Performance Buildings
- Embodied Carbon Resource Navigator

**Technology Research Teams**

Led by experts from DOE’s National Laboratories, Technology Research Teams analyze the latest research and development on a range of building technologies with the goal of providing market-ready solutions to partners. Technical focus areas include plug and process loads, renewables integration, space conditioning, energy management information systems, lighting, and building envelope.

**New tools and resources:**

- Utilizing Emerging & Existing Technologies to Reduce Carbon
- Integrated systems packages resources
- Updated primer on organizational use of EMIS
- HVAC Resource Map – updated annually

**Better Buildings Webinars**

Better Buildings Webinars provide an opportunity for energy professionals to come together with experts and peers to learn about proven best practices, cost-effective strategies, and innovative new ways to approach decarbonization, energy performance, and more. The 2021-2022 Webinar Series was the most well-attended to date.

<table>
<thead>
<tr>
<th>Webinar</th>
<th>Attendees</th>
<th>Attendees per Webinar</th>
<th>Minutes in Webinar</th>
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</thead>
<tbody>
<tr>
<td>Low Carbon Technologies: Strategies for Different Building Types</td>
<td>730</td>
<td>50</td>
<td>47</td>
</tr>
</tbody>
</table>

Learn more at betterbuildingsolutioncenter.energy.gov

13  Better Buildings Progress Report – 2022

14  Learn more at betterbuildingsolutioncenter.energy.gov
CUTTING WASTE TO SAVE ENERGY

The United States generates 2.7 billion tons of industrial solid waste and more than 290 million tons of municipal solid waste per year. Access resources related to waste diversion and circularity at the Better Buildings Solution Center.

Waste Reduction Pilot

The Waste Reduction Pilot brought nearly 50 partners together in peer exchanges, webinars, and working groups to address common barriers with the help of National Laboratory experts. Partners expressed interest in various topics related to waste, including:

- Data management
- Circular economy
- Outreach/engagement
- Emerging technologies

Notable outcomes of the pilot include:

- 45 industrial and commercial partners set ambitious goals, many with a goal of 50% diversion or more.
- Development of a waste-to-energy calculator to evaluate the energy generation potential from waste streams, along with GHG impact, by considering multiple energy conversion scenarios.
- Facilitated working groups and webinars on data and measurement, employee outreach and engagement, plastics, e-waste, and making the business case.

Waste Reduction Network

The Waste Reduction Network was launched in 2021 to build on the pilot. Partners are publishing case studies, tracking and reporting waste data, sharing lessons learned, and setting ambitious goals using one of the following types of metrics:

- Diversion
- Intensity
- Absolute
- Waste-to-energy
- Zero waste
- Circularity

Leadership in Action

Non-industrial pilot partners reported diverting more than 40% of their waste in the past year, including Parkway Properties which has achieved a 43% waste diversion rate. Parkway Properties is working towards a 75% diversion rate goal using state of the art imaging technology to track waste streams and create monthly diversion reports. It is also leveraging waste audits, building walkthrough inspections and bin南E-Waste Drives, while developing educational materials and working closely with its janitorial teams to streamline processes and procedures.

Bendix Commercial Vehicle Systems developed a “Zero Waste to Landfill” Certification Process for its manufacturing facilities, promoting zero waste to landfill across all plants in 2021. This effort led to the complete elimination of landfilling as a disposal method from company operations in the U.S. and North America, and the policies developed are now ingrained in the standard operating procedures at the company. The company was also one of the first to join the Better Climate Challenge.

JBG SMITH set a goal to increase its waste diversion rate to 60% by 2030 across its portfolio and created a composting pilot program to make headway on this effort. The program works to divert organic waste from landfills at a property in Washington, D.C., adding additional composting bins to the loading dock and posting signage to encourage participation. Since the start of its program, more than 10,000 pounds of waste have been diverted from landfills.

Leadership in Action

Erie VA Medical Center (VAMC) replaced water-cooled condensing units with air-cooled units, achieving monthly water savings of more than 55% and over 8 million gallons over the first year of operation.

Flowers Foods implemented both water and energy efficiency measures at a 40-year-old bakery to keep up with demand while unlocking significant savings. The company achieved water savings of nearly 65% and energy savings of more than 20% after installing a heat recovery system, and an air-cooled chiller system that uses significantly less water for cooling.

Emory University created WaterHub, an on-campus system designed to treat and reuse up to 400,000 gallons of water per day, decreasing potable water demand by over one-third. In addition to saving money, the WaterHub is creating scientific and educational opportunities on campus.

Loews Hotels modernized the hot water system at its iconic Miami Beach hotel, replacing three over sized boilers that constantly ran with smart, tankless water heaters. The new equipment learns typical usage patterns and adapts to heat only the amount of water needed, conserving up to 40% of the energy previously wasted.

General Services Administration (GSA) Region 6 reduced water usage by nearly 90% from a 2007 baseline at the Charles F. Prevedel Building by installing low-flow fixtures and a storm water retention system to avoid consumer overuse and encourage water capture.

SAVING WATER

Demand for water is increasing while resource availability is decreasing due to climate impacts. Deliberate conservation is crucial to improving resilience while saving energy and lowering operational costs. Access resources to increase water efficiency at the Better Buildings Solution Center.

Leadership in Action

Water efficiency lowers operating costs, reduces risk, improves water quality, and saves the energy required to transport and treat it. Efficiency can also help alleviate growing water security concerns, particularly in water-stressed regions of the country. To achieve water efficiency, organizations should:

- Make a plan to manage water in their buildings and plants.
- Monitor water usage and track data to detect leaks and enable timely and dynamic water management.
- Make use of new technologies to optimize systems and enhance performance.

The Water Savings Network, launched in 2021, evolved from the Water Savings Initiative so that any facility owner or manager could engage with their peers and technical experts on water reduction topics.

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Cumulative Water Savings

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Leadership in Action

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General Services Administration (GSA) Region 6 reduced water usage by nearly 90% from a 2007 baseline at the Charles F. Prevedel Building by installing low-flow fixtures and a storm water retention system to avoid consumer overuse and encourage water capture.
The partners in DOE’s Better Buildings Initiative represent virtually every sector of the American economy. Collectively, they employ millions of Americans, while saving businesses and municipalities billions of dollars. They are also driving the critical innovations needed to address our climate crisis.

**SECTOR SPOTLIGHTS | Overview**

**The Sector Spotlights that follow illustrate the many ways partners are driving efficiency and prioritizing decarbonization:**

- Federal sector activities
- Local Governments
- 100+ Companies
- Building Space of the Fortune 100
- 35+ of the Fortune 100 Companies
- 10 of the Top 25 U.S. Employers
- 13% of all U.S. Commercial Building Space
- 14% of the U.S. Manufacturing Energy Consumption Footprint
- 100+ State and Local Governments
- 100+ Non-Profits and Industry Associations

**PROGRAM PARTNERS AND ALLIES ARE:**

**Coming Together Across Sectors to Address Common Challenges**

In the past year, partners met in a variety of peer exchanges to address common barriers and share solutions that work across multiple building types. Examples include:

- **Monthly industrial sector decarbonization peer exchanges:** Industrial partners met with experts and shared their experiences on topics including greenhouse gas accounting, green bonds, off-site renewable energy, renewable natural gas, green hydrogen, electrification, energy efficiency, and heat pump technology.
- **Commercial/public sector Low Carbon Pilot peer exchanges:** Pilot partners met to discuss heat pumps and their applications within buildings, plug and process load integration to increase energy efficiency, and HVAC retrofits, including technologies that can be implemented today to decarbonize these systems.
- **Commercial sector peer exchanges on various topics, including:**
  - Commercial real estate, hospitality, and healthcare partners engaged on common water challenges such as submetering, tracking annual water use intensity, and water quality issues like legionella growth.
  - Hospitality partners and retail, food service, and grocery partners discussed shared challenges related to renewables and energy storage.
  - Healthcare and commercial real estate partners discussed challenges and solutions related to renewables integration, decarbonization strategies, and financing for Real Estate Investment Trusts (REITs).
  - Healthcare and higher education partners met to discuss energy efficiency and renewable energy procurement in campus settings, as well as increasing campus resilience in the face of climate change.

**Achieving Decarbonization: Strategies that Work Across Sectors**

There are many ways for organizations to make progress towards achieving their decarbonization goals. A sampling of the leading opportunities partners in different sectors are pursuing includes the following:

- Identifying financing opportunities and making the business case for low carbon projects.
- Exploring cost-effective electrification options and fuel alternatives that meet operational needs and ensure reliability.
- Partnering with utilities and municipalities to overcome grid capacity restraints with increased electrification.
- Identifying the best on-site and off-site renewable energy options.
- Increasing staff capacity and fostering internal culture to improve energy efficiency practices.
- Collaborating with tenants on energy efficiency and decarbonization.
- Expanding expertise of HVAC equipment vendors and contractors around existing and emerging technologies.

The Sector Spotlights that follow illustrate the many ways partners are driving efficiency and prioritizing decarbonization:

- Industrial partners ........................................19
- Commercial real estate partners .......................21
- Healthcare partners ........................................23
- Retail, food service, and grocery partners ..........25
- Hospitality partners .......................................27
- Higher education partners .................................29
- K-12 school partners ....................................31
- State and local government partners ...............33
- Multifamily partners .......................................35
- Financial Allies .............................................37
- Residential sector activities ...............................39
- Federal sector activities ...................................41
The U.S. industrial sector accounts for roughly one-third of both the nation’s total energy consumption and GHG emissions. Despite the challenge of a global pandemic, partners continued to improve the energy intensity of their facilities while reducing water consumption, waste, and greenhouse gas emissions in new and creative ways.

In the past year, Better Plants supported sector partners in a variety of ways, including through:

- The Industrial Technology Validation Pilot, through which participants evaluate innovative energy and water treatment technologies. Phase 1 completed successfully in the past year, and Phase 2 launched to test innovative and emerging decarbonization technologies in real-world industrial environments and accelerate the adoption of these technologies across the market.
- The Virtual In-Plant Training (VINPLT) workforce development series, which added new topics such as 50001 Ready and motor controls platform to maximize operational efficiency.

Tools and Resources for Industrial Organizations

There are a wide range of tools and resources available to help industrial organizations reach their sustainability goals. Some recent additions include:

- A detailed report describing how Better Plants Goal Achievers were able to meet their energy goals.
- A demand response guidance document for reducing or shifting electricity usage during peak periods.
- A renewable energy guidance document to navigate the renewable energy market, providing a primer on relevant technologies along with a wide range of renewable power purchasing options.
- Three “Understanding Your Utility Bills” guidance documents for organizations to learn about and analyze their electric, natural gas, and water and sewer bills.
- An Implementation Guidance Toolkit with resources for planning projects, tracking progress, and communicating accomplishments.
The commercial real estate (CRE) sector continues to evolve to overcome challenges and capitalize on energy and carbon reduction opportunities. With increased flexibility, the sector has seen a decrease in the space per employee and an increase in the use of co-working space, with more than 80% of occupiers viewing co-working space as a desirable attribute in the buildings that they lease. 

CRE partners are demonstrating leadership by overcoming barriers to decarbonization, pursuing financing options, electrifying buildings, enhancing renewable energy procurement, and implementing emerging technologies. With support from DOE, partners are focusing on the following priorities:

- Highlighting decarbonization pathways focused on electrification, showcasing embodied carbon reduction efforts, and connecting partners with technical research.
- Developing technology and finance solutions related to renewable energy and storage, including on-site installations and off-site procurement such as power purchase agreements and virtual power purchase agreements.
- Assisting partners facing challenges in pursuing energy efficiency with an increased focus on healthy buildings and indoor air quality.

### Commercial Real Estate Cumulative Energy Savings

<table>
<thead>
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<td>90</td>
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<tr>
<td>2021</td>
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Leadership in Action

- **Columbia Association**, a Low Carbon Pilot partner, will avoid the use of nearly 4,000 therms of natural gas each year by replacing a large propane water heater with two smaller heat pump water heaters to eliminate a source of on-site fossil fuel combustion. It also utilized a high-efficiency heat pump technology at one of its community pool facilities.

- **Kilroy Realty Corporation** participated in a Green Janitor Education Program to help janitorial staff understand the science behind green cleaning, how to identify energy and water waste in a building, and how they can play a part in improving building sustainability. More than 40% of Kilroy’s janitorial staff are involved in the program.

- **Link Logistics** partnered with a community solar program to install a large capacity solar photovoltaic system to mitigate challenges from net-metering limits in its jurisdiction. This project provides $1 per square foot of revenue from the leasing of the roof space, and became the foundation of a scalable solar implementation program across Link’s portfolio.

- **The Tower Companies** achieved a 90% return on investment in the first year of an office building solar project by leveraging a direct ownership model paired with solar renewable energy credits (SREC) revenue and state/federal grants.

### Leadership in Action

- **WashREIT** installed solar equipment on two multifamily properties in Washington, D.C. to lower operating expenses and help achieve its 70% carbon emissions reduction target. The company will own the system with plans to monetize the SRECs.

- **The Hawaiian Airlines** energy team rolled out employee engagement activities that included an energy treasure hunt and the production of a video detailing office energy-savings tips.

- **Highwoods Properties** is helping to create a pipeline of college graduates trained to control and reduce energy consumption in the built environment. The co-op program it participates in has identified projects and provided ENERGY STAR® support, which has helped save over $800,000 for projects since 2017.

- **LBA Realty** developed a Sustainability-as-a-Service (SaaS) offering for its tenants to help lower its operating costs and improve building health, all while providing building performance data to LBA.

- **Empire State Realty Trust** completed energy audits in 4 million square feet of tenant space, leading to improvements that found up to 50% energy reductions for tenants; the company received Gold recognition for Green Lease Leaders in 2021.

Additional Highlights

- **Green Lease Leaders** is a national recognition program honoring landlords, tenants, and partnering real estate practitioners that incorporate green leasing to drive high-performance and healthy buildings. A new Platinum recognition level seeks to specifically address the greater ESG impact of leasing practices in Green Lease Leaders’ footprint, which covers over 4 billion square feet in commercial real estate, multifamily, healthcare, data centers, retail space, and more. In 2021, more than 40 organizations were recognized through Green Lease Leaders, representing a diverse range of buildings, from large and small commercial offices to industrial buildings to data centers. The program is a partnership with the Institute for Market Transformation.
The U.S. healthcare system contributes 10% of the nation’s carbon emissions and 9% of harmful non-greenhouse air pollutants.6 Deeply affected by the COVID-19 pandemic, leading organizations in the sector continue to look for balance between energy efficiency and their top priority: patient care. Recognizing the connections between climate change, energy efficiency, and human health, partners in the healthcare sector are focusing on the following priorities:

- Creating solutions that demonstrate actionable decarbonization pathways in healthcare through electrification, resiliency planning, and ultra-high building efficiency.
- Curating and showcasing successful telehealth and space utilization strategies in healthcare, engaging partners to identify the energy implications of such strategies, and highlighting how the expansion of telehealth services can enable greater equitable access to quality healthcare.
- Engaging partners to identify the diversity of issues around water in healthcare, including conservation, regional drought risk, and health concerns from bacterial growth.

**Leadership in Action**

**Gundersen Health System** completed a 3-phase warehouse and office renovation of the Consolidated Services Center in West Salem, WI. Adding solar, geothermal, and battery storage, the goal is to achieve a microgrid configuration to make the facility more energy independent and resilient.

**UW Health** broke ground on a state-of-the-art ambulatory clinic that will host an approximately 1 MW solar carport on top of the parking garage. Funded by a green bond, this project is expected to achieve a 20% annual carbon reduction, as well as reduced snow removal costs, lowered environmental impacts from salt, and vehicle protection from the elements.

**Physicians Realty Trust** is collaborating with DOE and the National Renewable Energy Laboratory to understand the impact of plug and process loads on healthcare energy use, especially from imaging equipment, and exploring solutions that could lower their impact by up to 50%.

**UW Health, University of Nebraska Medical Center, and Physicians Realty Trust** hosted a peer exchange for sector partners on pandemic preparedness and response, and reengaging stakeholders around sustainability.

**Atlantic Health System** turned on a co-generation plant in late 2021 at its Morristown Medical Center campus. The plant provides more reliability and electric redundancy while significantly lowering utility costs. It also uses a natural gas-powered turbine to generate electricity and utilizes the hot exhaust gas to generate steam.

**University of Utah Health** saved nearly $190,000 by reducing annual chilled water consumption after installing a building energy management information system and optimizing air handling units. Positive results provided a business case for future projects.

**American Society for Health Care Engineering (ASHE), a Better Buildings Affiliate, published the ASHE Sustainability Guide, providing step-by-step directions for developing and executing a sustainability program in healthcare facilities, with an expanded view into sustainability and decarbonization.**

**Health Care Without Harm**, a Better Buildings Affiliate, released Climate Resilience for Health Care and Communities: Strategies and Case Studies, a white paper which provides a framework for healthcare systems to improve climate resilience of its facilities and communities, as well as explore how to leverage investments and capital to support equitable decarbonization.

If all organizations in the sector reduced their energy-related U.S. emissions by 50% over the next 10 years, it would result in the reduction of more than 48 million metric tons of CO2.

**Case Study**

**Healthcare Realty’s Medical Office Solar**

Healthcare Realty partnered with a renewable energy advisor to establish its solar program by evaluating renewable energy opportunities across its portfolio and identifying ideal properties for solar installation. Healthcare Realty is leveraging renewable energy as an important strategy to achieve its energy and GHG emissions reductions goals by 2026. All of the projects in the pipeline will be financed through third-party ownership, via power purchase agreements or through a feed-in tariff program.
Recognizing the risks posed by climate change, retail, food service, and grocery (RFSG) companies are demonstrating leadership by setting ambitious carbon reduction goals and voluntarily reporting greenhouse gas emissions. According to the National Retail Federation, 75% of the largest retailers provide sustainability information on their company websites and 60% publish reports for investors. Better Buildings partners are also sharing their strategies for making buildings and fleets more energy efficient and decarbonizing their operations. To help sector partners address barriers to decarbonization, the program:

- Published Evaluating New Energy Efficiency Products, a resource with steps for assessing the suitability of new energy reducing technologies or products in facilities.
- Provided a forum for partners to learn from each other on issues related to renewables and energy storage.
- Shared information on commercial kitchen decarbonization strategies.

**Retail, Food Service, and Grocery Cumulative Energy Savings**

**Leadership in Action**

**Walgreens** leveraged advanced lighting system capabilities during two pilot projects: the first equipping shopping baskets with Bluetooth asset tags to learn about traffic patterns, and the second testing a new life safety program to automate identification and reporting of failed components. These projects provided valuable insights to its operations, helped reduce maintenance efforts, and enhanced the customer experience. Walgreens earned recognition for these projects from the Integrated Lighting Campaign.

**Wendium of Florida, Inc.**, a franchisee of The Wendy’s Company, installed warewashing systems at its restaurants to reduce water consumption and improve its preventative maintenance and leak monitoring processes, which helped the company achieve more than 30% water savings across its building portfolio to surpass its water reduction goal eight years ahead of schedule.

The Retail Industry Leaders Association (RILA) developed a series of renewable energy primers on the topics of owned on-site systems, on-site power purchase agreements, renewable energy credits, and global procurement to help retailers understand the pathways for integrating renewable energy into their portfolios.

**Life Time, Inc.** has reduced energy use by 35% and water use by nearly 60% at its 110,000-square-foot club in Chanhassen, MN through a series of building improvements over the past decade, including LED lighting retrofits, upgrading rooftop HVAC units with variable-frequency drives, and undergoing a full building commissioning.

**The Wendy’s Company** joined the Low Carbon Pilot aiming to reach low carbon status at two restaurants by 2023 by implementing deep energy efficiency projects and exploring on-site renewable energy and power purchase agreement options for off-site utility offerings.

**Life Time, Inc.** and **Walgreens** were featured in the Association of Energy Services Professionals Energy Intel magazine, sharing their strategies for maintaining a focus on energy efficiency while adapting their operations to the challenges of the COVID-19 pandemic.

**Sheets, Inc.** completed a building management system retrofit program, upgrading systems at approximately 600 new and existing stores to achieve a 10% reduction in energy usage while better maintaining temperature control for comfort and streamlining its maintenance process.

**Kohl’s, Inc.** and **IKEA Retail U.S.** joined the Better Climate Challenge, becoming the first two retailers to partner with DOE as they pursue a 50% reduction in scope 1 and 2 greenhouse gas emissions across their operations.

- **Kohl’s, Inc.** has pledged to cut scope 1 and 2 greenhouse gas emissions in half across more than 80 million square feet of stores, distribution centers, and office space by 2025. The company will meet this goal by focusing on lighting and HVAC upgrades, pursuing ENERGY STAR and LEED® certified buildings, and expanding renewable energy. Kohl’s announced plans to install rooftop solar arrays on 15 additional stores during 2022, increasing its installed solar capacity to nearly 57 megawatts.
- **IKEA Retail U.S.** aims to be climate positive in its own operations by 2030 and has committed to being powered by 100% renewable energy. IKEA Retail U.S. has installed solar at more than 57 megawatts.

If all organizations in the sector reduced their energy-related U.S. emissions by 50% over the next 10 years, it would result in the reduction of more than 89 million metric tons of CO₂.
The hospitality sector has continued to battle through impacts posed by the COVID-19 pandemic. Through a survey of more than 500 hotels, more than 85% noted that operations have been moderately or significantly impacted through supply chain disruptions. Regardless of these challenges, Better Buildings hospitality partners have continued to pledge their commitment to climate action and invest in energy and water saving technologies, all while continuing to prioritize the guest experience. Examples of these efforts include:

- Incorporating smart building technology (IoT) in guestrooms to streamline operations and reduce overall energy consumption.
- Focusing on waste reduction efforts, including waste accrual from new construction and development, as well as single-use waste used in hotel operations.
- Prioritizing ISO 50001 Ready certifications through the implementation of energy efficiency measures.

IHG Hotels & Resorts, a Low Carbon Pilot partner, is testing different networked thermostat models in short and extended stay hotels. IHG will monitor several factors while testing the thermostats, including HVAC runtime, usability, and guest experience. Once the testing concludes, IHG will review the data to determine optimal specifications and operational guidelines for new and existing hotels. This technology can improve building performance by reducing energy consumption by setting back the thermostat when rooms are unoccupied and providing hotel staff with better tools for energy monitoring and management.

Marriott International is establishing a Science Based Target and aims to reduce its carbon intensity by 30% from a 2016 base year. Marriott’s decarbonization pathway prioritizes the installation of energy efficiency technologies such as LEDs and low-flow water fixtures, while also including renewable energy projects. In addition to these efforts, Marriott has also launched the Marriott Infrastructure Resilience Adaptability (MIRA) project to ensure that assets managed by Marriott are resilient against climate-related risks.

Travel + Leisure Co. is adding renewable energy capacity as a complement to its energy efficiency strategy. At the Wyndham Limetree Resort in St. Thomas, the company installed more than 400 solar panels to generate nearly 200 KW of electricity. At its WorldMark Clear Lake Resort, Travel + Leisure Co. is developing a nearly 220 KW on-site project featuring tilt ports, bifacial panels, and a 500 KW battery to enhance resort resiliency. This project includes more than 550 solar panels with the capability to produce 65% of the resort’s electric needs.

Loews Hotels continued to prioritize energy efficiency after achieving its Better Buildings Challenge energy reduction goal, achieving ISO 50001 Ready certification for all its sites. The ISO 50001 certification provides a framework to implement energy management systems at the building level, track the progress of those measures, and understand opportunities for additional savings.

If all organizations in the sector reduced their energy-related U.S. emissions by 50% over the next 10 years, it would result in the reduction of more than 39 million metric tons of CO2.5
As many campuses returned to in-person operations during the past year, the COVID-19 pandemic continues to impact campus budgets and staff capacity. Historic turnover has also created implications for energy efficiency and sustainability work on campuses among others. To meet their energy and emissions reduction goals, sector partners are identifying technology opportunities to decarbonize energy intensive spaces (i.e., labs, dining, medical), connecting with financing opportunities for large infrastructure improvements, and increasing staff expertise in plant maintenance and software building.

In the past year, the program connected partners with the following decarbonization resources relevant for sector partners:

- **Low Carbon Technology Strategies Toolkit** with resources to support owners and operators of existing buildings in planning retrofit and operational strategies to achieve deep carbon reductions.
- **Decarbonizing HVAC and Water Heating** to help conduct the technical, economic, and feasibility assessment needed to convert to all-electric heating solutions, including heat pumps.

### Higher Education Cumulative Energy Savings

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<td>2020</td>
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<tr>
<td>2021</td>
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</table>

### Leadership in Action

**Pace University** set a new goal of 50% reduction in energy intensity by 2031 after achieving its initial program goal. Improvements in energy efficiency will be a large part of the university's decarbonization journey as a partner in the Better Climate Challenge.

**The University of Virginia (UVA)** completed a climate action plan that focuses on addressing scope 1 & 2 emissions at the district scale to become carbon neutral by 2030. UVA further demonstrated its leadership by pledging to become fossil fuel free by 2050 and joining the Low Carbon Pilot.

**Colorado State University (CSU)** completed one of the largest geo-exchange projects in the western U.S. and has 6.7 MW of solar PV on campus in both ground- and roof-mount systems. CSU has a goal to utilize 100% renewable electricity by 2030 and joined the Better Climate Challenge.

**Bard College** adopted geothermal technology for heating and cooling in roughly 40% of total building square footage with plans to add over 1 MW of solar PV on campus to the existing 300 kW in on-site PV. Bard College also joined the Better Climate Challenge program.

**The University of Chicago** reduced scope 1 and 2 emissions by 13% between 2018 and 2020, and will continue its decarbonization efforts by setting a 50% emissions reduction goal through the Better Climate Challenge while planning to reduce its energy use intensity by at least 20%.

**Stevens Institute of Technology** issued the New Jersey Education Facilities Authority’s first-ever green bond to complete construction of a three building, $175 million expansion for housing and campus activities, all designed to meet LEED® Silver standards.

**Northwestern University** is pursuing net zero emissions by 2050 in its built environment, in part through an energy-as-a-service agreement that is providing engineering support for projects and training for students.

**Community College of Allegheny County (CCAC)** completed a 543 kW solar installation to provide 30% to 40% of its North Campus electricity needs. CCAC will save about $750,000 in energy costs over the next 28 years. The project was financed using a power purchase agreement and did not require a capital expenditure from the college.
K-12 schools represent the nation’s second largest sector of public infrastructure spending, after roads and highways. Increasing energy efficiency in the nation’s K-12 schools by 20% would yield at least $1.5 billion in annual cost savings. An additional opportunity in K-12 schools is to address emissions from 480,000 school buses, which are mostly diesel and represent the country’s largest fleet of public transportation. As K-12 schools continue operations through COVID-19-related challenges while prioritizing environmental goals, the sector is increasingly focusing on the following:

- Updating HVAC systems to better filter and circulate air while reducing energy consumption.
- Electrifying school facilities and school buses and, in increasing instances, utilizing electric buses as a source of battery power during outages.
- Training the next generation’s workforce for careers in energy management that support efficiency goals.
- Reducing emissions through the installation of on-site solar, frequently made possible by utility and state incentives.

### K-12 Schools Cumulative Energy Savings

**ENERGY SAVINGS (TBtu)**

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**Leadership in Action**

Sector partners are prioritizing energy efficiency and setting climate goals while striving to operate K-12 schools for optimal health and safety.

**Fairfax County Public Schools** set a new 25% energy reduction goal by 2030 and committed to both carbon neutrality by 2040 and a 50% emissions reduction by 2030. The district uses software to monitor over 10,000 utility bills per year at nearly 240 locations to identify anomalies in energy usage and has been named an ENERGY STAR Partner of the Year for five consecutive years. All new buildings and major renovation projects that begin planning and design in 2021 must achieve zero net energy performance.

**Fort Worth Independent School District** achieved its 20% portfolio-wide energy reduction goal in 2021, five years ahead of schedule. The district has installed over 800 WiFi thermostats and hired dedicated energy specialists to conduct energy audits and oversee maintenance of project technologies. The school district uses an app to alert for real-time energy consumption spikes at meters, allowing for quick resolutions. The district has earned ENERGY STAR certification for more buildings than any other in Texas.

**Albuquerque Public Schools** installed a solar plus storage system at Atrisco Heritage Academy High School, consisting of an 850 kW solar array combined with a 721 kW Tesla Megapack 2 battery storage system which will reduce energy costs by $3.5 million over the system’s 25-year lifetime.

**Los Angeles Unified School District, CA** set a GHG reductions goal of 50% over 10 years as an inaugural partner in the Better Climate Challenge. Towards this goal, LAUSD purchased 10 zero-emissions school buses, each of which saves $10,000 annually in lower maintenance costs and reduces emissions by 54,000 pounds of CO₂ per year.

**River Trails School District 26, IL** set a GHG reduction goal of 50% over 10 years as an inaugural partner in the Better Climate Challenge. At Prairie Trails School, the district installed rooftop solar and a new dedicated outdoor air system (DOAS), combined with a new highly-efficient heat recovery electric variable refrigerant flow (VRF) heating and cooling system as part of its participation in the Low Carbon Pilot.
State and local government buildings consume 1.1 and 2 QBtu each year, respectively, and have the potential to save $2.1 billion and $3.7 billion annually through a 20% improvement. Leading partners are pursuing significant energy savings while prioritizing health and safety protocols that optimize building operations for fluctuating occupancy levels.

During the past year, Better Buildings has provided high-impact resources and tools for public sector partners. Examples include:

- Promoting the State and Local Planning for Energy (SLOPE) Platform and its new Scenario Planner tool through webinars.
- Leveraging the Energy Data Management Guide and recent partner success strategies through instructional webinars.
- Participating in accelerators focused on public-sector facilities, including the Sustainable Corrections Infrastructure Partnership (SCIP) and Sustainable Wastewater Infrastructure of the Future (SWIFt) Initiative.

State and Local Government Cumulative Energy Savings

<table>
<thead>
<tr>
<th>Year</th>
<th>Energy Savings (QBtu)</th>
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<tr>
<td>2012</td>
<td>30</td>
</tr>
<tr>
<td>2013</td>
<td>60</td>
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</tr>
<tr>
<td>2020</td>
<td>270</td>
</tr>
<tr>
<td>2021</td>
<td>300</td>
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Leadership in Action

**Chattanooga, TN,** enhanced operational resilience during extreme weather events and maximized future energy and water savings through upgrades to the Moccasin Bend Wastewater Treatment Plant. Project highlights include the installation of a 10-acre solar array that is expected to offset enough energy needs to save approximately $400,000 per year, LED lighting retrofits expected to save over $60,000 a year, and water system improvements saving over 85 million gallons a year.

The **State of Maryland’s** 2021 annual report by its Commission on Climate Change detailed more than 50 recommendations on how to meet the state’s goal to reduce emissions 50% by 2030, as well as a plan that identifies low-cost pathways for decarbonizing the residential and commercial buildings sector. Maryland is the first state to join DOE’s Better Climate Challenge.

The **Commonwealth of Massachusetts** funded comprehensive decarbonization studies among state universities to provide high-level roadmaps and technological solutions for electrification of almost all campus heating and cooling needs. Measures analyzed and recommended include converting from steam to low-temperature hot water, installing ground- and air-source heat pumps, and deploying thermal storage.

The **State of Rhode Island’s** Department of Education launched an initiative to install LED lighting in the public schools of the state’s five communities of greatest economic need, and is providing upgrades while covering 100% of the project funding.

**Santa Fe, NM,** utilized energy savings performance contract to finance facility improvement measures that will reduce energy and water consumption, estimated to save nearly $750,000 per year in utility costs. The project includes a city-wide solar project that is estimated to add 2.75 MW of renewable energy to the city’s portfolio, which will offset nearly 80% of the city’s electricity usage.

**Will County, IL,** reduced electricity use at the county’s health center by 50% and saved $16,000 over a six-month period. Through the collaborative effort of county energy specialists and maintenance teams, and a partnership with local utility representatives, the county also uncovered and corrected billing inaccuracies.

If all organizations in the sectors reduced their energy-related U.S. emissions by 50% over the next 10 years, it would result in the reduction of more than 101 million metric tons of CO₂.

**Houston, TX,** is turning a former landfill into the largest urban solar farm in the U.S. by installing 70 MW of solar panels on 224 acres and generating enough electricity to power 12,000 homes.

**Boston, MA,** focused on upgrading building controls, installing rooftop solar, and fuel switching at a historic performing arts theater from 1918.

**Columbia, MO,** implemented a strategy to install solar and an on-site storage system to replace a propane generator.

**Knoxville, TN,** focused on replacing existing HVAC units with high efficiency, all-electric upgrades and lighting improvements.

**Orlando, FL,** concentrated on lighting retrofit projects, solar installation, and an HVAC system replacement. The city is also developing Resilience Hubs that will serve low-income communities during grid outages.
Adopting energy efficiency and climate resilience strategies can help address two of multifamily rental housing’s top challenges—the growing affordability gap and increased vulnerability to climate change. The COVID-19 pandemic has exacerbated what was already a severe shortage of affordable rental homes for low-income Americans, with national median year-over-year rents increasing an unprecedented 18% in 2021. Sector partners are leading the way to a safer, more resilient, lower carbon future by setting ambitious, portfolio-wide carbon reduction goals and implementing decarbonization strategies of remarkable scope and ambition. Examples include:

- Demonstrating that affordable housing projects meeting Passive House energy efficiency standards can be built at a low or no-cost premium.
- Achieving high performance retrofits targeting 60% to 80% energy savings through prefabricated insulative facades, heat pumps, and energy recovery ventilation systems.

**Multifamily Cumulative Energy Savings**

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**Case Study**

**New York City Housing Authority (NYCHA)**

NYCHA has partnered with New York State agencies to launch a competition for manufacturers to develop a new heat pump that can better serve the needs of existing multifamily buildings and accelerate the transition to a carbon-free economy. Through an RFP, heating and cooling manufacturers have been challenged to develop a unitary, packaged cold climate air source heat pump intended to be easily installed through an existing window. NYCHA has connected with Better Buildings Challenge partners to gain broader market support and spur clean energy innovation in affordable housing.

NYCHA completed a $114 million rehabilitation of Millers River, a 304-unit high-rise for low-income seniors. The Enterprise Green Communities certified project has a “tri-gen” CHP system, supplying the building with thermal energy for space heating in the winter, air conditioning through an absorption chiller in the summer, and water heating.

Trinity Management completed construction of 425 Grand Concourse, one of the largest Passive House projects in the U.S. The 26-story high rise in the Bronx, New York, will consume up to 70% less energy than a conventional housing project and will provide 277 units of affordable housing. The structure incorporates a high-performance envelope and will feature energy-efficient lighting systems, building mechanicals, and facilities.

**Leadership in Action**

**Standard Communities** completed a LEED and Enterprise Green Communities certified rehabilitation of Fort Chaplin Park Apartments, a 509-unit campus in Washington, D.C. The site has a 1.2 MW community solar system that generates approximately $500 of utility savings per participating household per year. Measures included high efficiency HVAC and gas-fired water heaters, ENERGY STAR appliances, high efficiency insulated vinyl windows, and a green roof.

**The Housing Authority of the City of San Buenaventura** completed a $28 million development of Willett Ranch, a 50-unit property for low-income seniors. The GreenPoint Rated project includes insulation with post-consumer and -industrial recycled content, a high-efficiency irrigation system, and solar PV.

**WinnCompanies** completed a $32 million historic adaptive reuse of the 100-year-old East Haven High School in East Haven, Connecticut. Now called The Tyler, the 70-unit building was designed and built to Passive House standard, using a VRF HVAC system, energy recovery ventilation, comprehensive exterior insulation, ENERGY STAR appliances, and a 90 kW solar array.

If all organizations in the multifamily sector reduced their energy-related U.S. emissions by 50% over the next 10 years, it would result in the reduction of more than 55 million metric tons of CO2.\(^1\)
SECTOR SPOTLIGHT | Financial Allies

The accelerating adoption of carbon reduction targets has spurred an increase in carbon-focused financing activities and innovative financing approaches. Examples of these approaches include:

- Increasing use of contracting vehicles that track carbon impacts, such as green bonds, and emphasizing the tracking of carbon impact in financing mechanisms, such as efficiency-as-a-service and energy savings performance contracts.
- Including carbon-related decision metrics, such as abatement efficacy, in investment decisions.
- For some equity investors and even debt investors, including emissions reduction requirements from organizations that accept capital beyond simple carbon tracking.

The number of Financial Allies grew with commitments from BlocPower, Budderfly, Counterpointe Sustainable Real Estate, Kyotherm, Skyven Technologies, and Minimise.

Leadership in Action

Hannon Armstrong established a $100 million “CarbonCount Green Commercial Paper Note” program. This note will allow Hannon Armstrong to allocate proceeds to acquire or refinance eligible green projects to accelerate behind-the-meter, grid-connected, and sustainable infrastructure projects.

BlocPower was selected by the city of Ithaca, NY to provide city-wide electrification as part of Ithaca’s carbon reduction goals. This project can reduce Ithaca’s footprint by 40% upon completion, with an estimated savings of 400,000 metric tons CO2 per year. It is also estimated to yield an equivalent of 400 jobs in green construction.

Petros PACE Financing financed an $89 million C-PACE project at 111 Wall Street, the first program completed as part of NYC’s recently reactivated program. This is the single largest C-PACE transaction closed in the U.S. to date.

Metrus Energy increased its funding commitment to $200 million to support businesses, schools, hospitals, and local governments in accelerating progress on sustainability goals, increasing resiliency, and mitigating climate change. Metrus Energy’s commitment is part of its pledge and participation in America is All In.

Redaptive partnered with Iron Mountain Data Centers to roll out efficiency measures through the “as-a-service” model. This project unlocked $750,000 in operating savings in 2021 and will result in increased savings across 174 North American sites. This program incorporated a multi-technology approach with savings from lighting, plug load management, HVAC measures, and envelope improvements.

Connecticut Green Bank released a “Green Liberty” crowdfunding campaign, allowing retail investors to invest directly in the Green Bank mission to confront climate change and carbon emissions. Proceeds will support Eversource’s Small Business Energy Advantage (SBEA) program by allowing SBEA participants to borrow up to $100,000 at 0% interest to improve its carbon impact.

Citi announced a $1 billion “Social Finance Bond” that supports social-focused developments in emerging markets around the world. Proceeds from the bond will finance a range of projects, including those that expand access to financial services, affordable housing, basic infrastructure, healthcare, and education in underserved and unbanked communities in emerging markets.

Additional Highlights

Financing Decarbonization

Better Buildings Financial Allies are working with partners in different sectors to address the following carbon-centric financing barriers:

- Financing contracts do not always explicitly require tracking of energy savings, obscuring the carbon impact of financed energy improvements.
- Lack of visibility into the environmental impact of financed projects.
- Lack of recognition for organizations financing large-scale decarbonization incentivizes projects that prioritize financial returns rather than maximize environmental impact.
- Complex ownership structures can create misaligned incentives like the “principal-agent problem” that increase the effort needed to act on carbon reduction opportunities.

New resource:

The Carbon Financing page on the Better Buildings Solution Center contains guidance materials for organizations at any stage of the carbon planning cycle, along with a decision-making tree to select the most appropriate financing approach.
With more people now working from home, the need for increased residential energy efficiency is greater than ever. Unprecedented investment is needed to save money, make homes more comfortable, and improve the health of residents. A renewed focus on residential energy efficiency is demonstrated through the engagement of state and local governments, businesses, utilities, nonprofits, and other stakeholders through the Better Buildings Residential Network. In the past year, the network organized more than 20 Peer Exchange calls with over 1,575 participants that shared innovative strategies and best practices for energy-efficient homes.

Highlights from Better Buildings Residential Network members:

Following record high temperatures in 2021 that reached 116 degrees, the City of Portland, OR launched an initiative to develop climate and health standards for existing multi-family buildings that focuses on reducing carbon emissions while improving rental housing to be healthier, more affordable, and resilient to future climate disasters. The city’s stakeholder engagement has focused on social inclusion as Black, Indigenous, and people of color are often the communities least responsible for contributing to climate change—yet they are disproportionately affected by its impacts.

CLEAResult achieved more than 393,000 home energy upgrades of single-family home, multifamily, and low-income customers during FY 2021 in 26 states. The American Council for an Energy-Efficient Economy (ACEEE) released six case studies and an important report concerning Fostering Equity Through Community-Led Clean Energy Strategies. The information presented equitable clean energy policies, programs, and investments in local communities, and discussed the importance of collaboration between local governments and community-based organizations.

Secretary of Energy Jennifer M. Granholm traveled to Delaware to celebrate the one millionth home upgrade by the DOE Home Performance with ENERGY STAR® program. This national home improvement program administered by DOE in collaboration with the U.S. Environmental Protection Agency (EPA) has saved homeowners more than $7.7 billion in energy costs, cut carbon emissions equivalent to a year’s worth of 11 coal-fired power plants, and generated homegrown green-collar jobs.

- The DOE Home Energy Score™ (Score) won a 2022 Federal Laboratory Consortium for Technology Transfer Award. The award recognizes a team from DOE’s National Laboratories for their work to bolster the Score from a research and development model to a commercially viable software solution. Launched in 2012, the Score provides a reliable, easy-to-understand rating system for home energy usage and makes recommendations for cost-effective improvements.
- The E3 Initiative addresses better energy, emissions, and equity by the Building Technologies Office that focuses on efficient and clean heating and cooling systems in residential and commercial buildings with the following initiatives:
  - DOE is working to transform the water heating market and significantly increase the number of high-efficiency, grid-connected heat pump water heaters that use a third of the energy of conventional water heaters.
  - The Smart Tools for Efficient HVAC Performance (STEP) Campaign works to increase the efficiency of new HVAC system installations and identify malfunctions in existing systems through use of smart diagnostic tools. Space heating and cooling systems account for nearly 45% of energy consumption in U.S. residences, and improper installation and maintenance of HVAC systems leads to increased energy use, unnecessary repairs, and occupant comfort issues.
  - The Cold Climate Heat Pump Challenge is a collaborative effort with heat pump manufacturers to develop a new technology specification for a high-performance cold climate heat pump, followed by field validation and pilot programs with utilities to address installation challenges and expand market demand.
As the nation’s single largest energy consumer, with more than 360,000 buildings and 600,000 vehicles, there is a significant opportunity and responsibility for the Federal Government to cut its energy and water costs. Buildings and facilities represent about 58% of the government’s total energy use, with vehicles and equipment accounting for the remaining 42%. In the most recent period of typical energy use prior to COVID, fiscal year 2019, the Federal Government used 1.3 quads of primary energy at a cost of $18.4 billion.¹²

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.

FEMP works with its stakeholders to enable Federal agencies to meet energy requirements and provide energy leadership to the country. Executive Order 14057 on catalyzing American clean energy industries and jobs through federal sustainability sets out a range of ambitious goals to deliver an emissions reduction pathway consistent with President Biden’s goals, which include:

- Reducing U.S. greenhouse gas emissions by 50% to 52% from 2005 levels by 2030.
- Transitioning to 100% zero-emission vehicle acquisitions by 2035 (including 100% light-duty acquisitions by 2027).
- Achieving net zero emissions buildings by 2045 (including a 50% reduction by 2032), net zero emissions procurement by 2050, and net zero emissions operations by 2050 (including a 65% reduction by 2030).

In the past year, FEMP:

- Developed the Healthy Buildings Toolkit, with guidance and tools—including the new Healthy Buildings and Energy Support Tool (H-BEST)—to help baseline a federal building’s Indoor Environmental Quality (IEQ) and develop a customized IEQ and energy efficiency cost-benefit analysis to improve building performance.
- Delivered foundational Technical Resilience Navigator module training and outreach, to help organizations manage risks to critical missions from disruptions in energy and water services.
- Released the online Federal Fleet Requirements Resource Center and the Federal Best Practices: Core Principles of Sustainable Fleet Management report, to help agency fleet managers meet petroleum reduction requirements.
- Developed the Energy and Water Audits for Federal Buildings website and 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 PV System Owner’s Guide to Identifying, Assessing, and Addressing Weather Vulnerabilities, Risks, and Impacts report, for agencies to identify and correct vulnerabilities of existing PV systems that can result in failures if left unaddressed.

Updated the REopt® web tool—used to optimize distributed energy resources—to evaluate combined heat and power, thermal energy storage, and geothermal heat pumps, along with emissions accounting, campus and electric vehicle load modeling, and off-grid microgrids.

Launched DER-CF, a cybersecurity self-assessment tool for distributed energy resources (DERs), which provides metrics and action items to help agencies identify gaps in their cybersecurity posture.

Promoted the Smart Labs Toolkit to more than 2,000 webinar, conference, and working group participants; the Smart Labs Toolkit was named among the Top 10 toolkits for the Better Buildings Top Solutions of 2020.

Leadership in Action

Program Highlights

- Delivered more than 45,000 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 2,500 continuing education units (CEUs). New on-demand trainings included Leveraging Utility Partnerships for Fleet Electrification, Monitoring-Based Commissioning in Performance Contracting, an Introduction to Battery Energy Storage, and an innovative Cybersecurity Training Game series.
- Announced $13 million for 17 federal agency projects under the Assisting Federal Facilities with Energy Conservation Technologies (AFFECT) grant program. The AFFECT grants will leverage more than $737 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 solar PV plus battery energy storage systems with microgrid controls, and electric vehicle supply equipment.

Learn more at betterbuildingssolutioncenter.energy.gov
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Prologis
Promor Corporation*
Providence Health & Services
Publix
Quarre Retail Group*
Regency Centers
Regions Bank
REI
Related Companies
Retail Properties of America
Ryan Companies US, Inc.
Saunders Hotel Group*
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Sharpe Properties Group, LLC
Sheetz, Inc.*
Shorenstein Properties, LLC*
Southwestern Vermont Health Care
Staples*
Starbucks Coffee Company*
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Summa Health System
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Group, Inc.*
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The Kessler Collection
The Malcolm Bryant Corp.
The Paradigm Group*
The Tower Companies**
The Walt Disney Co.
The Wendy’s Company*
The Westfield Group
Tishman Speyer
TMobile*
Transwestern
Travel + Leisure Co.*
Twin Coast Enterprises*
U.S. Department of Veterans Affairs (VA)
U.S. Navy CNIC Facilities
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U.S. Space and Rocket Center
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University of Maryland Medical Center (UMMC)*
University of Nebraska Medical Center (UNMC)*
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Wyndham Hotels and Resorts
Yum! Brands
DATA CENTERS
Iron Mountain Data Centers*
QS3 Data Centers
Saby Data Center Properties**
EDUCATION
Alachua County Public Schools, FL*
Alberto-Culver Public Schools, NM*
Allegheny College*
Anne Arundel County
Public Schools, MD*
Arizona State University
Aurora Public Schools, CO*
Bard College*
Boulder Valley School District, CO
Bullock County Public Schools, KY*
California State University, Sacramento*
Camos School District, WA*
Carleton College
Case Western Reserve University
Catholic University of America*
Chesapeake College*
Chicago Public Schools*
Clark Atlanta University
Colorado State University*
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Allegheny County*
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CUNY: The City University of New York
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Hillsboro School District, OR*
Indianapolis Public Schools, IN*
Larne Community College
Los Angeles Unified School District, CA**
Loyola University
Madison City Schools, AL*
Manchester School District, NH*
Massachusetts Institute of Technology
Medical School University of Miami
Michigan State University*
Morehouse College*
Northwestern University*
Pace University*
Parkway School District, MO*
Pasadena Independent
School District, TX*

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

Learn more at betterbuildingssolutioncenter.energy.gov
Better Buildings Progress Report – 2022
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Hawaii Green Infrastructure Authority®
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Kyoterm®
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Low Income Investment Fund®
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Sol Systems®
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Alcoa®
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BPM, Inc. (Badger Paper Mills, Inc.)
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California Portland Cement Company (d.b.a. CalPortland®
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Cascade Engineering Technologies, Inc.
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Chippewa Valley Ethanol Company
City of Charleston Water System
City of Grand Rapids Water Resource Recovery Facility®
City of Phoenix Water Services Department
City of Roseville, Environmental Utilities Department
Cleanwater Engineering, Inc.
Cleveland Cliffs Inc.®
Coca-Cola Consolidated®
CoilPlus, Inc.
Colgate-Palmolive Company
Comau Inc.
Commercial Metals Company
Commercial Vehicle Group
Connector Castings, Inc.
Cooper Standard
Co-Operative Industries Aerospace & Defense
Cummins Inc.®
Custom Glass Solutions
Danik Applied Americas, Inc.
Danaher Corporation
Delta Diabolo
Dension Industries
DENSO Corporation
Des Moines Water Works®
Deschutes Brewery®
Detroit Diesel Corporation
Dixion Miller
Dixline Corporation
Domino Inc.
Dow Chemical
DSM North America®
Durham Products, Inc.
Dura-Line Corporation
Durox Inc.
E&L Construction Group, Inc.
EarthEO (d.b.a. The Sweetwater Company Inc)
East Penn Manufacturing Co.
Eastman Chemical Company®
Eaton Corporation
Eck Industries
Electrolux®
Encina Wastewater Authority®
Enersys
Entegris
The Estée Lauder Companies
Finning UK & Ireland®
Flamebeau River Papers
FLEXCO Corporation
Flowers Foods
FMC Corporation
Ford Motor Company®
Fort Wayne City Utilities - City of Fort Wayne
GB Manufacturing
General Aluminium Manufacturing Company
General Dynamics Ordnance and Tactical Systems
General Electric®
General Mills®
General Motors®
General Stamping & Metalworking
Gibraltar Industries
GKN Aerospace Services Structures
Golden Renewable Energy, LLC
Goodyear Tire & Rubber Company
Graham Packaging
Graphic Packaging International
HARBIC®
Harley-Davidson Motor Company®
Harrison Steel Castings Co.
Harvey Company
Haynes International
Hershey
Hewlett Packard Enterprise®
HNI Corporation
Holmgren & Vose
Honda North America
Honeywell®
Huntsman Corporation
IAC Group
Imerys Performance Minerals
Ingersoll Rand®
Iningenuity
International Paper Company®
Intertape Polymer Group
Intrapax LLC
Ishinghausen, Inc (ISRI)
J.R. Simplot Company®
JBT Corporation
Jedco, Inc.
Johnson & Johnson®
Johnson Controls®

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

Better Buildings Progress Report – 2022
Learn more at betterbuildingsolutioncenter.energy.gov
Johnson Matthey
Kent County Levy Court
Kenworth Truck Company
Kingspan Insulated Panels, Inc.*
Krage Manufacturing
KYB Americas Corporation*
Lafarge-Holcim*
Land O’Lakes
Leech & Plant, Incorporated
Legend and North Central America*
Lennox International*
Lineage Logistics*
Lockheed Martin*
Lopez-Dorada Foods*
L’Oréal USA*
Los Angeles Bureau of Sanitation
Los Alamos National Laboratory
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### STATE AND LOCAL

Albany County, NY
Alexandria, VA
Arlington County, VA
Arvada, CO
Atlanta, GA
Austin, TX
Baltimore, MD
Boulder, CO
Boston, MA
Brandon, MS
Broussard, LA
Buffalo, NY
Burlington, VT
Chartonton, MA
Chattanooga, TN
Chicago, IL
Chula Vista, CA
Citizens Energy Group
Cleveland, OH
Clark County, NV
Citizens Energy Group
Cleveland, OH
Clark County, NV
Clark County, NV
Columbia, MO
Cook County, IL
Dallas, TX
DC Water
Delaware
Denver, CO
District of Columbia
East Bay Municipal Utility District
El Paso, TX
Fairfax County, VA
Fort Lauderdale, FL
Fort Worth, TX
Georgia
Glenard, IL
Glens Falls, NY
Grand Rapids, MI
Gwinnett County, GA
Hail County, GA
Hampton Roads Sanitation District
Hawaii
Hillsboro, OR
Houston, TX
Kingsbury, NY
Kauai County, HI
Ketchum, ID
King County, WA
Knoxville, TN
La Crosse, WI
Little Rock Water Reclamation Authority
Longmont, CO
Los Angeles, CA
Loudoun Water
Louisiana
Louisville, KY
Lowell, MA
Madison, WI
Maine
Manchester, NH
Margate, FL
Maryland
Massachusetts
Michigan
Michigan City, IN
Milwaukee, WI
Minnesota
Mississippi
Missouri
Montana
Moscov, ID
New Mexico
Norfolk, VA
North Carolina
Ohio
Orange County, FL
Orange, CA
Orlando, FL
Pennsylvania
Philadelphia, PA
Pittsburgh, PA
Placer County, CA
Racine, WI
Rego, MA
Rhode Island
Roanoke, VA
Rochester, NY
Salt Lake City, UT
San Diego, CA
San Luis Obispo, CA
Santa Fe, NM
Seattle, WA
Silicon Valley Clean Water
South Burlington, VT
South Carolina
South Dakota
Southampton, VA
Tallahasde, CO
Tennessee
Texas
Village of Montour Falls, NY
Washington
West Palm Beach, FL
West Virginia
Will County, IL
Wisconsin
Worcester, MA

### UTILITY

AB Energy - New Jersey
AEP Ohio
AEP Water
AVANGRID
Baltimore Gas & Electric Commonwealth Edison
Consolidated Edison
D.C. Sustainable Energy Utility (DCSEU)
DTE Energy
Exelon Corporation
GE Distributed Power
Highland West Energy
Kraft Power Corporation
MaxAllister Power Systems
Martin Energy Group
National Grid
Nico Gas
Northeast-Western Energy Systems
One Gas
Peoples Natural Gas
Philadelphia Gas Works
PSEG Long Island
Silicon Valley Clean Water

### PROGRAM AFFILIATES

2G Energy Inc.
American Association of Blacks in Energy
& Jonah Cooper LLC
American Hotel & Lodging Association
American Institute of Architects
American Society for Healthcare Engineering
American Society of Heating, Refrigerating, and Air Conditioning Engineers
APPA - Leadership in Educational Facilities
Asian American Hotel Owners Association
Association for the Advancement of Sustainability in Higher Education
Association of Energy Engineers
Auburn University Rural Studio
Biomass Thermal Energy Council
Building Owners and Managers Association International
Building Performance Association
Building Performance Institute
Capstone Turbine Corporation
CMA, Inc.
Coalfield Development
Confucius Communications
ConnexFM
Corporate Sustainability Strategies CPL Architects and Engineers
Cunningham Group Architecture
Dalkia Argia, EDF Group
DataBased
Earth Advantage
Elevate Energy
Emerald Cities Collaborative
Energy and Environmental Building Alliance
Environmental Defense Fund
Franklin Energy Services LLC
GEM Energy, LLC
Green Building Alliance
Green Parking Council
Green Sports Alliance
Greenwork
Health Care Without Harm
HGA
Home Builders Institute
Homes.com
IDEAs Consulting
Illuminating Engineering Society of North America
IMEG Corp
Institute for Market Transformation
Integral Group
International Facility Management Association
International Union of Painters
and Allied Trades (IUPAT)
Interstate Renewable Energy Council
Jacobs
Leddy Maytum Stacy Architects
Little Rock Water Reclamation Authority
Local Governments for Sustainability (ICLEI)
MCI
Moody Nolan
NACUBO
NAIOP (Commercial Real Estate Development Association)
National Alliance of Forest Owners (NAFO)
National Apartment Association
National Association of Real Estate Brokers (NAREB)
National Association of Real Estate Investment Trusts
National Association of REALTORS®
National Association of State Energy Officials
National Association of Women in Construction
National Co-op Grocers
National Multifamily Housing Council
National Society of Black Engineers
Network for a Sustainable Tomorrow
New Buildings Institute
New Jersey Clean Energy Program (TRC Solutions)
New York State Energy Research and Development Authority
North America’s Building Trades Unions
North American Sustainable Refrigeration Council
Northeast Energy Efficiency Partnerships
Northwest Energy Efficiency Council
P2S Inc.
PAE Engineers
Pension Real Estate Association
Practice Greenhealth
Real Estate Research Institute (RERI)
Retail Industry Leaders Association
Rewiring America
Roof Coatings Manufacturers Association
Roxbury Community College
Second Nature
Slipstream
Smart Energy Decisions
SmithGroup
SOM
Sterling & Wilson Cogen Solutions, LLC
Stewart and Stevenson Power Product LLC, Atlantic Division
Strategic Energy Innovations
Sustainable Endowments Institute
The Corps Network
The Real Estate Roundtable
The Solar Foundation - Puerto Rico
U.S. Green Building Council
Union Energy, LLC
Urban Green Council
Urban Land Institute
Veterans Health Administration (VHA)
Energy Engineer Advisory Board
Votant Vote Solar

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- Partners with + have taken the Better Climate Challenge
- Partners with names in italics are new to Better Buildings

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