Commercial Buildings Integration Program

An Overview of CBI

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

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The CBI Family

OUR TEAM

- **Team Leads:**
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- **Project Managers:**
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  - Sultan Latif
  - Harry Bergmann
  - Stephanie Johnson
- **Contractor Support**
  - Alice Vance
  - Monica Kanojia
  - Mike Atsbaha
  - Anthony Tubiolo

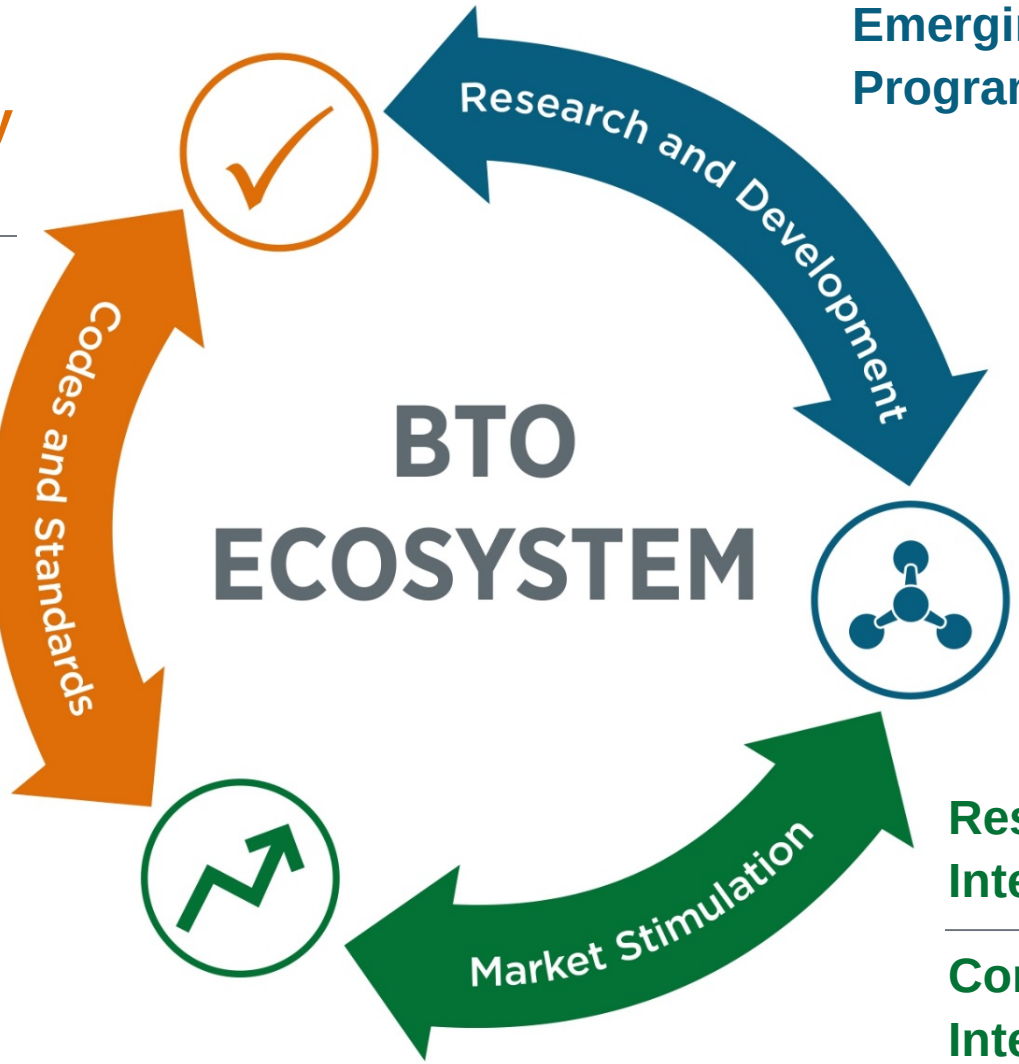
BTO's 5 Programs

Tech-to-Market → Speed Adoption → Scale Savings

Emerging Technologies Program

Building Energy Codes Program

Appliance Standards Program



Residential Buildings Integration Program

Commercial Buildings Integration Program

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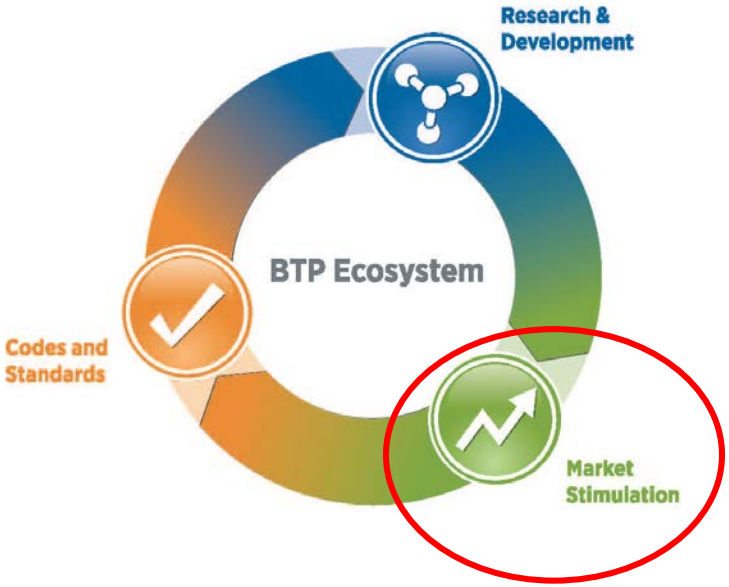
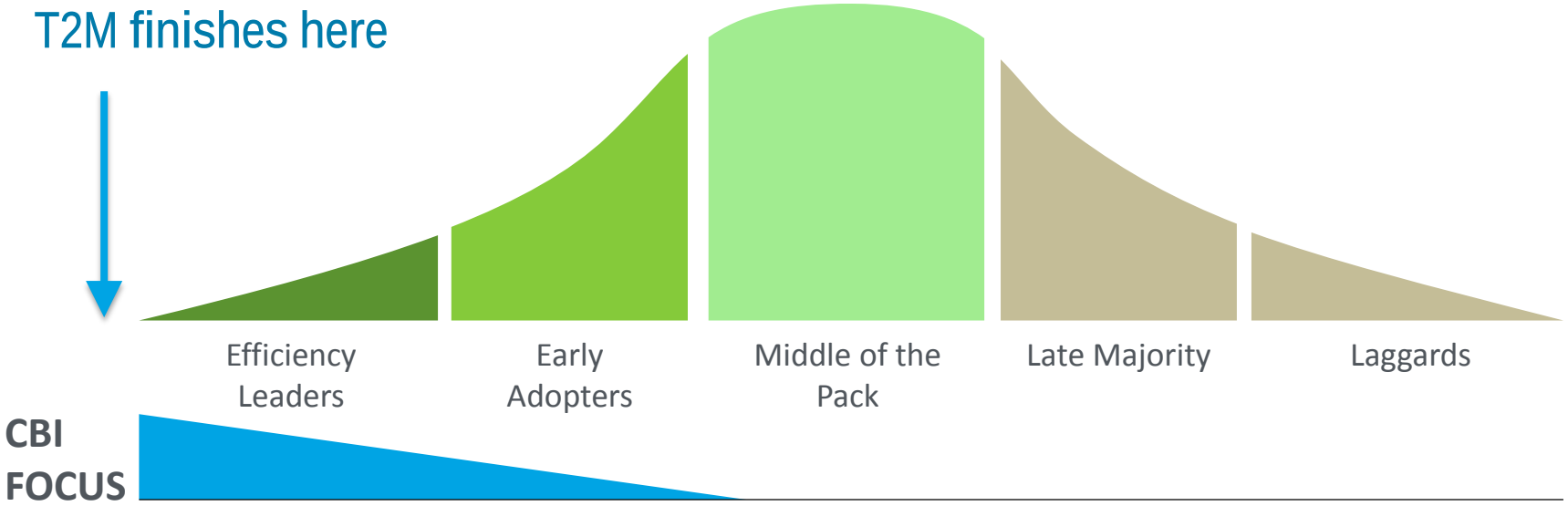
Commercial Buildings Integration Program

CBI Mission: Accelerate voluntary uptake of significant energy performance improvements in existing and new commercial buildings.

CBI Vision: A commercial buildings market where energy performance is a key consideration during construction, operation, renovation, and transactions, and net zero energy ready commercial buildings are common and cost-effective.



CBI: Who's our target audience?



Segment	Description	Deployment Strategy
Leaders / Adopters	Organizations willing to set and communicate efficiency goals, adopt new technologies, and test solutions early for competitive advantage. Tend to influence their peers and the market.	Directly work BBC and BBA members to prime the market, document and test market-changing solutions. Expand BBA to new high-priority market segments as time and resources allow.
Middle-of-the-pack	Organizations that are not willing to be early adopters but follow the lead of their peers or competitors once a practice or solution is proven	Provide access to tools and solutions for them that turn them from opposed to neutral by enabling them to comply/adopt at lowest cost.
Late Majority / Laggards	Don't change habits, practices or technologies until they have to.	Served by other programs (utility, etc.) Moved by regulations (Codes & Standards)

CBI Program Methodology

1. Developing and demonstrating **technologies, tools and solutions** to remove barriers to investment and increase understanding of efficiency measures
2. Demonstrating and deploying actionable products through **market partnerships** to drive technologies into the commercial buildings marketplace

Playing Archimedes to Drive Change

Market Transformation is:

"Strategic interventions that attempt to cause lasting changes in the structure of function of a market, or the behavior of market participants, resulting in an increase in the adoption of energy efficient products, services, or practices."*

*Source: ACEEE

Striving for More Impact:

Increasingly, CBI's Work is:

- More Visible
  - **The Department of Energy Defines Zero Energy Buildings (*Energy Manager Today*: 9/18/15)**
  - **Data-sharing program aims to transform real estate (*E&E*: 2/5/16)**
  - **Admin touts pledges for boosting efficiency, cutting CO2 (*E&E:* 1/29/16)**
  - **Uptake: The CBI Blog (ongoing)**
- More Collaborative
  - SEED Collaborative (partnership with 10 cities, 1 county and 1 state)
  - Asset Score National Leadership Group
  - HIT partners and collaborators – GPG, DOD
- More Creative
  - Better Buildings SWAP (Whole Foods v. Hilton)
- More Ambitious
  - First ever **Zero Energy** Design Guide (focusing on schools)
  - HIT List 2.0 (New records, new HITs)
  - Metro Systems (proposed)

Better Buildings Challenge Partners

CBI Program: Driving Innovative Solutions & Reducing Barriers

Develop → **Demonstrate** → **Deploy**

Market Infrastructure

Develops and deploys solutions and tools that remove market barriers to greater investment in energy efficiency.

- Addresses need for common approaches and metrics to ensure functioning markets for energy efficiency
- Develops model practices, case studies, tools, and guidance
- Works via market outreach team to deploy resources to the market

Organized by major market barriers.

High Impact Technologies & Systems

Supports the acceleration of energy efficient technologies and technical solutions.

- Coordinates with ET, Codes and Standards programs to maximize energy savings
- Uses Better Buildings Alliance work group structure to develop technology-related resources
- Works via market outreach team to conduct demos of technologies
- Works via market outreach team to deploy technical solutions to the market

Organized by technology area.

Partnership Programs

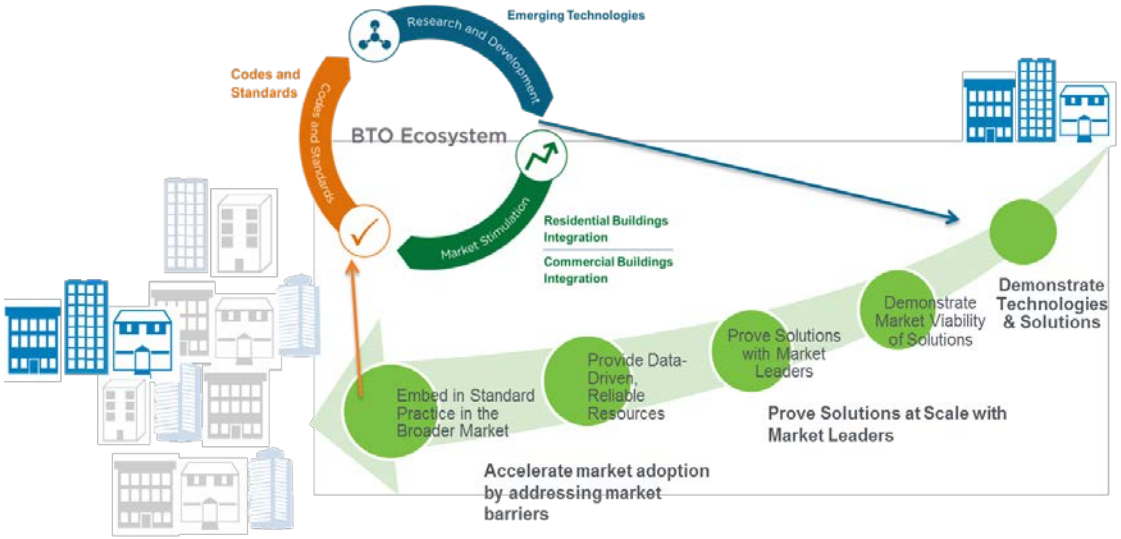
***Deploys** resources developed by other teams, recruits market partners to participate in activities, tracks & communicates market impact*

Working with: Owners, Managers, Tenants, AECo professionals, Manufacturers, Small business, Utilities, REEOs, Intergovernmental, Other EERE offices, NGOs

The HIT Catalyst: Purpose and Objectives

Goal: The High Impact Technology (HIT) Catalyst is designed to help identify and prioritize cost-effective, underutilized, energy-efficient technologies so that DOE can focus resource development and deployment activities.

Strategic Emphasis: Accelerate underutilized technologies into the market through pre-identified and pre-defined pathways (Innovation Challenge, Technology Demonstration, Technical Resource development, Adoption Campaign). The focus at all stages is on collaboration across applicable stakeholder groups.



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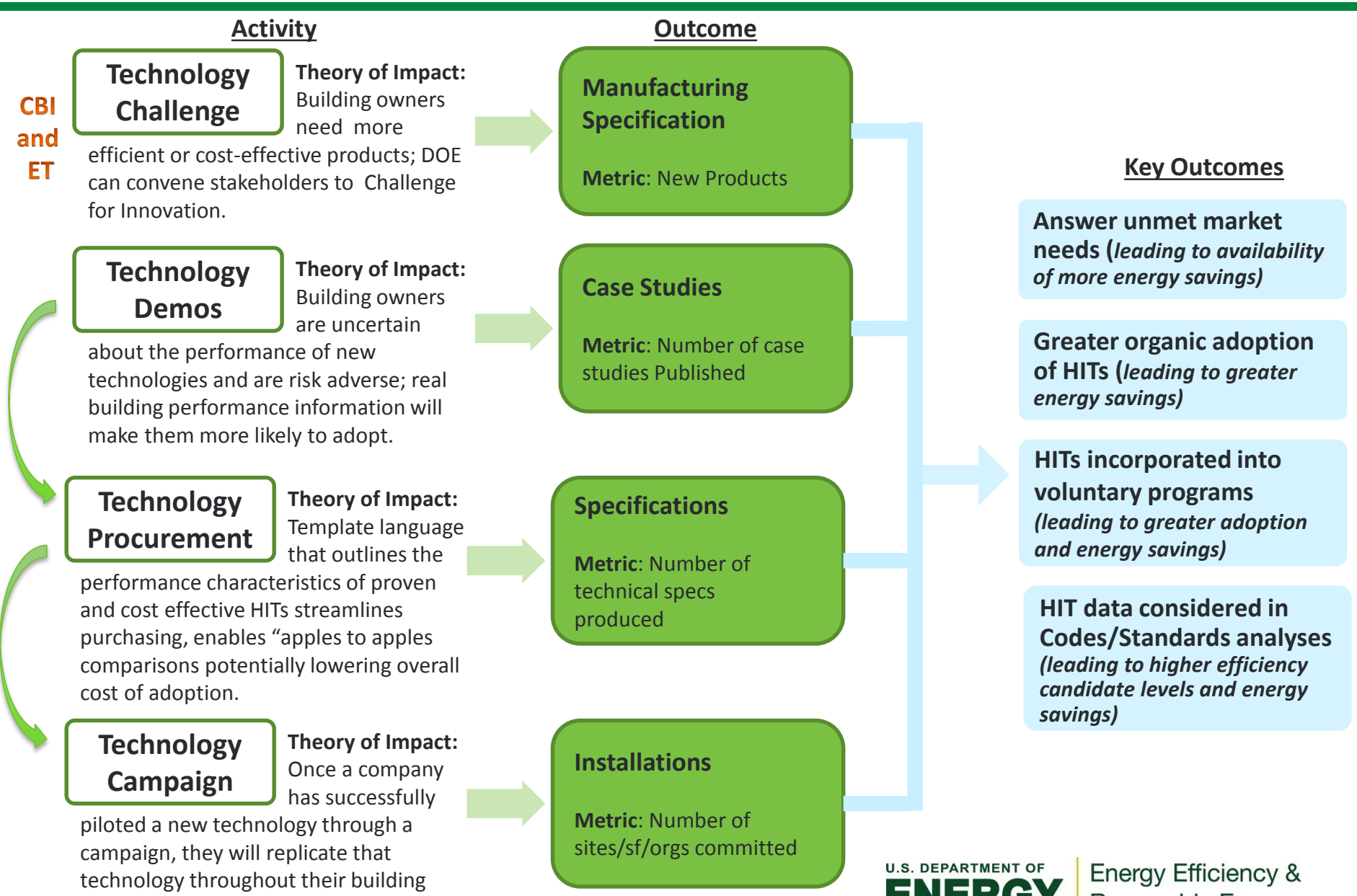
HIT Pathways (Deployment Strategies Driving Outcomes)



Going Platinum: HIT Records

The HIT (High Impact Technologies) Catalyst initiative has successfully engaged with more than **500 leading stakeholders** from private industry who have demonstrated a commitment to work with DOE to accelerate underutilized technologies into the market. Today, the HIT Catalyst, along with more than 50 key partners, is responsible for driving the retrofit or replacement of **56,600 packaged heating/cooling units, 330,000 troffer lights and 500 million sq. ft. of parking space lights** through 2 innovation challenges, 20 ongoing and completed real building demonstrations and 3 adoption campaigns. The energy savings from these activities is equivalent to:

38,000 homes

340,000 acres

960,000 barrels of oil

Because of the success of these strategic deployment strategies, HIT Catalyst is not only saving energy but is helping businesses save money and reduce carbon emissions. The total energy savings from HIT Catalyst activities are the equivalent of:

- **$57 million saved** and
- **590 million pounds of avoided greenhouse gases.**

What's Next for HIT

HIT List 2.0: assessing, prioritizing and integrating new HITs

HIT HQ: access point for owners, utilities/implementers, and technology providers.

- Demonstration host site opportunities
- Results from both Green Proving Ground and CBI
- M&V Templates/Plans
- Engagement with DOE (P-Tool Input Form, RFIs, FOAs)

GSA-DOE RFI

- One request from both agencies, one response by technology providers
- Joint federal and commercial evaluation
- Verification in federal and commercial buildings

Discussion on new metrics:

- Water savings
- Global warming potential
- Packages or phased strategic retrofits

CBI Focus Areas: Market Infrastructure

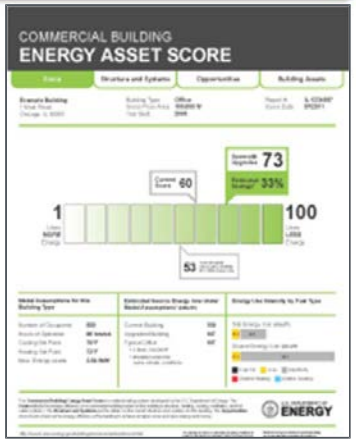
Market needs:

- A low-cost way to use data to measure and assess whole building energy performance, that can support performance-based design, markets, and policies
- Interoperable data systems that facilitates consistent measurement and analysis of energy performance in buildings

CBI Activities on Building Energy Performance Data:

- Building assessment tools: easy-to-use tools for assessing energy performance that support performance-based decision making, policy and transactions
- Measurement and Verification: standardized, transparent low-cost, high-quality approaches for assessing savings from energy efficiency measures and programs
- Data access and analytics: streamlined customer access to data in standardized formats that support energy performance-aware transactions and building management
- Data utilization: mechanisms that allow energy performance to be incorporated into valuation at key real estate transaction points so that building owners can monetize their investments in energy efficiency

DOE BUILDINGS PERFORMANCE DATABASE



Support Tools

- Building Energy Asset Score
- Building Energy Data Exchange Specification (BEDES)
- Standard Energy Efficiency Data (SEED) platform
- Building Performance Database (BPD)
- Energy Data Accelerator

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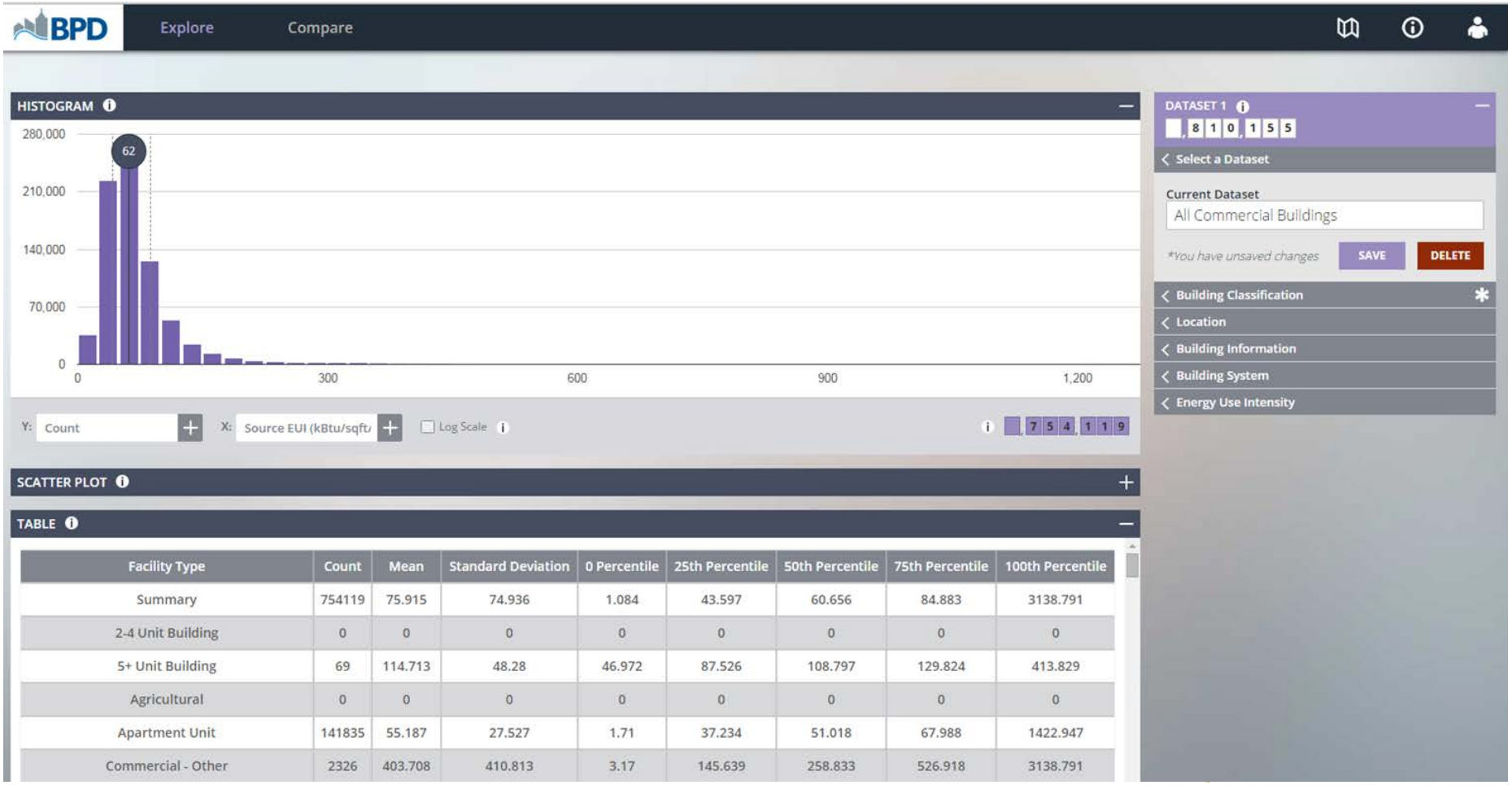
The Buildings Performance Database

- The nation's largest publicly-accessible dataset of information about the physical and operational characteristics of real buildings
- Contains over 870,000 residential and commercial building records
- Features two main analysis tools: Explore and Compare



Facility Type	Count	Mean	Standard Deviation	0 Percentile	25th Percentile	50th Percentile	75th Percentile	100th Percentile
Summary	754119	75.915	74.936	1.084	43.597	60.656	84.883	3138.791
2-4 Unit Building	0	0	0	0	0	0	0	0
5+ Unit Building	69	114.713	48.28	46.972	87.526	108.797	129.824	413.829
Agricultural	0	0	0	0	0	0	0	0
Apartment Unit	141835	55.187	27.527	1.71	37.234	51.018	67.988	1422.947
Commercial - Other	2326	403.708	410.813	3.17	145.639	258.833	526.918	3138.791

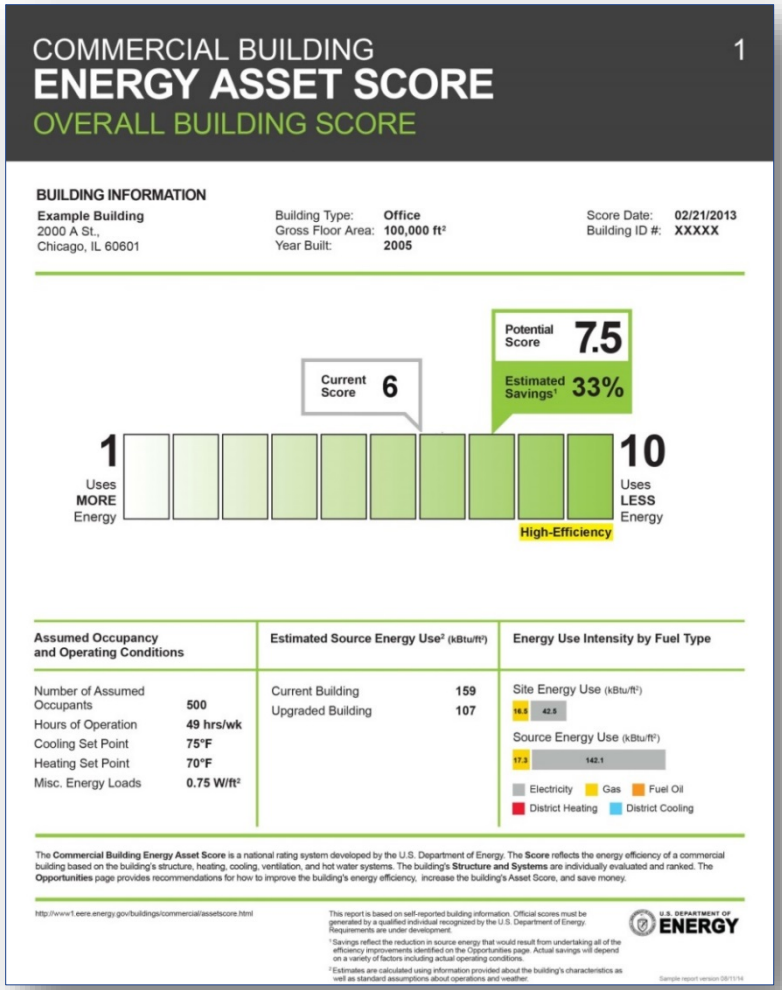
Asset Score Overview

National, free software tool that diagnoses opportunities to improve EE

- Assesses the efficiency of structural, mechanical, and electrical building components
- Diagnostic tool, not an energy management tool

Demand is expanding

- Asset scores generated for 825 buildings totaling 80 million SF nationwide


COMMERCIAL BUILDING
ENERGY ASSET SCORE
OVERALL BUILDING SCORE
1

BUILDING INFORMATION
Example Building
2000 A St.,
Chicago, IL 60601

Building Type: Office
Gross Floor Area: 100,000 ft²
Year Built: 2005

Score Date: 02/21/2013
Building ID #: XXXXX

Potential Score 7.5
Estimated Savings¹ 33%
Current Score 6
1 Uses MORE Energy
10 Uses LESS Energy
High-Efficiency

Assumed Occupancy and Operating Conditions
Number of Assumed Occupants 500
Hours of Operation 49 hrs/wk
Cooling Set Point 75°F
Heating Set Point 70°F
Misc. Energy Loads 0.75 W/ft²

Estimated Source Energy Use² (kBtu/ft²)
Current Building 159
Upgraded Building 107

Energy Use Intensity by Fuel Type
Site Energy Use (kBtu/ft²)
16.5 42.9
Source Energy Use (kBtu/ft²)
17.3 142.1
Electricity Gas Fuel Oil
District Heating District Cooling

The Commercial Building Energy Asset Score is a national rating system developed by the U.S. Department of Energy. The Score reflects the energy efficiency of a commercial building based on the building's structure, heating, cooling, ventilation, and hot water systems. The building's Structure and Systems are individually evaluated and ranked. The Opportunities page provides recommendations for how to improve the building's energy efficiency, increase the building's Asset Score, and save money.

http://www1.eere.energy.gov/buildings/commercial/assetscore.html

This report is based on self-reported building information. Official scores must be generated by a qualified individual recognized by the U.S. Department of Energy. Requirements are under development.

¹ Savings reflect the reduction in source energy that would result from undertaking all of the efficiency improvements identified on the Opportunities page. Actual savings will depend on a variety of factors including actual operating conditions.

² Estimates are calculated using information provided about the building's characteristics as well as standard assumptions about operations and weather.

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Sample report version 08/11/14

Introduction

How does the SEED Platform work?

- The SEED platform enables users to **import data from multiple sources** about a group of buildings, and **conduct cleansing, analysis and reporting** of the information
- SEED is distributed as a "blank" database; each user has their own private copy
- SEED uses a standard data format – Building Energy Data Exchange Specification (BEDES)
- The owner of each SEED instance can choose which external parties can access their information, and what records and fields to share
- An application programming interface (API) enables third-parties to access the data, and offer add-on tools and services, in a replicable way

The SEED Platform Collaborative

The SEED Platform Collaborative was launched in the Fall of 2015 to help organizations successfully adopt and integrate the SEED Platform by providing technical assistance, a peer community, and access to companies who can provide add-on products and services

The SEED Platform Collaborative is a partnership with state and local governments and efficiency program administrators, leading non-profits and private sector companies that are committed to radically reshaping the data landscape in the buildings sector.

Partners

- City of Atlanta, GA
- City of Berkeley, CA
- City of Cambridge, MA
- City of Houston, TX
- City of Kansas City, MO
- City of New York, NY
- City of Orlando, FL
- City of Philadelphia, PA
- Salt Lake City, UT
- California Energy Commission
- District of Columbia
- Montgomery County, Maryland

Allies

- C40 Cities Climate Leadership Group
- Institute for Market Transformation
- Natural Resources Defense Council
- National League of Cities
- National Association of State Energy Officials

Affiliates

- CakeSystems
- McQuillen Interactive
- Performance Systems Development
- Quick Left
- Maalka

Asset Score National Leadership Network

Launched in January 2016, the Leadership Network includes 21 organizations that will work with DOE to use the Asset Score, conduct case studies, and help improve the tool

- AECOM
- Arup
- Association of Energy Engineers
- CH2M Hill
- City of Milwaukee
- DNV GL
- FS Energy
- Ingersoll Rand
- JBG Companies
- Liberty Property Trust
- Marriott International
- Marx Okubo
- National Oceanic and Atmospheric Administration
- Performance Systems Development
- Skidmore, Owings & Merrill
- State of Missouri
- State of Rhode Island
- Steven Winter Associates
- Transwestern
- U.S. General Services Administration
- YR&G

Better Buildings®

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Developing Innovative, Replicable Solutions with Market Leaders

- Better Buildings Challenge
- Better Buildings Alliance
- Better Buildings, Better Plants
- Better Buildings Accelerators
- Better Buildings Residential
- Superior Energy Performance

Developing a Skilled Clean Energy Workforce

- Better Buildings Workforce Guidelines

Making Energy Efficiency Investment Easier

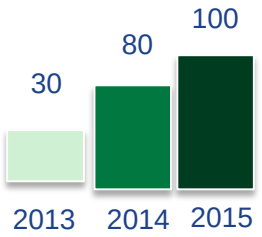
- Building Performance Database
- Building Energy Data Exchange Specification
- New Financing Solutions
- Building Energy Asset Scoring Tool
- Home Energy Score
- Appraisal Foundation Memorandum of Understanding

Leading by Example in the Federal Government

- New Executive Order
- President's Performance Contracting Challenge
- DOE Leadership

Better Buildings continues to grow

Number of partners

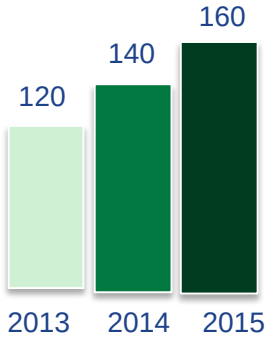


Better Buildings Accelerators

$1.7 million committed in energy savings contracting

600K+ streetlights to be replaced

20+ partnerships formed between cities and utilities

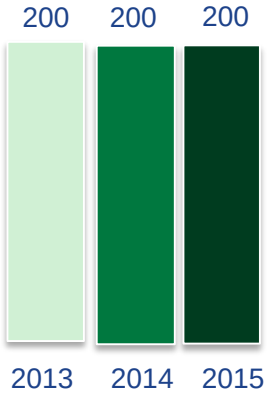


Better Buildings, Better Plants

$2.4 billion in savings

11% of manufacturing footprint

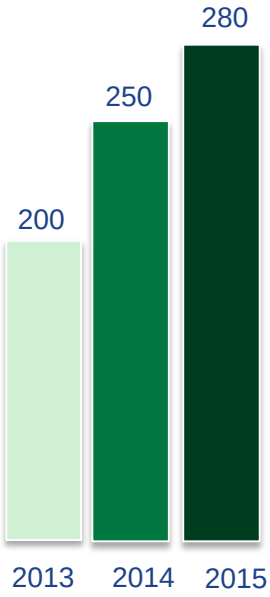
30% increase in number of facilities in one year



Better Buildings Alliance

11 billion square feet

75% increase in member participation in technology teams



Better Buildings Challenge

$840 million in savings

Approaching 4 billion square feet

DOUBLED the number of solutions

A centralized Solutions Center

125+ showcase projects

- Large and small buildings
- All sectors
- Specific building types such as schools, hospitals, hotels, grocery stores, universities, civic centers, libraries, offices and labs

75+ implementation models (playbooks)

- Overcome barriers: finance, data, energy management, staff training, community and customer outreach, partnering with utilities, and more
- Multi-faceted and applicable across sectors

Better Buildings SWAP

WHOLE FOODS & HILTON WORLDWIDE

Better Buildings CHALLENGE U.S. DEPARTMENT OF ENERGY | SWAP

One energy team from Whole Foods Market.

One energy team from Hilton Worldwide.

Swap buildings, in San Francisco, CA.

CLICK HERE TO WATCH THE TRAILER (WEBISODES IN FEB. '16)

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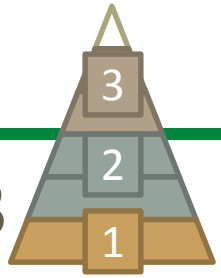
OBAMA ADMINISTRATION GOAL

Program Goals Flow Diagram



Level 1

- Demonstrate 15 high-impact technologies that can reduce energy EUI by at least 10%
- Prove with market leaders that retrofit solutions can reduce EUI by 30%
- Prove with market leaders that new buildings can be built to consume 50% less energy
- Prove high-impact technologies adopted by key market leaders demonstrate at least 10% savings
- Accelerate ability of market leaders to reach EUI targets more cost-effectively by developing solutions to key market barriers

2020

Program Performance

Level 2

By 2025, market leaders will reduce the energy used by their existing buildings by 30% and build new buildings that consume 50% less energy than 2010 levels.

ET

Codes

Stds.

Other

2025

Interim Outcome

Level 3

By 2030, reduce EUI in commercial buildings by 25%.

2030

Market Outcome

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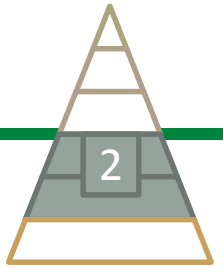
Details on Interim Market Goal



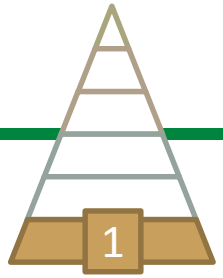
By 2025, market leaders will:

- *Achieve a 30% EUI improvement in their existing buildings and*
- *Construct new buildings which will consume 50% less energy per sq. ft.*

- Connections Between Interim Goal and Program Strategy
  - CBI is focused on improving the energy efficiency in commercial buildings owned and operated by “innovators” and “early adopters”.
  - This goal focuses on these two groups described here as “market leaders”

- Current Status
  - FOR EXISTING BUILDINGS INITIAL ANALYSIS INDICATEDS: Out of a sample of 2% of total commercial floor space half meet or exceed CBI’s performance target for market leaders.
  - FOR NEW CONSTRUCTION: ANALYSIS STILL UNDERWAY

CBI Program Performance Goal: Demonstrate High Impact Technologies

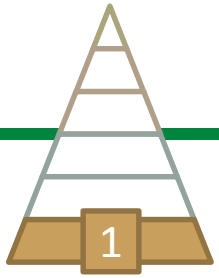


By 2020, demonstrate performance of at least 15 high-impact technologies and solutions that each provide at least 10% average improvement in real building energy consumption as validated by third-party objective monitoring and verification and contribute to broader whole-building EUI improvements.

- Connections Between Goal and Program Strategy
  - HIT Catalyst prioritization and deployment mapping identifies technologies with large national energy savings impact and significant stakeholder interest where adoption can be accelerated based on third-party verified performance (reduced risk for early adaptors).
  - In many cases, demonstrating energy efficient technologies in real buildings is a necessary precursor to wider deployment

- Current Status
  - DOCUMENTATION UNDERWAY, ASSESSMENT WILL FOLLOW

CBI Program Performance Goal: Prove Retrofit Solutions with Market Leaders



Between 2010 and 2020, prove with market leaders that it is possible to cost effectively reduce the EUI of commercial buildings by at least 25% compared to 2010 levels, representing at least 10 billion square feet and covering every climate zone and major building type.

- Connections Between Goal and Program Strategy
  - *Between 2010 and 2015, CBI programs supported annual EUI reductions of at least 2% in more than 10 billion square feet with the Better Buildings Challenge (BBC) and Better Buildings Alliance (BBA) members*
  - *BBC members are on track to achieve the 20% reduction targets in 3 billion square feet by 2020.*
  - *Many BB members have more efficient portfolios of buildings as compared to typical buildings in 2010 as they come into the program.*
- Current Status
  - *DOCUMENTATION UNDERWAY, ASSESSMENT WILL FOLLOW*

CBI Program Performance Goal: Prove New Construction Solutions with Market Leaders

- CBI is considering a strategy and associated programming to support the construction of highly efficient, above code, zero energy ready commercial buildings.
- In order to meet the interim market outcome goal of enabling market leaders to build new commercial buildings which have a source EUI that is 50% lower than typical buildings in 2010 by 2025, CBI will have to determine the level of progress that is needed by the appropriate market leaders in new construction within the 2015-2020 time frame.
- Proposed goal language might look like:
  - *Between 2015 and 2020, demonstrate with key market leaders that it is possible to cost effectively construct new commercial buildings with an energy use intensity of 50%* lower than 2010 levels in every climate zone and for every major building type.*

Proposed activities and methods of assessment might include:

- *Recognition – recognition of newly constructed buildings operating at target EUI levels aligned with the AEGDs or some other technical level*
- *Design support – published number of AEDGs and provided modeling support to number of buildings via OpenStudio/EDAPT*
- *Business support – adoption of performance-based procurement best practices by number of buildings.*

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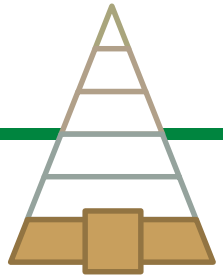
*Different EUI improvement targets could be established for different building types which on a weighted average basis would result in the 55% reduction.

CBI Program Performance Goal: Prove High-Impact Technologies with Market Leaders



*By 2020, launch technology campaigns by partnering with at least 10% of market leaders who will adopt high-impact technologies or solutions that on average reduce energy consumption relative to a building's baseline by 10% and contribute to broader whole-building EUI improvements.**

- Connections Between Goal and Program Strategy
  - The adoption campaign tracks project commitments and recognizes best practices based on the submission of real project data (energy savings, number of units, application, and cost).
  - For successful campaigns which will be retired soon, adoption was needed by less than 1% of the total market or 5% of market leaders by a single campaign to demonstrate the savings and market uptake of high impact technologies.
  - These campaigns are now resulting in proposals to ASHRAE 90.1 subcommittees or transference of adoption data to both voluntary and mandatory standards programs.

- Current Status
  - *DOCUMENTATION UNDERWAY, ASSESSMENT WILL FOLLOW*

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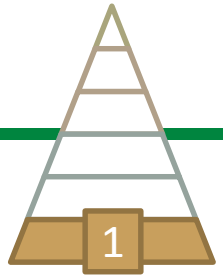
** High Impact Technology Campaigns will be for the group of technologies which represent an aggregate technical potential of at least 5 Quads.*

CBI Program Performance Goal: Reduce Market Barriers



Goal Language:

By 2020, develop and demonstrate tools and strategies that reduce market barriers for market leaders to be able to achieve a 35% reduction in existing commercial buildings and a 55% reduction in new commercial buildings and would result in the following **Market Outcomes in 2020:**

Data and Analytics Tools and Modeling

- By 2020 an interoperable and complementary set of public and private DOE-enabled building energy tools which leverage standardized data will be available to market leaders to FACILITATE design, code compliance, green certification, auditing, retrofit planning, or operations and maintenance of HIGH PERFORMANCE BUILDINGS
- BY 2020, market leaders will be employing these tools to support the delivery of EUI improvements over 2010 levels of 45% for new and 30% for existing buildings representing the respective top 20% of floor space.
- *Method of Assessment– Develop and /or enhance at least two DOE data tools and demonstrate and quantify their use in sufficient market sectors that collectively have the potential to deliver the above EUI improvement goals. Interim market indicators include EUI data for bldgs. designed with DOE tools; tracking use of DOE modeling tools to reduce the EUI of existing or new buildings ;data from third-parties on the use and benefit of DOE tools in energy efficiency related decision making;* and tracking any resulting building performance data**.**

Financial

- By 2020, demonstrate tools with market leaders the value of energy efficiency in their commercial and multifamily real estate transactions, as informed by DOE tools.
- *Method of Assessment– Documentation of the appraisers for key market sectors, lenders and underwriters (at least one in each category) incorporating the value of energy efficiency in real estate financial transactions and their use of DOE tools in this assessment. Develop estimates of the cumulative value if all similar markets incorporated this value proposition in their transactions.*

Work-force

- By 2020, [25]% of *certification or training* programs are ***certified as per the Better Buildings Workforce Guidelines.***
- *Method of Assessment–track the use of the Better Building Workforce Guidelines in workforce certification and training programs.*

Commercial Buildings Integration Program Logic Model

OBJECTIVE	ACTIVITIES	KEY OUTPUT	SHORT-TERM OUTCOME	MID-TERM OUTCOME	LONG-TERM OUTCOME
Demo tech & solutions	Demo, test, & validate tech	Demo reports	Industry-validated solutions	Solutions & new tech in programs, codes	The market values energy efficiency fully and commercial energy intensity improves
	Catalyze deployment channels	Performance specs & operation guidance			
		Tech adoption campaigns	Leaders install tech		
Prove savings at scale	Support market leaders	Market leader teams & forums	Leaders implement new solutions & guidance	Solutions widely adopted	
	Share best practices	Design & retrofit guides			
Accelerate market adoption	Increase access to building data	Open source building analysis tools and guides	Market has tools & workforce that value efficiency	Financial value widely seen in market	
	Increase usage of modeling tools	Workforce curricula & guidelines			
	Improve building workforce				

Updated Dec. 2015

EXTERNAL INFLUENCES

- DOE Budget
- Construction Industry
- Market Incentives
- Legislation / Regulation
- Energy Prices
- Real Estate Market

The Commercial Integration Program accelerates the adoption of energy saving technologies and solutions in existing and new commercial buildings of all types by reducing specific technical and market barriers to spur investment in building energy performance.

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External Influences: DOE budget, Construction industry, Energy prices, Real estate market, Market incentives, State/local policies, Regulation

Objectives	Activities / Partners	Outputs	Short Term Outcome	Mid-Term Outcome	Long Term Outcome
Demonstrate energy efficient technologies & solutions in representative buildings	Demo, test, validate, & document tech. performance with market leader & federal lead by example partners	Demo reports / case studies	Leading building owners equipped with solutions to guide equipment purchases & recognized for best practices	Builder owners & energy efficiency programs invest in HIT tech. in the market	Market leaders regularly adopt solutions that improve whole building energy performance & reduce the energy intensity of buildings, across all climates & building types.
		Procurement specs to make equipment purchasing easier			
	Facilitate & catalyze strategic channels for technology adoption based on market leader needs	Best practices HIT Installation/Operation Guides	Leading building owners & managers commit to installing HIT tech., which increases awareness	HIT solutions and outputs support integration of new tech. into energy efficiency program design & model energy codes	
		HIT adoption campaigns			
Prove energy saving solutions on a national scale with market leaders	Develop decision support resources for building design & construction professionals	Design & Retrofit Guides & guides on cost control & energy targets in construction contracts	Building designers & engineers equipped with knowledge to properly design & install building energy saving solutions	Building designers & engineers build above energy codes using highly efficient tech & systems	Due to success of market leaders, the rest of the market recognizes the value of energy efficiency & are motivated to adopt energy saving solutions on a national scale.
	Provide technical support to market leaders to integrate energy saving solutions in new & existing buildings; recognize success	Better Buildings Challenge & Alliance forums for market leaders	Market leaders commit to integrate energy saving solutions into building portfolios & assist with accelerating in the broader market	Market leaders widely integrate energy saving solutions into portfolio of buildings, reducing risk for middle & late adopters	
Accelerate adoption of energy efficiency by providing information related to energy saving solutions		Building Energy Asset Score			
	Facilitate & increase the use of tools & access to standardized, transparent building performance data	OpenStudio & guides			
		Standardized building performance data tools (BEDES, SEED), data available in BPD	Building owners, operators, managers & investors equipped with tools & data to understand, manage & value building energy performance	Array of building stakeholders use building energy performance data & tools to incorporate energy efficiency into appraisal, underwriting, & other financial transactions	
	Educational support to promote a quality workforce	Workforce Guidelines & Building Retuning Training			

**HIT refers to high impact technologies & CBI's catalyst framework*

Impact

Demo 15 HITs with at least 10% savings & drive adoption with market leaders → Prove with market leaders 25% savings in existing bldgs. & 50% savings in new bldgs. → Develop solutions to market barriers → Market leaders reduce EUI 30% in existing bldgs. & 50% in new bldgs. by 2025 → Reduce avg. EUI in all bldgs. 30% by 2030