



SEE Action Series: Local Strategies for Whole-Building Energy Savings

June 21, 2012

Molly Lunn, U.S. Department of
Energy

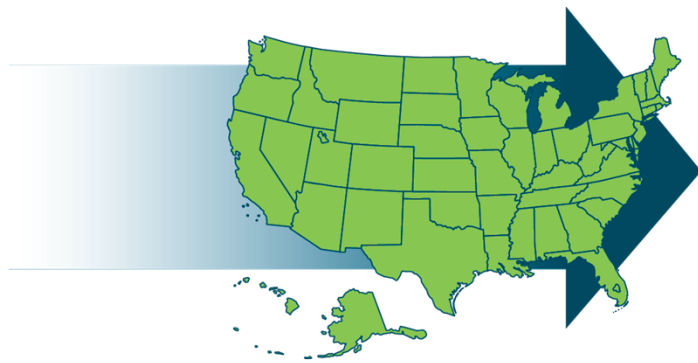
What is TAP?

DOE's Technical Assistance Program (TAP) supports state, local, and tribal officials, by providing them with tools and resources needed to implement successful and sustainable clean energy programs



- Last fall, DOE announced that TAP would be transitioning to a new, post-ARRA framework
- Over last several months, TAP has conducted an assessment of the services we offer and needs of our constituencies
- DOE has continued to facilitate peer exchange, and we encourage you to get involved now:
<http://www1.eere.energy.gov/wip/solutioncenter/peerexchangehub.html>

- Stay tuned for announcements over the next several weeks regarding:
 - Additional upcoming webcasts
 - Availability of direct technical assistance
 - Other new and exciting resources
- Today's webcast will be available online:
<http://www1.eere.energy.gov/wip/solutioncenter/webcasts/default.html>
- Don't hesitate to contact us at:
TechnicalAssistanceProgram@ee.doe.gov



SEE Action

STATE & LOCAL ENERGY EFFICIENCY ACTION NETWORK

SEE Action Existing Commercial Buildings Working Group

Local Strategies for Whole-Building Energy Savings

Jim Gallagher, New York Independent System Operator

Alex Dews, City of Philadelphia

Cody Taylor, U.S. Department of Energy

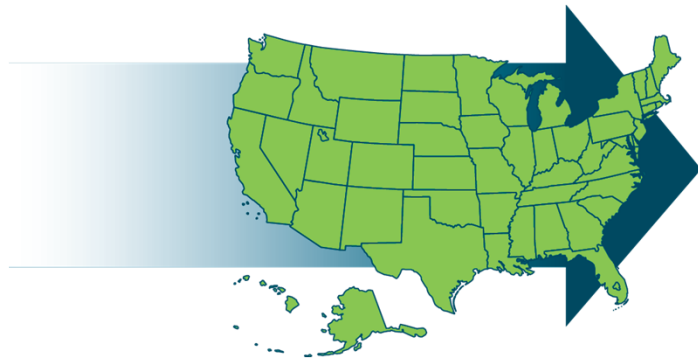
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This information was developed as a product of the State and Local Energy Efficiency Action Network (SEE Action), facilitated by the U.S. Department of Energy/U.S. Environmental Protection Agency. Content does not imply an endorsement by individuals or organizations that are part of SEE Action working groups, or reflect the views, policies, or otherwise of the federal government.

Agenda

- SEE Action Overview
- Existing Commercial Buildings Working Group Overview
- Priority Policies and Programs
- Local Government Example: City of Philadelphia
- Related DOE Initiatives
- How to Get Involved
- Discussion





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SEE Action Overview

What is SEE Action?

A state and local effort facilitated by the federal government that helps states, utilities, and other local stakeholders take energy efficiency to scale and achieve all cost-effective energy efficiency by 2020.

For more information, visit:

www.seeaction.energy.gov

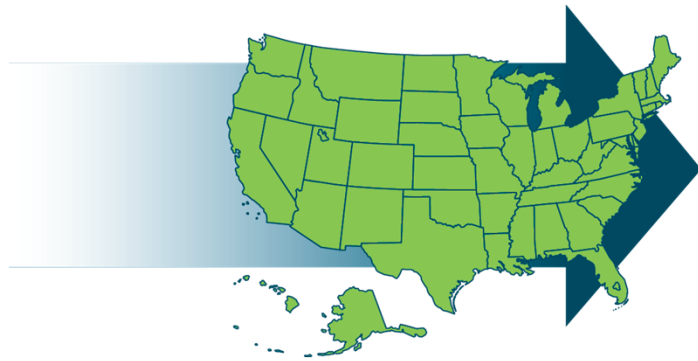


www.seeaction.energy.gov

SEE Action Leadership

- **Executive Group** of more than 30 stakeholders including state and local governments, associations, business leaders, non-governmental organizations, and others.
- **Eight Working Groups** help SEE Action achieve its goal of capturing all cost-effective energy efficiency by 2020.





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Existing Commercial Buildings Working Group Overview

Commercial Working Group: Motivation

- The majority of office space that will be used in next decade has been built.
- Commercial buildings use:
 - ~50% of U.S. building energy use.
 - ~20% of total U.S. energy use and GHG emissions.
- Public buildings are ~25% more energy-intensive than private buildings.
- Commercial building owners/managers spend more than \$2 per sq. ft. on energy.
- ~5 to 15 jobs created per \$1M invested in energy efficiency.
- Energy-efficient buildings have higher occupancy levels, lease rates, and sales prices.



Commercial Working Group: Goals

Year 1 Goal: Enlist 10 states and 30 local governments to adopt one or more of the Commercial Working Group's 10 policy and program solutions

2015 Goal: Reduce energy use 20% or more in 3 billion square feet of commercial space annually through whole-building approaches

2020 Goal: Achieve all cost-effective energy efficiency in existing commercial buildings



Commercial Working Group: Priority Policy and Program Solutions

Mid-term Goal

By 2015, reduce energy use by at least 20% in 3 billion square feet of commercial space each year through whole-building retrofits and/or operational improvements.

Four Pillars

Drive Demand for Energy Efficiency

Enable Efficient Operations and Investment

Build the Workforce

Move the Market

Priority Solution Areas

1. Energy Benchmarking, Rating & Disclosure Policies

Improve information through benchmarking/disclosure

2. Retro-commissioning (RCx) Policies

RCx and retrofit requirements

3. Ratepayer-funded Programs

Target whole-building programs

4. Public-private Partnerships

Energy challenges, recognition programs, etc.

5. Strategic Energy Management Programs

Adopt comprehensive energy management programs

6. High Performance Leasing Policies

Integrate efficiency in leasing practices

7. Financing Innovation Programs

Credit enhancement, revolving loans, etc.

8.1. Education & Training

Build training capacity

8.2. Materials

Develop standardized training materials

8.3. Certification

Standardize around meaningful and nationally-recognized professional certifications

9. High Performance Procurement Policies

Bulk purchasing, specifications, life cycle costing, and streamlined Energy Savings Performance Contracts (ESPC)

10. Emerging Technology Demonstration Programs

Through public-private partnerships, competitions, etc.



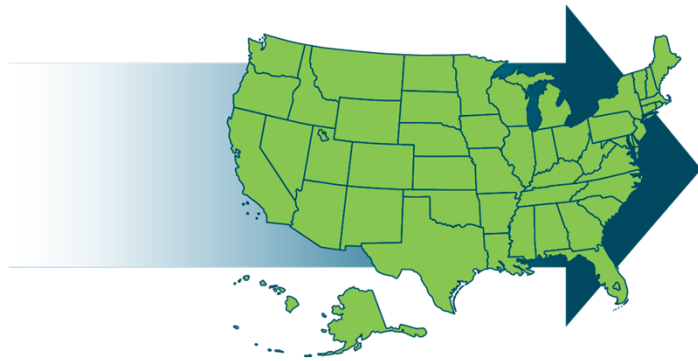
Commercial Working Group: Resources

- Fact sheets: benchmarking, rating, and disclosure; retro-commissioning; high-performance leasing; strategic energy management programs
- Model policy design guides: benchmarking, rating, and disclosure; retro-commissioning
- Expert / peer support: guidance on adopting and enhancing policy and program solutions

Have other ideas?

Please let us know by entering a comment now.





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Priority Policies and Programs

Commercial Energy Efficiency Policies and Programs

- Drive Demand for Energy Efficiency
 - **Benchmarking, Rating, and Disclosure**
 - **Retro-commissioning**
 - Ratepayer-funded Programs
 - Public-Private Partnerships (Energy Challenges)
- Enable Efficiency Operations and Investment
 - **Strategic Energy Management**
 - **High-Performance Leasing**
 - Financing Innovation
- Build the Workforce
 - Education & Training
 - Materials
 - Certification
- Move the Market
 - High-Performance Procurement
 - Emerging Technology Demonstration



Benchmarking, Rating, and Disclosure: Overview

- **What is benchmarking, rating, and disclosure?**
 - Benchmarking: Measuring how efficiently a building uses energy relative to (1) itself over time, (2) similar buildings, or (3) a modeled baseline
 - Rating: Assigning a numeric rating according to a pre-determined scale (e.g., 1-100)
 - Disclosure: Sharing energy performance data to facilitate market transformation
- **Why benchmarking, rating, and disclosure?**
 - Increase energy awareness and investment
 - Stimulate local economy
 - Strengthen local real estate markets
 - Build public trust and confidence while saving taxpayer dollars



Benchmarking, Rating, and Disclosure: Key Examples

City of Austin: Energy Conservation and Disclosure Ordinance

- **Adopted:** 2008 (updated 2011) / **Effective:** 2012
- **Affected Property Types:** Public and private buildings > 10,000 sq. ft.
- **Key Requirements:**
 - Use of ENERGY STAR[®] Portfolio Manager
 - Disclosure to City (Austin Energy) annually
 - Phases in over 3 years based on building size
 - Data used to inform energy efficiency programs
 - Penalty is class C misdemeanor up to \$2,000



Benchmarking, Rating, and Disclosure: Key Examples

New York City: Local Law 84

- **Adopted:** 2009 / **Effective:** 2011
- **Affected Property Types:** Public buildings > 10,000 sq. ft. and private buildings > 50,000
- **Key Requirements:**
 - Use of ENERGY STAR® Portfolio Manager
 - Annual submission to the City
 - Phased in public disclosure on City website
 - Automated water data transfer from city to affected building owners



Benchmarking, Rating, and Disclosure: Key Examples

City of San Francisco: Existing Commercial Buildings Energy Performance Ordinance

- **Adopted:** 2011 / **Effective:** 2011
- **Affected Property Types:** Public and private buildings > 10,000 sq. ft.
- **Key Requirements:**
 - Use of Portfolio Manager and California-specific rating
 - Disclosure to City annually; City to post online after 2nd year
 - Phases in over 3 years based on building size
 - Paired with mandatory energy audit every 5 years
 - Building owners must provide annual report to tenants; tenants must provide energy use data
 - Penalty is \$50 to \$100 per day for max 25 days



Retro-commissioning: Overview

- **What is retro-commissioning?**
 - Systematic process for identifying and improving energy performance in existing buildings
- **Why retro-commissioning?**
 - Cost-effective investment
 - Reliable energy and cost savings
 - Minimize risk
 - Build public trust and confidence while saving taxpayer dollars



Retro-commissioning: Key Examples

New York City: Local Law 87 (part of Greener, Greater Buildings Plan)

- **Adopted:** 2009 / **Effective:** 2013
- **Affected Property Types:** Public and private buildings > 50,000 sq. ft.
- **Key Requirements:**
 - Disclosure of energy audit and RCx results to City every 10 years
 - Minimum audit and RCx requirements based on accepted standards (audit) and check list of systems covered (RCx)
 - Minimum years of experience and certification requirements for auditors and RCx professionals



Retro-commissioning: Key Examples

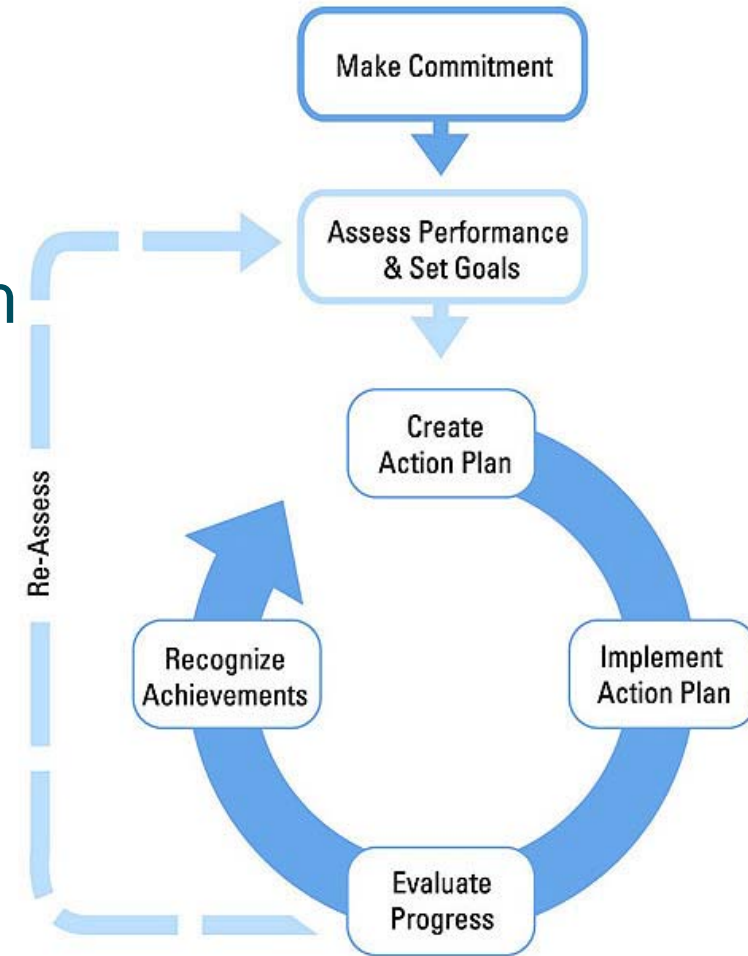
City of San Francisco: Existing Commercial Buildings Energy Performance Ordinance

- **Adopted:** 2011 / **Effective:** 2011
- **Affected Property Types:** Public and private buildings > 10,000 sq. ft.
- **Key Requirements:**
 - Disclosure of energy audit results every 5 years; City to post aggregate findings online
 - Minimum audit requirements based on accepted standards and building size
 - Minimum years of experience and certification requirements for auditors
 - Report on RCx and retrofit measures with payback < 3 years or positive net present value
 - Penalty is \$50 to \$100 per day for max 25 days



Strategic Energy Management: Overview

- **What is strategic energy management?**
 - Holistic approach to energy management that sets long-term goals and systematically monitors progress at building and organizational level
- **Why strategic energy management?**
 - Increase energy savings and savings persistence
 - Capture greater share of energy savings potential



EPA's ENERGY STAR
Guidelines for Energy
Management



Government Programs: Key Examples

Arlington County, VA: Fresh AIRE – Arlington Initiative to Reduce Emissions program

- **Adopted:** 2007
- **Affected Property Types:** County-owned buildings
- **Key Requirements:**
 - Identifies energy management as a key strategy for achieving greenhouse gas reduction goal
 - Integrates benchmarking and energy audits to prioritize energy efficiency investments
 - Uses performance contracts and dedicated funding for energy efficiency and renewable energy projects
 - Includes energy performance disclosure online and via building labels
 - Requires ENERGY STAR and LEED certification for new construction
 - Participates in local community energy challenge



Ratepayer-funded Programs: Key Examples

NJ Clean Energy Program™: Pay for Performance Program

- **Affected Property Types:** Public and private buildings > 50,000 sq. ft.
- **Key Requirements:**
 - Sector-based (retail, healthcare) marketing
 - Technical assistance in developing energy management plan
 - Minimum 15% energy savings goal
 - Performance-based incentives tied to plan completion, measure installation, savings verification



Ratepayer-funded Programs: Key Examples

WI Focus on Energy™: Retail Energy Management Challenge

- **Affected Property Types:** Commercial retail buildings
- **Key Requirements:**
 - Sector-based (retail) marketing
 - Technical assistance in developing energy management plan
 - Refers underperforming buildings for RCx program
 - Recognition for customers with the highest energy performance and greatest improvement



High Performance Leasing: Overview

- **What is high performance leasing?**
 - Strategies to overcome barriers between owners and tenants that inhibit energy efficiency improvements in existing commercial buildings
- **Why high performance leasing?**
 - Address “split incentive” barrier between tenants and property owners
 - Transform leasing market towards more sustainable practices



High Performance Leasing: Key Examples

New York City: Model Energy Aligned Lease Language (part of Greener, Greater Buildings Plan)

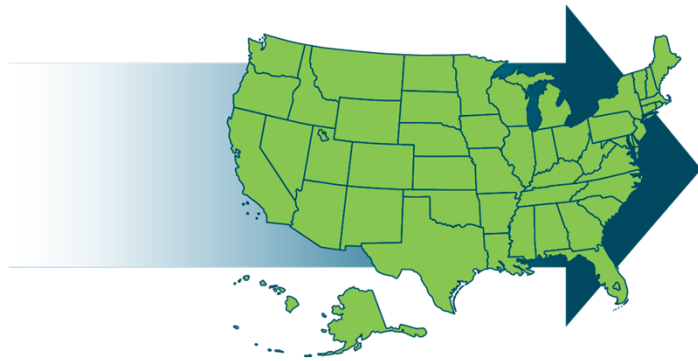
- **Adopted:** 2011
- **Affected Property Types:** Commercial property operating under a gross modified lease; all applicable properties leased by City
- **Key Requirements:**
 - Assigns energy efficiency investment costs and cost savings to the landlord and tenant as follows:
 - Tenant: Pays 0% of upfront costs; receives 20% of energy cost savings immediately and 100% of savings once landlord recovers project costs and until lease expires/is terminated
 - Landlord: Pays 100% of upfront costs; is paid back 100% (minus financing costs) at rate of 80% of projected annual energy cost savings



How Local Governments Can Get Involved

- Download and share SEE Action resources.
 - Visit http://www.seeaction.energy.gov/existing_commercial.html.
- Tell us your story.
 - E-mail cody.taylor@ee.doe.gov and let us know what you're doing to promote energy efficiency in existing commercial buildings.
- Share your data.
 - E-mail cody.taylor@ee.doe.gov to participate in the SEED platform or asset rating pilots.
- Request assistance.
 - E-mail cody.taylor@ee.doe.gov and let us know which policy/program you are interested in learning more about.





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Local Government Example

City of Philadelphia, PA

Alex Dews, Policy & Program Manager

Mayor's Office of Sustainability

STRATEGIC SUSTAINABILITY PLANNING



2012



2015



2015



2030



2035

The EnergyWorks Solution

A One Stop Shop for Energy Efficiency Improvements

Planning

Financing



EnergyWorks

www.energyworksnow.com

Quality Assurance

Existing Commercial Energy Efficiency Initiatives

Greenworks Rebate Program

Commercial Benchmarking Bill



WWW.ENERGYEFFICIENTPHILLY.ORG

COALITION FOR AN ENERGY EFFICIENT PHILADELPHIA

SUPPORTERS INCLUDE:

ENERGY SERVICES INDUSTRY

Atlantic Energy Concepts
Bala Consulting Engineers
Bku Path
Carrier Glass Green Infrastructure
Chesapeake Design Group, LLC
Clean Markets
CM Jones Inc
Constilence LLC
Conservation Services Group
Constellation Energy
Coward Environmental Systems, Inc.
CPM Housing Group
Eocentric Energy Solutions
Efficient Home Products, Co.
Fiber America
Global Home Improvement Inc.
Green Steps
GR Planning
Harkins Builders, INC.
Jibe Design
Lean Green LLC
Lowry EcoSolutions
MaGrann Associates
Mark Group
McKisick Associates Architects, PC
Northeast Energy Efficiency Partnerships
Northend Barriers
Noveda Technologies, Inc.
PA Realty Works LLC
Philadelphia Water Department
Practical Energy Solutions
Princeton Green
Polaris Consulting Engineers, PC
Polycrete USA
ReaWinWin, Inc.
Resonate LLC
Re Vision Architecture

ENERGY SERVICES INDUSTRY CONT'D.

RM Green Environment Services, LLC
Rushforth Solar, LLC
Saline Gobain
Scalewacker North America Inc.
SCEnergy
SeLair LLC
Solar Terrain, LLC
Star Energy Solutions
Strickly Business Energy
Sustainable Solutions Corporation
The Leaky House
Urban Engineers, Inc.
William Kern Roofing

LEGAL

Coxen O'Connor
Drinker Biddle & Reath LLP

INDIVIDUALS

William Anderson
Mike Bortman
Jan Levy
Michael Miller
Mark Puzell
Walt Yakobosky

LENDERS

AFC First Financial Corporation
The Reinvestment Fund

BUILDING OWNERS & OPERATORS

James Turner

COMMUNITY ORGANIZATIONS

Center in the Park
Freedom's Way Foundation
Southwest Community Development Corporation
Strawberry Mansion Neighborhood
United Communities of South East PA
Utility Emergency Services Fund

ASSOCIATIONS & NONPROFITS

Action Center
Alliance to Save Energy
Building Industry Association of Philadelphia
Institute for Market Transformation
KeyStone Energy Efficiency Alliance
Natural Resources Defense Council
Penn Future

COALITION FOUNDERS:



DELAWARE VALLEY GREEN BUILDING COUNCIL



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Commercial Energy Efficiency Policies and Programs

DRIVE DEMAND FOR ENERGY EFFICIENCY

Benchmarking, Rating and Disclosure

- *City buildings over 10k, commercial over 50k*
- *Ratepayer funded programs*
- *Public Private Partnerships*

Enable Efficient Operations and Investment

- *Strategic Energy Management*
- *Financing Innovation*
- *Building the Workforce*

Moving the Market

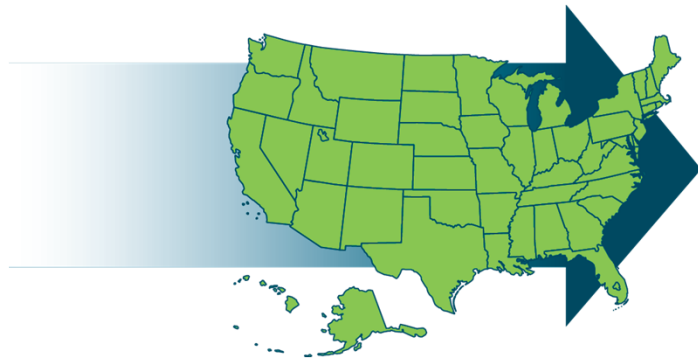
- *Emerging Technology Demonstration*

Benefits of Partnering with SEE Action

Supports *Greenworks* goals to reduce commercial energy usage

Regular communication with network partners

Participate in developing SEE Action programs and materials



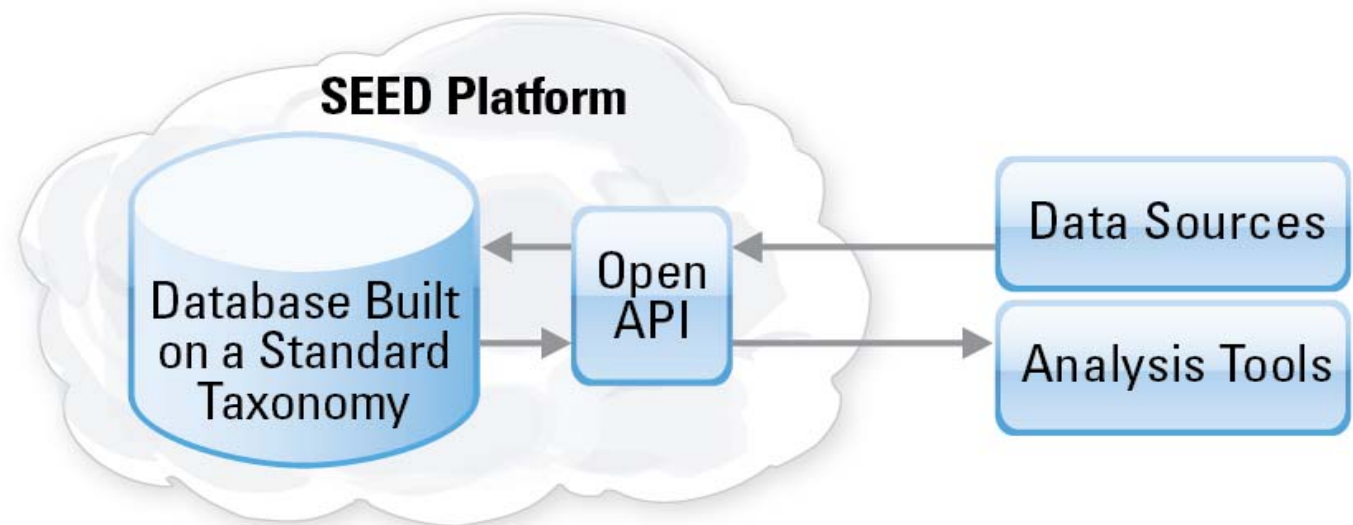
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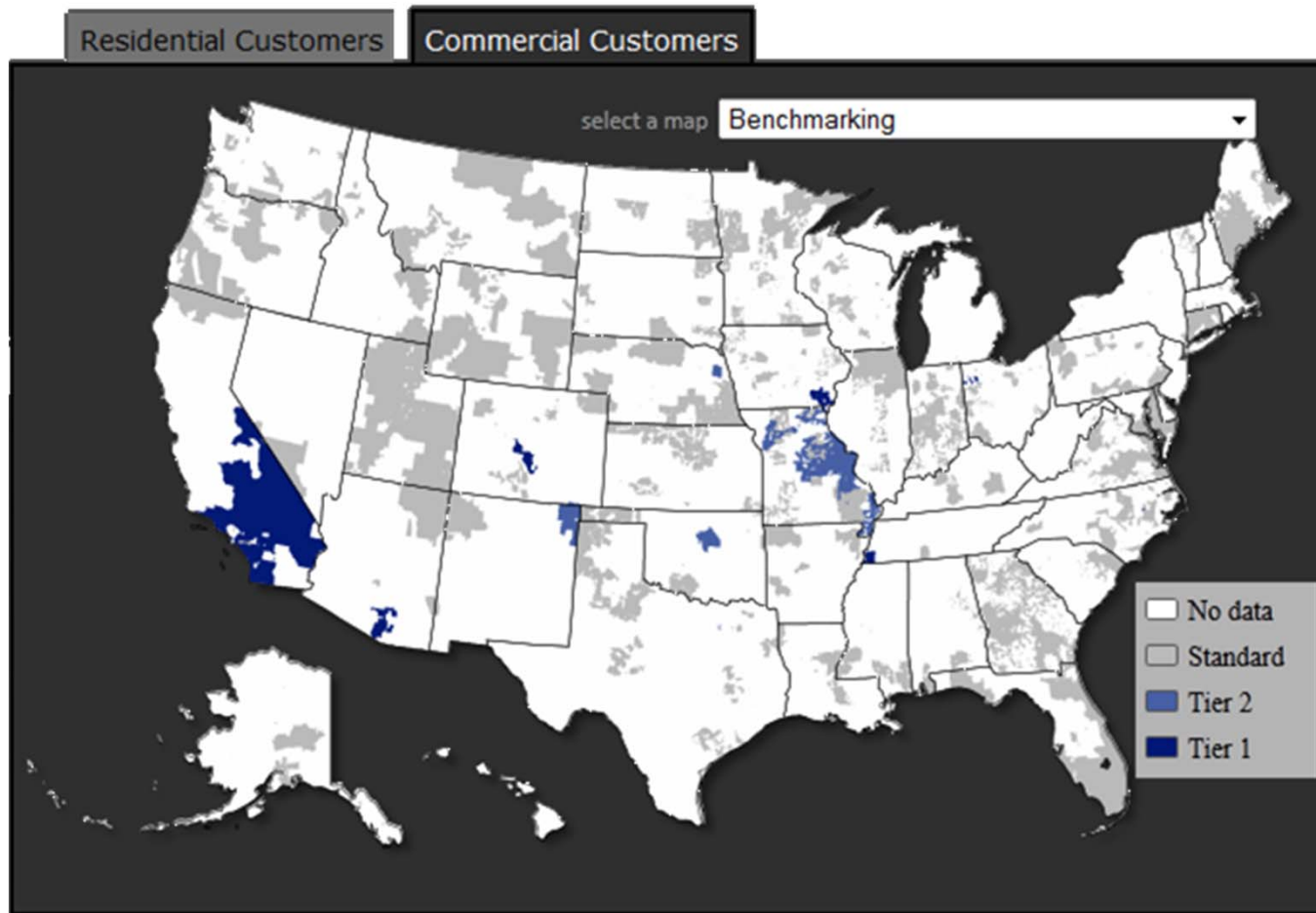
Related DOE Initiatives

Standard Energy Efficiency Data (SEED) Platform

The Standard Energy Efficiency Data Platform (SEED) is a software tool that allows state and local governments to quickly and easily create their own database using a standard building energy performance taxonomy, and easily share selected data with other parties as needed.



Access to Utility Data



21% of utilities have completed the questionnaire

http://en.openei.org/wiki/Utility_Access_Map

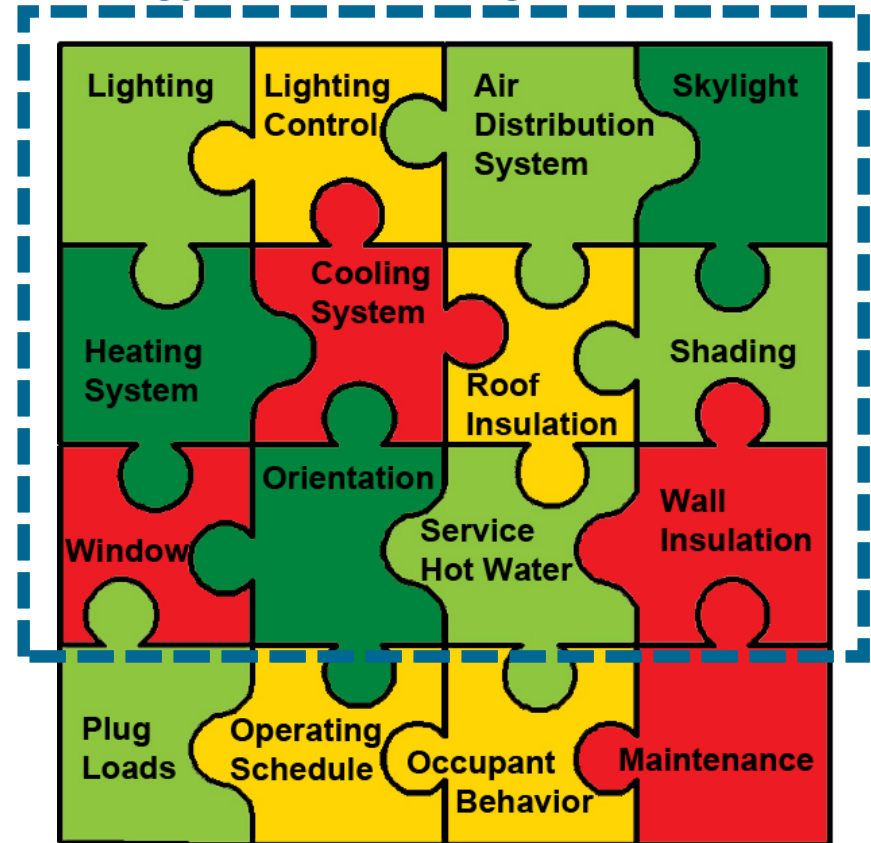


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Commercial Building Asset Rating Program

- Complements Portfolio Manager providing a common platform for:
 - Evaluating the inherent energy performance of buildings' physical characteristics while controlling for building operation and tenant behavior
 - Identifying energy efficiency improvements
- Looking for pilot participants to test tool for select building types (office, school unrefrigerated warehouse, public assembly)

Energy Asset Rating



Building energy use is affected by many factors.

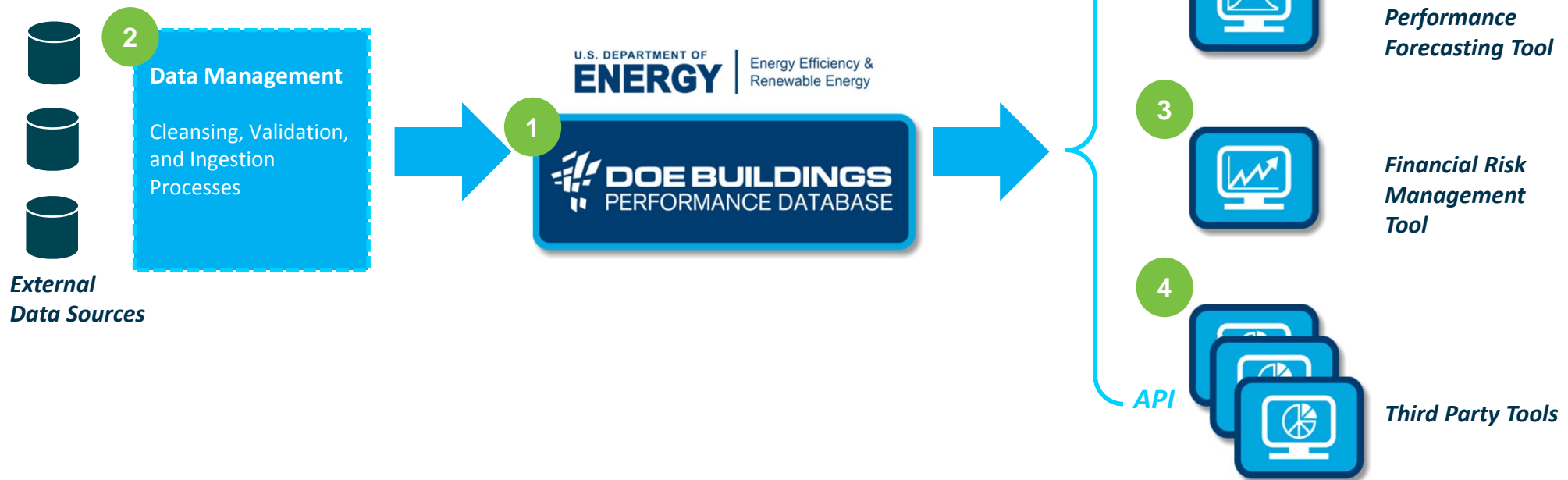
For more information, visit:

<http://www.commercialbuildings.energy.gov/assetrating.html>

Buildings Performance Database

For more information, visit:

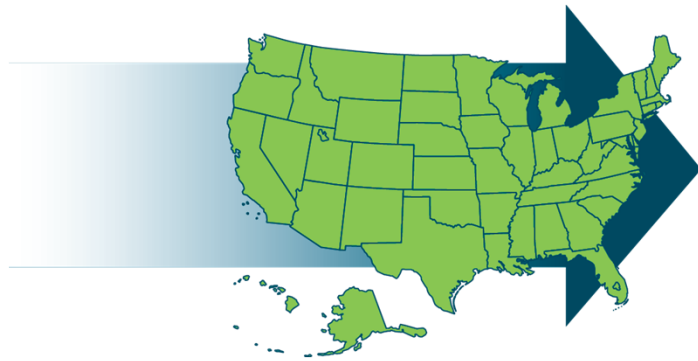
<http://www.buildings.energy.gov/buildingsperformance/>



- 1** Common taxonomy: a standardized “data model” to organize energy use and building characteristic data
- 2** Data management: processes and tools to support the on-boarding and validation of data from multiple sources
- 3** Applications: web-enabled tools to forecast energy savings and related cash flows.
- 4** 3rd party tool support: API allows 3rd parties to create new applications to use the data in the database



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- Share your data.
 - E-mail cody.taylor@ee.doe.gov to participate in the SEED platform or asset rating pilots.
- Request assistance.
 - E-mail cody.taylor@ee.doe.gov and let us know which policy/program you are interested in learning more about.



Join Us For Additional SEE Action Webcasts This Summer

Topics to be covered include:

- Energy Performance Benchmarking & Disclosure Policies
- Energy Audit and Retro-commissioning Policies
- Strategic Energy Management Programs
- High Performance Leasing Strategies

Dates and times TBD...stay tuned!





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Questions?

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www.seeaction.energy.gov/existing_commercial.html