



National Association of
State Energy Officials

NASEO Buildings Committee Meeting: *State-Led Building Performance Standard and Clean Energy Target Adoption*

August 3, 2023

Photo Courtesy of RL Martin



Agenda

- NASEO
- Pennsylvania: Longstanding public building benchmarking program, new lead-by-example initiative to improve public building energy performance
- Texas: Local government engagement through the City Efficiency Leaders Program and the Energy Benchmarking Toolkit
- EPA and DOE: Building Performance Standard Technical Assistance Network, resources
- Q&A

Panelists

- Heidi Kunsch (Environmental Group Manager, Pennsylvania Department of Environmental Protection)
- Mark Hand (Director, GreenGov Council, Pennsylvania Department of General Services)
- Shaun Auckland (Local Government Program Manager, SPEER)
- Marina Badoian-Kriticos (Director of Strategic Initiatives and External Affairs, HARC)
- Brendan Hall (Public Sector Program Manager, U.S. Environmental Protection Agency)
- Billierae Engelman (Project Manager, U.S. Department of Energy)

NASEO Resources on Energy Improvements in Existing Commercial Buildings

- NASEO Sample Policy, Program Documents, and RFP Library
- NASEO Federal Funding Tracker for Buildings
- NASEO Buildings Committee Webpage
- NASEO ENERGY STAR Resources Hub Webpage
- NASEO Benchmarking and BPS Webpage
- NASEO and E4theFuture Program in a Boxes



Mark Hand, Director
Matt Reis, Deputy Director

Building Performance Standards (BPS) Project



"Building Performance Standards are a Key LBE Policy Component for Large State Portfolios"

- **Pennsylvania's BPS Implementation Status**
- **Key Partners**
- **Next Steps**

BPS – A Key Lead-By-Example Policy

"You Can't Manage What You Don't Measure"

"You Can't Meet Urgent Climate Goals Without an Overarching Facility Plan & Strategy"

"You Can't Expect Others to Adopt a BPS If You're Not Willing to Implement Your Own"



Commonwealth Facilities – Current Energy Management

- **Established LBE Goal** – Reduction of GHG Emission and Achieve 3% Energy Reduction Annually
- **Tracking Utility Usage** – Utilization of EnergyCAP for Electric, Gas and Steam Utilities
- **Delivering Energy Improvements** through Performance Contracting and Capital Investments
- **Next-Step Opportunities**
 - Define, Adopt & Implement an Energy Management System Policy or Procedure
 - Long-Term Portfolio Planning for the Delivery of Energy Improvement Projects
 - Connecting Facility Staff and Executive Leadership with the Commonwealth Facility Energy Portfolio



Energy Reduction 2020/2021 – 2021/2022



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Commonwealth Energy Consumption FY2020/2021 - FY2021/2022

State Reporting Agency	Normalized Use MMBtu	Known Meter Count	% of Meters Reported	FY 2020 Baseline MMBtus	FY 2021 Current MMBtus	Change in Energy Usage	Change in CO2 Metric Tons
Dept of Corrections		333	94%	2,057,531	2,005,177	-2.5 %	-4,470
Dept of Human Services		100	91%	976,380	978,872	0.3 %	31
Dept of Military and Veterans Affairs		842	96%	484,090	499,170	3.2 %	798
Dept of General Services		69	94%	515,240	491,846	-4.5 %	-647
Dept of Transportation		3,567	92%	386,922	431,745	11.6 %	2,886
PA State Police		931	80%	125,163	133,838	6.9 %	351
Dept of Conservation and Natural Resources		1,979	95%	100,518	102,826	2.3 %	90
Dept of Labor and Industry		10	80%	60,457	59,619	-1.4 %	31
PA Fish and Boat Commission		94	89%	43,683	41,800	-4.3 %	-99
Dept of Agriculture		13	85%	44,988	40,434	-10.1 %	-252
Dept of Environmental Protection		124	93%	24,150	27,902	15.5 %	337
PA Historical and Museum Commission		149	92%	22,136	26,069	17.8 %	-568
PA Emergency Management Agency		13	92%	18,936	20,615	8.9 %	-111
Dept of Revenue		5	100%	11,711	13,611	16.2 %	-147
PA Game Commission		236	96%	12,745	12,798	0.4 %	13
Dept of Health		3	100%	9,436	9,835	4.2 %	-93
Total		8,468	92%	4,894,086	4,896,157	0.4%	-1,850

12%+ Reduction Maintained Since 2017

EnergyCAP – Implementation Status

- **Staff Investments** – Initiative Began with One Part-Time Employee, Now Expanded to Two Full-Time Employees
- **Central Utility Billing Process** – Standardized Processes to Ensure Timely Data Capture with Quality & Accuracy
- **2023 Agency Utility Management Plan**
 - Add Water and Sewer Accounts
 - Enhance Agency Staff Use of EnergyCAP – Training
 - Engage Agency Executive Staff Through Sharing Quarterly Reports
 - Link Utility Accounts to the Facility Space Type and Gross Floor Area

ENERGYCAP®

Penn State Facilities Engineering Institute (PSFEI)

- **Serving the Commonwealth** – Continuous Partnership with PA Since 1947 - 75th Anniversary!
- **Providing Engineering Services** and Facility Performance Expertise to Commonwealth Agencies as a Contracted Resource
- **EnergyCAP Program Support** and Data Services Leading to Continued Energy Savings of 12%+ Since 2017!
- **Electricity and Natural Gas Shopping Services** Leading to Educated, Dollar-Saving Utility Contracts for Commonwealth Agencies
- **Providing Education & Training** for Commonwealth Facilities Staff and Employees to the Highest Standards
- **Future Opportunity** – Add BPS Development!



PennState
College of Engineering

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pennsylvania
GREENGOV COUNCIL

BPS Contract with PSFEI

- **Participate in the BPS TA Network** Ongoing Meetings and Collaboration Opportunities
- **Research National BPS Models** to Assist the Commonwealth's BPS for New Construction, Existing Buildings, and Leased Space
- **Create/Recommend BPS Technical Standards** for Adoption and Implementation within the Commonwealth's Portfolio
- **BPS Workflow and Framework Recommendations** to Reinforce Implementation: ENERGYSTAR Use, Energy Management Systems, Building Commissioning, ASHRAE Standards, Data Management, and more!
- **Partnership with GreenGov** to Deliver Informational Tools that Describe and Explain the BPS Program and Processes

BPS Contract – Potential Outcomes

- **BPS Inclusion** within LBE Executive Order?
- **Support Agency BPS Adoption** through PSFEI Service Contracts?
- **Expansion of PSFEI Services** to Entities Outside GreenGov Jurisdiction?
- **Motivate Others with BPS Implementation** through 3 Working Models: Pittsburgh, Philadelphia, and Commonwealth Facilities?
- **Establish an Energy Management Business Process** for Improvements within Commonwealth Operations?
- **Establish Social Cost of Carbon Figures** to Inform & Support Financial Investments?

Thank You!!



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City Efficiency Leadership Council

AUGUST 3RD, 2023



SPEER'S LOCAL GOVERNMENTS PROGRAM SUPPORTS CITY ENERGY MANAGEMENT BY FACILITATING SHARING OF BEST PRACTICES IN ENERGY EFFICIENCY WHILE STRENGTHENING RELATIONSHIPS AMONG LOCAL GOVERNMENTS THROUGH THE CITY EFFICIENCY LEADERSHIP COUNCIL (CELC).



The purpose of the CELC is to:

- Align regional partner initiatives
- Leverage regional resources and share best practices
- Provide networking and capacity-building opportunities
- Identify funding opportunities for projects
- Provide mentorship
- Collaborate as a group on regional sustainability projects and initiatives

CELC Reflection in Numbers

- 55 members of local government agencies who have committed to furthering energy efficiency
- Provide with local governments with technical assistance
- Roundtables over 18 in two years with engaging over 50 cities



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CELC Webinars

About SPEER: SPEER's mission is to accelerate the adoption of advanced building systems and energy efficient products and services in the South-central US.

Our Work

- Policy
- Building Codes
- High Performance Buildings
- Local Government

Our Members

- Advocacy Orgs
- Cities
- ESCOs
- Manufacturers
- Trade Associations
- Utilities

Map callouts: NEEA, MEEA, SWEEP, SEEA

Video player: Play (k), 1:32 / 36:58

SPEER Review of the Texas IOU Energy Efficiency Programs

SPEER: Energy Efficiency... 716 subscribers

Analytics Edit video

5 Share Clip Save

Month	Webinar Focus	Date
January	CELC Year in Review and 2023 Programs	1/12
January	HARC- Title TBD	1/26
February	College Campuses Energy Efficiency Success	2/16
March	What a County can do to move the needle forward in Energy- Travis County Case Study	3/23
April	Air Quality Related to Energy Efficiency (CAPCOG)	4/6
April	How to use Data to Create Stories (City of Denton)	4/20
May	University of Texas- Longhorns Success Story	5/11
May	Energy Equity Inspector (TEPRI)	5/25
June	Curb Case Study	6/22
July	ICLEA & SPEER Benchmarking and Greenhouse Gas Inventory	TBD
August	Landscape Analysis of Local Government Needs	TBD



CELC Newsletters

- Strong engagement
- Opportunity for members to share jobs
- Highlight Programs
- Share interesting articles and Podcasts
- Share Toolkits with your peers

Benefits



Cross-promotion across the state of Texas

Newsletter

Social Media Engagement



Technical Assistance (10 hours)



Templates (Policy, Resolutions, and Plans)



Stakeholder Engagement with Webinars



Local Government Training Cohort

Small working group

- Local governments staff who are aware of their workforce skills and knowledge gap
- Representative of council of governments, cities and universities

HARC

HARC applies science to drive energy, air, water, and resilience solutions for a sustainable and equitable future.



CLEAN
ENERGY



AIR
QUALITY



WATER
QUALITY



GEOSPATIAL



CLIMATE
RESEARCH



TEXAS CLEAN ENERGY HUB



Welcome to the Clean Energy Hub hosted by **HARC**, a Texas-based research non-profit organization with expertise in identifying and supporting cost-effective, practical solutions to speed the transition to a decarbonized and resilient energy system. The Clean Energy Hub, funded by the State Energy Conservation Office (**SECO**), houses a variety of interactive tools, podcasts, webinars, guides, and case studies to help accelerate the adoption of distributed generation and energy efficiency projects in Texas.

energyhub.harcresearch.org/

Welcome to the Texas State Energy Conservation Office **Benchmarking and Transparency Tool** for Communities

The **US Department of Energy** provided funding to the **Texas State Energy Conservation Office** to develop a web-based tool that would help communities across Texas benchmark their own government buildings, and create programs for other buildings in their community.

Benchmarking gives building owners and operators the tools that they need to: **Reduce resource use and costs, Improve regional air quality, Improve quality of life, and Plan strategically.**

What would you like to do today?



LEARN MORE



CREATE A PLAN
FOR MY COMMUNITY



SEARCH AND VIEW RESOURCES

Choose a **Plan** and Create a **Benchmarking**

This tool is designed to provide you information and help you create a benchmarking plan for your community. There will be the option to download a .pdf of your customized plan at the end of the tool.

Which plan would you like to create?

 Could you please help me choose.

Government Buildings

Design a program for government buildings

Voluntary

Design a voluntary benchmarking program

Mandatory

Design a community-wide mandatory benchmarking program

 **BACK**

TEXAS BUILDING PERFORMANCE STANDARDS TOOL

About

FAQ

Steps

Resources

Case Studies

Important Steps for Developing BPS

1. Align and establish goals

A successful BPS policy needs to align with a jurisdiction's particular building stock characteristics, stakeholder needs, existing building codes and policies, and climate action and GHG (greenhouse gas) emissions reduction goals. Local governments can lead by example by first (or simultaneously) adopting a BPS policy for municipal buildings

The following considerations highlight best practices and resources available for local governments in Texas to begin designing the technical/policy analyses and stakeholder engagement for local BPS policy development.

▶ 1.1 Plan to engage stakeholders

▶ 1.2 Understand your jurisdiction's climate goals and key strategies

▶ 1.3. Align with Texas policies and initiatives



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- 1.2 Understand your jurisdiction's climate goals and
- 1.3. Align with Texas policies and initiatives
- 1.4. Align with national policies and initiatives
- 1.5. Understand current building codes
- 1.6. Analyze existing benchmarking data
- 1.7. Propose metrics to track performance
- 1.8. Propose performance targets

2. Determine covered properties

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- 2.2. Common property exemptions

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2. Determine covered properties

BPS policies commonly cover existing municipal and/or commercial and multifamily buildings, which are usually subject to an existing benchmarking policy. Building size thresholds typically range from 20,000 sq. ft. to 50,000 sq. ft. or larger.



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2. Determine covered properties

- 2.1. Understand your jurisdiction's current building st...
- 2.2. Common property exemptions
- 2.3. Summary of covered buildings in different BPS



3. Assess compliance and reporting approach...

- 3.1. Use ENERGY STAR Portfolio Manager® for report...
- 3.2. Determine compliance cycles
- 3.3. Compliance pathways
- 3.4. Enforcement for noncompliance



4. Support property owners and managers

- 4.1. Education materials and training
- 4.2. Create a resource network
- 4.3. Highlight industry tools
- 4.4. Incentives and early adoption programs
- 4.5. Voluntary recognition programs



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HARC applies science to drive energy, air, water, and resilience solutions for a sustainable and equitable future.



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QUALITY



WATER
QUALITY



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BUILDING PERFORMANCE STANDARDS TECHNICAL ASSISTANCE NETWORK

Introduction to BPS Tools and TA Support

U.S. DEPARTMENT OF
ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY



BPS TECHNICAL ASSISTANCE TEAM

Department of Energy Environmental Protection Agency



Billierae Engelman



Caterina (Katy) Hatcher



Brendan Hall



Arlene Lanciani



Valerie Nubbe



Bryan Montes

Guidehouse

Pacific Northwest National Lab



Andrea Mengual



Bing Liu

National Renewable Energy Lab



Isabel Langlois-Romero



Nicholas Long

Lawrence Berkely National Lab



Travis Walter

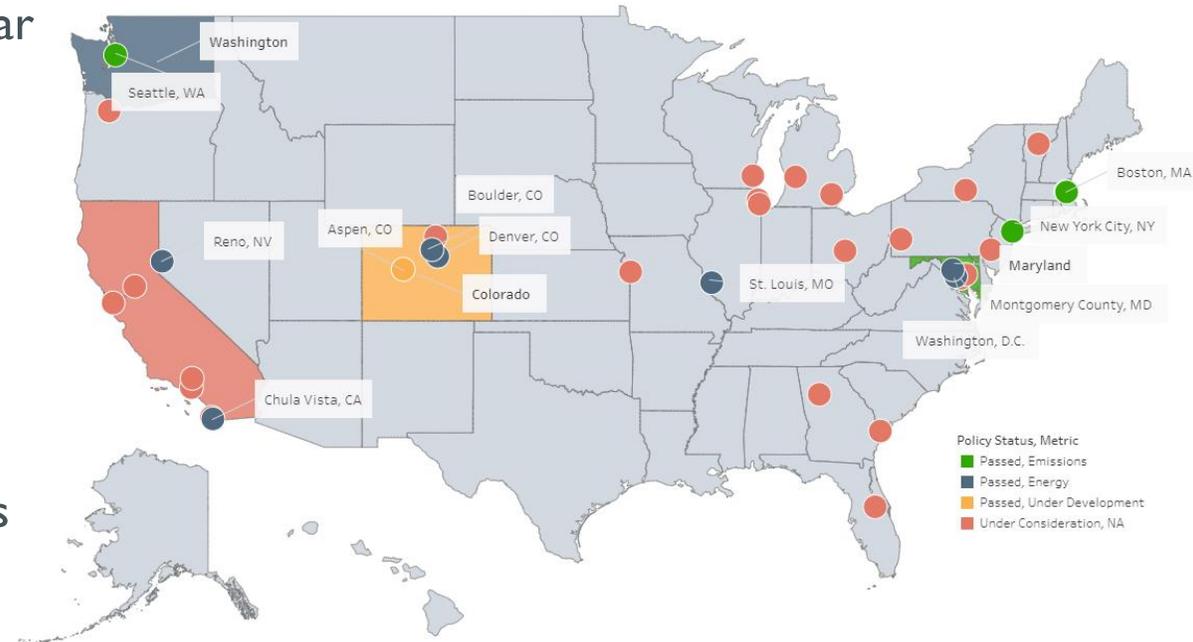


Joshua Kace

WHAT IS THE BPS TA NETWORK AND TECHNICAL ASSISTANCE?

- The **BPS TA Network** is open to all members of the **BPS Coalition** and any other cities, states, and jurisdictions working on or interested in a BPS or similar policy prompting improvements in a building.
- **DOE and EPA Technical Assistance Network support includes:**
 - Building stock analyses, including analysis of energy and emission impacts associated with BPS adoption
 - Benchmarking, prescriptive, performance, and other data-driven compliance pathway tools and resources
 - Performance target-setting and savings trajectories
 - Measure and technology prioritization
 - Program impact and cost-effectiveness analyses
 - Program design and administrative structure support

U.S. State and Local BPS



Source: DOE Building Energy Code Program;
<https://public.tableau.com/app/profile/doebecp/viz/BuildingPerformanceStandards/BuildingPerformanceStandards>

TECHNICAL ASSISTANCE: DOE

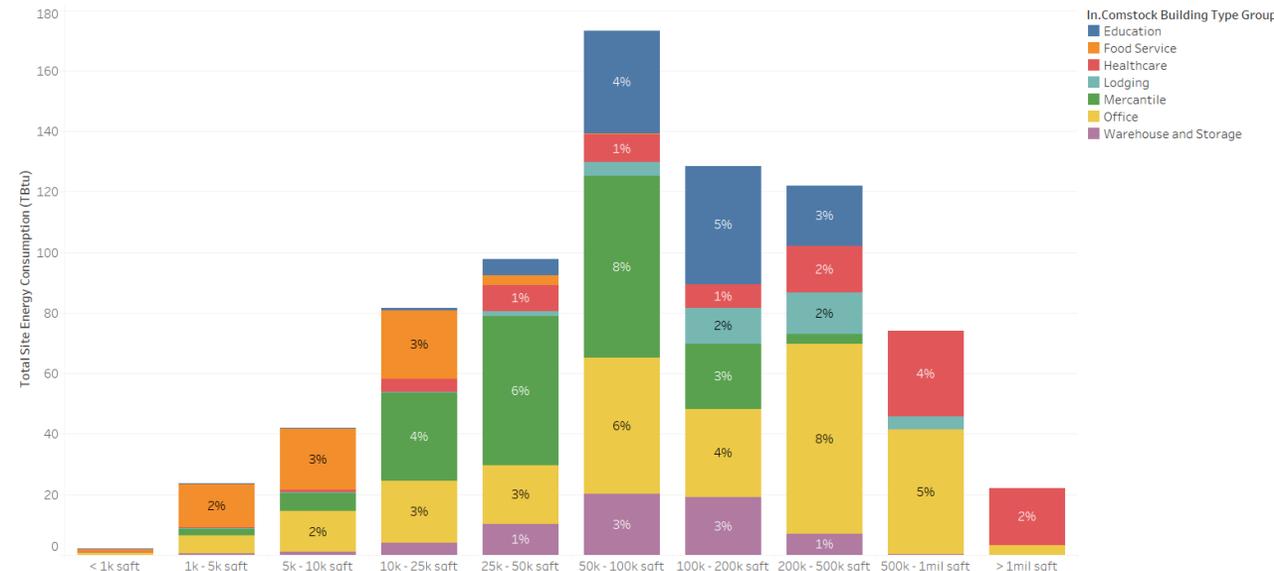
U.S. DEPARTMENT OF
ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY

DOE has an established role providing robust and direct technical assistance including but not limited to:

- Cost-effectiveness analyses
- Compliance studies
- Impact analyses & feasibility studies
- Building stock analyses
- Target setting & savings projections
- Establishing & validating a Covered Buildings List
- **BPS Help Desk design & deployment support** – identify staffing, capacity, IT needs
- **Software & data infrastructure design or procurement** for program implementation, compliance, stakeholder engagement
- **Support for stakeholder engagement** – best practices and analysis for equitable outcomes

Site Energy by Building Type and Size



Sum of out.weighted.site energy.total.energy consumption..TBTu for each in.floor_area_category. Colour shows details about In.Comstock Building Type Group. The marks are labelled by % of Total out.weighted.site energy.total.energy consumption..TBTu.

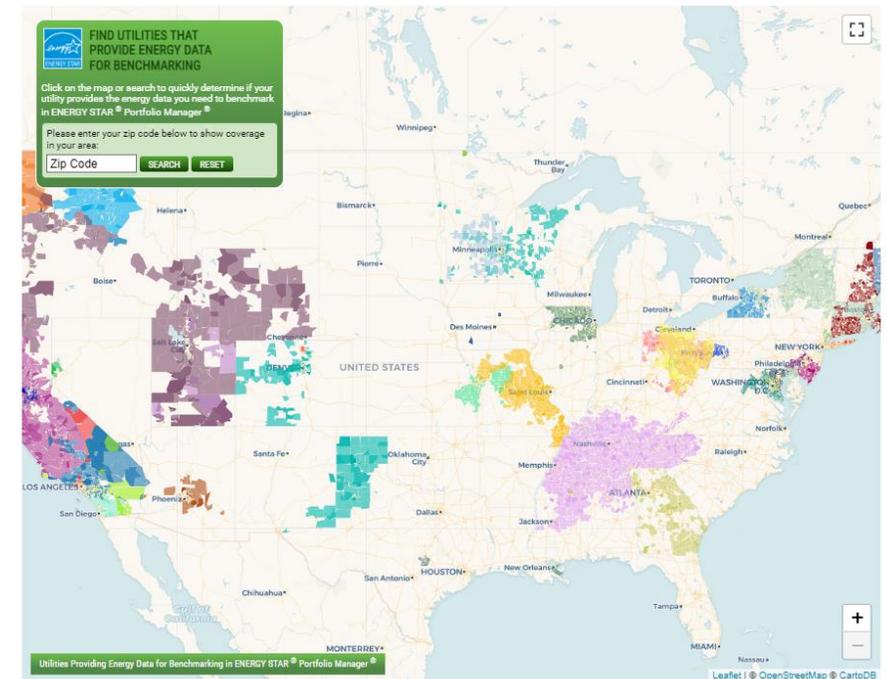
Example building stock analysis

TECHNICAL ASSISTANCE: U.S. EPA



- **Advisory support and strategic discussions on policy design**
- **Implementation support** including through use of ENERGY STAR Portfolio Manager for collecting information and metrics
- **Data sharing** – EPA can share anonymized aggregated data with you, including benchmarking activity for your jurisdiction
- **Utility data access support** – EPA supports jurisdictions and utilities looking to ensure access to aggregated data for buildings owners and managers
- **Reviewing draft policies and regulations**
- **EPA Building Performance Policy Network** – For years, EPA has convened the network of state and local governments working on building performance policy through sessions and mailings. This engagement creates space for sharing updates and emerging offerings, encouraging best practice sharing, and opening dialogue.

Utilities That Provide Energy Data for Benchmarking



Source: EPA

https://www.energystar.gov/buildings/owners_and_managers/existing_buildings/use_portfolio_manager/find_utilities_provide_data_benchmarking

EPA's experience managing the tool on which all these laws depend—and 30 years of working with building owners—is infused into its technical assistance on BPS.

TOOLS THAT SUPPORT IMPLEMENTATION

Data Collection & Reporting



Facilitates building performance reporting and benchmarking and the Energy Star score can also be used as the BPS metrics to set targets.



U.S. DEPARTMENT OF ENERGY

Online portal which cities can use to collect standardized information about a building's physical systems and recommended upgrades.

Data Management & Standardization



Converts two-dimensional building footprint data into unique alphanumeric codes using an open-source grid reference system.

Database for city BPS data that merges information from Portfolio Manager, Audit Template, and other city datasets in one place.



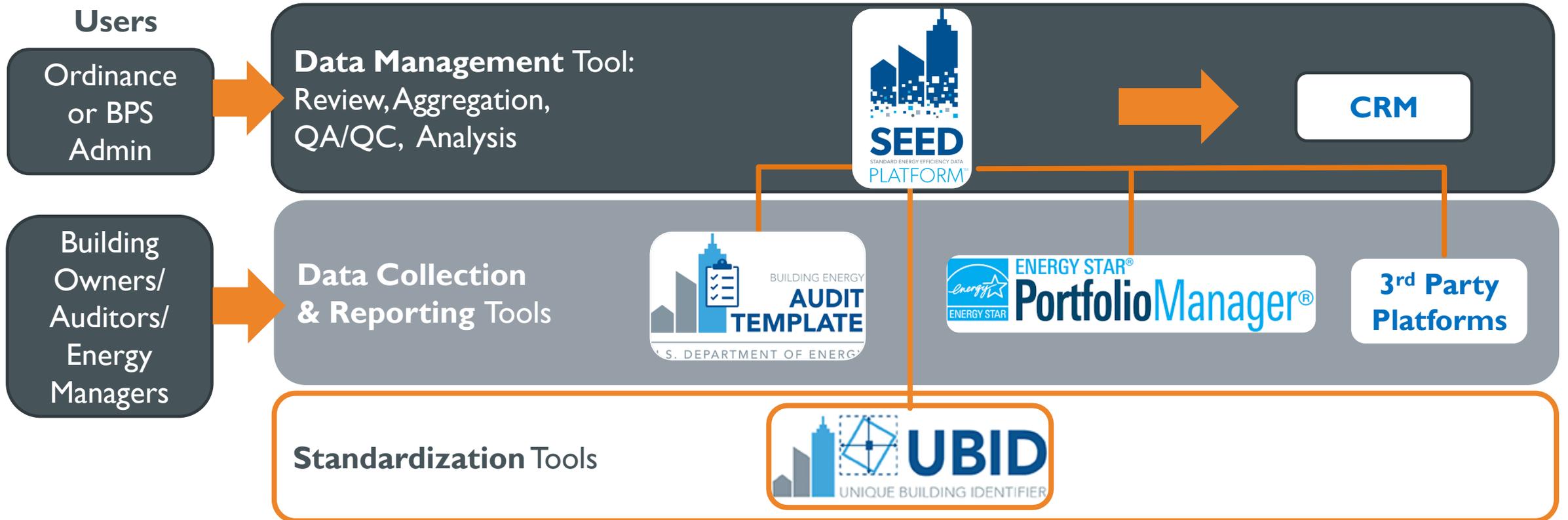
Data Analysis & Evaluation



Identifies cost-saving energy and emissions reductions in buildings and portfolios without site visits or complex modeling

More Information: <https://buildingdata.energy.gov/#/>

DATA COLLECTION, MANAGEMENT, & STANDARDIZATION



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THANK YOU!

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