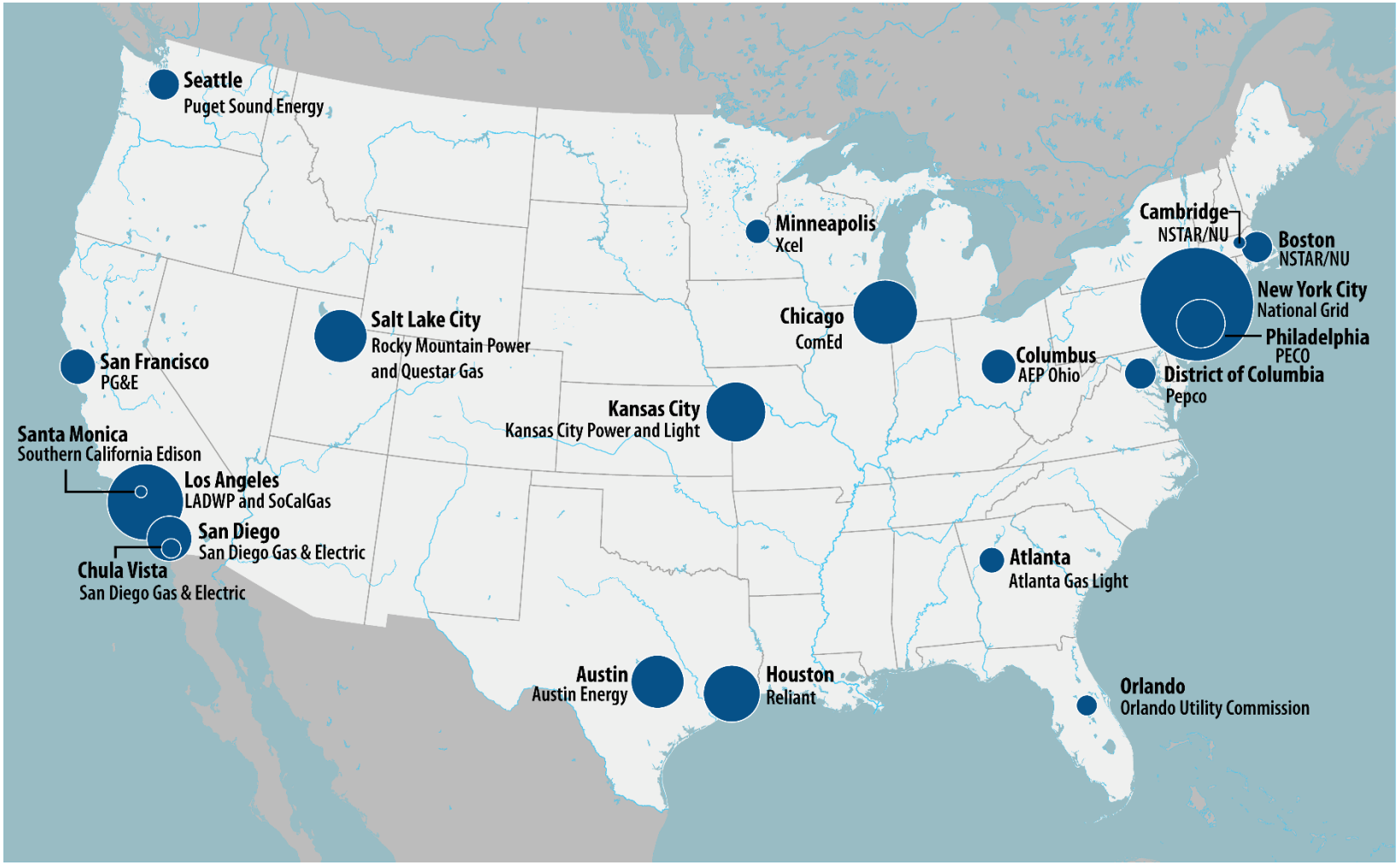
Energy Data Accelerator Stakeholder Engagement

2015 Building Technologies Office Peer Review



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CBEI/Carnegie Mellon University

Project Summary

Timeline:
Start date: April, 2014
Planned end date: April, 2016

Key Milestones:
- Webinar on Stakeholder Engagement strategies: April, 2014
- Checklist for stakeholder engagement: September, 2014
- Case Studies outlining 2 successful city-utility partnerships: April, 2015

Budget:
- Total DOE $ to date: $229,327
- Total future DOE $: $170,000

Target Market/Audience:
- All **Cities** and **Utilities** interested in whole building data access
- Key stakeholders, e.g. Building owners, BOMA, Energy efficiency advocate groups, Energy Efficiency service providers/vendors.

Project Goal:
- Create materials and provide support to successfully launch and implement stakeholder engagement for municipalities participating in the Better Buildings Energy Data Accelerator.
- Disseminate resources to address the upstream barrier of data access to enable energy benchmarking especially for multi-tenant buildings.
- Establish clear pathways to key stakeholder engagement by providing replicable, streamlined, and cost efficient whole building energy data access solutions that can be utilized throughout the country.

Key Partners:

- **NREL**
- **ICF**

• **20 Cities:**	• **22 Utilities:**
City of Atlanta, GA	Atlanta Gas Light Company
City of Austin, TX	Austin Energy
City of Boston, MA	NSTAR/Northeast Utilities
City of Cambridge, MA	NSTAR/Northeast Utilities
City of Chicago, IL	Commonwealth Edison
City of Chula Vista, CA	San Diego Gas & Electric Company
City of Columbus, OH	AEP Ohio
District of Columbia	PEPCO Holdings, Inc.
City of Houston, TX	Reliant (an NRG Company)
City of Kansas City, MO	Kansas City Power & Light Company
City of Los Angeles, CA	Los Angeles Department of Water Power
	Southern California Gas Company
City of Minneapolis, MN	Xcel Energy Inc.
City of New York, NY	National Grid
City of Orlando, FL	Orlando Utility Commission
City of Philadelphia, PA	PECO Energy Company
City of Salt Lake City, UT	Rocky Mountain Power
	Questar Gas
City of San Diego, CA	San Diego Gas & Electric Company
City of San Francisco, CA	Pacific Gas & Electric Company
City of Santa Monica, CA	Southern California Edison
City of Seattle, WA	Puget Sound Energy

Purpose and Objectives

Problem Statement:

Obtaining whole building data is challenging for building owners when there are multiple tenants with their own utility meters and accounts. This makes it difficult for building owners to achieve their benchmarking goals and energy efficiency objectives.

- This project engages key stakeholders with energy efficiency goals who require resources and proven solutions to obtain whole building energy data to benchmark their facilities.

Among facility managers who have used ENERGY STAR for benchmarking:

70%	67%
have used ENERGY STAR to guide energy efficiency upgrade plans	have used ENERGY STAR to justify energy efficiency projects

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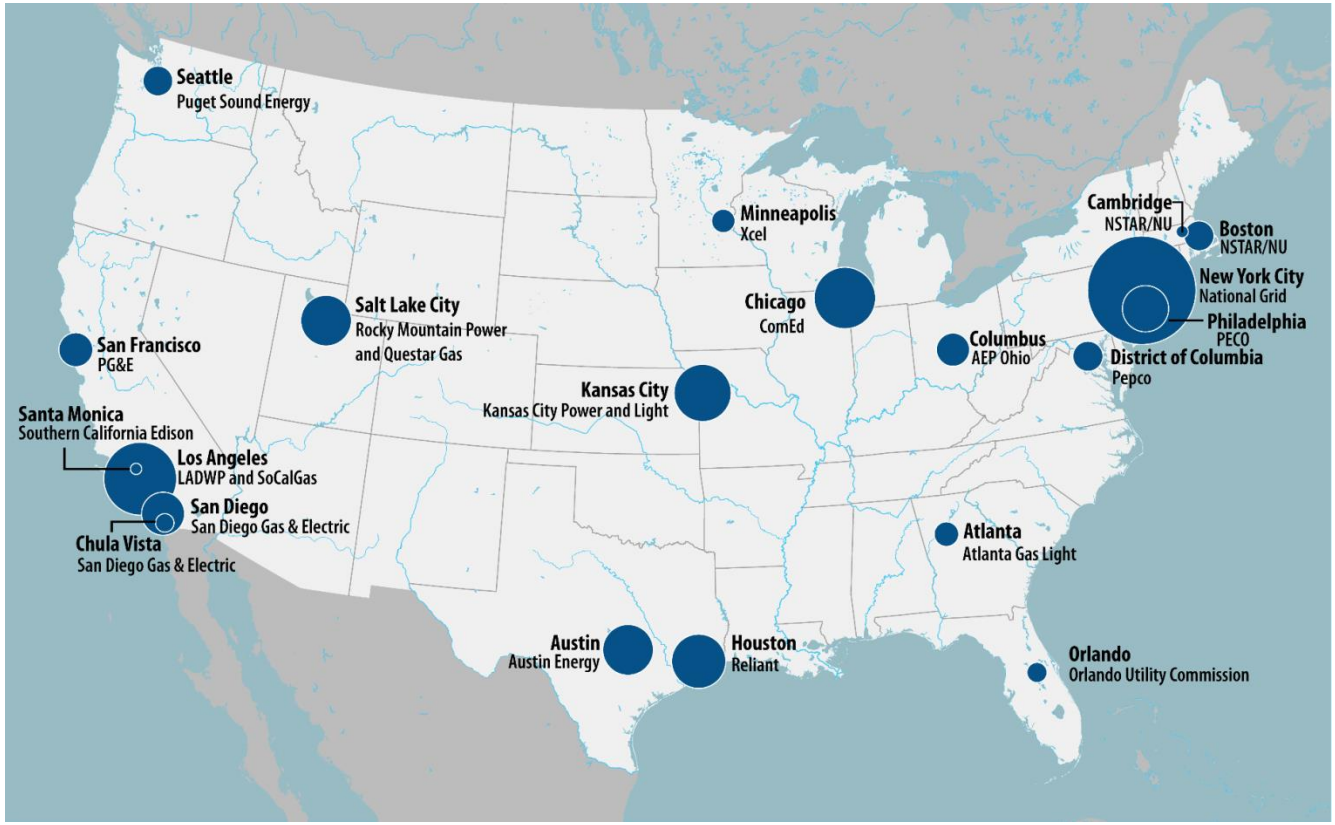
Purpose and Objectives

Target Market and Audience:

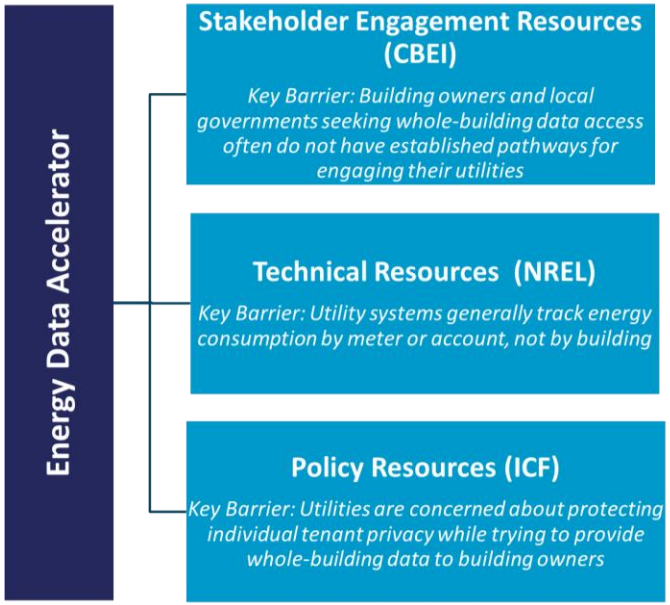
- **Cities** and **Utilities** interested in whole building data access.
- Key stakeholders, e.g. Building owners, BOMA, Energy efficiency advocate groups, Energy Efficiency service providers/vendors



Purpose and Objectives – Impact of Project

Energy Data Accelerator Project endpoint and final products:

- **Over 20 City-Utility Partners** provide whole building energy data access for **at least 20% of the commercial building stock**.
- **Demonstrate low-cost, standardized approaches** for providing energy data for the purpose of whole-building energy performance benchmarking which would be replicated by .
- Develop best practice approaches for **reliable and secure utility aggregation** of energy data from multiple accounts to facilitate whole-building benchmarking while protecting privacy.
- Demonstrate tools that **streamline the transfer of utility bill** data to benchmarking tools.



Energy Data Accelerator's measure of achievement

Near-term (during or up to 1yr. after project):

- **New cities** that were not in the EDA program utilize BTO resources developed as a result of the project's engagement and final products.
- EDA City –Utility Partners – become **leaders throughout the country**, disseminate resources, and share best practices.

Intermediate-term (1-3yr. after project):

- Whole-building data access becomes **standard practice throughout the US**.

Long-term (3yr.+ after project):

- Whole building energy performance data drives substantial energy savings throughout the country.

Approach: Key Issues

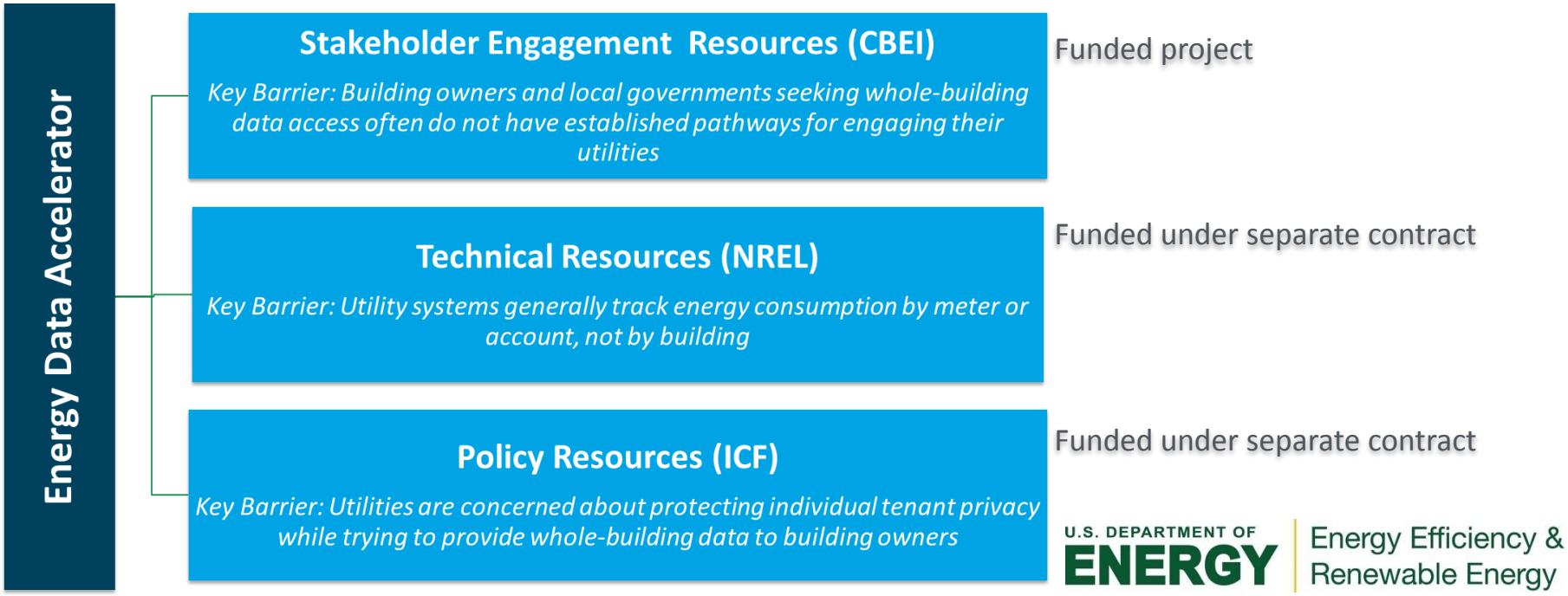
- Building owners with multiple tenants face challenges in obtaining their whole building energy data
  - CBEI supports the local government, utility, and key stakeholder engagement activities to help identify best practices and solutions that **overcome the data access barriers and challenges.**
  - Identifying and disseminating best practice solutions for data aggregation.
- There are numerous stakeholders with varied interests
  - CBEI **provides resources** for successful stakeholder engagement at the city level.
- Communication between Cities and Utilities across the country is a challenge.
  - A partners only website is currently being implemented to **disseminate partner only resources** and provide **a platform for partner interaction**.

Energy Data Accelerator addresses the upstream barrier of whole building data access . CBEI provides support to address key issues and overcome challenges.

Approach

Project approach includes working with a team that combines Universities and Private Industry (CBEI), a National Laboratory (NREL), and Industry specializing in public policy (ICF)

- Energy Data Accelerator (EDA) addresses data access challenges by overcoming key barriers by providing over 20 City-Utility partners with support and resources in three key areas: Stakeholder Engagement, Technical, and Policy. Weekly team meetings are held between all 3 leads to report progress and coordinate the outreach effort.
- Communication with 20 cities and 22 utilities occurs via email, telephone, webinars, and in-person meetings to collect feedback, identify progress, and provide assistance with whole building data access goals.
- CBEI provides Energy Data Accelerator (EDA) communication and outreach strategies such as webinars, conferences, workshops, and the EDA website to disseminate resources and findings.



Approach: Distinctive Characteristics

- Pairing of the utilities with the city government to create a momentum for overcoming challenges and driving localized solutions to whole building data access.
- Leverage relationships with strategic collaborators and stakeholders to bolster local efforts.
- Provided a *Partners Only Website* to share resources with over 20 City-Utility Partners and provide a platform for peer interaction.
- Open means of communication between the EDA leadership.
- Resolve nation-wide data access challenges by unique partnership between Universities (CBEI – CMU, PSU), a National Lab (NREL) and a private company (ICF).
- CBEI team specifically comprises of Architects, Engineers, Energy Modelers, Statisticians, Physicists, which enables them to provide comprehensive solutions.

Progress and Accomplishments

Lessons Learned:
Whole building energy data access required a dedicated partnership with key stakeholders such as the municipality, the utility, building owners of large portfolios, and select professional organizations.

Accomplishments:

- A **stakeholder checklist** was drafted and revised by the Partners to assist future cities in their data access effort.
- A **partners' only webpage developed** as a part of the communication outreach strategy to disseminate resources.
- **Three Case Studies** outlining successful models of city-utility partnerships to demonstrate best practices in stakeholder engagement and whole building data access for upcoming cities. 1 Case Study currently available, 2 scheduled for release in April, 2015.
- Written case study and webinar recording available at: www.energy.gov/BetterBuildings
- Organized multiple **conference calls, webinars, in-person meetings, conference presentations, and individual calls** to support over 20 city-utility partners and disseminate findings and resources to help them achieve their goals.

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Case Study: Commercial Building Data Access

BETTER BUILDINGS ALLIANCE

Leading commercial building owners and operators in the Philadelphia area have been actively tracking the performance of their properties and demonstrating the value of benchmarking as a foundation for successful energy management. In July 2012, the City of Philadelphia sought to drive energy efficiency in commercial buildings by passing an ordinance requiring all commercial buildings over 50,000 ft² to annually benchmark and disclose energy performance using EPA's Portfolio Manager® tool. The ordinance applies to approximately 2,400 buildings and more than 350 million ft² of space. Energy and water data reporting for calendar year 2012 was due in November 2013, and data will be posted for public review starting in June 2014.

Based on the experience of other jurisdictions that had implemented benchmarking mandates, it was clear that customer access to utility data was a key factor in the success of these policies. In fact, jurisdictions that didn't engage with utilities early in the process had only moderate compliance rates. This provided an opportunity for utilities and utility regulators to be educated on the basics of benchmarking and the important role that data access plays in driving energy savings. Recognizing this, the Philadelphia-based Energy Efficient Buildings (EEB) Hub was asked to serve as a convener and technical advisor to lead utility and stakeholder engagement with regard to data access.

The Regional Building Energy Data Management Working Group was convened to bring together the important regional stakeholders in energy data access. (From L to R: Tom Bonner, PECO; Michael O'Leary, PECO; Cody Taylor, DOE; Andrea Krukowski, IMT; Cliff Majersik, IMT; Alex Dews, City of Philadelphia; Laurie Actman, EEB Hub; Rob Powelson, Chairman of the PA PUC)

DATA ACCESS IS A CRITICAL FACILITATOR FOR REDUCING COMMERCIAL BUILDING ENERGY USE

- Benchmarking is increasingly being adopted as an energy management best practice by commercial and public sector property owners and operators. Furthermore, an increasing number of cities and states are now requiring commercial and/or private sector buildings to benchmark – and in many cases, publicly disclose – their energy performance.
- Streamlined access to building energy data is critical to ensuring that the building can be quickly and accurately benchmarked. However, barriers to data access exist.
- Utilities are in a unique position to provide enhanced access to building energy consumption data, thereby assisting property owners/operators to benchmark energy performance as a first step towards improved energy management. Approaches may involve:
  - Providing access to aggregated, whole-building energy consumption data while protecting individual tenant privacy.
  - Providing enhanced means for customers to readily access their energy consumption data, beyond paper billing or basic web display.
  - Providing access to energy consumption data in a manner that facilities the entry of this information into benchmarking tools, such as EPA's Portfolio Manager.

Learn more at eere.energy.gov/betterbuildingsalliance

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Progress and Accomplishments – Checklist

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Checklist

DATA ACCESS STAKEHOLDER ENGAGEMENT

The checklist below contains a list of the key stakeholders and activities that an organization could pursue to initiate and coordinate a successful data access stakeholder process.

Step One

Organize a launch meeting/workshop to highlight the importance of data access for building owners to key decision makers and stakeholders and present the case for improved data access for building owners based on the dominant building characteristics in your city/region. As part of the meeting planning process, gain a preliminary understanding of the level of support from local partners such as local associations or utilities.
The catalyst for convening could be related to the creation of a climate action plan, the pursuit of energy efficiency initiatives by the public or private sectors, an exploration of market barriers to project implementation of building performance improvement projects or to understand the legal context of data access challenges and opportunities.

Stakeholders to engage

- Office of Sustainability/Energy Manager,
- Local utilities, electric, gas, and steam where applicable,
- Major real estate owners – Major Commercial and Multi-Family building owners and operators,
- Utility Commission, Energy Efficiency service providers/ vendors,
- Universities and Colleges,
- Energy efficiency advocate groups,
- Building Owners and Property Manager Associations: both local and national representatives of building owner and property manager trade associations, e.g. Building Owners and Managers Association, U.S. Green Building Council, Association of Energy Engineers, National Apartment Association,
- National experts: U.S. DOE, EPA ENERGY STAR®, Institute for Market Transformation, U.S. Green Building Council,
- City and State Legislative Staff,
- City Council.

Step Two

Organize a follow up meeting with the key stakeholders to present best practices from other utilities/cities that have pursued data access for building owners.

Utilities to feature

- Chicago/ComEd
- New York City/National Grid/New York City Department of Environmental Protection
- Philadelphia/PECO
- Seattle/ Puget Sound Energy
- Washington DC/PEPCO

Learn more at energy.gov/betterbuildings

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Step Three

Utilizing the information collected from interactions with key stakeholders in Steps 1 and 2, formulate a longer-term stakeholder engagement strategy for your municipality or region. Review the levels of support from key stakeholders. This strategy includes continuing to convene relevant stakeholders to educate key constituents about the importance of whole building data access and presenting successful examples and solutions implemented by peers. The Better Buildings Energy Data Accelerator resources that address multiple issues and solutions can be used to assist with additional stakeholder meetings.

Topics for the meeting could include:

- Presentation of solutions from other regions that link whole building data access to improved decision-making,
- Presentation from other Cities that have pursued data access efforts to support sustainability initiatives,
- Presentation from federal partners about efforts to leverage data for energy efficiency decision-making,
- Presentation from utilities who have implemented or are initiating new data access services for building owners,
- Presentation of best practices from utility commissions who have mandated data access initiatives,
- Presentation from Building Owners and Service Providers about how they manage and leverage utility data,
- Typical metering characteristics of the regional building stock,
- Present examples of how utility data can be utilized to make decisions about building upgrades,
- Value propositions for Benchmarking Data

As an example of a plan for engagement and data access, below are the timeline and basic agendas from the monthly meetings conducted as part of Philadelphia's effort.

July 2012	September 2012	November 2012	December 2012
Convene First Meeting Discussion of challenges, issues and solutions related to building owner data acces Examples of solutions from other markets Impact of benchmarking in Philadelphia	Convene Second Meeting Utility best practices Policy and legislation best practices Green Button and Innovative solution providers including EEB Hub	Convene Third Meeting Presentation of initial recommendations Feedback and discussion Finalize key next steps	Final Meeting Produce final report and present to Utility Commissioners

Key resources

for regulators:
SEE Action - A Utility Regulator's Guide to Data Access for Commercial Building Energy Performance Benchmarking: http://1.usa.gov/1tTclkW

for utilities:
EEB Hub/IMT - Utilities' Guide to Data Access for Building Benchmarking: http://bit.ly/1zpvJuH

Learn more at energy.gov/betterbuildings

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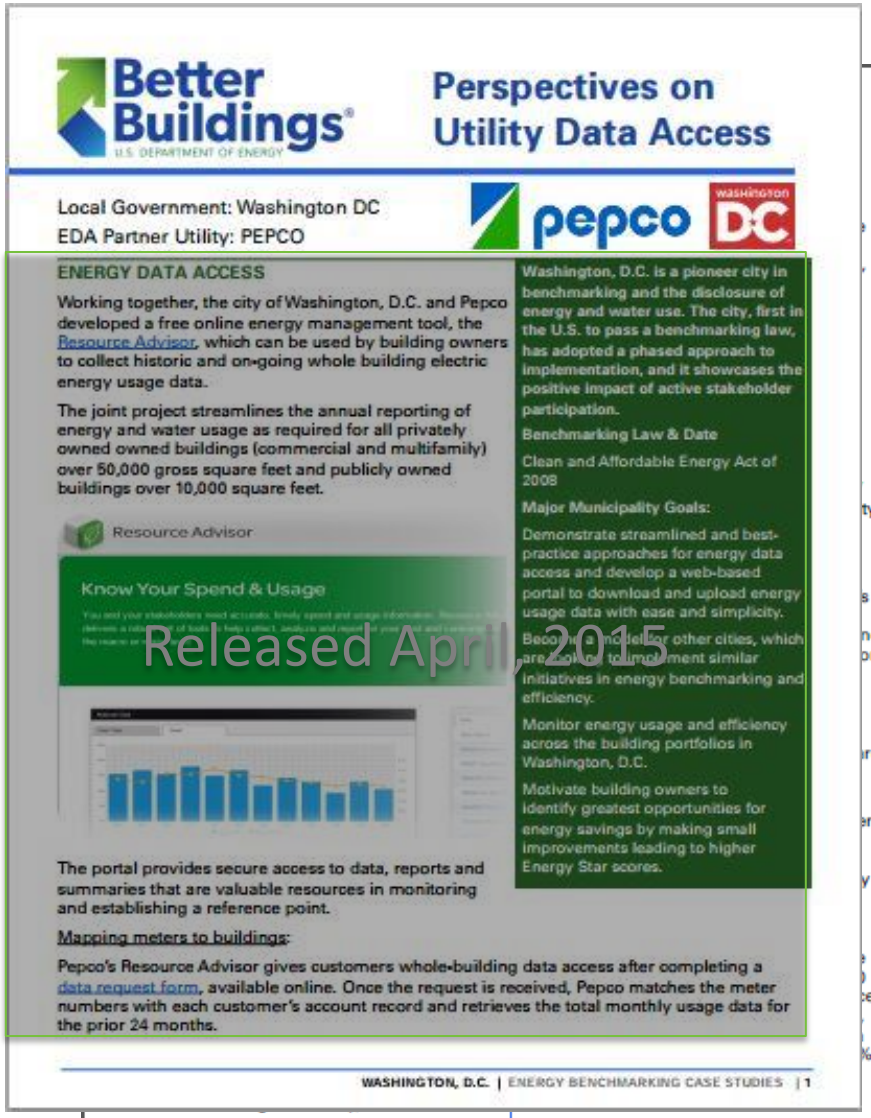
Progress and Accomplishments – Case Studies



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Perspectives on Utility Data Access

Local Government: Washington DC
EDA Partner Utility: PEPCO

ENERGY DATA ACCESS

Working together, the city of Washington, D.C. and Pepco developed a free online energy management tool, the Resource Advisor, which can be used by building owners to collect historic and on-going whole building electric energy usage data.

The joint project streamlines the annual reporting of energy and water usage as required for all privately owned owned buildings (commercial and multifamily) over 50,000 gross square feet and publicly owned buildings over 10,000 square feet.

Resource Advisor

Know Your Spend & Usage

The portal provides secure access to data, reports and summaries that are valuable resources in monitoring and establishing a reference point.

Mapping meters to buildings:

Pepco's Resource Advisor gives customers whole-building data access after completing a data request form, available online. Once the request is received, Pepco matches the meter numbers with each customer's account record and retrieves the total monthly usage data for the prior 24 months.

Washington, D.C. is a pioneer city in benchmarking and the disclosure of energy and water use. The city, first in the U.S. to pass a benchmarking law, has adopted a phased approach to implementation, and it showcases the positive impact of active stakeholder participation.

Benchmarking Law & Date

Clean and Affordable Energy Act of 2008

Major Municipality Goals:

Demonstrate streamlined and best-practice approaches for energy data access and develop a web-based portal to download and upload energy usage data with ease and simplicity.

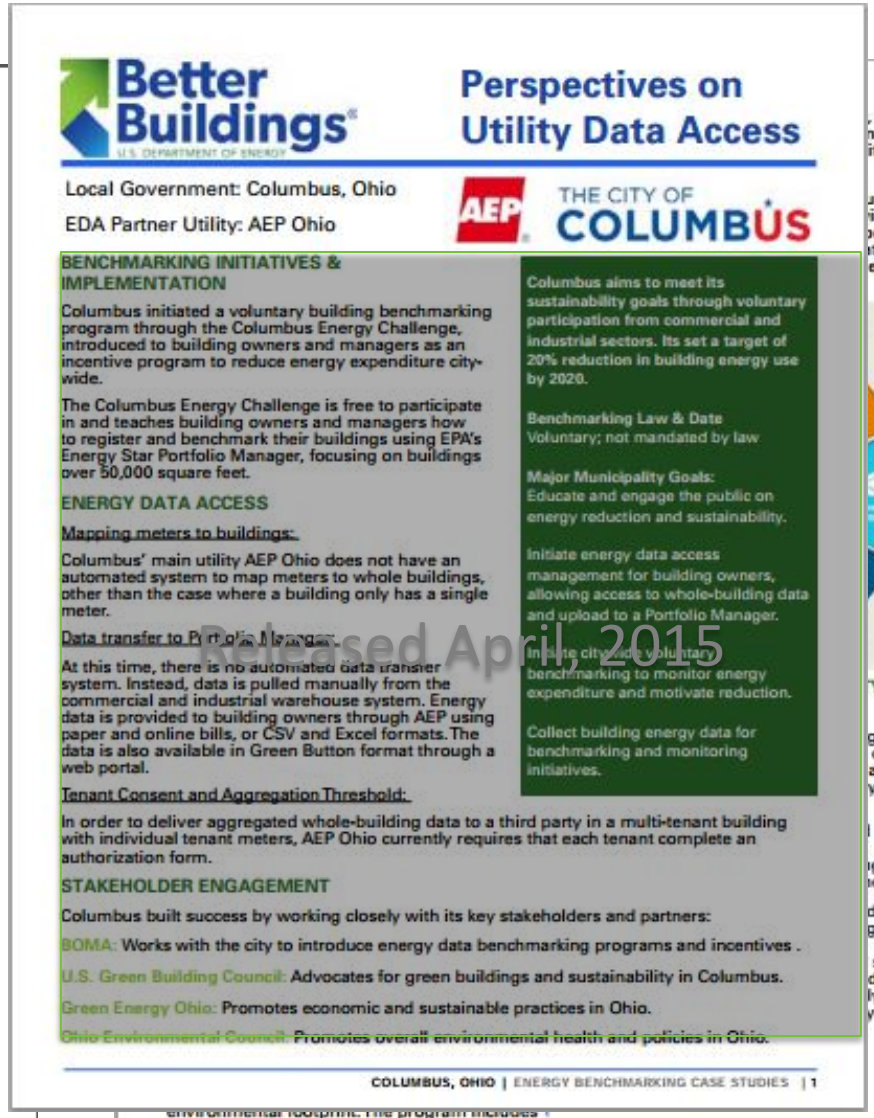
Become a model for other cities, which are poised to implement similar initiatives in energy benchmarking and efficiency.

Monitor energy usage and efficiency across the building portfolios in Washington, D.C.

Motivate building owners to identify greatest opportunities for energy savings by making small improvements leading to higher Energy Star scores.

WASHINGTON, D.C. | ENERGY BENCHMARKING CASE STUDIES | 1

Released April, 2015



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Perspectives on Utility Data Access

Local Government: Columbus, Ohio
EDA Partner Utility: AEP Ohio

BENCHMARKING INITIATIVES & IMPLEMENTATION

Columbus initiated a voluntary building benchmarking program through the Columbus Energy Challenge, introduced to building owners and managers as an incentive program to reduce energy expenditure city-wide.

The Columbus Energy Challenge is free to participate in and teaches building owners and managers how to register and benchmark their buildings using EPA's Energy Star Portfolio Manager, focusing on buildings over 50,000 square feet.

ENERGY DATA ACCESS

Mapping meters to buildings:

Columbus' main utility AEP Ohio does not have an automated system to map meters to whole buildings, other than the case where a building only has a single meter.

Data transfer to Portfolio Manager:

At this time, there is no automated data transfer system. Instead, data is pulled manually from the commercial and industrial warehouse system. Energy data is provided to building owners through AEP using paper and online bills, or CSV and Excel formats. The data is also available in Green Button format through a web portal.

Tenant Consent and Aggregation Threshold:

In order to deliver aggregated whole-building data to a third party in a multi-tenant building with individual tenant meters, AEP Ohio currently requires that each tenant complete an authorization form.

STAKEHOLDER ENGAGEMENT

Columbus built success by working closely with its key stakeholders and partners:

BOMA: Works with the city to introduce energy data benchmarking programs and incentives .

U.S. Green Building Council: Advocates for green buildings and sustainability in Columbus.

Green Energy Ohio: Promotes economic and sustainable practices in Ohio.

Ohio Environmental Council: Promotes overall environmental health and policies in Ohio.

Columbus aims to meet its sustainability goals through voluntary participation from commercial and industrial sectors. Its set a target of 20% reduction in building energy use by 2020.

Benchmarking Law & Date
Voluntary; not mandated by law

Major Municipality Goals:
Educate and engage the public on energy reduction and sustainability.

Initiate energy data access management for building owners, allowing access to whole-building data and upload to a Portfolio Manager.

Initiate city-wide voluntary benchmarking to monitor energy expenditure and motivate reduction.

Collect building energy data for benchmarking and monitoring initiatives.

COLUMBUS, OHIO | ENERGY BENCHMARKING CASE STUDIES | 1

Released April, 2015

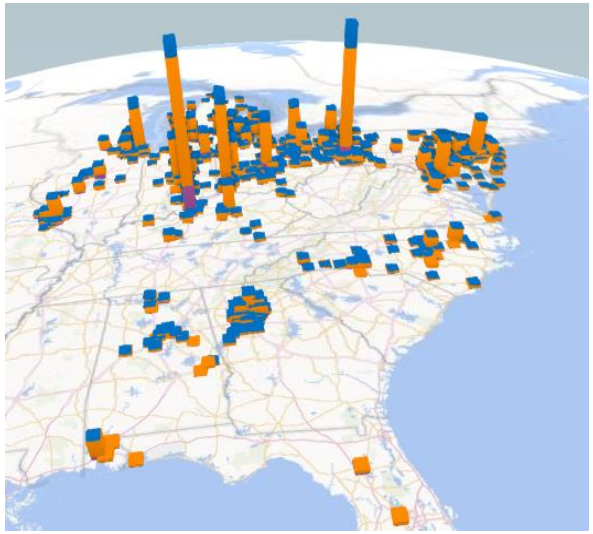
WASHINGTON, D.C. | ENERGY BENCHMARKING CASE STUDIES | 2

COLUMBUS, OHIO | ENERGY BENCHMARKING CASE STUDIES | 2

Progress and Accomplishments – Webpage

Progress and Accomplishments: Market Impact

- Commitment from 20 Cities to provide (or have a plan to provide) **whole building data to at least 20%** of commercial and/or multi-family building owners by the end of 2015. This is documented through frequent engagements and establishing milestones during the 2 year project.
- **20% or more savings** target across the organizations' portfolios.
- Commitment from **over 20 City-Utility** partners to share strategies that work, substantiated by energy data across the portfolios to arrive at low-cost, standardized approaches for providing energy data for the purpose of whole-building energy performance benchmarking which would be replicated by other cities.
- Created 7 leaders (as of March, 2015) who mentor other partners and cities interested in data access for benchmarking. This accelerates the project's national impact and ensures the continuation of the project's efforts and use of solution sets.
- Stakeholder engagement checklist used by non EDA cities shows the ability of the EDA resources to provide a national impact beyond the over 20 City-Utility partnerships.
- Increased interest in Data Access for benchmarking with **2 non EDA cities** using resources. Use of resources beyond the EDA Partners strengthens adoption of best practices beyond life of the project.



Project Integration and Collaboration

Project Integration:

- Weekly calls with NREL and ICF to decide partners' outreach plans and discuss deliverables progress.
- Held retreat to set the EDA strategy for 2015 and beyond and ensure maximum diffusion of the success.
- Annual Better Buildings summits to bring the city-utility partners together.

Partners, Subcontractors, and Collaborators:

- This project is under the Better Buildings Initiative.
  - NREL - leads the Overall EDA initiative and the technical solutions effort
  - ICF - focus on the policy solutions effort
  - Over 20 Cities and 22 Utilities - seek guidance on stakeholder engagement and milestones & provide feedback on solutions and challenges of data access
- CBEI collaborated with various organizations
  - IMT - Collaborate to assist with the ongoing efforts for the City Energy Project
  - National organizations (e.g. BOMA)
  - I2SL - Provide feedback on specificities of benchmarking for hospitals and campuses.
  - Multiple building owners with large portfolios.

Project Integration and Collaboration: Communication

CBEI provided the following communication platforms:

- Presented work at Energy Utility Environment Conference (EUEC), San Diego, CA, February 17, 2015 and co-chaired the panel on Energy Efficiency and Data
- Presented at the Healthy Urban Infrastructure, Penn IUR, March 25, 2015
- Provided a workshop with >70 participants with a panel focused on ways to make the data capture processes in benchmarking and transparency programs more effective at the Benchmarking and Transparency Solutions workshop, Philadelphia, PA, March 26, 2015
- I2SL Presentation and dissemination of resources, December 16, 2014
- Meetings with 2 non EDA cities to assist with stakeholder engagement activities.
- Resources for the Future, December 4, 2014
- Partners only webpage to provide Partner resources and a secure forum for the Partners to interact.
- Webinar with Partners on stakeholder engagement, April 2014.
- Accepted to present at the BOMA National Conference, June 2015.

Next Steps and Future Plans

- Disseminate resources for over 20 Partners and continue to develop the Communication Strategy to share best practices and solution sets.

- Provide additional BTO resources for best practices and approaches across Partners regarding local stakeholder engagement such as Case Studies on
  - Cities with successful data access and stakeholder engagement strategies
  - Stakeholders who are leading data access (Building Owners, Facility Managers)

- Assist in developing the transition post-EDA to ensure diffusion of the whole building data access solutions.

REFERENCE SLIDES

BTO Peer Review (PR)

Project Budget: $229,327 (BP4) and $170,000 (BP5)
Variances: None
Cost to Date: the budget year for CBEI is finishing April 30th, almost all of the budget has been spend as planned.
Additional Funding: Cost share provided by Carnegie Mellon University

Budget History					
CBEI BP3 (past) 2/1/2013 – 4/30/2014		CBEI BP4 (current) 5/1/2014 – 4/30/2015		CBEI BP5 (planned) 5/1/2015 – 4/30/2016	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
$0	$0	$229,327	$20,000	$170,000	$34,000

CBEI – Consortium for Building Energy Innovation (formerly EEB Hub)
BP – Budget Period

Project Plan and Schedule