Energy Data Accelerator: Reviewing Goals, Objectives, Status
Kristen Taddonio, DOE
Kristin Field, NREL
**Resources, Activities, Outcomes**

**DOE Resources**
- DOE’s Data Aggregation Analysis to inform policy discussions on whole-building data access and privacy
- DOE best practice documents and convening on whole-building data access and benchmarking – technical, policy and stakeholder engagement

**Accelerator Activities**
- Partners provide content for sharing information on: utility systems for whole-building data, approaches for addressing privacy, and stakeholder engagement
- Partners engage local stakeholders on whole-building data access
- Partners design an approach for providing whole-building data to 20% of commercial or multifamily buildings in local community

**Accelerator Outcomes**
- 19 Accelerator Partner pairs identify and adopt cost effective and standardized approaches for providing whole-building data
- At least 20% of building owners in Accelerator communities are more readily able to benchmark buildings
- Best practice approaches for whole-building data access are documented and disseminated
Goals and Milestones

- Demonstrate low-cost, standardized approaches for providing energy data for the purpose of whole-building energy performance benchmarking.
- 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.
- Long-term: demonstrate that whole-building data access can be a standard practice.

Partner Milestones

- Commit to the Accelerator
- Convene local stakeholders
- Design solution for providing whole-building data to multi-tenant buildings
- Pilot solution for 20% of relevant buildings

June 2013 – Dec 2013
Dec 2013 – May 2014
1 Year
2 Years
Timeline

Partner Milestones

- Commit to the Accelerator
- Convene local stakeholders
- Design solution for providing whole-building data to multi-tenant buildings
- Pilot solution for 20% of relevant buildings

June 2013 – Dec 2013
- Participated in Partner Assessments
- White House Launch of the Accelerator

Dec 2013 – May 2014
- Provided Partner Work Plans
- Deliver Draft Reporting Template
- Providing Draft Convening Docs

1 Year
- End of Y1 Convening to Share Designs
- Participation in Working Groups – contributing to resources, webinars, conference calls

2 Years
Utilities and Local Government Partners have Committed to…

- **Engage with local stakeholders**, with an initial convening occurring in the first 6 months.

- Design and pilot an **approach for providing whole-building data for at least 20% of multi-family and/or commercial buildings in the local community**
  - Design the approach by the end of Year 1
  - Implement the pilot by the end of Year 2

- **Share results and lessons learned** with DOE and other Accelerator Partners as approaches are implemented
Local Stakeholder Engagement

Milestone 1: By May 2014, all partners will have begun engaging local stakeholders.

Activities and Resources to help with Stakeholder Engagement:

- Summarize and share best practices and approaches across Partners regarding local stakeholder engagement, examples include:
  - Stakeholder Engagement Guide and Check List – where key models and documents for stakeholder engagement will be culled to distill best practices
  - Case study presentation on December 3rd
  - Written case study and webinar recording available at: www.energy.gov/BetterBuildings

- Leverage relationships with strategic collaborators to bolster local efforts, including Better Buildings Challenge and Alliance building owners
Facilitated questions

- What was your catalyst for action?
- Who is the primary convener?
  - city, utility, association, non-profit
- Who has proven to be a key participant/stakeholder and why?
- How did you get started?
- What has been the biggest hurdle complication?
- What has been the biggest surprise?
Energy Data Accelerator
Karen Penafiel
VP, Advocacy, Codes and Standards
BOMA International
BOMA International

- 100+ local associations and affiliated organizations
- 17,000 individuals
- 9 billion square feet of office space
- $100 billion marketplace
- Key goal areas: advocacy, education, research, standards
- 32 staff members in D.C. and a combined 200+ staff across the U.S. and Canada
BOMA’s Green Goals

Identify barriers

Find solutions

Motivate action

Total Private Sector Expense Ratios (All Buildings)

- Cleaning 12%
- Repairs/Maintenance 15%
- Utilities 20%
- Roads/Grounds 2%
- Security 9%
- Administrative 12%
- Fixed Expenses 34%
Identify the Barriers

- Commonly cited barriers to going GREEN:
  - The developers blame the building owners
  - The building owners/managers blame the tenants
  - Tenants want efficient work spaces, they just don’t always want to pay for it
  - Split incentives
  - Lease structures/metering
  - Access to data
  - How to motivate occupant behavior
  - Education, education and re-education!

Understanding data is the key to address multiple barriers
Data Access = Key First Step

Buildings need data to benchmark

Benchmarking = critical step to understanding energy use and retrofit opportunities

Without data, building owners won’t understand energy use or opportunities

Without data, utilities won’t understand energy use or opportunities

Data will unlock many other opportunities beyond benchmarking
BOMA fully supports voluntary benchmarking
BOMA opposes mandates
Upside of mandates: increased focus on data access issues
Data for all, not just in jurisdictions with mandatory benchmarking
Finding Solutions

- Signed consent from separately metered tenants for utility to provide data
  - In a large, multi-tenant office building, this could be *hundreds*...
  - Some utilities charge burdensome fees and/or cumbersome process
  - Not all tenants willing to share information

- Best Case Scenario:
  - Building owners have stack of bills to input
    - Time constraints
    - Accuracy concerns
Finding Solutions

- **Lease language**
  - **BOMA Green Lease**: *Tenant shall be required to submit to Landlord energy and water consumption data, including total usage and total charges as they appear on Tenant’s electric, gas, water and other utility bills, in a format deemed reasonably acceptable by Landlord.*
  - Slow way to motivate change
  - Some tenants will negotiate this out of the lease

Finding Solutions

- **Energy Data Accelerator**
  - Develop best practices
    - For providing utility data for whole-building benchmarking
    - For reliable and secure aggregation of data
    - Address tenant privacy concerns
    - Standard data formats and automated data dumps
  - Motivate stakeholders to implement data access programs with or without benchmarking/disclosure mandates
  - Peace of mind for all: utilities, building owners/managers, tenants
Motivate Action

- Make energy use and costs more transparent
- Use data to drive retrofit decisions
- Use data to drive customer service programs
- Use data to improve tenant communication and action
Studies show:

- 62% of buildings that benchmark make investments to improve energy management processes
- 84% invest in building upgrades and behavioral efficiency projects
Questions?

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Principles for Delivery of Energy Usage Information

Philip Henderson
Natural Resources Defense Council (NRDC)
Data analytics is key innovation strategy for many businesses...
…but for building owners, simple meter data for **own** buildings is often difficult to obtain.
Plans to deliver usage information in new ways raises many questions.

- Technology
- People
- Process
- Legal framework
Other frameworks for sharing important information have been successful.

- Financial institutions share personal credit information with customers, credit bureaus, & other lenders.
  - Fair Credit Reporting Act passed in 1974.
  - Millions of transactions per day.
  - Most complaints are about report accuracy.

- Property information is made available – home sale price, key terms of mortgage, property taxes, etc.
  - Most cities and counties automated access to property records
  - Data enables mapping, commerce, planning, and more.

- Health care
  - Rapid move to “e-docs”
  - Sharing regulated by HIPAA
Some lessons from other successful regimes:

- Focus on people and processes, not just technology.
- Minimal “paperwork” burden on building owners, tenants, and utilities to exchange information.
- Emphasis on standard documents and registration, not manual review of every transaction – impractical for owner and utility.
- Delivery of information is a valuable service to customers.

Equifax, Experian, TransUnion reported ~$8 billion revenue (2013) providing credit reports and related services.
Ideas on near term “to do’s” (in parallel)

1. Implement systems for automated delivery of information to owner or owner systems.
   - Enable owner to benchmark, and beyond…smart meter data for analytics

2. Reasonable standards for whole-building information with separately metered spaces.
   - States should not be far apart on exact same question.

   - Model lease language that utilities can accept.

4. Processes to verify customer permission.
   - Utility should not have to manually review every lease agreement.
Philip Henderson
Natural Resources Defense Council
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Utility Perspective
Data Privacy and Cost Recovery

Drew Quirk – Xcel Energy
Service Area

<table>
<thead>
<tr>
<th>State</th>
<th>Customers</th>
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<tbody>
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<td>NM</td>
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Company Structure

- **Xcel Energy, Inc**
  - Holding company for four operating companies
  - Each operating company has its respective Regulatory and Legal Departments

- **Xcel Energy Services, Co**
  - Provides overall strategy and support for Operating Companies
  - Marketing and IT
## Regulatory Landscape

<table>
<thead>
<tr>
<th>State</th>
<th>EE Engagement at State Level</th>
<th>Data Privacy Rules</th>
<th>Aggregation Rules</th>
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<tbody>
<tr>
<td>MN</td>
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<tr>
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<tr>
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<td>Limited</td>
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<td>n/a</td>
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<td>3rd Party</td>
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<td>15/15</td>
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</tr>
<tr>
<td>TX</td>
<td>Limited</td>
<td>No</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Service Company Mission
Data Privacy and Confidentiality: A Balancing Act
Our customers are universally unique...
Areas of Concern

- Lack information creates difficult position for utility to defend a more relaxed aggregation threshold. Needed are concrete examples of
  - Actual customer expectations for privacy and confidentiality
  - Statistical validation of aggregation level ability to mask individual customer identity
What is your level of concern with third parties having access to your monthly energy usage data without your knowledge and consent?

![Bar chart showing customer expectations]

- **Not at All Concerned**
- **Mildly Unconcerned**
- **Slightly Concerned**
- **Extremely Concerned**

% of Respondents

- **Business**
- **Residential**
Customer Expectations: Survey Results

Scenario: You lease space in a multi-tenant building, and your building owner is interested in assessing the energy performance of their building. In order to do this, they need Xcel Energy to provide the monthly energy usage of each tenant. What is your level of concern with the building owner having access to this energy usage data without your knowledge and consent?
Statistical Documentation of Aggregation Threshold

- PNNL Aggregation Study
  - XE is providing data
- Other analysis
  - Requesting PUC in MN to commission a study to examine as well
Cost Recovery

Over-arching themes

- Don’t increase rates, don’t increase O&M
Cost Recovery Options

- Conservation Improvement Program
  - 1:1 (+) recovery, but needs to have clear path to energy savings

- Base Rates
  - Capitalize like other physical assets
  - Fall through cracks as O&M

- Combination Approach
Conservation Improvement Program

- Clear path for integration into existing energy efficiency, demand response, and renewable program portfolio
- Mounting evidence for indirect energy efficiency benefit
Base Rates

- Conventional IT investment strategy
- Only option in some service areas
- Highly competitive and shrinking budget
Combination Approach

- Handle overall platform enhancements through base rates
- Ongoing costs through CIP where applicable
Thank You

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MyData Web-Service & Seattle Benchmarking: Whole Building Energy Usage Data
Better Buildings Summit - May 2014

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Energy Benchmarking Program
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Irena Putrya – PSE
Irena.Putrya@PSE.com
Program Coordinator
PSE & City of Seattle

PSE provides service to more than: 1.0 M electric & 750,000 natural gas customers

About 70% of required Seattle buildings (~2,600) need natural gas usage to comply with City of Seattle ordinance
Energy Usage Data Background

- Since January 2010, **WA state law** (RCW 19.27A) has required utilities to provide whole building energy usage data to building owners through EPA’s Energy Star Portfolio Manager website in a manner that does **not disclose personally identifying information**.

- Restated in **2010 Seattle Benchmarking & Disclosure Ordinance** (#123993) that utilities must upload information within 30 days & “may establish and require building owners to pay a reasonable charge.”
The Situation

Tenant energy use
(But don’t tell me who used what!)

Owner / Manager
(A bit panicked because of City ordinance deadline.)
Seattle: Three Utilities, all Different

Owner/manager enters building square footage & use details and signs up for utility “data exchange”

Utilities provide whole building energy data via “data exchange”

Owner reports whole-building energy use/sf & ENERGY STAR scores to City of Seattle.
Issues

- Customer confusion
  - City Light is Electric, PSE is Natural Gas, City Runs Ordinance
- Different steps for obtaining data
  - City Light – Fill out paper form and sign
  - PSE – Use MyData website
  - Steam – Start with online account access
- Permission from tenants
  - PSE’s – Private Utility, uses the “less than 5 rule” to protect privacy
  - City Light – Public Utility, uses “less than 2”
  - Steam – Need account access
- Old PSE system, required new requests annually, City Light uploaded monthly (customers thought they were done)
- New Portfolio Manager – July 2013
PSE - Key Evaluation Results

- Self-service, user-friendly website
- Monthly data upload on a subscription basis
- Easy link to Portfolio Manager
- Accept either meter numbers or addresses
- Funnel all data requests through the new web-service
In Step 1 the building owner indicates if she is reporting data to Portfolio Manager and links to her Portfolio Manager account.
PSE’s Solution – MyData 2.0

Step 2 – the owner provides either meters or addresses for each building or the information is populated from Portfolio Manager.

**Garage**

*Your request is pending required release forms.*
Click the Continue button if you have forms to upload.

**Main Street Apartments**

*Your request is pending required release forms.*
Click the Continue button if you have forms to upload.

**Town Center**

*Your request is pending required release forms.*
Click the Continue button if you have forms to upload.

**ACME Manufacturing**

Manufacturing/Industrial Plant

*Please select either meter numbers or addresses.*  ○ Meter number(s)  ○ Address(es)

**Add new building**

On this page you will provide detailed building information. You can see a snapshot of your progress in Your Building Snapshot below.

**Meter numbers:**
Can be found either on your utility bill or on the meter itself. Supply all the meter numbers for the units/suites/apartments you would like data for. Please remember that an individual unit can have multiple meters attached to it (electricity and natural gas).

**Addresses:**
Provide the address that best defines the building in order to capture all tenant spaces. For example, provide either the individual addresses of each unit in the building; the primary address of the building itself; or a single building address with apartment number ranges (e.g. 1235 Main Street, 100-150).

For accuracy and better response time, please provide the address as it is listed on the PSE bill, if available.

After you have submitted your building information, you will receive an email within 3 to 5 business days. Then you will login to MyData and navigate to Step 3 of 3. There you will review your building summary and select your reporting preferences.

**Your Building Snapshot**

<table>
<thead>
<tr>
<th>Building</th>
<th>Status</th>
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<tbody>
<tr>
<td>Garage</td>
<td>Release Forms Required</td>
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<tr>
<td>Main Street Apartments</td>
<td>Request Approved</td>
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<tr>
<td>Town Center</td>
<td>Release Forms Required</td>
</tr>
<tr>
<td>ACME Manufacturing</td>
<td>In Progress</td>
</tr>
</tbody>
</table>
In Step 3 – the building owner can select the timeframe, and delivery options for each building report.
PSE’s Solution – MyData 2.0

MyData

REPORrS FOR 'Dog Park'

Dog Park
Aggregated Data
10/21/2010 - 10/21/2013 (Last 36 months)
Report received: 9/17/2013

Please accept the request dates, or choose a new date range, then click View Charts.

Start Date: 10/21/2010
End Date: 10/21/2013

View Charts Export to CSV

Electric Comparison
December 2010 to August 2013
Building: Dog Park

KWH

0 2000 4000 6000
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug

9/2012 - 8/2013

PUGET SOUND ENERGY
The Energy To Do Great Things
Portfolio Manager View

Ocean Vista Offices
300 9TH AVE, Seattle, WA 98124  |  Map It
Portfolio Manager Property ID: 3046669  |  Primarily: Office
Year Built: 1999

Energy & Water Consumption
Manage/Enter My Bills

Meters for Performance Metrics
View/Edit Configuration

Energy Meters (2)
View as a Diagram
Add Another Meter

<table>
<thead>
<tr>
<th>Name</th>
<th>Energy Type</th>
<th>Most Recent Bill Date</th>
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<tbody>
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<td>300_9th_ave_01</td>
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</tr>
<tr>
<td>PSE MyData Usage-GAS</td>
<td>Natural Gas</td>
<td>12/31/2013</td>
<td>I want to...</td>
</tr>
</tbody>
</table>
Lessons Learned

- Customer education – checklists, reminders!
- Help desks (phone & email)
- Customer care check-ins
- In an ideal world, 3 utility systems would be more similar
- Know what “end goal” of customer is. Do they need to comply with ordinance? Remind them!
Progress

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Additional slides for discussion…
The ability to do a bulk upload of meters for customers who have more than 15 meters.
Special Features

Additional Data for Resource Conservation Managers and Business Services

- Avg. temp
- Degree days
- Kvar
- Kw
- Rate schedule
- Admin tool was created in the new system which will help track customer use, manage and track all release forms and requests.
- Each step that needs to be fulfilled is highlighted in yellow.

<table>
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<tr>
<th>Date</th>
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<th>Organization</th>
<th>Requester</th>
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<td>My Bank</td>
<td>Release Forms Required (Tenant Change)</td>
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Supporting Energy Benchmarking in the District of Columbia

Manuel Vera
Why Measure and Track Energy Use?

- Better understand a facility’s electricity consumption over time
  - “You can’t manage what you don’t measure”
- Compare a building’s consumption patterns with others
- Building managers can “ask the right questions” to
  - Identify opportunities to improve energy efficiency
    - Investments in efficiency upgrades
    - Behavior modification
  - Participate in demand response programs
  - Manage peak load
  - Eliminate waste by detecting anomalies
- Reduce energy costs
- Reduce Greenhouse Gas emissions
  - In 2012, power plants accounted for about 40% of U.S. carbon pollution
The Tools

- Interval electricity usage data
- Advanced Metering Infrastructure ("Smart Meters")
- Third-party analytics software
  - Translate raw data into actionable information
  - Information on a single building or entire building portfolio
  - Current and historical usage reporting
  - Interactive facility location maps
  - Set corporate sustainability goals and track progress
The Tools

- **Energy benchmarking**
  - EPA’s Portfolio Manager
  - Electricity, Natural Gas and Water usage
  - Building attributes
    - Building type (office, hospital, K-12 school)
    - Hours of operation
    - Square footage
  - Normalized for regional weather
  - Benchmarking score (0 to 100)
  - Required in the District of Columbia for buildings over 50,000 sf, approximately 1,700 buildings
  - District Department of the Environment will publish benchmarking scores annually
  - Pepco worked closely with DDOE during the implementation of the benchmarking mandate
Current Methods to Access Pepco Usage Data

- **My Account**: A web portal to view individual account usage history. Available to over 20,000 commercial customers in DC and MD.
- **CEO Online**: Used by approximately 287 large commercial customers.
- **Aclara**: Interval data available to small commercial customers. Used by an average of 125 customers each month in DC and MD.
- **Green Button data**: Average 500 data downloads per month (residential and commercial, DC and MD).
- **Approximately 230 manual requests for energy history received from DC building owners for benchmarking.**
The Challenge

- Give customers what they want, in a timely manner
- Includes building owners
- New billing system currently under development. Expected completion in 2015
- Unable to attach external systems during development
- Manual process for fulfilling usage requests
- Provide a single source of data access for customers and building owners
Privacy Issues

- Strict policies to protect confidentiality of customer information. Includes usage data
- Written authorization from the customer of record is required
- Building owners (management firms) are often not the customer of record
- Impractical for building owners to obtain authorization from multiple tenants in a building
Aggregate Building Data

- Provide aggregate building usage data without individual customer authorization
- Buildings with five (5) or more electric accounts
- Building owners are responsible for providing account identification
- May submit Meter Number for each service connection
- Usage request form
- Proposed legislation before the DC Council will require the electric and gas utilities to provide building owners with automated online access to energy data and data transfer to Portfolio Manager
Current Process

1. Building Owner/Manager
   - Building Attributes
     - Gas Consumption
     - Water Consumption

2. Manual Entry of Usage Data

3. Portfolio Manager
   - Benchmarking Score

4. Usage Request Form
   - Meter Numbers

5. Pepco Customer Service
   - Usage Data
     - Spreadsheet Format

6. Billing System
   - Electric Bills

7. Pepco Meter Data

8. Electric Meters
Electric Usage Data Flow (Proposed)

Electric Meters

Pepco Meter Data

Billing System

Pepco

Resource Advisor (Aggregated Usage)

Electric Usage History and Analysis

Building Attributes Gas Consumption Water Consumption

EPA

Portfolio Manager

Automated Data Feed

Automated Data Feed

Benchmarking Score
Thank You
Energy Data Accelerator: Recap and Summary of Next Steps
Kristen Taddonio, DOE
Kristin Field, NREL
Meeting Recap

- Stakeholder Engagement Session
  - Main Points Discussed
  - Focus Moving Forward

- Policy and Regulatory Session
  - Main Points Discussed
  - Focus Moving Forward

- Technical Session
  - Main Points Discussed
  - Focus Moving Forward
Timeline

### Partner Milestones

**June 2013 – Dec 2013**
- Participated in Partner Assessments
- White House Launch of the Accelerator

**Dec 2013 – May 2014**
- Provided Partner Work Plans
- Convene local stakeholders
- Design solution for providing whole-building data to multi-tenant buildings

**1 Year**
- Deliver Draft Reporting Template
- Providing Draft Convening Docs
- Commit to the Accelerator

**2 Years**
- Pilot solution for 20% of relevant buildings
- End of Y1 Convening to Share Designs
- Participation in Working Groups – contributing to resources, webinars, conference calls
Next Steps

- Meeting Follow-Up (Partners and DOE Team)
- May: Final Stakeholder Convening Documents (Partners)
- June: Distribute Final Reporting Template (DOE Team)
- October/November: Submit Draft Reporting Template (Partners)
- December: Submit Final Reporting Template (Partners)
- December: Next EDA Meeting

Ongoing
- Continue engaging stakeholders
- Working group activities
- Assistance as needed
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http://www1.eere.energy.gov/buildings/betterbuildings/accelerators/energy.html