



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



Streamlining Utility Data Access:

Best Practices from State and Local
Governments and School Districts

Preliminary Results

**NEEP High Performance Public
Buildings Leadership Meeting**

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Weatherization and
Intergovernmental Program

WIP – Who we are and what we do

Mission: Accelerate deployment of energy efficiency and renewable energy technologies over a wide range of stakeholders in partnership with states and local governments.

Strategic objective: “Deploy the clean energy technologies we have” through near-term activities that result in greater energy efficiency, expanded renewable energy capacity, and economic development.

Pathways:

- **Financial assistance:** Formula and competitive awards > \$200 M per year to weatherize low-income homes, and assist states to deploy EE and RE projects and programs
- **Voluntary programs:** Better Buildings Challenge (BBC) & Accelerators
- **Technical assistance:** Resources to assist the public sector with planning, financing, evaluating and deploying EE and RE programs and projects

Goal for this work:

Identify and characterize effective and replicable solutions that states, locals and K-12 are using to enhance their energy data management practices

Outline

- Best Practice study methodology
- Why track energy use and streamline data access?
- Solutions for automating and streamlining utility data transfer
- Feasibility and efficacy comparison
- State, city and K-12 examples
- Key takeaways

Best Practices Study Methodology

- **Approach:** Primary research through in-depth interviews with ~60 state and local governments, school districts and subject matter experts
 - 10 states (NY, CA, DE, MA, MD, MN, RI, WI, NC, IA)
 - 26 local governments (14 large cities, 7 medium, 5 small)
 - 3 school districts (one small, one medium, and one large)
 - 18 subject matter experts from public and not-for-profit organizations
- **Best Practice Criteria:** Solutions screened against specific criteria:
 - Replicability
 - Effectiveness
 - Sustainability
 - Impact
- **Metrics:** Specific metrics to compare and rank solutions
 - Entities provided data/results as evidence of level of efficacy
 - Principal metric: Energy and cost savings;
 - Secondary metrics: time savings; change in resource requirements (cost, time, human capital); etc.

Why track energy data: value proposition

- Improve strategic energy management capabilities
- Build the case to leadership on the value of energy management and gain additional support
- Improve control and transparency of energy costs and budgets
- Improve operational efficiency
- Facilitate demand response and energy purchasing by leveraging knowledge of consumption and rate information

“Measuring your energy usage and cost is the first step to properly managing energy”

- City of Virginia Beach Mayor
William Sessoms, Jr.

How did they get there?

Best Practices in Energy Data Management Five Elements for Success



**Asset
Inventory**

Comprehensive
Centralized
Verified
Up to Date



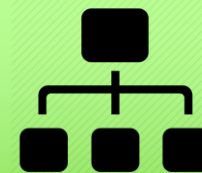
**Data
Access**

Comprehensive
Streamlined
Automatic
Prompt



**Tools and
Analytics**

Flexible
Secure
Accessible
QA/QC



**Organizational
Structure**

Integrated
Centralized
Dedicated Staff
Streamlined



**Engagement
Communication**

Targeted
Clear
Transparent
Mission-focused

How did they get there?

Best Practices in Energy Data Management Five Elements for Success



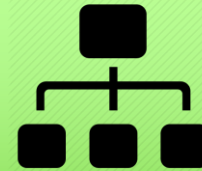
Asset
Inventory



Data
Access



Tools and
Analytics



Organizational
Structure



Engagement
Communication

Why streamline data access?

- What do we mean by “streamlined data access”?
 - Electronic data transfer from utility to customer (no data privacy concerns as data collected is primarily owned by the customer)
 - Efficient and timely access to comprehensive utility billing data
 - Monthly or more frequent energy use intervals
 - Minimal manual data entry
 - Data for all commodities and all energy- and water-using assets

Why streamline data access?

- Benefits:
 - **Speed to data receipt:** lower time gap between usage period and point in time data can be reviewed to identify usage anomalies
 - **Cost savings:** use consumption, cost, demand charges, rate schedules, etc. to maximize savings
 - **Data quality:** Reduce errors introduced during data transfer and incorporates quality checks supporting accurate analysis
 - **Operational efficiency:** save staff time, reduce redundancy in operations saving the organization limited resources and adding value

Solutions for streamlining data access

Consolidated Billing

utility aggregates the customer's accounts and corresponding utility bill data into a single spreadsheet file and delivers it to the customer on a monthly basis

Electronic Data Interchange (EDI)

Electronic billing solution that allows entities to automatically receive and read utility bill data in a machine-readable format. All data contained in the bill is captured and transmitted

Portfolio Manager Data Exchange Web Services

Application programming interface that allows utilities to export cost, consumption, and billing period data directly into EPA's Portfolio Manager via software-to-software communication.

Green Button Connect My Data

An electronic data access solution that uses a standard XML format to share interval or monthly bill data between utility and a third party on the customer's behalf

Third Party Services

A service provider aggregates utility bill data for accounts on behalf of the client. Companies can use a variety of data formats and proprietary technology to read and translate data

Solution Applicability

Consolidated Billing

- Most common approach for entities with municipal utilities with no other data access options
- Feasible to develop custom solutions

Electronic Data Interchange (EDI)

- Good option for entities with >100 accounts with EDI-capable utility
- Generally limited to electric and some natural gas IOUs

Portfolio Manager Data Exchange Web Services

- Streamlines data transfer to Portfolio Manager facilitating benchmarking; additional sectors and functionalities added
- A growing number of utilities offer this solution

Green Button Connect My Data

- Emerging best practice solution for sharing near real-time and comprehensive bill data
- A growing number of utilities are adopting Green Button

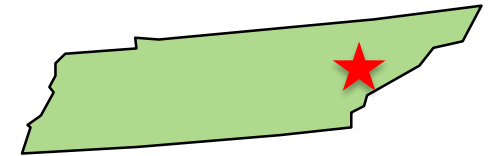
Third Party Services

- Best option for medium to large entities with many vendors and data formats
- Least common but effective

City of Knoxville, TN: Consolidated Billing

Goal: Track and manage the city's progress in achieving a 20% reduction in energy intensity by 2020

Solution: The City of Knoxville worked with the municipal utility to develop a consolidated bill containing electric, natural gas, water, and sewer cost and consumption data for the city's facilities and non-metered fire hydrant and outdoor lighting infrastructure



Ability to Track Progress

- The city tracks energy consumption, cost and rate structure for more than 1,000 utility accounts
- Achieved a 13% reduction in GHG in 2014 relative to 2005

Energy Project Savings Verification

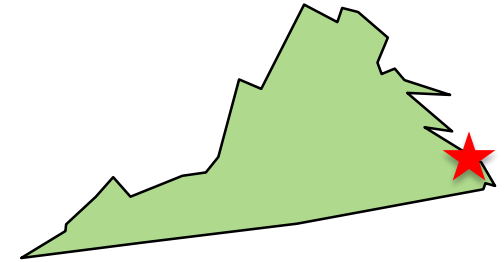
- Verification of savings from ESPCs and other retrofit projects
- Data demonstrates savings from EE upgrades to buildings and other city infrastructure

Efficient Use of City Staff Time

- It takes 1 hour per month to import data into the tracking software
- Project Manager spends 8-10 hours per month on data management activities centered on data analysis, reporting, and entry updating.

The City of Virginia Beach, VA: EDI

- **Goal:** Improve efficiency of operations and control of energy budget
- **Solution:** The City of Virginia Beach has eliminated nearly 1,000 paper bills monthly, reducing staff time needed for data entry by 85% . VB metropolitan area is now ranked fourth among mid-sized cities for ENERGY STAR certified buildings. CVB received the Government Finance Officers Association's Award for Innovation in Government for the utility bill management process



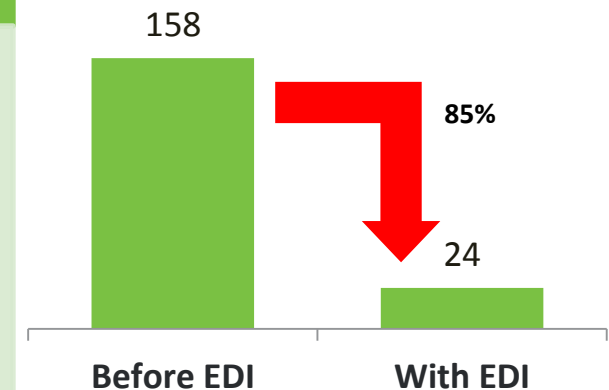
Energy Management and Conservation

- Track energy usage
- perform energy savings verification on completed retrofits
- Energy reports to motivate occupants to take action

City Planning, Budgeting and Operations

- Make wise energy purchasing decisions
- Eliminate billing errors and late payment
- Improve budgeting, accruals, accounting

Bill Processing Time
(Hours per Month)

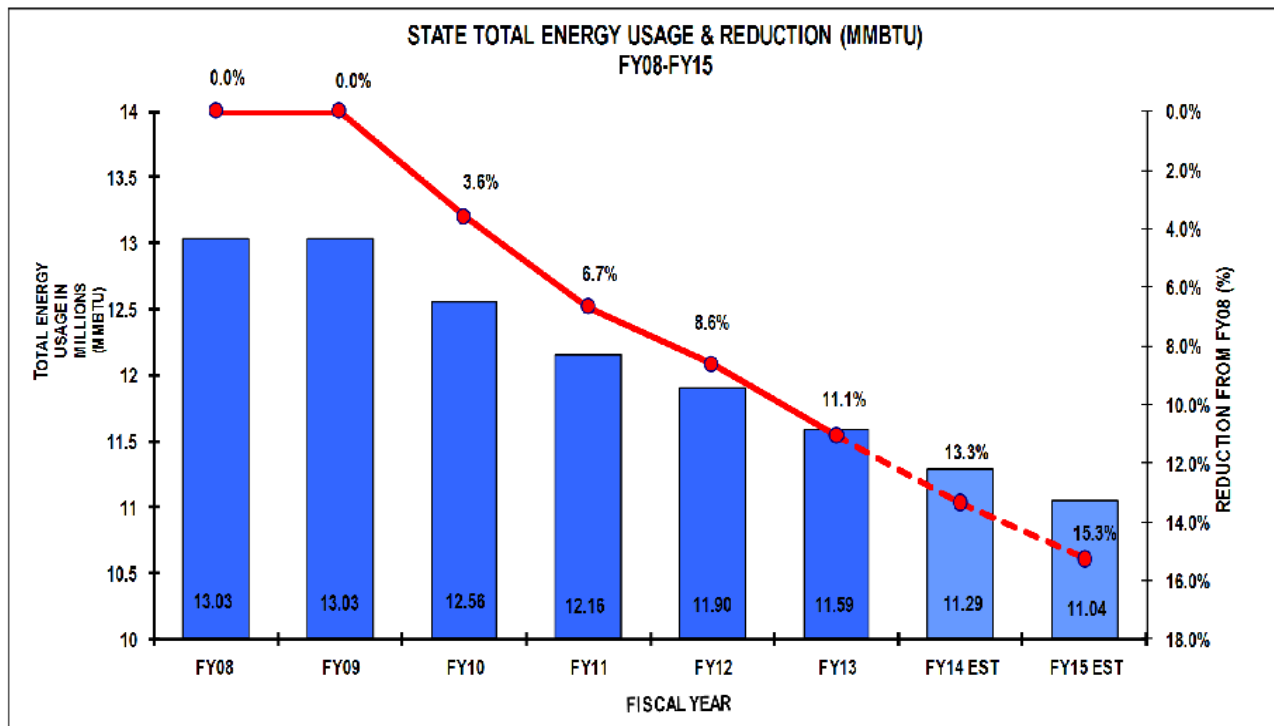


State of Maryland: Third Party Services

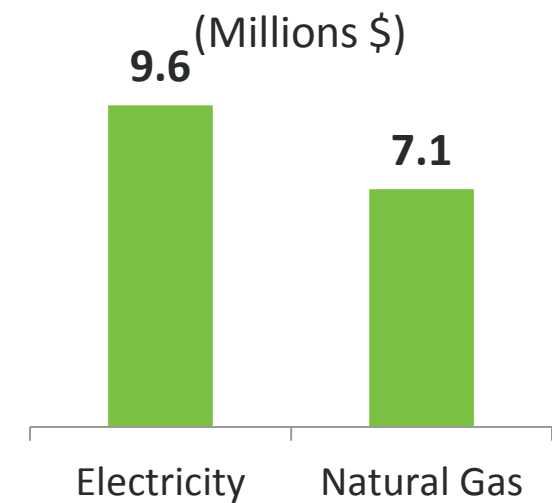
Goal: Track consumption across all facilities (124 vendors, >16,000 utility accounts, 120 accounts payable departments, 58 agencies)

Solution: A centralized energy data collection and tracking process using a third party to assist in the compilation of a central energy database, development of streamlined utility data access solutions, and maintenance of a transparent web-based portal.

Annual energy budget >\$200MM, Cost of contract: \$0.8-1MM



FY2013 Block & Index Commodity Purchasing Savings



Key takeaways

- A robust data tracking strategy is a foundation for strategic energy management, and pays additional dividends
- Dialogue and collaboration with utilities is critical to develop and implement data access solutions
- Medium-large entities use a combination of approaches to gain access to data depending on the options available from their utilities
- A third party can facilitate implementation of data access solutions and integrate data for large entities
- Implement available solutions, but remain flexible to adopt new and more efficacious solutions as they become available
- Green Button resolves a number of other solution's shortcomings and provides new functionalities, and is gaining steam

Contact

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