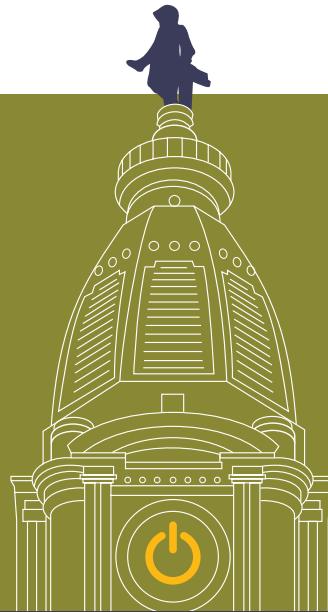




MUNICIPAL ENERGY PROFILE

A FIRST LOOK: THE GENERAL FUND



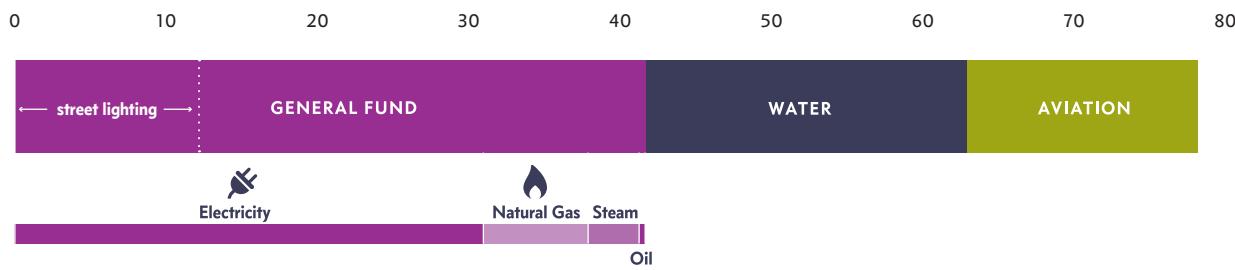
EXECUTIVE SUMMARY

The Philadelphia Energy Authority (PEA) is an independent authority jointly created by City Council and Mayor Nutter in 2010 to provide targeted expertise and focus to the City's efforts to reduce energy consumption and expense. One of PEA's charter responsibilities is educating the broader public, our decision-makers and leaders.

This report is intended to provide context for future decisions, highlight effective practices, and facilitate dialogue about Philadelphia's energy future by examining its history. Our recommendations are by no means exhaustive, and in many cases, City stakeholders and officials have already begun to address these issues. We recognize their progress and initiative, and believe there is value in continuing to drive and support a more public conversation.

Energy is one of Philadelphia's largest non-labor, non-discretionary expenditures. In 2014, the City of Philadelphia spent approximately \$78,000,000 on energy and approximately 53% of that cost was attributable to the General Fund. For this reason, this report focuses on buildings within the General Fund portfolio (excluding vehicle fuel).

CITY ENERGY COST BY FUND (in millions)



BARRIERS TO ENERGY EFFICIENCY

There are four inter-related barriers that prevent energy efficiency from being consistently incorporated into City projects:

1.

LACK OF UTILITY USER ACCOUNTABILITY

Blanket utility payments by the City on behalf of all departments provide no incentive for cost control in current or future facilities. Departments who drive project design are currently viewed as clients by Department of Public Property, and energy efficiency is rarely a priority because the users are completely disconnected and unaccountable for their energy consumption.

2.

ENERGY EFFICIENCY IS NOT A REQUIRED PROGRAM ELEMENT IN PROJECT PLANNING

There are over 189 steps in the design process for the construction or renovation of capital projects. Energy efficiency evaluation is not currently included in this administratively burdened process and, with perceived schedule pressures, there is understandably little interest in adding additional steps.

3.

INCORRECT REBATE ACCOUNTING

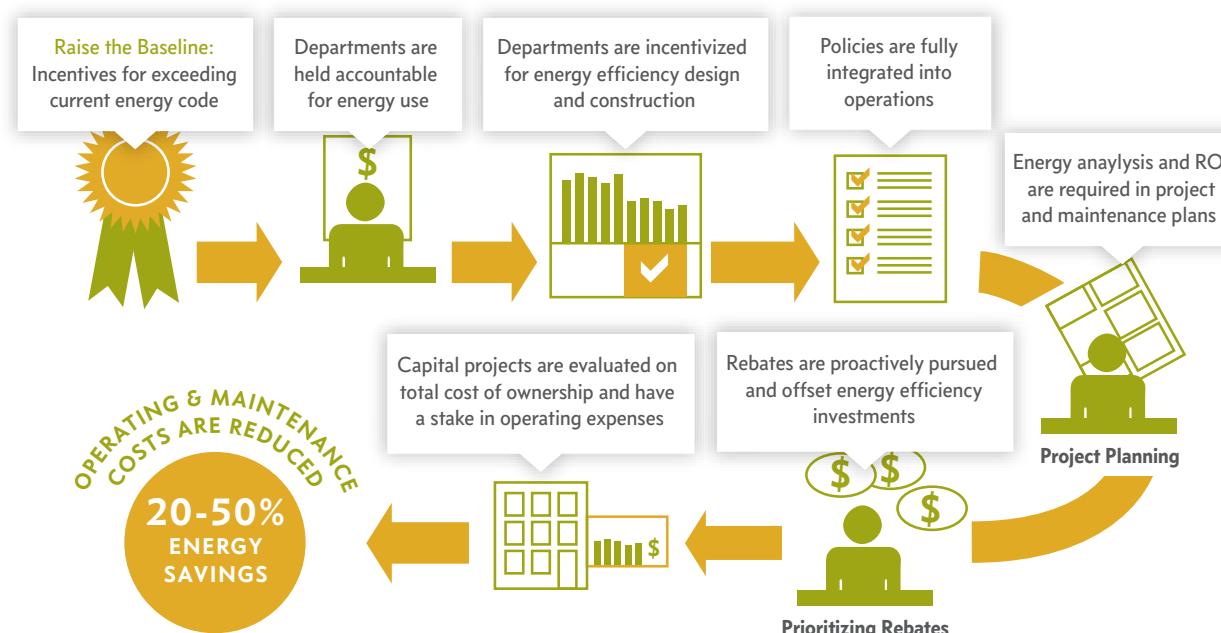
Rebate income is currently viewed as revenue and is not credited back to the final project cost. Energy efficiency measures are interpreted as an added cost and eliminated from the project scope, even though they may be funded through rebates.

4.

LACK OF HOLISTIC DESIGN APPROACH

Frequently, the scope of a project is established without recognizing the interdependence of architectural, mechanical, and electrical systems. As a result, buildings systems are inefficient. In addition, efficiency opportunities are missed when isolated system repairs or modifications are made to existing systems. The renovation process needs to evolve from isolated repairs to an integrated design approach, implementing comprehensive facility investments in the proper sequence to improve operational and thermal performance of the total building.

LOOKING FORWARD: COMPREHENSIVE INTEGRATION OF ENERGY EFFICIENCY



PEA CALLS TO ACTION

Utilities are not a fixed expense; they can be changed and managed. Energy is not an annual project; it is the management and optimization of future expenses and a critical component of fiscal prudence. Our research uncovered significant opportunities for PEA to facilitate action and resolve disconnects between policy and practice that are unintentionally hindering energy cost and consumption reductions.

There are three specific goals resulting from this Profile:

1.

INCREASE CAPACITY OF THE ENERGY OFFICE AND ACHIEVE ENERGY MANAGEMENT EXCELLENCE

Daily practices and procedures need to be aligned with current energy policies. Design and properly resource an organizational structure that builds capacity for municipal energy leadership and integrates an accountability mechanism.

RECOMMENDATIONS:

- Explore centralizing the functions of utility management and elevate the office to a place of authority, reflecting its relevance to all departments
 - > Conduct a case study of peers (energy office capacity, management, utility procurement, utility payment, bill validation & explanation, analysis, data management, project management)
- Evaluate current governance for consistently motivating long term energy planning and management
- Determine the actual value of the Energy Office by calculating savings related to energy efficiency strategies
- Provide appropriate staffing capacity and resources for utility management including: administration of supply & demand, technical analysis, opportunity evaluation, and project management
- Recognize innovation and empower staff with proper authority to hold departments accountable
- Implement an organizational structure with an accountability mechanism

2.

CREATE UTILITY ACCOUNTABILITY FOR USERS

Blanket utility payments by the City on behalf of all departments provide no incentive for cost control in current or future facilities. As a result, energy efficiency is a vulnerable and discretionary program element. Project leadership is evaluated solely on schedule and construction budget metrics. Life cycle cost implications are an optional program consideration but obligate the City to significant long term expenses.

RECOMMENDATIONS:

- Explore linking departmental performance reviews with departmental energy efficiency
- Hold all projects (renovation and new construction, leased or owned) and individuals to an utility efficiency standard
- Adopt a utility performance standard for all City facilities (leased or owned). All renovations and new construction should meet sustainability standards.

3.

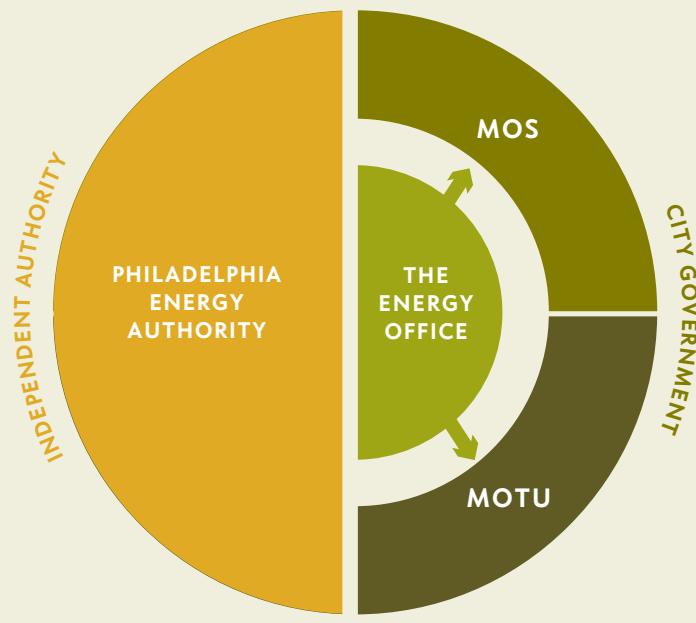
BUILD CULTURE OF ENERGY AWARENESS & DECISION MAKING THAT PRIORITIZES TOTAL COST OF OWNERSHIP

Energy efficiency has the potential to yield 20% savings in electricity consumption, 10% of natural gas consumption and over 50 percent or more of the expected load growth by 2025. It is crucial to coordinate policies that strongly incentivize “better than code” practices and support the implementation of best available technology. This will ensure that new construction and major renovations are designed to use energy effectively and efficiently.

RECOMMENDATIONS:

- Review and evaluate current energy efficiency design guidelines
- Confirm current requirements are being met
- Revise guidelines to serve as an authoritative tool to enforce policy
- Develop effective tools that build energy leadership capacity and strengthen the project process (statement of work for consultants, owner checklist, draft questions, develop metrics to report, develop a project energy questionnaire)
- Continue/expand preventative maintenance plans

PHILADELPHIA ENERGY MANAGEMENT



PEA: ENERGY THINK TANK

- Long term contracts
- Steward of long term planning and vision
- Drive regional, local and cross-sector collaboration
- Public education and engagement
- Policy and technical advocacy
- Public/private liaison
- Facilitator/convenor
- Clearinghouse of energy resources

MOS: EXTERNAL ENERGY POLICY & PROGRAMS

- External city-wide policy
- Sustainability program development and management
- Benchmarking
- Public-private partnership
- Tracking and reporting
- Municipal project aggregation

MOTU: INTERNAL ENERGY OVERSIGHT

- Utility management oversight
- Utility relations

THE ENERGY OFFICE: INTERNAL MUNICIPAL ENERGY OPERATIONS

- Energy procurement
- Energy analysis
- Technical assistance
- Project development and management
- Energy conservation management
- Act 129 Rebate Management
- Administration of the Energy Efficiency Fund
- Departmental engagement
- Departmental education and training

The PEA is looking forward to continuing to work with this and future administrations to seize available opportunities to reduce energy consumption, cost, and environmental footprint, all of which ultimately impact the taxpayers and quality of life in our great City.



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This report is a result of compiling over 200 documents provided by the Energy Office, informal interviews, case study research, and on-going working group sessions. It was an ambitious task, but a valuable exercise in creating a consolidated record of General Fund energy management. It would not have been possible without the collaboration of the Energy Office, Mayor's Office of Sustainability and the Mayor's Office of Transportation and Utilities.