Implementing Energy Improvements at Your Organization

October 20th, 2013
Philadelphia
• Origins and Overview of Greenworks Philadelphia

• What did we do with the plan in hand?

• Implementing Energy Projects
The Beginning

- Next Great City Coalition
- Mayoral Race in 2007
- Mayor’s Office of Sustainability established in 2008
- Greenworks Philadelphia released in 2009
- Related Sustainability Planning and Policies
  - Phila2035, Green 2015, Green City Clean Waters, Drafting of Zoning Code
GREENWORKS
PHILADELPHIA

**Energy**
PHILADELPHIA REDUCES ITS VULNERABILITY TO RISING ENERGY PRICES

**Environment**
PHILADELPHIA REDUCES ITS ENVIRONMENTAL FOOTPRINT

**Equity**
PHILADELPHIA DELIVERS MORE EQUITABLE ACCESS TO HEALTHY NEIGHBORHOODS

**Economy**
PHILADELPHIA CREATES A COMPETITIVE ADVANTAGE FROM SUSTAINABILITY

**Engagement**
PHILADELPHIANS UNITE TO BUILD A SUSTAINABLE FUTURE

5 goals, 15 targets, over 150 initiatives
How were the Greenworks goals established?

• **Sustainability Advisory Board**
  – External Stakeholder group
  – Philadelphia’s Leaders in Sustainability

• **Sustainability Working Group**
  – Internal Stakeholder group
  – City departments and Quasi City agencies

• **Collaboration and Partnerships**
  – Local Non-Profits, Development Agencies, Utilities and State Authorities
GREENWORKS
GOALS, TARGETS, INITIATIVES

PHILADELPHIA REDUCES ITS VULNERABILITY TO RISING ENERGY PRICES

- Lower City Government Energy Consumption by 30%
- Reduce Citywide Building Energy Consumption by 10%
- Retrofit 15% of Housing Stock with Insulation, Air Sealing and Cool Roofs
- Purchase and Generate 20% of Electricity Used in Philadelphia from Alternative Sources
What is in *Greenworks Philadelphia*?

- **Broad Strokes!**
- **Project ideas and methods**
  - Guaranteed Energy Savings Act
  - Target energy budgets
  - Framework for EnergyWorks
  - Policy and legislation ideas
- We have a plan…now what
Understanding our needs

• Technology
  – Metrics tracking
  – Utility database for City buildings

• Funding
  – EnergyWorks (Competitive grant)
  – Capital investments
  – Alternative methodologies (Guaranteed Energy Savings Projects, Power Purchase Agreements)

• Resources
  – Personnel hires and shifts in responsibility
  – Training and education

• Define Roles
Over 600 facilities! – Where are our opportunities?

• Top 10 energy users make up 44% of General Fund’s energy cost.

• Top 50 energy users make up 77% of General Fund’s energy cost.
Over 600 facilities!
Where are our opportunities?
Energy Efficiency Fund

- A competitive application program made available for all City departments. Capital and Recovery Act monies made available to invest in energy efficiency projects.

- Projects typically have multiple benefits
  - Improved Lighting
  - Better Comfort

- **Fleet Shop 134- LED Lighting Renovation**
  - Amount of Award: $245,000
  - Anticipated Annual Savings: $40,000+
  - Scope of Work: Replace existing Metal Halide and T12 lighting with new High bay LED lighting in a 24 hour fleet repair shop
Guaranteed Energy Savings Project

- **Buildings being retrofitted:**
  - City Hall
  - Municipal Services Building
  - One Parkway Building
  - Justice Juanita Kidd Stout Center for Criminal Justice

- **Project Benefits:**
  - Partnership with Noresco to design and build energy efficient systems
  - Bypasses the traditional 4-part bidding
  - Noresco provided a guarantee of the project savings.
  - Allowable in PA through the Guaranteed Energy Savings Act.
Guaranteed Energy Savings Project Snapshot

### Total Cost

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### Financials

- **Total Cost**: $12,285,000
- **Current Energy Costs in the Four Buildings (Annual, 4-year Average)**: $5,221,000
- **First Year Energy Cost Savings**: $1,340,000
- **First Year Payments**: ($988,000)
- **Net Cash Flow* (First Year)**: $352,000

*Increases with increases in energy prices.
Quadplex- Energy Conservation Measures

Quick Payback

- Improvements to Building Control Systems
  - End Device Repair
- Lighting Retrofit
- Water Conservation
- High Efficiency Air Filters

Less than Quick Payback

- Hot Water Boiler Replacement
- Conversion of Concourse HVAC
- Steam Insulation
- Building Envelope and Vestibule Improvements
Other Projects

- LED traffic light conversion
- Technical support for departments
- Demand response program
- Web-enable energy management database
- Department accountability and incentive program
- LEED requirement for new construction
- Biogas Cogeneration at wastewater treatment plant
- Occupant education program
- Remote building operations
Lessons Learned

- Big plans motivate big actions and details aren’t necessary to get started
- Partnerships are crucial
- Having an adopted plan can help you fundraise and gain support from critical stakeholders
- There are lots of resources who will help you for free