



PhillyStat Outcomes

Mayor's Goal 4: "Philadelphia Becomes the Greenest and Most Sustainable City in America."



Goal 4: Vision

- **Thriving cities tend to their natural resources and infrastructure. People want to live, learn, work, and play in cities with clean air, clean water, and green neighborhoods. Livable communities have well maintained green infrastructure that improves water quality and leads to neighborhood parks and open spaces that connect residents to the natural environment.**
- **With Greenworks Philadelphia as our guide, the Mayor's Office of Transportation and Utilities and Philadelphia Parks and Recreation will work collaboratively with other City agencies and outside partners to make Philadelphia the greenest and most sustainable city in America.**



Goal 4: Why Are We Here Today?

- Outcome 1: Our Water and Air Are Cleaner
 - Reviewed in October

- Outcome 2: We Use Less Energy
 - Today's Discussion
 - *Why Does Using Less Energy Matter?*





The City has 1300 facilities with a diverse set of energy needs:

-The Art Museum uses 5.5 times as much energy as the Free Library





The City has 1300 facilities with a diverse set of energy needs:

- Top 10 energy users* make up 44% of overall energy use; 50% of cost
- Top 40 energy users* make up 70% of overall energy use; 63% of cost

* Within the General Fund
(not including street lighting)



Goal 4, Outcome 2: What Are We Going to Achieve?

Greenworks Targets:

Target 1: Lower City Energy Consumption by 30%.

Target 2: Reduce Citywide Building Energy Consumption by 10%.

Target 3: Retrofit 15% of Housing Stock with Insulation, Air Sealing & Cool Roofs.

Target 4: Purchase/Generate 20% of Electricity from Alternative Energy Sources.





Achieving Our Energy Targets

**PHILADELPHIA
BECOMES THE
GREENEST AND MOST
SUSTAINABLE CITY IN
AMERICA**

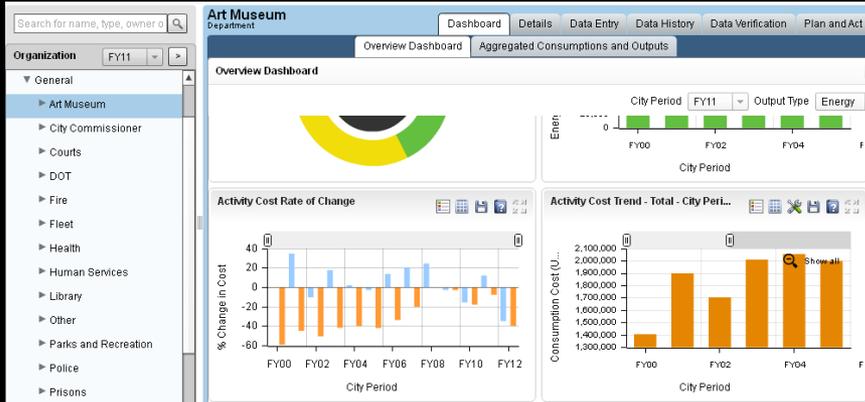
What Are We Doing?

- **City Energy Consumption**
- **LED Traffic Signal Conversion**
- **Energy Efficiency Capital Fund**
- **“Quadplex” Guaranteed Energy Savings Project**
- **Solar co-gen and alternative energy purchasing**
- **Solar Installation Guidebook**
- **Performance data on EnergyWorks**



City Energy Consumption

Energy Management Database:

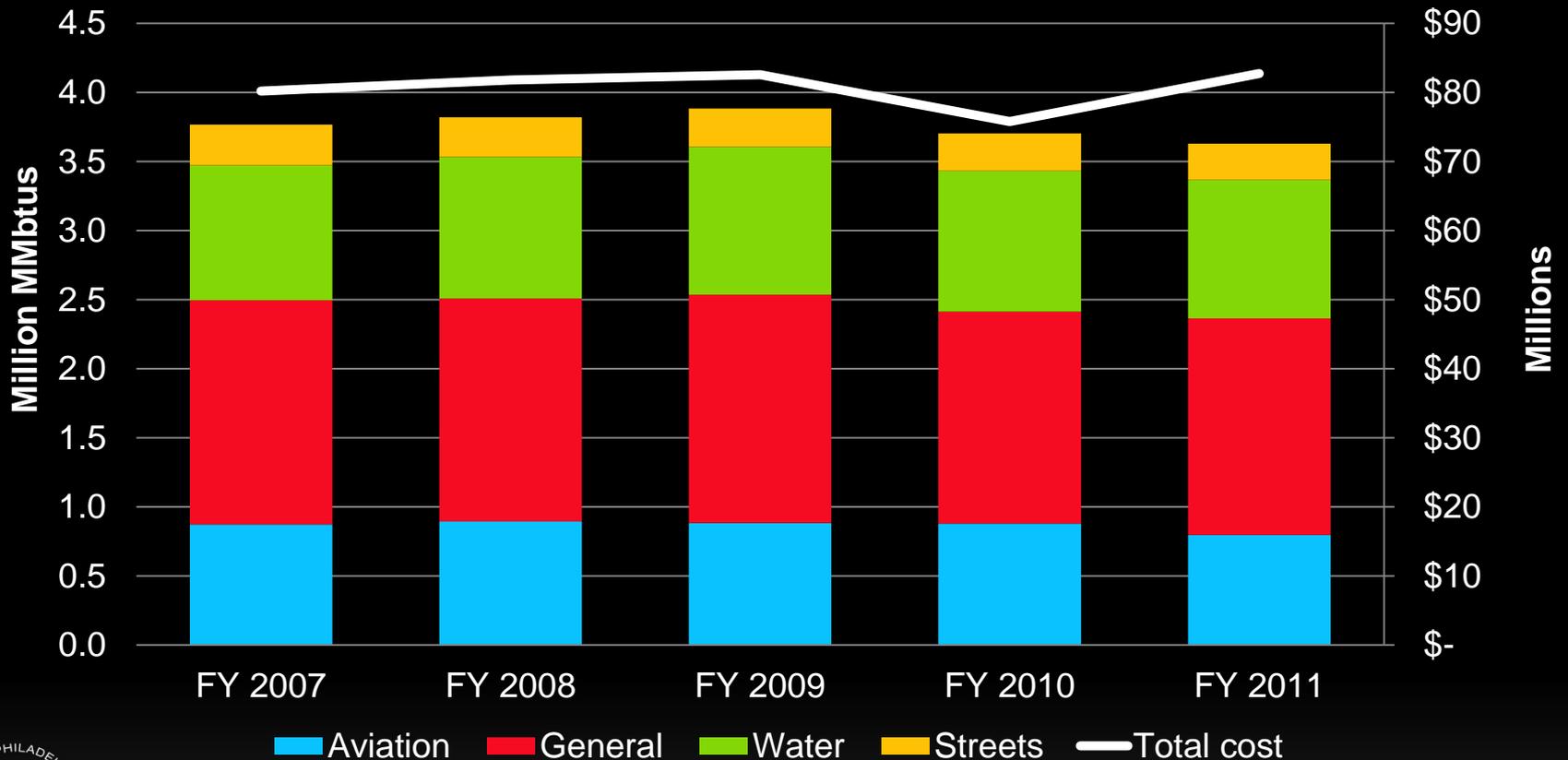


Organization		Name	Type	O.	Electricity[k...]	Electricity[\$]	Natural Ga...	Natural Ga...	Steam[Mlb]	Steam[\$]	Fuel Oil[...]	Fuel Oil[\$]
▼	General	Fund			209,816,604	21,056,916.0	711,500	7,773,660.23	101,792	2,505,441.32	227,346.30	691,276.93
▼	Art Museum	Department			17,999,798	1,573,657.03	1,851	23,551.61	71,506	1,569,358.19		
	Art Museum - Leg	Legacy										
▼	Art Museum and	Museum			17,741,048	1,542,975.45	840	10,831.83	71,506	1,569,358.19		
	ART MUSEUM	Sub-Faci			12,944	1,840.90						
	ART MUSEUM	Sub-Faci			13,880	2,528.57						
	ART MUSEUM	Sub-Faci			17,714,224	1,538,605.99	840	10,831.83	71,506	1,569,358.19		
▶	RODIN MUSEUM	Museum			258,750	30,681.58	1,011	12,719.79				
▶	City Commissioner	Department			1,041,042	120,903.83	13,932	172,571.64				
▶	Courts	Department			2,453,921	225,108.53	6,172	39,969.24	9,728	268,851.32		
▶	DOT	Department			0	21,467.89						
▶	Fire	Department			7,146,195	748,855.72	36,176	459,423.01			18,837.30	57,641.93
▶	Fleet	Department			2,237,689	210,812.77	16,883	188,108.61				
▶	Health	Department			15,085,158	1,426,676.66	41,375	570,183.07				



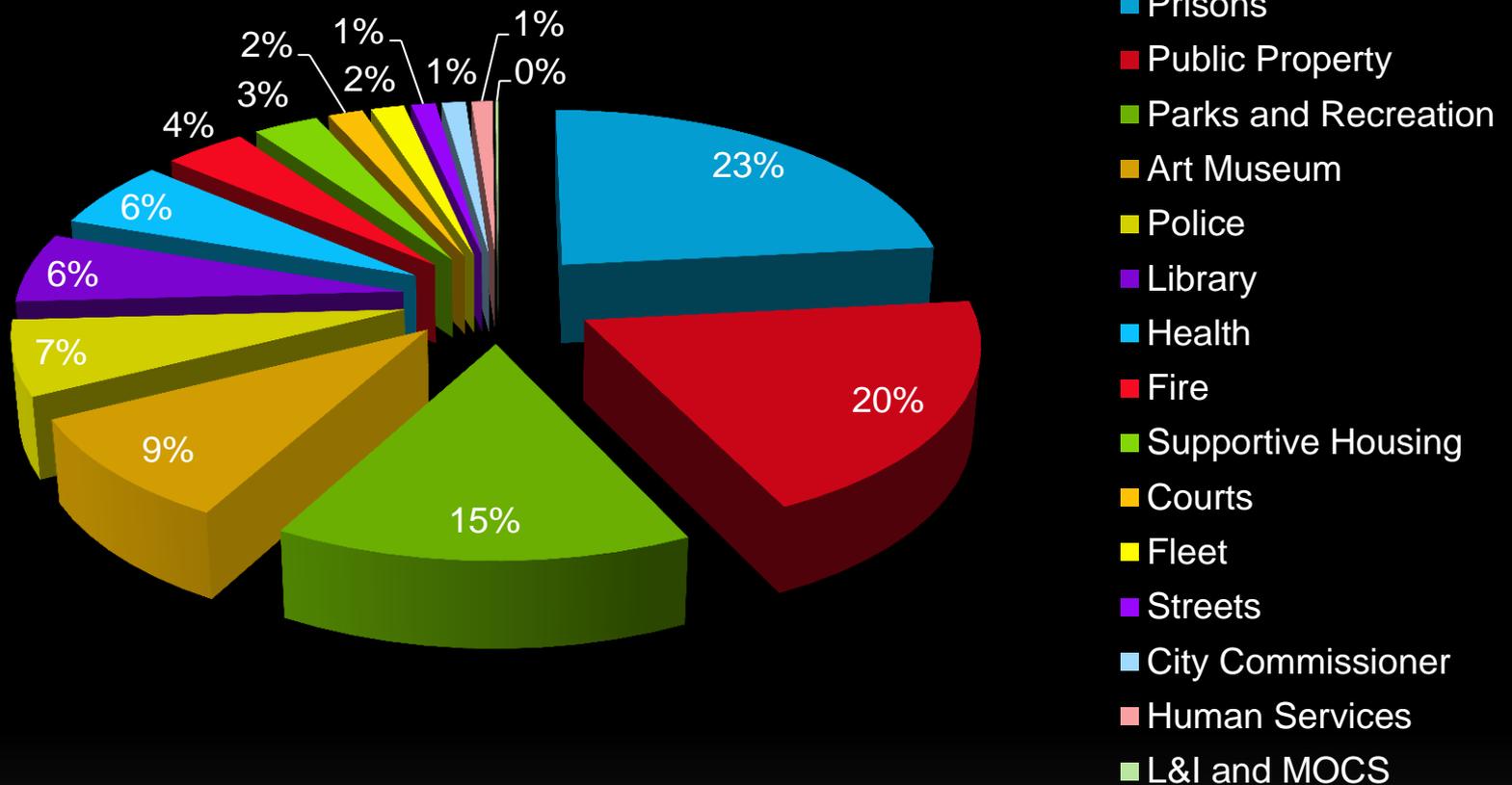
City Energy Consumption

5-Year Trend in Energy Usage and Cost for All Funds



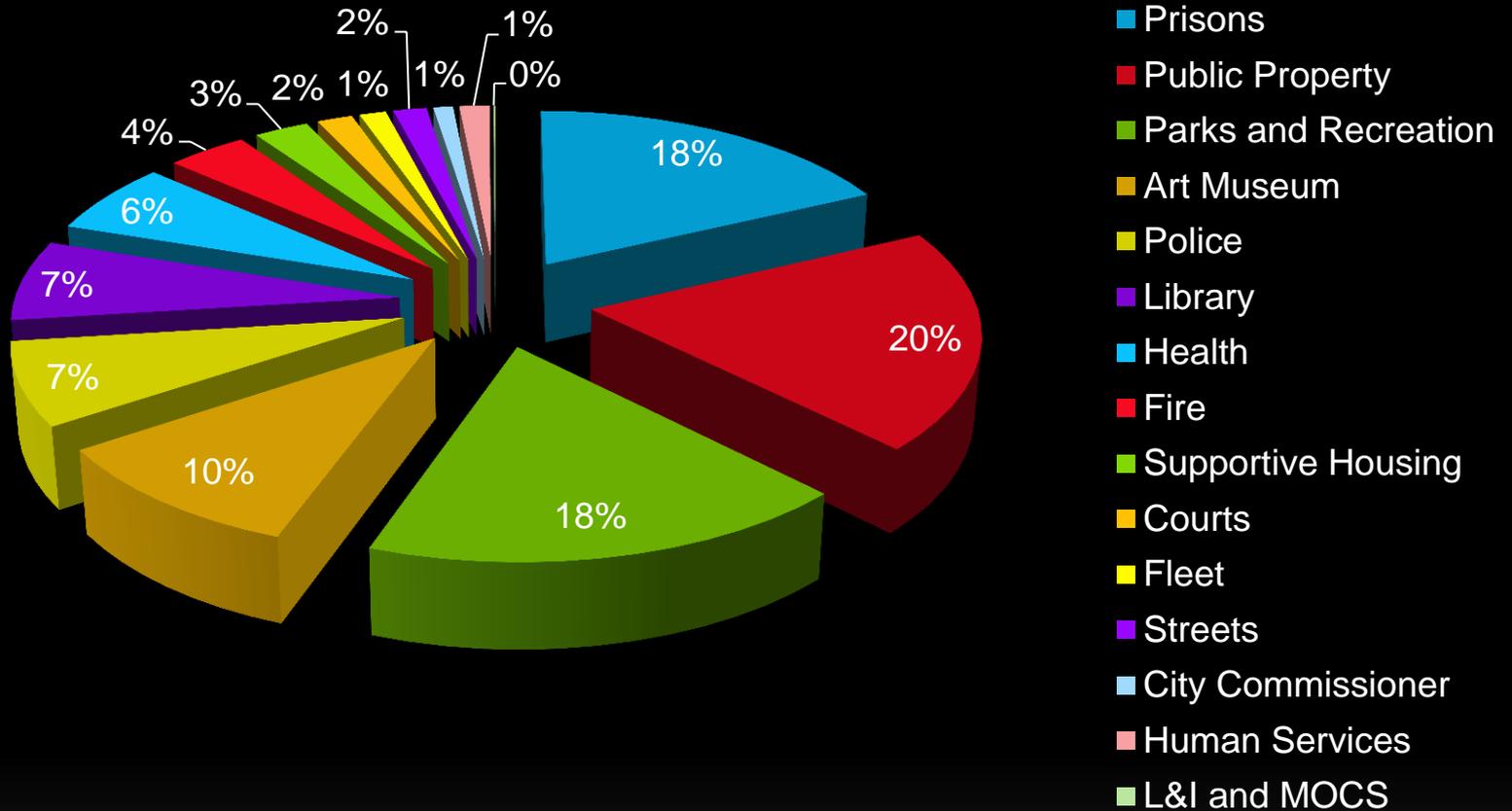
City Energy Consumption

General Fund FY 11 Usage by Department



City Energy Consumption

General Fund FY 11 Cost by Department



City Energy Consumption

GF Cumulative Energy Use Compared to 30% Reduction Goal



LED Traffic Signal Conversion

- Changed 55,000 green and yellow incandescent traffic light bulbs and upgraded 28,000 red LEDs on-time and on-budget



LED Traffic Signal Conversion

- **Annually reduced:**
 - Streets' energy costs by \$700k - \$1M
 - Power equivalent to 700 homes
 - CO2 emissions by 6,800 tons
 - Met the Mayor's four-year 10% energy reduction goal for Streets Department within in 2 years
- **Total \$3.8 M investment has:**
 - Expected life of about 12-15 years
 - A payback of 4.8 years
 - Brought handheld devices to Streets
 - Reduced traffic call-outs by about 40%
 - Traffic field staff redeployed for corridor signal timing program
 - Generated \$2.8M in PECO Smart Energy incentive payments



Energy Efficiency Fund

- A competitive application program made available for all City departments. City Capital monies and Recovery Act funded Energy Efficiency and Conservation Block Grant (EECBG) funds are available to invest in energy efficiency projects. The Round 1 investment was \$400,000 with predicted savings of over \$115,000 million annually. Round 2 is about to be announced.
- Participating Departments Include:
 - Police Department
 - Public Property
 - Fire Department
 - Streets Department
 - Art Museum



Energy Efficiency Fund

24th /25th Police District Retro-Commissioning

Amount of Award: \$60,000

Anticipated Savings: \$12,000 annually

Scope of Work: Re-establish and re-calibration of heating and cooling control systems.



Streets-Fleet Shops 175 and 225 Lighting

Upgrades

Amount of Award: \$20,000

Anticipated Savings: \$4,500 annually

Scope of Work: Replace existing lighting fixtures with new efficient lights in shop space.



“Quadplex” Guaranteed Energy Savings Project

- **City Hall, Municipal Services Building, One Parkway Building and Criminal Justice Center. Upgrades to control systems, lighting, water efficiency and building envelope.**
- **Partnership with Noresco to design and build energy efficient systems bypassing the traditional 4-part bidding and allowing Noresco to guarantee the project savings.**
- **Positive cash flow project. The City pays for project with its savings over a 15 year term. Takes advantage of City’s allotment of Qualified Energy Conservation Bonds which offer better financing.**
- **Enhances human comfort of the buildings, addresses immediate Capital needs of buildings , reduces General Fund energy use over 2%.**



“Quadplex” Guaranteed Energy Savings Project

Project Snapshot	
Total Cost	\$12,285,000
Current Energy Costs in the Four Buildings (Annual, 4-year Average)	\$5,221,000
First Year Energy Cost Savings	\$1,415,000
Annual Payment	(\$1,282,000)
Net Cash Flow* (First Year) <i>*Increases with increases in energy prices.</i>	\$133,000
Air Quality Benefits	Equivalent of reducing 2,156 cars
Estimated Job Creation	264 Jobs
M/W/D BE participation	22%

Solar, Co-gen, and Alternative Purchasing



SE- WPCP Solar Array

Array Size = 250 kW

Project Annual Electrical production 300,000 kWh

Shaves off 10% of peak load on PLC days

All power goes into building seen in background

Total Cost is \$1.7M of which \$850K EECBG funded

Solar, Co-gen, and Alternative Purchasing

Biogas Co-Generation at North East Water Pollution Control Plant



Perspective Rendering: View from East

EnergyWorks



Simple
EXPERT ADVISORS

Affordable
LOW-INTEREST LOANS

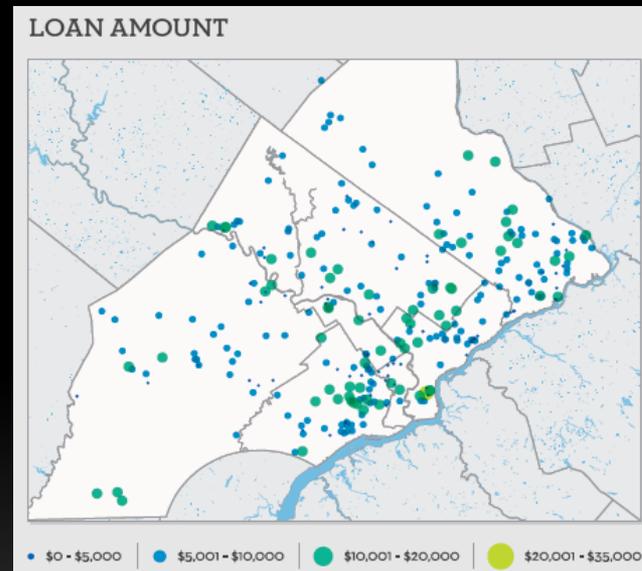
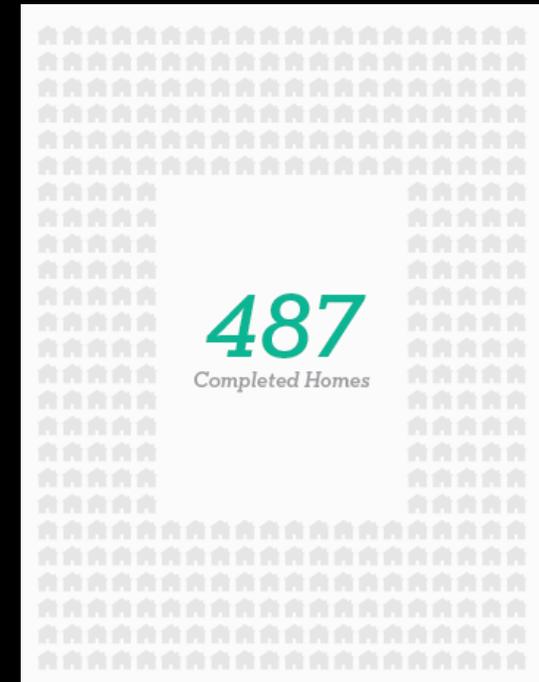
Reliable
FREE QUALITY ASSURANCE &
PERFORMANCE MONITORING

EnergyWorks

Residential Program:

- 487 completed homes
- 1,259,707 kilowatt hours saved per year*
- \$735,225 saved per year*

**Following U.S. Department of Energy reporting protocols, these figures also take into account projected energy and cost savings for projects begun (audit-phase) but not yet completed. As a result, some projected savings may not be realized.*



EnergyWorks

Commercial Program:

- \$12,013,476 lent to-date
- \$142,290,485 leveraged to-date
- 660,074 square feet upgraded with energy efficiency improvements
- 14,351 MMBTU saved per year*
- \$311,400 projected cost-savings per year*

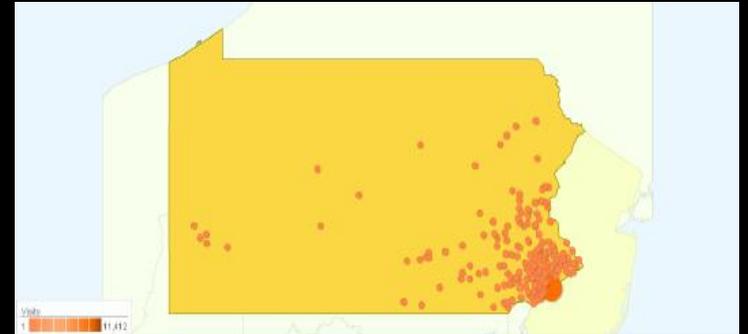
**These figures under-represent current totals, as not all projects had provided final data at the time of printing.000*



EnergyWorks

Education:

- 23,661 Website Visits
- 11,412 Philadelphia Visits
- 10,000+ Event Attendees



**LOWER UTILITY BILLS,
WARMER COCOA BREAKS.**
Comfort now costs less. Start saving \$750/yr or more with energy efficiency improvements.

More and more homeowners are saving on their utility bills with energy efficiency improvements. Get your Home Energy Assessment today to see how you can save too.
See real homeowner stories at ENERGYWORKSNOW.COM

EnergyWorks
ENERGY EFFICIENCY IMPROVEMENTS

**LOWER UTILITY BILLS AND
A NICE WARM WINTER.**
Comfort now costs less. Start saving \$750/yr or more with energy efficiency improvements.

Get your Home Energy Assessment now at ENERGYWORKSNOW.COM

EnergyWorks
ENERGY EFFICIENCY IMPROVEMENTS

*Not available for some properties. See website for details. © 2010 EnergyWorks Inc. All rights reserved.



EnergyWorks

Catalyzing a Business:

- 112 Contractors
- Building New Business Models

*"My company
wouldn't be in business
if [EnergyWorks]
didn't exist."*

TOM WELLS

Thomas G. Wells
Construction



How Are We Communicating?

**PHILADELPHIA
BECOMES THE
GREENEST AND MOST
SUSTAINABLE CITY IN
AMERICA**

Greenworks Annual Report

TARGET 1 Lower City Government Energy Consumption by 30 Percent



TARGET 2 Reduce Citywide Building Energy Consumption by 10 Percent



TARGET 3 Retrofit 15 Percent of Housing Stock with Insulation, Air Sealing, and Cool Roofs



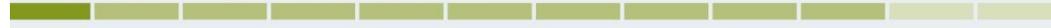
TARGET 4 Purchase and Generate 20 Percent of Electricity Used in Philadelphia from Alternative Energy Sources



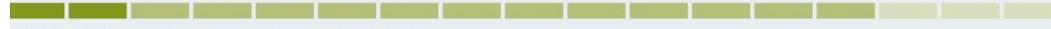
TARGET 5 Reduce Greenhouse Gas Emissions by 20 Percent



TARGET 6 Improve Air Quality toward Attainment of Federal Standards



TARGET 7 Divert 70 Percent of Solid Waste from Landfill



TARGET 8 Manage Stormwater to Meet Federal Standards



TARGET 9 Provide Park and Recreation Resources within 10 Minutes of 75 Percent of Residents



TARGET 10 Bring Local Food within 10 Minutes of 75 Percent of Residents



TARGET 11 Increase Tree Coverage toward 30 Percent in All Neighborhoods by 2025



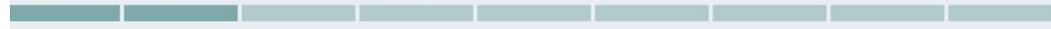
TARGET 12 Reduce Vehicle Miles Traveled by 10 Percent



TARGET 13 Increase the State of Good Repair in Resilient Infrastructure



TARGET 14 Double the Number of Low- and High-Skill Green Jobs



TARGET 15 Philadelphia is the Greenest City in America



26 Complete Initiatives

109 Initiatives in Progress

16 Future Initiatives



Greenworks Outreach



GREENWORKS PHILADELPHIA EXCHANGE

A NEWSLETTER FROM THE MAYOR'S OFFICE OF SUSTAINABILITY

November 2011

Greetings!

Welcome to the October 2011 edition of *Greenworks Philadelphia Exchange*, the newsletter from the Mayor's Office of Sustainability.

As cold weather comes early to Philadelphia, remember that simple weatherization steps such as insulating your attic and sealing your windows can help you use less energy and spend less on your bills as the weather turns chilly. If you'd like expert advice on how to make your home more efficient, contractors vetted for their qualifications and good work, and low interest financing for your improvements, check out EnergyWorks at www.EnergyWorksNow.com. Stay warm, save money, and help make Philadelphia more sustainable this winter!

Sincerely,
Katherine Gajewski, Director
Mayor's Office of Sustainability

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- [SE PA Receives DOE EV Planning Funds](#)
- [OHCD and APM Open Green Affordable Housing](#)
- [Community Farm Opens at Bartram's Garden](#)



GREENWORKS UPDATES

Volunteer Today to Reduce Waste at the Philadelphia Marathon

Go to www.ServePhiladelphia.com today to become a Waste Watcher volunteer and help reduce the amount of trash that the Philadelphia Marathon sends to the landfill!

Waste Watchers volunteers at the Philadelphia Marathon on November 19 and 20, 2011, will help event-goers sort their recycling, compost, and trash into the right containers, keep the streets of Philadelphia clean and welcoming, and reduce the amount of garbage thrown away.



Volunteers will receive gloves and bin bags, bag trash and recycling, and help load the items into the trucks. Waste Watcher volunteers who help out at the Marathon will receive a free Philadelphia Marathon sweatshirt! Click [here](#) for more information and to sign up.

OHCD and APM Open Sheridan Street Green Affordable Housing



On October 12, the Asociación Puertorriqueños en Marcha, the Office of Housing and Community Development, and Mayor Nutter celebrated the unveiling of the Sheridan Street Green Building Initiative, a LEED Gold Affordable Housing Development.

The project replaced formerly blighted land with 13 environmentally friendly, affordable homes. The development's green features, including solar hot water panels, green roofs, rain barrels, and turf pavers, lower costs for the homeowners and bring innovative technology to the neighborhood. For further information, click [here](#).

DOE Funds Southeast Pennsylvania Electric Vehicle Planning

The Delaware Valley Regional Planning Commission in partnership with the City of Philadelphia, PECD, and the Greater Philadelphia Clean Cities Program, received a grant of over \$385,000 from the U.S. Department of Energy to create a regionally-coordinated plan for the introduction of plug-in electric drive vehicle charging infrastructure into the five counties of southeastern Pennsylvania.

The project, titled *Ready to Roll!*, will estimate demand for individual and fleet EVs in the region, evaluate the likely locations of privately-owned charging infrastructure, identify the most appropriate locations for public charging infrastructure, and evaluate the implications of EVs on electricity generation, transmission, and distribution systems.

The plan will also suggest a regionally-consistent regulatory scheme for zoning, permitting, interconnection agreements, signage, and enforcement, and establish a campaign to educate residents about electric vehicles.



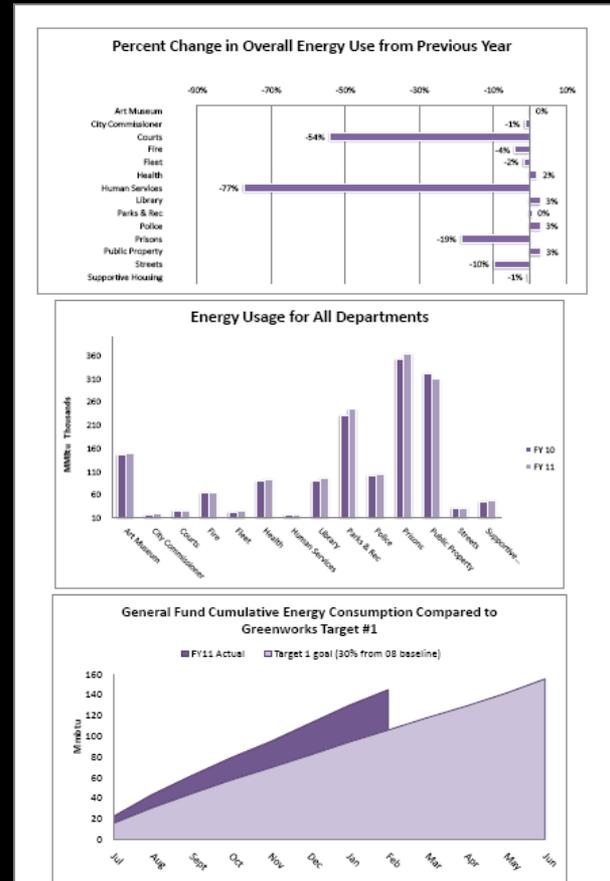
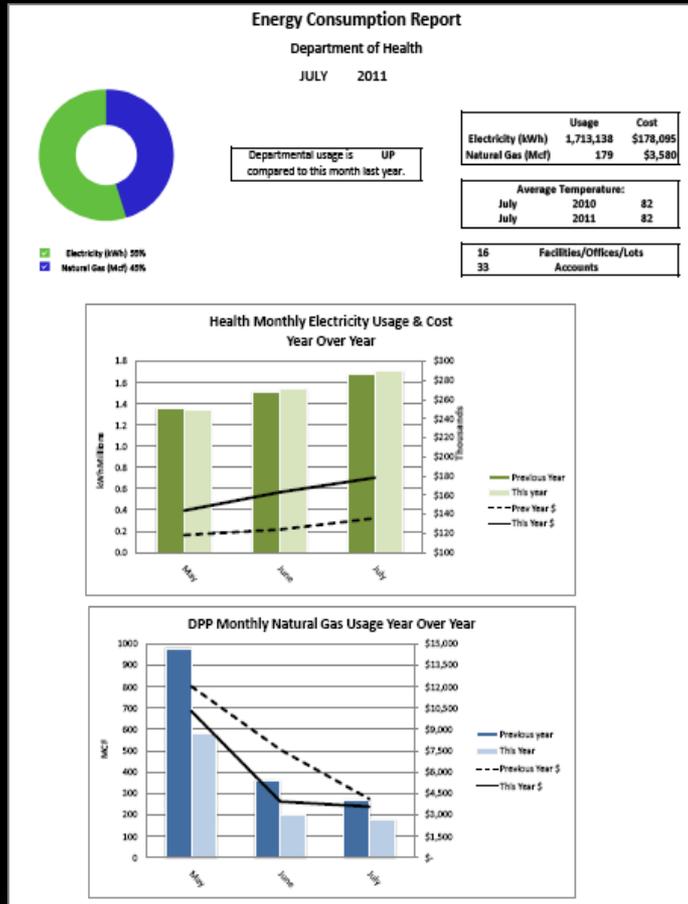
Community Farm and Food Resource Center Breaks Ground at Bartram's Garden

On October 27, the Community Farm and Food Resource Center (CFPRC) broke ground at Bartram's Garden. The project resulted from a partnership among the Agatston Urban Nutrition Initiative, a program of the Netter Center for Community Partnership at the University of Pennsylvania; the Pennsylvania Horticultural Society; Bartram's Garden; and Philadelphia Parks & Recreation.



The CFPRC is a 1.5 acre site that will include a vegetable farm, community garden, orchard, greenhouse, and educational kitchen space. For more information on the project, click [here](#).

Monthly Departmental Energy Reports



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