DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

CIRCUIT RIDER PROGRAM

Energy Efficiency in Local Government Operations

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January 30th, 2013

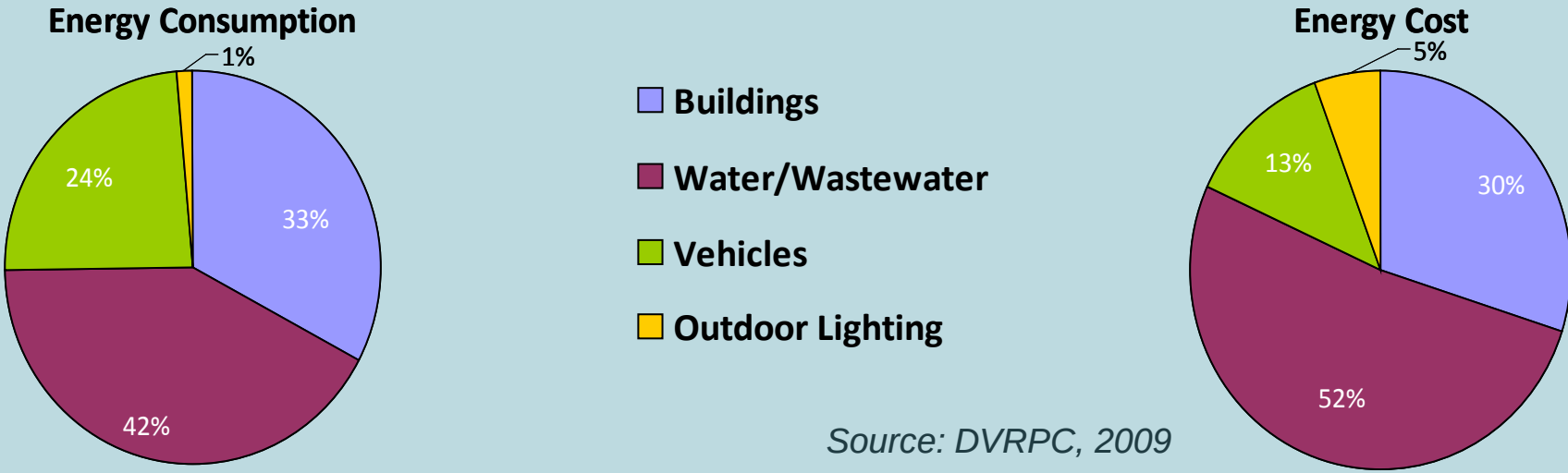
Introductions

1. Your name and organization
2. Overview of your job and work – two or three sentences
3. What your role is related to outdoor lighting

CIRCUIT RIDER PROGRAM

DVRPC Circuit Rider Program

1. Reducing Energy Costs in Municipal Operations Seminar Series
2. LED Traffic Signal Conversion Program (or other bulk purchasing)
3. Direct Technical Assistance
4. Workshops and training for Water and Wastewater Treatment Facilities



Source: DVRPC, 2009

Direct Technical Assistance Communities*

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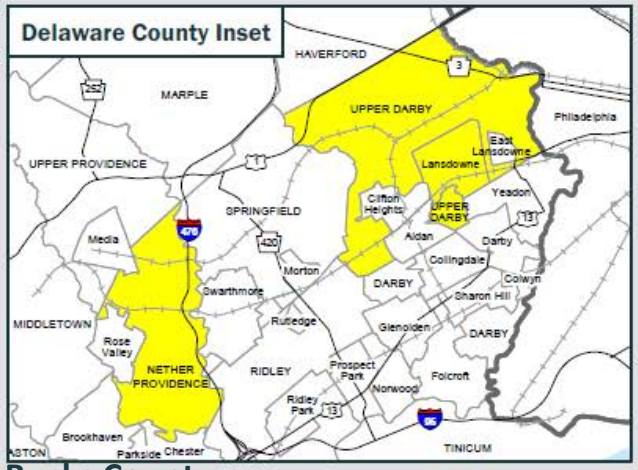

Bucks County

- Lower Southampton Township
- Bristol Township

Chester County

- Easttown Township
- Phoenixville Borough

Delaware County

- Lansdowne Borough
- Nether Providence Township
- Upper Darby Township

Montgomery County

- Cheltenham Township
- Horsham Township
- Towamencin Township

BUCKS
MONTGOMERY
CHESTER
DELAWARE
PHILADELPHIA

N

0 4 8
Miles

* As of October 2012

dvrpc

Seminars and Workshops

Quarterly Seminar Series

- April 11th, 2012: LED Traffic Signal Program
- June 13th, 2012: Energy Management Best Practices
- September 13th, 2012: Strategies to Save Money and Energy in Street Lighting
- January 30th, 2013: Outdoor Area Lighting Best Practices: Streetlights, parking lot lighting, and recreational lighting

W/WWTP conference April 2012

April 25th, 2012: Energy Efficiency at Water and Sewage Treatment Facilities Conference. Blue Bell, PA

Today's Agenda

Welcome/Introductions/Overview of outdoor lighting in Southeastern PA – Rob Graff

Questions to keep in mind – Heather Cowley

Evolution and trajectory of outdoor lighting technology / applications – Dave Quinn

Presentation / facilitated discussion on outdoor lighting technologies – David LaPann, Scott Stuart

Outdoor lighting ordinances – Heather Cowley

PECO Act 129 Incentives – Jordan Stitzer

Discussion / Questions

Introductions – Round Two

1. **If you are from a municipality, what is the current mix of lighting technology for your streetlights, parking lot lights, recreation field lighting, and other outdoor lighting?**
2. **What changes would you like to make to any of these lighting types, and why?**
3. **What information do you need that can best help you make the changes you'd like to make?**
4. **What barriers do you face?**
    1. **Financial**
    2. **Other**

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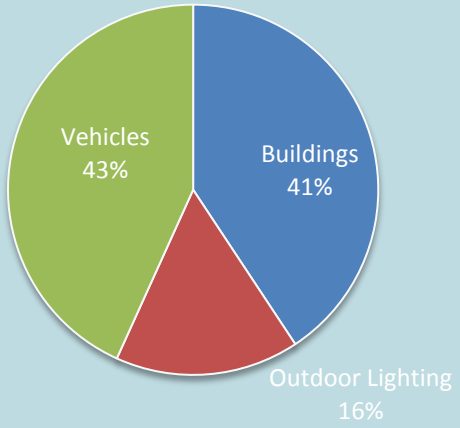
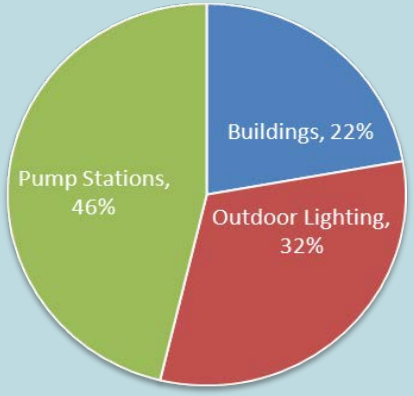
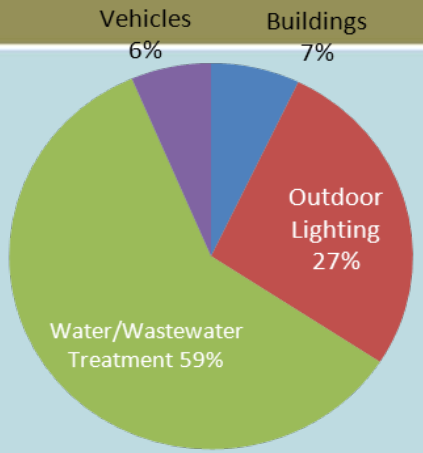
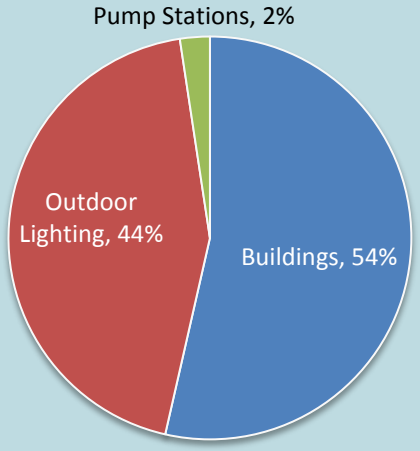
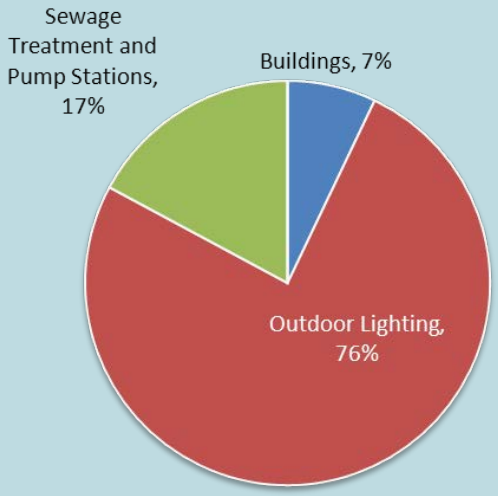
Sample Municipal Street Lighting Costs

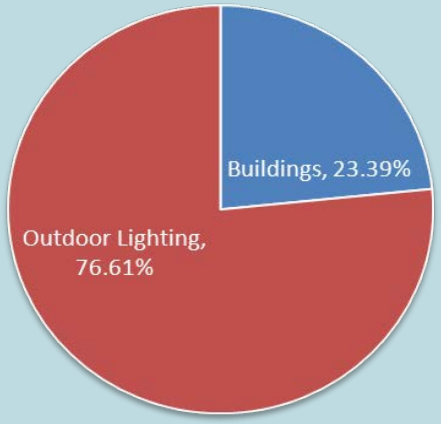












Outdoor lighting often represents a significant portion of a municipality's energy bill

Challenge of Street Lighting Retrofit Projects (in PECO Territory)

Issues identified by municipalities:

- Achieving a reasonable payback is difficult (typically 9+ years)
  - High upfront cost of emerging technology
  - PECO's **Service Location Charge** represents a high "fixed" cost
    - Typically 60-70% of a municipal street lighting bill
  - Limited fiscal staffing capacity to support project scope.
- Choosing a technology:
  - Inundated by vendors and solicitors selling products and services.
  - Technology is rapidly evolving.
- Communicating with PECO:
  - What is the process for having PECO update bill to reflect retrofit?
  - Rules and regulations can be difficult to understand.

PECO Street Lighting Tariff

PECO
An Exelon Company

Emergency and Repairs: 1-800-841-4141. This is the number to call to report power outages, gas leaks or odors, and safety hazards related to PECO equipment. For all other business, call 1-800-494-4000.

Name: SWARTHMORE BOROUGH

Account Number: 06249-00204

Lighting Information

Size	No. of Luminaires	Wattage per Luminaire
20000M	9	429
12000M	13	275
09500S	3	131
04000M	446	115
000LED	30	50
	501	

Street Lighting Customer Owned Service - Current Period Detail	Service 06/04/2012 to 07/03/2012 - 29 days				
Service Location Distribution Charge	501	Locations	X	$7.33000	3,672.33
Generation Charges	20,672	kWh	X	0.05920	1,223.78
Alt. Energy Portfolio Standard	20,672	kWh	X	0.00110	22.74
Transmission Charges	20,672	kWh	X	0.00130	26.87
Distribution Charges	20,672	kWh	X	0.00500	103.36
State Tax Adjustment					-1.89
Total Current Charges					**$5,047.19**

Street Lighting Ownership

http://www.seattle.gov/light/images/d-cobraheadstrlt.jpg

Municipally-owned pole with municipally-owned street light ←

Utility-owned pole with municipally-owned street light →

<u>Very different implications</u>

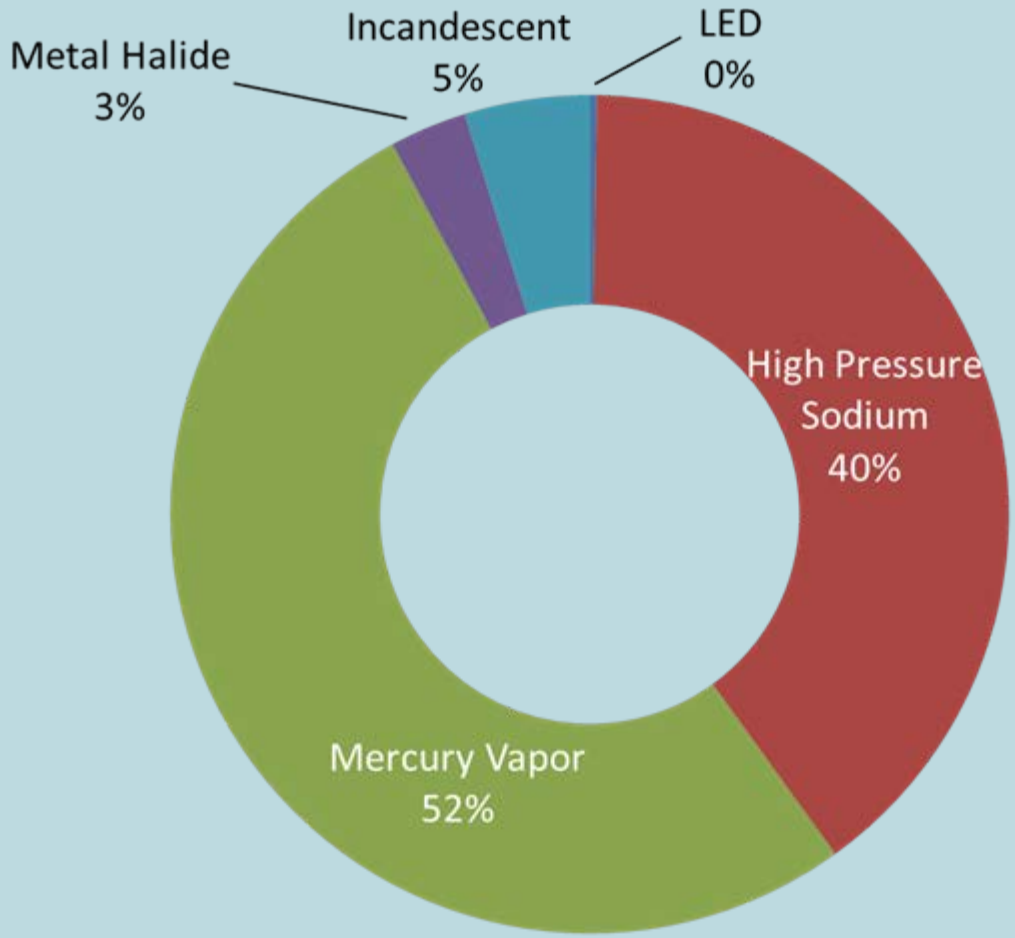
http://ops.fhwa.dot.gov/publications/telecomm_handbook/chapter8.htm

Choosing a Technology

Technology	Mercury Vapor	High-Pressure Sodium Vapor	Induction	New Ceramic Metal Halide	LED
Relative Age	→				
Description	Older, very common white-light HID technology	Most prevalent HID light source for SL	White-light electrodeless light source with long operating life	White-light HID technology; new CMH fixtures are >35% more efficient than previous CMH	White-light, directional, solid-state light source
Pros	• Low initial cost • Longer lamp life (~24K hrs) • White light • Sudden failures are uncommon	• Low initial cost • Longer lamp life (~24K hrs) • High lamp efficacy (70-150 lumens/watt)	• Long life (100K hrs) • White light, high CRI • Low maintenance cost • High fixture efficiency	• White light • Longer lamp life (24-30K hrs) • High lamp efficacy (~115 lumens/watt) • High fixture efficiency	• Long life (>50K hrs) • White light, high CRI • High uniformity • High fixture efficiency • No mercury in light engine
Cons	• Poor lamp efficacy (34-58 lumens/watt) • Lower fixture efficiency (~30%) • Contains mercury	• Lower fixture efficiency (~45%) • Low CRI • Contains mercury	• High initial cost • Lower lamp efficacy (36-64 lumens/watt) • Contains mercury	• High initial cost • Contains mercury	• High initial cost • Lower LED efficacy (~90 lumens/watt)

Source: Clinton Climate Initiative

Street Lighting Technology (PECO Territory)

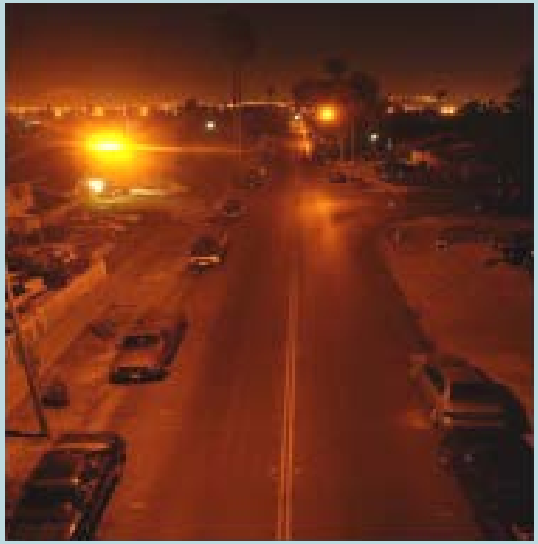


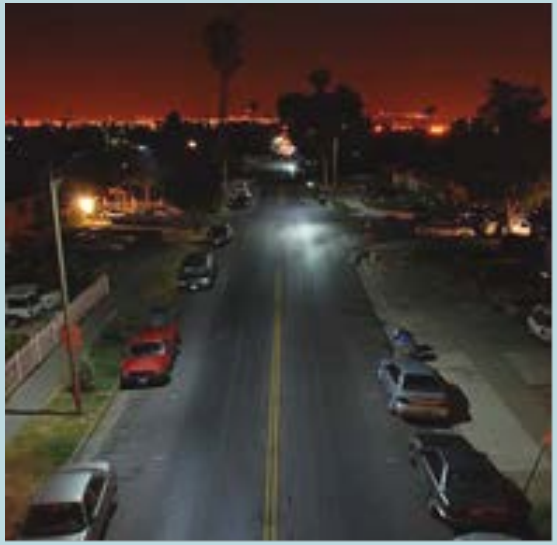
Source: PECO 2009

Emerging Street Lighting Technology

Light Emitting Diode (LED), Induction, Ceramic Metal Halide

High pressure sodium lamps (left). LED technology (right)
Source: City of San Jose





Benefits

- May save considerable energy
- Reduced maintenance costs
- Improves lighting quality, leads to improved safety
- Control features available to manage quality/quantity of lighting

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