



# **Rate SL-E Street Lighting Customer Owned Facilities Rate Design**

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# Agenda

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- Overall Rate Development Process
  - Developing a revenue requirement
  - Cost allocation and cost of service studies
- Rate Design
- Rate Case Proceedings
- 2010 Base Rate Case
- Rate SL-E review

# Deregulation



# Traditional Utility Functions

## Generation



## Transmission



## Distribution





# Unbundling the Bill

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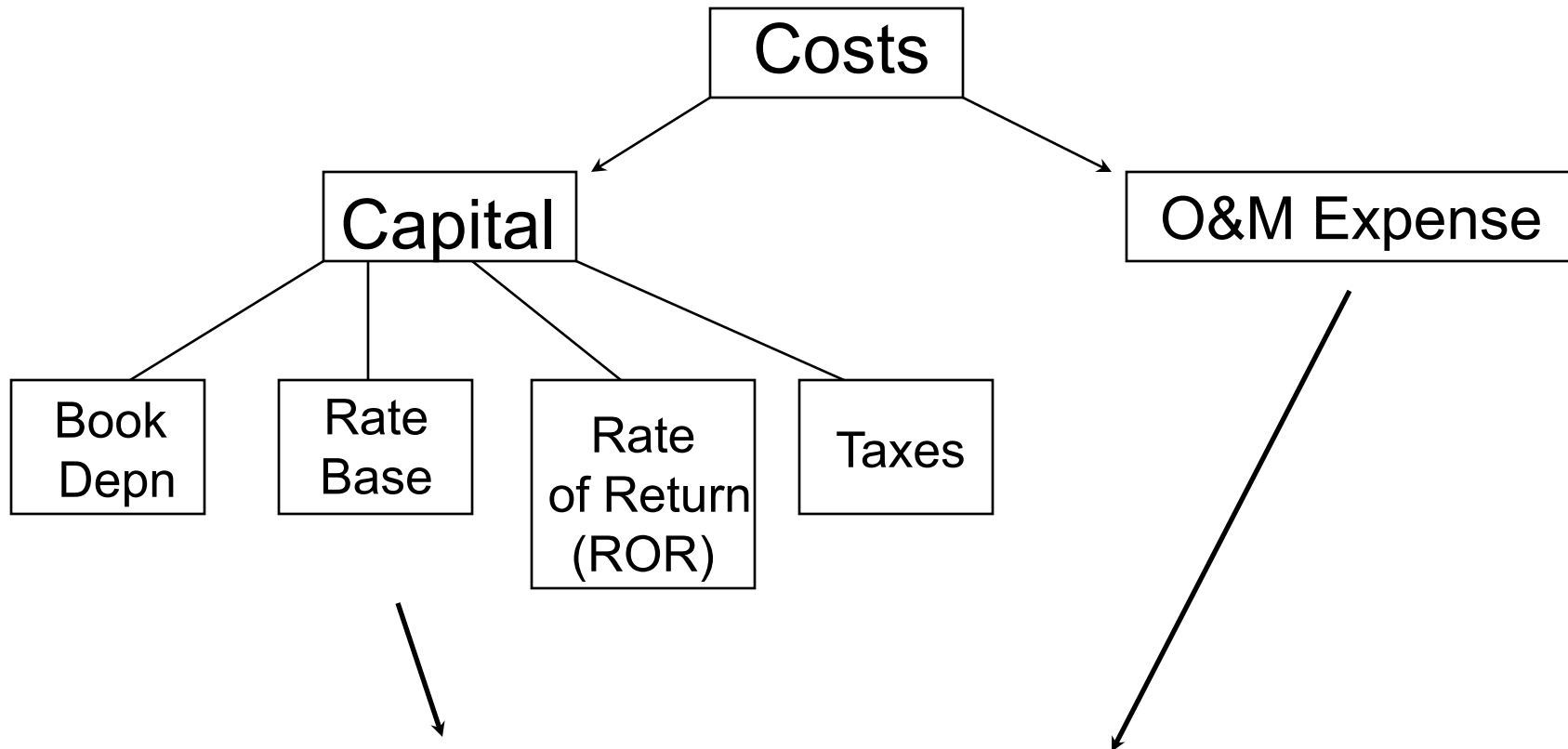
- **Generation Supply Related Charges**
  - Production of electricity
  - Bill Components that make up the “price to compare” (PTC)
    - Generation Supply Adjustment (GSA)
    - Transmission Service Charge (TSC)
    - Alternative Energy Portfolio Standard (AEPS)
  
- **Distribution Charges**
  - The delivery of electricity from transmission lines to the customer

# Regulatory Ratemaking

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- Pricing or rates for PECO's product are based on recovering costs, both capital and expense
- Included in the costs is a "fair" rate of return for shareholders
- Basis of pricing is revenue requirements

# Revenue Requirements



## Year by Year Revenue Requirements

Annual Revenue Requirements = O&M + Book Depreciation + Return (rate base x ROR) + Taxes

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# Rate Development Process - Overview

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## Revenue Requirements

Develop the total Revenue required. to be recovered through rates



## Cost Allocation Process

Assign Revenue requirements to customer classes to reflect the cost of providing the utility service to each class.  
All streetlights are in the “Lighting” class, with traffic signals.

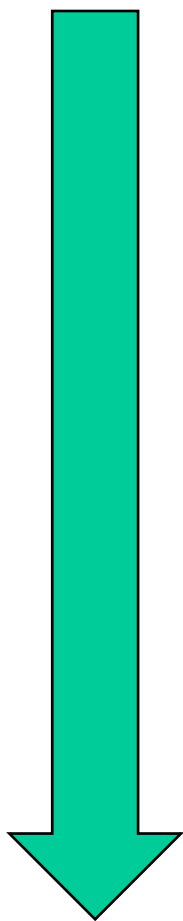


## Rate Design

Design rates (including SL-E) based on billing determinants (i.e., usage, demand, number of customers).



# Rate Development Process - Summary



## Functionalize Costs

Energy  
Procurement

Transmission

Distribution

## Classify Costs

Customer

Demand

Energy

## Allocate Costs to Classes

Residential

Commercial

Industrial

Lighting

## Rate Design

Residential

Commercial

Industrial

Lighting  
(including  
SL-E)

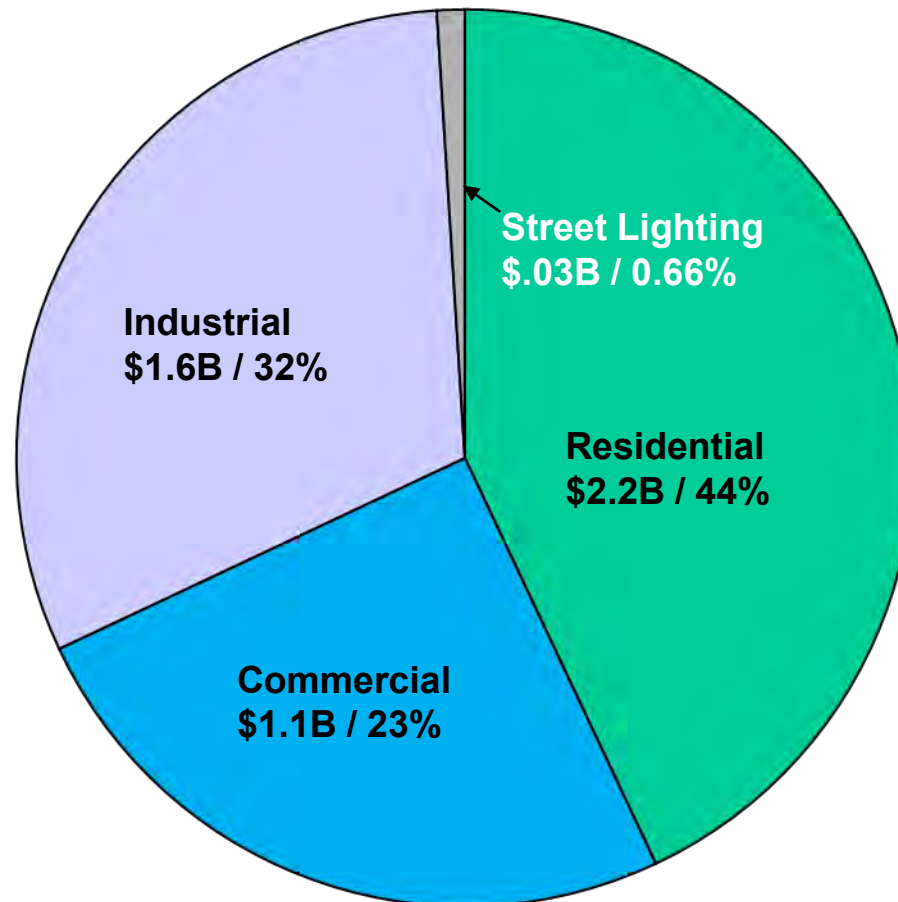
Other

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# Cost Allocation Process

After the total Revenue Requirement (“the pie”) has been determined, the proper allocation among customer classes (“the slices”) must be determined

**Total revenue= \$4.9B\***



\* Based on 2010 rate case

# Cost Allocation and Cost of Service

- Cost of service represents the costs incurred by the utility in **producing generation** and delivering transmission & distribution services for its customers
- A cost of service study measures the utility's costs incurred in serving each customer class, including a reasonable return on investment
- *Utilities do not measure the exact cost of serving any one customer, but rather measure the cost relationships among various customer classes*
- Each customer imposes a different combination of costs on the system and the cost to serve is unique to each
- Customers with similar characteristics are grouped together as a customer class and rates are designed to recover the cost of serving the class
- These studies are the initial step in setting reasonable rates

# Many Factors Are used in Cost Allocation

PECO Energy Company (Electric)

Future Test Year 2010

Class Cost of Service Study (\$000s)

CLASS ALLOCATION ALLOCATORS

Name	Total	Residential Rate R	Residential Rate RH	Off Peak Rate OP	General Service Rate GS	Primary Rate PD	High Tension Rate HT	Electric Rate EP	Lighting Rates L
MWh-Meter	EXT	10,130,440	2,636,820	290,626	8,503,747	659,586	14,933,445	788,101	186,240
MWh-Meter%	38,129,005	26.57%	6.92%	0.76%	22.30%	1.73%	39.17%	2.07%	0.49%
ICP- Tran	EXT	3,047,627	425,091	41,474	2,110,131	115,814	2,510,202	106,795	0
ICP- Tran%	8,357,135	36.47%	5.09%	0.50%	25.25%	1.39%	30.04%	1.28%	0.00%
NCP- PriHT	EXT	3,453,657	1,037,113	57,243	2,404,257	144,531	2,741,669	200,630	45,929
NCP- PriHT%	10,085,029	34.25%	10.28%	0.57%	23.84%	1.43%	27.19%	1.99%	0.46%
NCP- Primary	EXT	3,453,657	1,037,113	57,243	2,404,257	144,531	0	0	45,929
NCP- Primary%	7,142,730	48.35%	14.52%	0.80%	33.66%	2.02%	0.00%	0.00%	0.64%
Bills	EXT	13,970,733	1,911,393	955,860	1,803,277	8,928	33,384	465	165,600
Bills%	18,849,640	74.12%	10.14%	5.07%	9.57%	0.05%	0.18%	0.00%	0.88%
Customers	EXT	1,164,228	159,283	0	150,273	744	2,782	39	5,000
Customers%	1,482,348	78.54%	10.75%	0.00%	10.14%	0.05%	0.19%	0.00%	0.34%
Locat-Sec	EXT	1,164,228	159,283	0	150,273	0	0	0	233,451
Locat-Sec%	1,707,235	68.19%	9.33%	0.00%	8.80%	0.00%	0.00%	0.00%	13.67%
Services_Cost	EXT	3,149,748	403,334	201,702	931,057	4,610	17,237	-	-
Services_Cost%	4,707,686	66.91%	8.57%	4.28%	19.78%	0.10%	0.37%	0.00%	0.00%
Meter_Cost	EXT	63,525,091	8,134,570	9,683,658	54,380,549	559,168	2,090,868	29,150	0
Meter_Cost%	138,403,053	45.90%	5.88%	7.00%	39.29%	0.40%	1.51%	0.02%	0.00%
Meters	EXT	1,243,883	159,283	79,655	163,057	744	2,782	39	0
Meters%	1,649,442	75.41%	9.66%	4.83%	9.89%	0.05%	0.17%	0.00%	0.00%
Cust_Chge_Rev	EXT	79,261	10,149	4,445	22,626	2,498	8,656	588	20,499
Cust_Chge_Rev%	148,723	53.29%	6.82%	2.99%	15.21%	1.68%	5.82%	0.40%	13.78%
kWh_Rev	EXT	479,514	89,213	10,753	138,181	6,865	74,715	1,813	1,087
kWh_Rev%	802,141	59.78%	11.12%	1.34%	17.23%	0.86%	9.31%	0.23%	0.14%
Total_Del_Rev	EXT	485,048	90,659	15,198	158,969	12,100	121,796	9,705	21,587
Total_Del_Rev%	915,062	53.01%	9.91%	1.66%	17.37%	1.32%	13.31%	1.06%	2.36%
CallCenter	EXT	79.25%	10.84%	0.00%	9.38%	0.05%	0.17%	0.00%	0.31%
CallCenter%	100.00%	79.25%	10.84%	0.00%	9.38%	0.05%	0.17%	0.00%	0.31%

# Typical Costs for Street Lighting

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## **DISTRIBUTION PLANT**

Land and Land Rights  
Structures and Improvements  
Station Equipment  
Poles, Towers and Fixtures  
Overhead Conductors and Devices  
Underground Conduit  
Underground Conductors & Devices

## **O & M EXPENSES**

Station Expenses  
Overhead Line Expenses  
Underground Line Expenses  
Maint of Structures  
Maintenance of Station Equipment  
Maintenance of Overhead Lines  
Maintenance of Underground Lines  
Maintenance of Line Transformers  
Maintenance of Street Lights  
Maintenance of Meters  
Maintenance of Misc. Plant

## **ADMINISTRATIVE AND GENERAL**

Administrative and General Salaries  
Office Supplies and Expenses  
Outside Service Employed  
Property Insurance  
Injuries and Damages  
Employee Pensions and Benefits

*Proprietary and Confidential*

# Cost of Service Study

Demand



PECO Energy Company (Electric)  
Future Test Year 2010  
Class Cost of Service Study (\$ millions)

Unit Cost Component	Total	Residential Rate R	Residential Heating Rate RH	Off Peak Rate OP	General Service Rate GS	Primary Distribution Rate PD	High Tension Rate HT	Electric Propulsion Rate EP	Lighting Rates L
<b>REVENUE REQUIREMENT BY FUNCTIONAL CLASSIFICATION</b>									
Primary 13 kV & 34 kV Demand	420	145	43	2	100	6	113	8	2
Primary 4 kV Demand	148	72	21	1	50	3	0	0	1
Secondary Dist Demand	59	29	9	0	20	0	0	0	0
Secondary Dist Customer	209	136	19	2	23	0	1	0	28
Billing Customer	369	253	38	12	55	1	8	0	1
<b>TOTAL</b>									
Demand	627	245	73	4	170	9	114	8	4
Customer	578	389	57	14	79	1	8	0	29
	<b>1,205</b>	<b>635</b>	<b>130</b>	<b>18</b>	<b>248</b>	<b>10</b>	<b>122</b>	<b>9</b>	<b>32</b>
									<b>2.7%</b>

Customer





# Rate Design – Process

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- Rate Design is an “art as well as a science”
- Many factors beyond the pure numbers from the cost allocation are taken into account when setting rates:
  1. Simplicity, understandability, public acceptance of the design
  2. Improve system load factor
  3. Revenue stability
  4. Stability of rates
  5. Gradualism – avoiding undue impact on any one class by requiring a slower incremental movement toward actual cost of service and not favoring sudden, quick increases in rates
  6. Subsidization – customer class(es) paying a greater than average Rate of Return (ROR) than other class(es) for their cost of service
  7. Conservation and/or DSM objectives

# Rate Case Proceedings

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- The utility decides to file for a base rate increase when projected costs exceeds projected revenues
- Filing for a base rate increase is an extensive and expensive undertaking for the utility.
- Base Rate Case is a legal proceeding presided over by an Administrative Law Judge (ALJ)
- The utility presents its case for a rate increase and acts as a defendant in the case
- The PUC Trial Staff acts as a prosecutor in the case
- After all the evidence has been heard and witnesses have been presented, the ALJ makes a recommendation to the PUC Commissioners on the merits of the case
- The PUC Commissioners have the final approval on the outcome of the rate case

# Rate Case Negotiations and Settlement

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- Many parties are involved in the proceedings of a base rate case.
  - PUC Trial Staff
  - Office of Consumer Advocate (OCA)
  - Office of Small Business Advocate (OSBA)
  - Philadelphia Industrial Energy Users Group (PIEUG)
  - Rate Case Interveners (e.g., City of Philadelphia)
- Utilities may prefer to negotiate a rate case settlement with interested parties instead of a lengthy expensive trial.
- All parties sign off on the negotiated settlement. The settlement is sent to the PUC Commissioners for approval.

# Lighting Class Expenditures and Revenues

	<b>Lighting</b>
	Rates L
<b>Revenue at Present Rates</b>	
Distribution charge revenue	21,587
Transmission revenue	448
Purchased Power revenue	16,338
Other revenue	1,026
<b>Total Revenue</b>	<u>39,398</u>
<b>Operating Expenses</b>	<u>35,397</u>
Income Before Tax	4,001
Income Tax Expense	506
<b>Net Operating Income</b>	<u><u>3,495</u></u>
Rate Base	<u><u>97,991</u></u>
Rate of Return at Current Rates	<u>3.57%</u>

# PECO's Original Proposal for New Rate

<b>Distribution Revenue Requirement</b>	
Distribution charge revenue	31,515
Transmission revenue	0
Purchased Power revenue	16,338
Forfeited discounts	0
Other revenue	1,026
	<u>48,879</u>
Operating Expenses	33,123
Uncollectibles expense	0
Gross receipts tax	2,780
Income Before Tax	<u>12,976</u>
Income Tax Expense	4,205
<b>Net Operating Income</b>	<u><u>8,770</u></u>
Rate of Return	8.950%
Increase (Decrease) Required \$	<u>9,480</u>

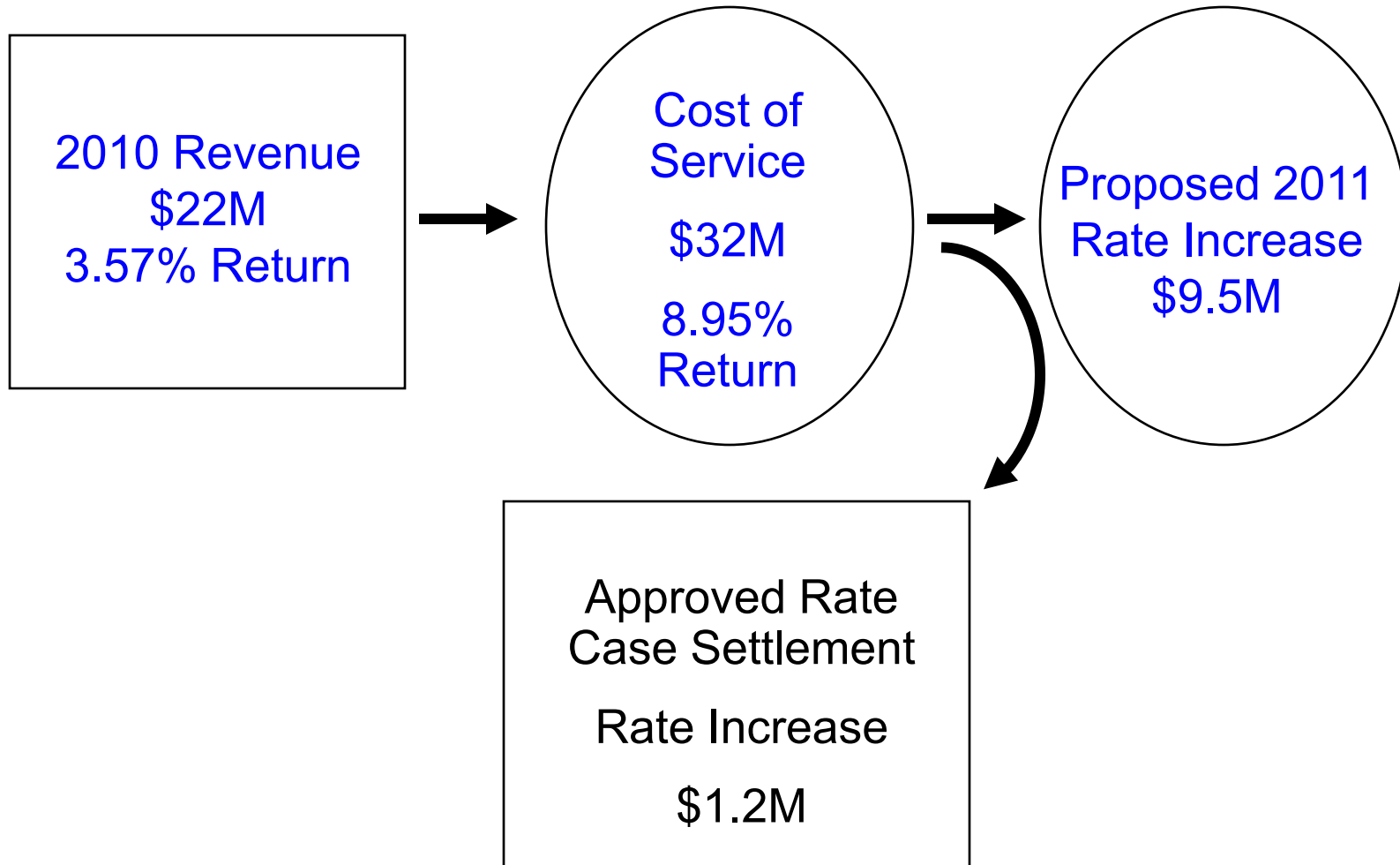
# 2010 Base Rate Case - Settlement

**PECO Energy Company**  
**Summary of Percent Increase by Tariff Rate**  
**12 Months Ending December 31, 2010**

<b>Rate</b>	<b>Estimated Total Revenue</b>	<b><u>Distribution Revenue</u></b>	<b><u>Distribution Increase</u></b>	<b><u>% Increase Total Bill</u></b>	<b><u>% Increase in Distribution</u></b>
Residential	\$ 1,531,600,000	\$ 516,778,258	\$ 87,043,790	5.7%	16.8%
Residential Heating	\$ 360,100,000	\$ 96,545,684	\$ 23,748,249	6.6%	24.6%
Off Peak	\$ 44,500,000	\$ 15,303,317	\$ 2,583,491	5.8%	16.9%
General Service	\$ 1,009,400,000	\$ 159,165,256	\$ 60,612,685	6.0%	38.1%
Primary Distribution	\$ 69,100,000	\$ 12,263,081	\$ 397,460	0.6%	3.2%
High Tension	\$ 1,409,900,000	\$ 129,473,303	\$ 20,966,027	1.5%	16.2%
Electric Propulsion	\$ 76,200,000	\$ 9,610,323	\$ 496,825	0.7%	5.2%
Lighting	<b>\$ 38,400,000</b>	<b>\$ 23,192,271</b>	<b>\$ 1,192,381</b>	<b>3.1%</b>	<b>5.1%</b>
<b>Total</b>	<b>\$ 4,539,200,000</b>	<b>\$ 962,331,492</b>	<b>\$ 197,040,909</b>	<b>4.3%</b>	<b>20.5%</b>



# Summary – Street Lighting – New Rate



# 2010 Base Rate Case - Settlement

PECO Energy Company (Electric)  
Rate Year Ended December 31, 2011  
Rate Design- Rate Classes Lighting

	Locations	Units	PRESENT RATES		PROPOSED RATES		EEPC	Rates w/EEPC
			Rate	Revenue	Rate	Revenue		
<b>Customer-Owned Fixtures</b>								
Location Charges SL-P	96,853	1,162,236	\$7.11	8,267,657	\$7.11	8,267,657	\$ 0.63	\$7.74
Location Charges SL-E	67,616	811,392	\$7.11	5,771,901	\$7.11	5,771,901	\$ 0.46	\$7.57
Location Chge SL-E 33	27,766	333,192	\$7.11	2,370,187	\$7.11	2,370,187	\$ 0.46	\$7.57
	192,235	2,306,820	\$7.11	16,409,745		16,409,745		
	Proposed	Present						
All kWh SL-P	66,120,384	66,120,384		-	\$0.0054	357,050		
All kWh SL-E	44,183,480			-	\$0.0054	238,591		
All kWh SL-E 33	18,372,118			-	\$0.0054	99,209		
	128,675,982	66,120,384		-		694,850		
<b>Total Customer-Owned Fixtures</b>				16,409,745		17,104,595		

- Street lighting rate design has a large fixed location charge and a small variable charge due to the fact there are large fixed costs associated with street lighting service with low kWh usage.
- Final proposed rates do not include tax repair credits and nuclear decommissioning surcharge changes.

## **PECO Electric Tariff**

# **RATE SL-E STREET LIGHTING CUSTOMER-OWNED FACILITIES**

# Availability

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- To any governmental agency for outdoor lighting provided for the safety and convenience of the public of streets, highways, bridges, parks or similar places, including directional highway signs at locations where other outdoor lighting service is established hereunder only if all of the utilization facilities, as defined in Terms and Conditions in this Base Rate, are installed, owned and maintained by a governmental agency.
- This rate is also available to community associations of residential property owners both inside and outside the City of Philadelphia for the lighting of streets that are not dedicated. This rate is not available to commercial or industrial customers. All facilities and their installation shall be approved by the Company.

# Monthly Rate Table

- **PECO Distribution Charges**
  - **SERVICE LOCATION DISTRIBUTION CHARGE:**
    - For service locations within the City of Philadelphia: \$7.50 per Service Location
    - For service locations outside of the City of Philadelphia \$7.33 per Service Location
    - The service location charge includes an Energy Efficiency Program Surcharge of \$0.63 per location within the City of Philadelphia and \$0.46 per location outside of the City of Philadelphia.
  - **VARIABLE DISTRIBUTION CHARGE:** \$0.005 per kWh
  
- **Generation Supplier Related Charges**
  - **ENERGY Supply Charge:** Refer to the Generation Supply Adjustment Procurement Class 2.
    - Default Service Price as of July 1, 2012 is \$0.0592/kWh
  - **Transmission Service Charge**
    - Price as of January 1, 2012 is \$0.0013/kWh
  - **Alternative Energy Portfolio Standards**
    - Price as of June 1, 2012 is \$0.0011/kWh

- **DETERMINATION OF BILLING DEMAND.**

- The wattage, expressed to the nearest tenth of a watt, of a Service Location shall be composed of manufacturer's rating of its lamps, ballasts, transformers, individual controls and other load components required for its operation. The aggregate of wattages of all Service Locations in service shall constitute the billing demand for the month.

- **DETERMINATION OF ENERGY BILLED.**

- The energy use for a month of a Service Location shall be computed to the nearest kilowatt-hour as the product of one-thousandth of its wattage and the effective hours of use of such wattage during the calendar month.
- Lighting service will be operated on all-night, every-night lighting schedules, under which lights normally are turned on after sunset and off before sunrise with approximately 4,100 annual operating hours. Extended lighting service during all daylight hours will be supplied for lamps specified by the customer.
- The aggregate of the kilowatt-hours thus computed for all Active Service Locations shall constitute the energy billed for the month.



# Bill Calculation

**LPS**  
**50,000 lumens**  
**450 Watts**  
**4100 Annual Operating Hours**  
**154 kWh/mo (450 W x 4100 hrs) / (1000 x 12 mo)**

	<u>1999 Rates</u>	<u>1999 Monthly Bill</u>
Location Charge	\$ 7.00	\$ 7.00
VDC - kWh	\$ -	\$ -
<b>Total</b>		<b>\$ 7.00</b>

<u>2012 Rates</u>	<u>Billing Determinants</u>	<u>2012 Monthly Bill</u>
\$ 7.33 x	1	= \$ 7.33
\$ 0.0050 x	154	= \$ 0.77
		<b>\$ 8.10</b>

- 15.7% rate increase over 13 years.
- Average rate increase of 1.2% during those 13 years.

# Questions?

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