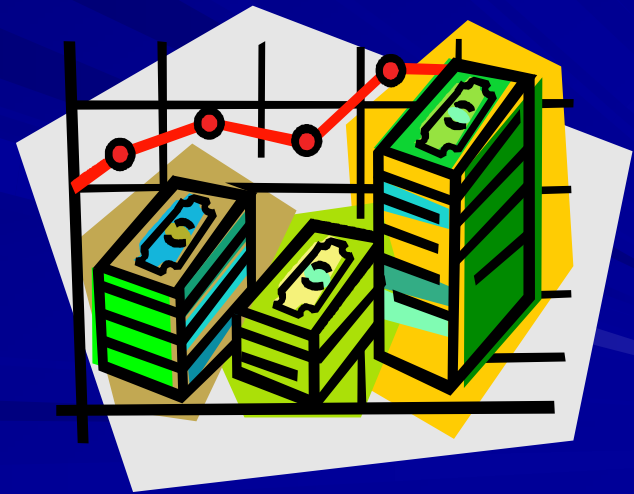


Energy Savings for Local Governments

Presented by
Stacy Richards
Achieving Energy Savings Seminar
Bucknell University
August 1, 2007



SEDA-COG'S Energy Resource Center

1. Energy Demand Reduction

1. Schools
2. Homes
3. Local Governments
4. Businesses



2. Renewable Energy Markets for Existing and New Businesses

3. "Homegrow" efficient and renewable energy technology and expertise

Energy Savings Initiatives

■ Utility Bill Analysis



■ LED Traffic Light Conversion

Utility Bill Analysis

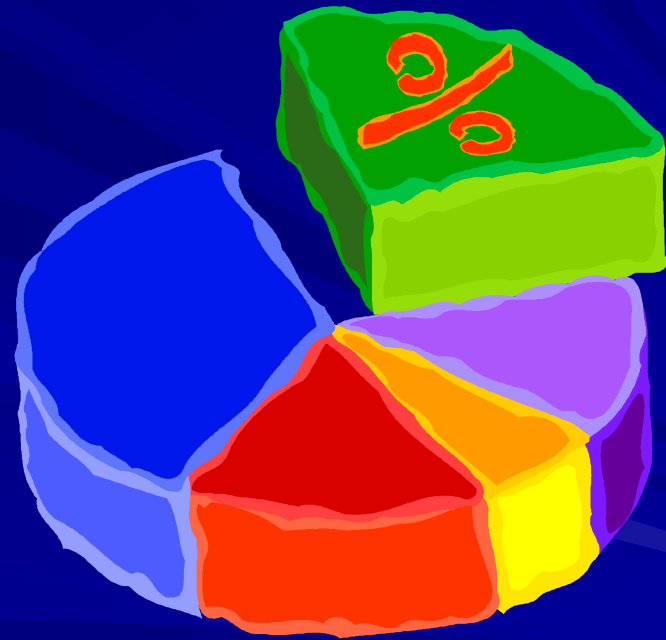


Why Utility Bill Analysis?

- Difficult to track energy use and costs
 - Utility rates are negotiated between the utility and the PUC, not the customer
 - Most municipalities receive an electricity and heating bill for *each meter*
- Microsoft's Excel spreadsheet is a good info tool to track energy use

How Are You Using Energy?

- What gets measured gets managed
- Energy is now a dear resource



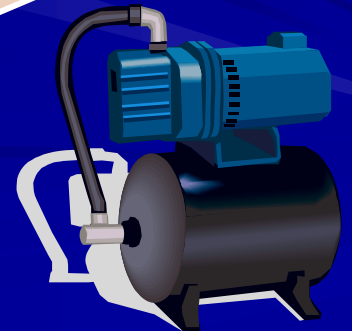
Dual Evaluation

1. Building Envelope



2. Operations

- Lights
- Motors
- Pumps
- Equipment
- HVAC



Where Do You Start?

■ Microsoft Excel Spreadsheet

- Record monthly utility bills for all meters
- Charts provide visual tracking of energy use
- Good energy management planning tool

■ Energy Assessment

- Efficiency of Equipment
- Proper Insulation

What Do You Track?

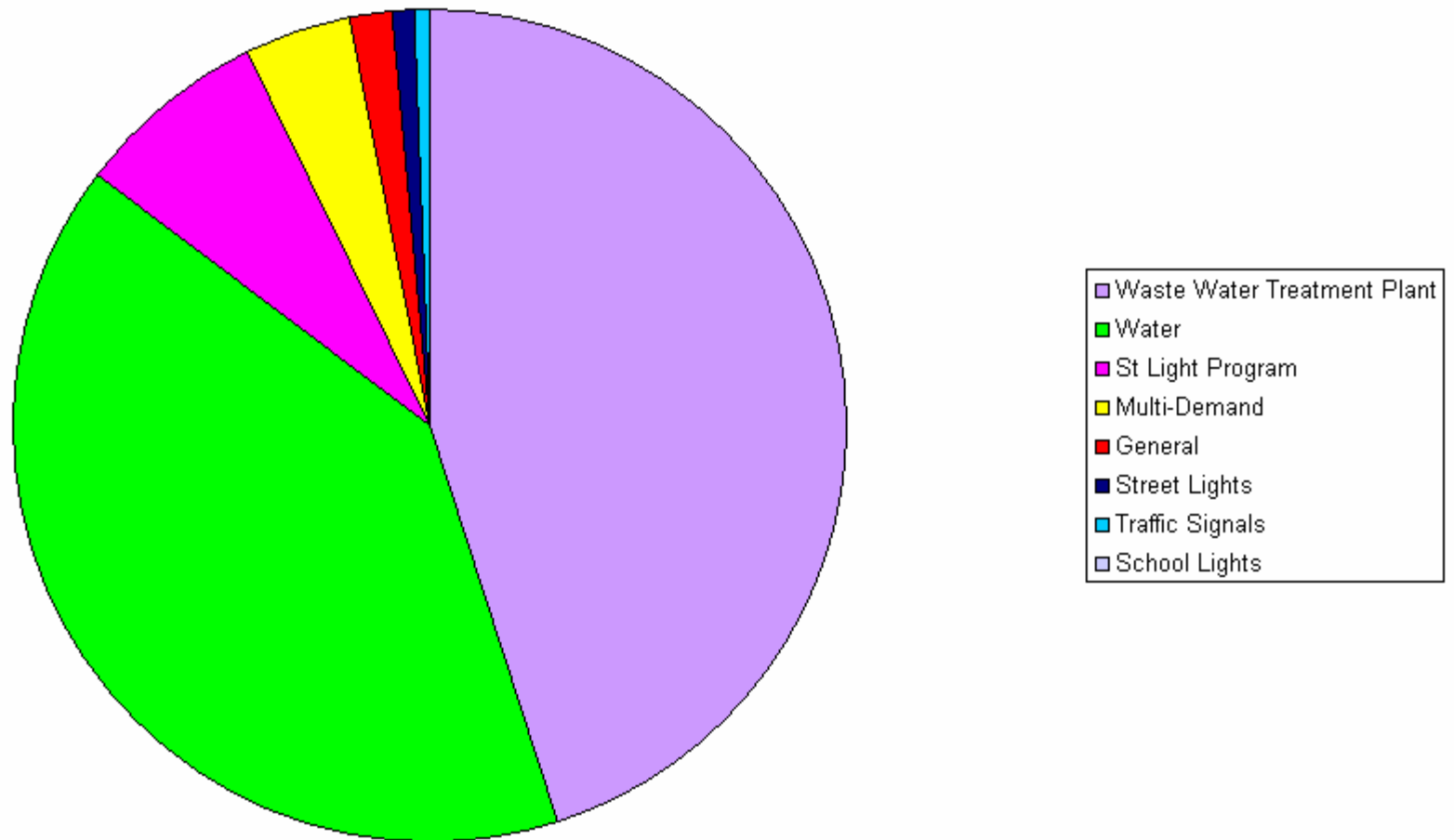
- Consumption (Kw)
- Demand
- Cost



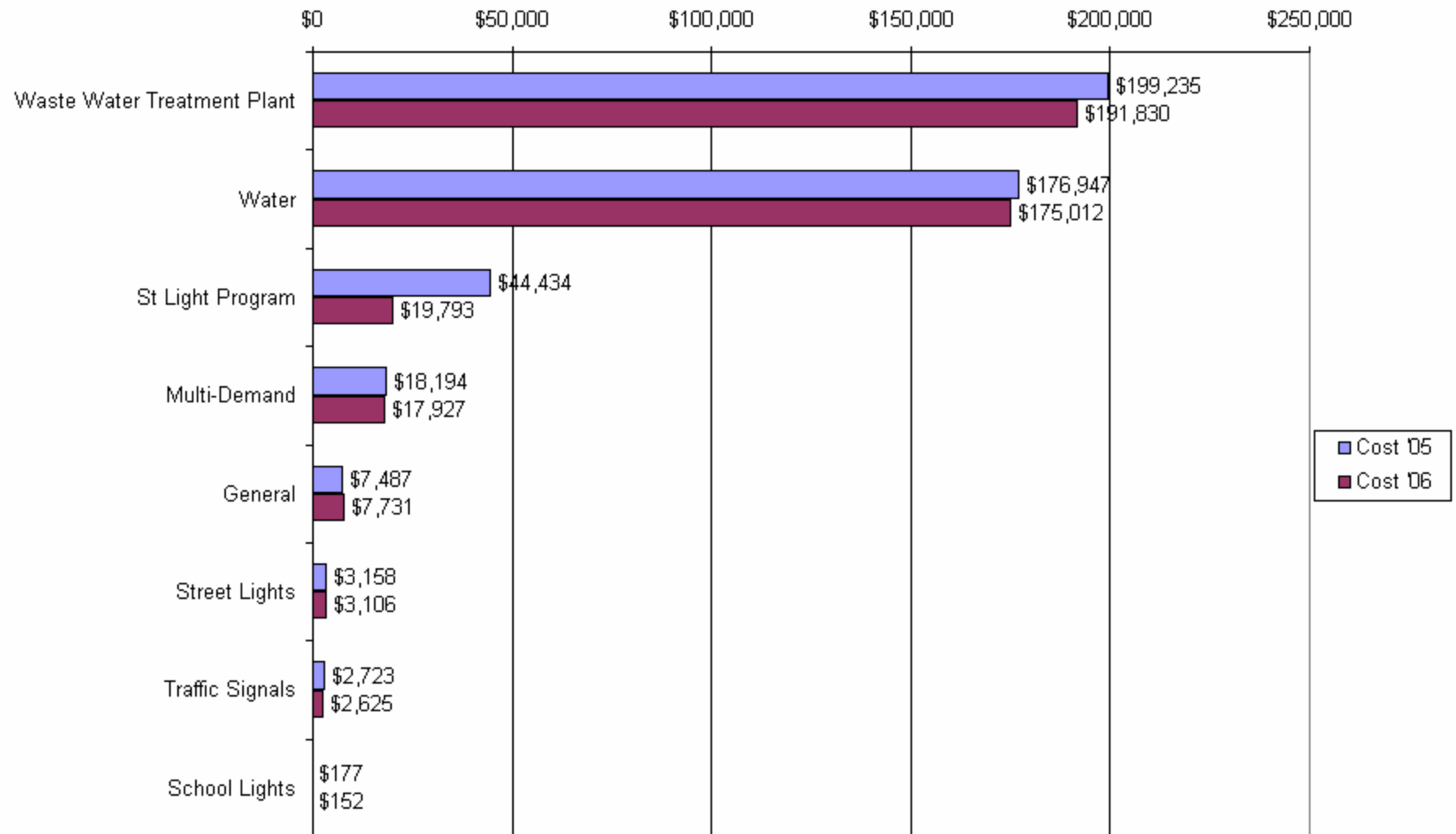
Borough of Bellefonte

Utility Bill Analysis and Energy Assessment

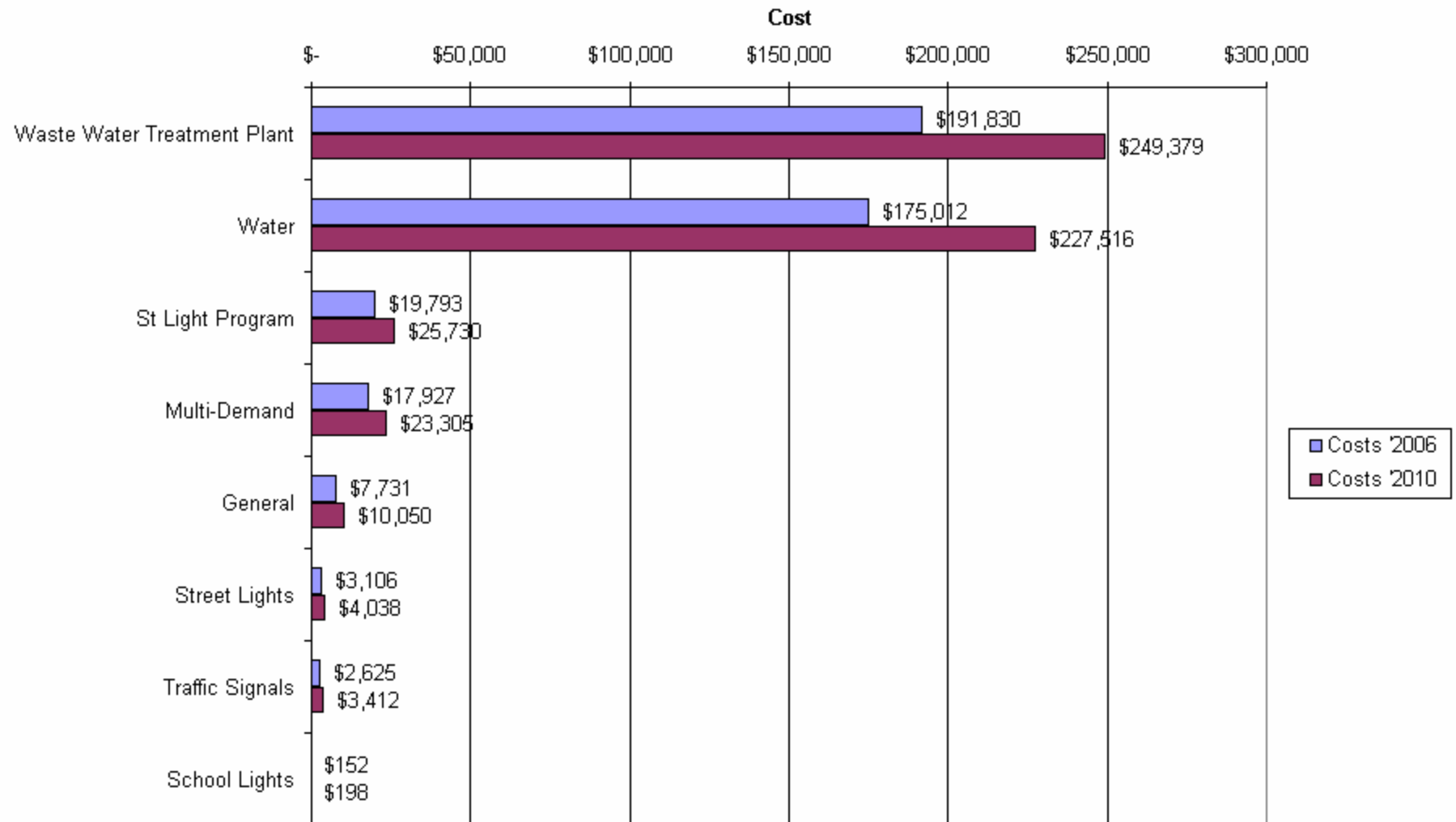
Bellefonte Borough Total Costs for Services 2005 and 2006



Total Annual Electricity Costs Comparison for Each Major Use 2005 and 2006



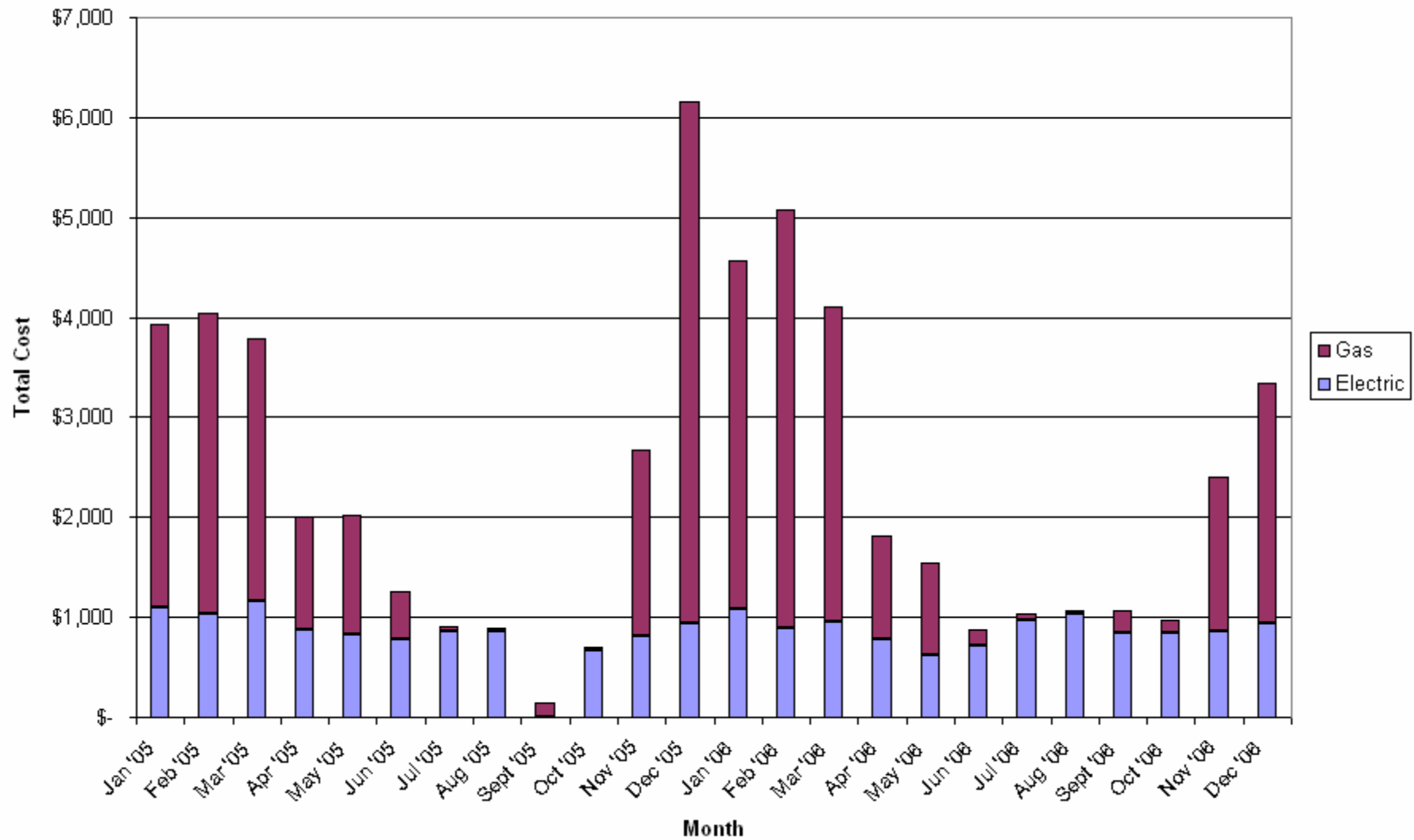
**Comparison of 2006 Electricity Costs with Projected 30%
Increase in 2010 Costs Comparison
2006 and 2010**



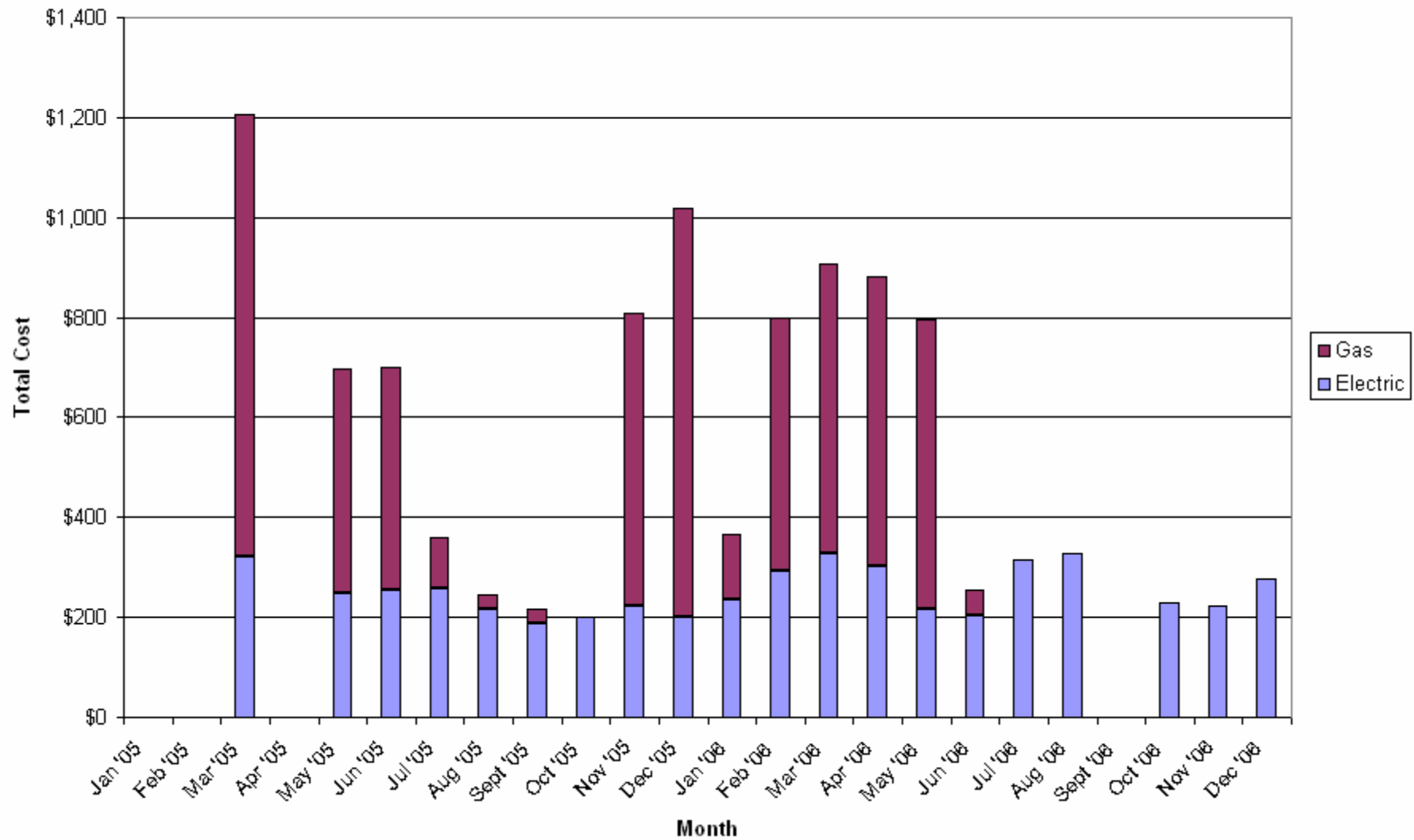
Electricity Cost Scenarios

■ 2006 Costs	\$418,000
■ 30% Increase	\$544,000
■ 50% Increase	\$628,000
■ 100% Increase	\$836,000

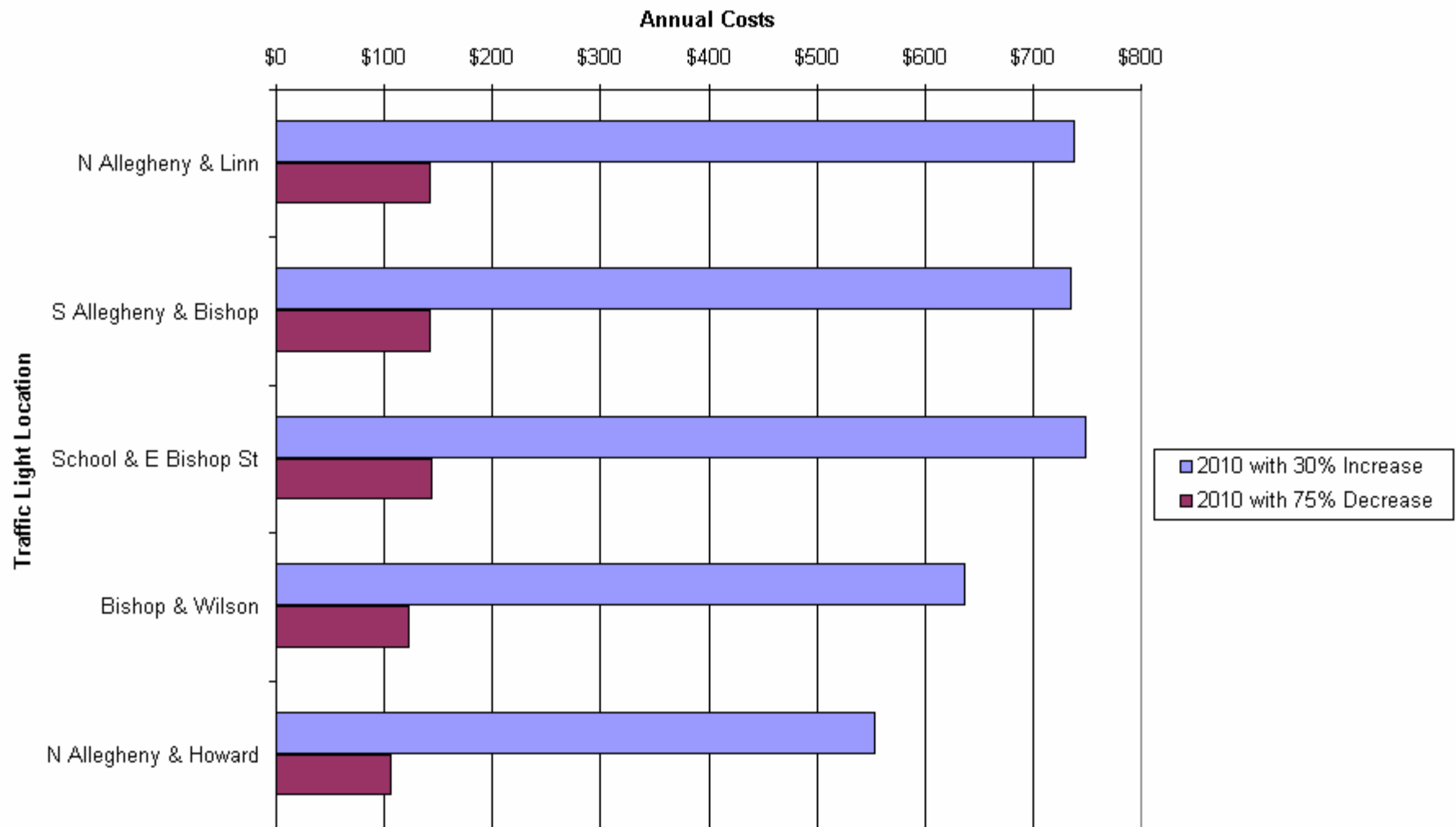
BWO Building and Garages Gas and Electric Comparison



Logan Fire House Gas and Electric Comparison



Traffic Light 2010 Projected Costs Compared to LED Traffic Light 2010 Costs



In the absence of December 2006 cost information, December 2005 costs were used.

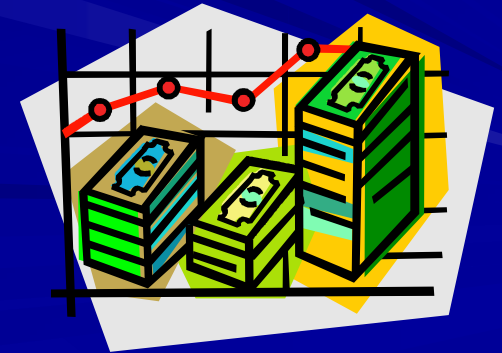
Chart does not include cost of those traffic signals that are on multi-use meters.

Recommendations to Bellefonte

- Engage your employees in energy reduction
- Work with your engineer to convert to variable speed motors and pumps for wastewater and water systems
- Weatherize your buildings to reduce energy costs
- Replace inefficient heaters with efficient heaters
- Convert to LED traffic lights
- Require your fire department to turn down the thermostat when they open their doors
- Harness your spring for hydropower

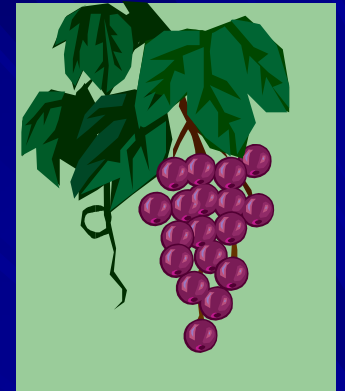
Recommended Actions

1. Become more informed
2. Evaluate current energy usage
 - self-analyze
 - energy professional
3. Reduce your energy demand
4. Shave “peak costs” via renewable energy technology
5. Develop energy management plans



Energy Management Plans

- Track how you are using energy
- Identify Low Hanging Fruit
- Use savings from low hanging fruit to finance greater reductions that have higher capital costs



Technical Assistance

■ Self-Help

- Utility Bill Analysis
- Portfolio Manager
- Electricity Utilities
- EERE
- Today's

■ Consulting Engineers

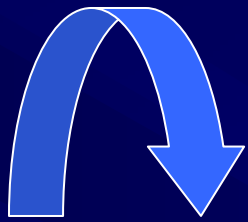
■ Architects

■ Energy Saving Companies

■ Non-profit/Agency:

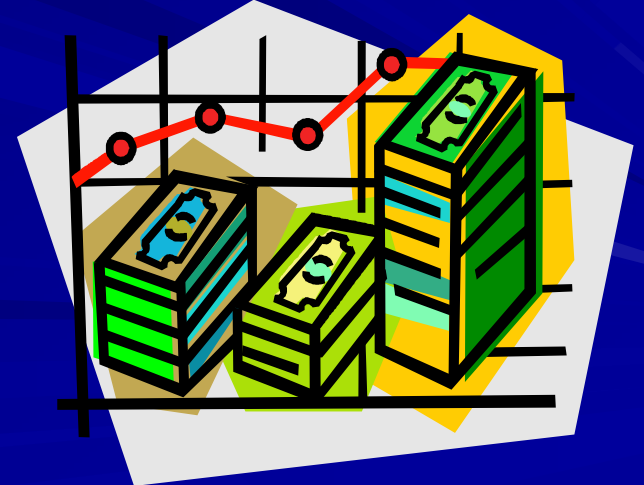
- SEDA-COG
- DEP





Start NOW

- SEDA-COG is offering 4 more **free** utility bill analyses this year
- Call us at 570-524-4491



LED Traffic Light Conversion



Incandescent Traffic Signals

- Current electricity costs per intersection

\$1,000

- 2010 electricity costs per intersection

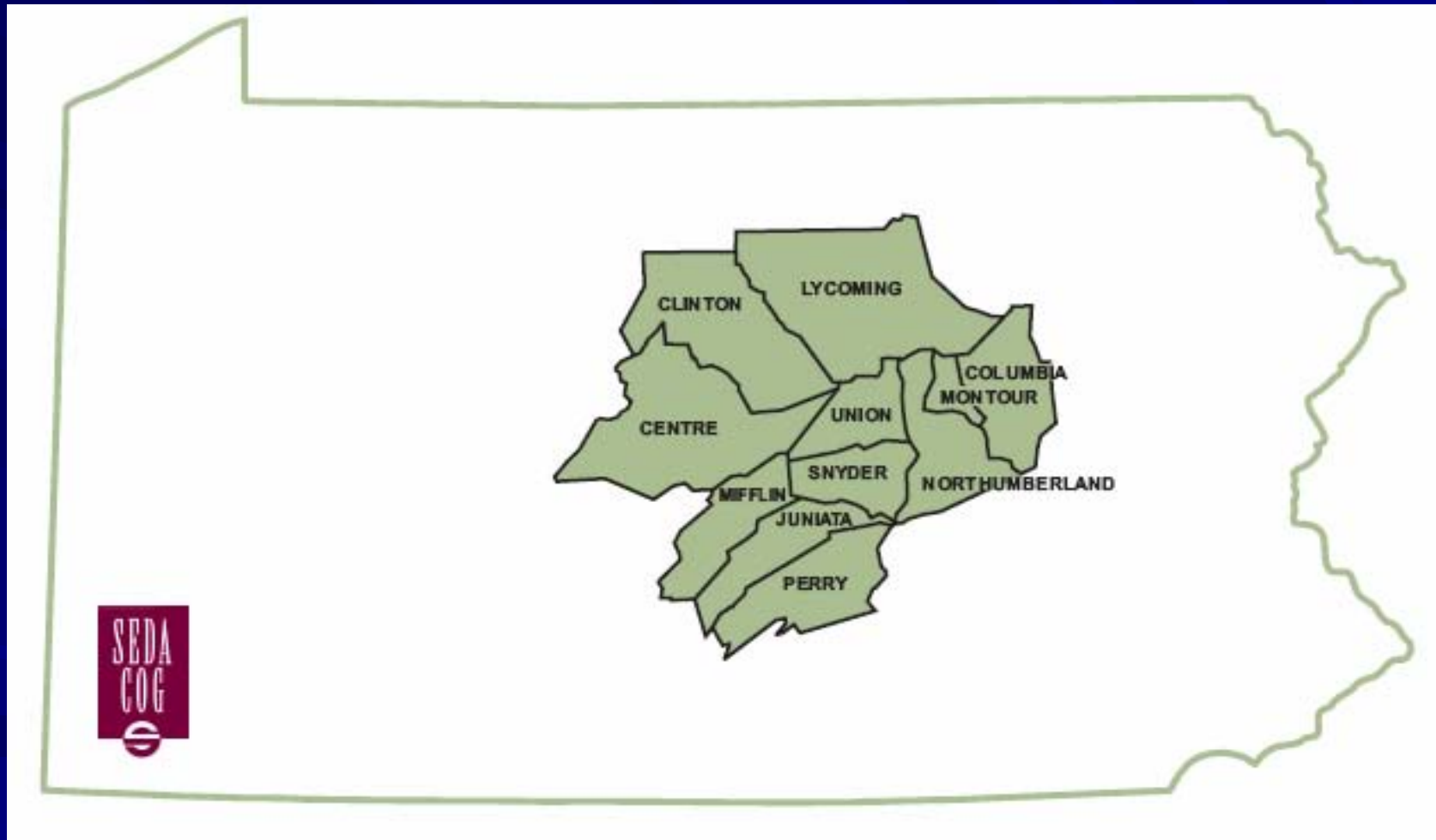
\$1,300 to \$2,000

- High maintenance costs

LED Traffic Signals

- Highly efficient
- Use 90% *LESS* energy than incandescent
- Last 5 to 7 years
- Capital costs = \$3,000/intersection
- Payback = 3 years

Service Area



LED Conversion Project

- SEDA-COG and PennDOT teamed
- Assist 65 communities convert 225 intersections to LED
- One equipment bulk purchase
- Training and assistance to procure qualified local lighting installation contractor
- Completed before rates increase