Your Lighting Program: How to Increase Operational Efficiency, Revenue, and Customer Satisfaction

Presented by: Aaron J Bradshaw

Audience Poll

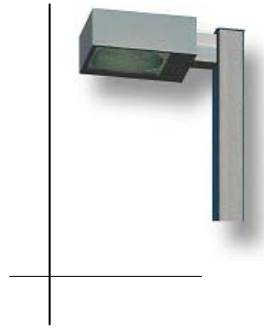
1. Who's utility has someone responsible for lighting?
2. Who knows for sure that your lighting program is profitable?
3. Who thinks that their lights are properly tracked and billed?
4. Who knows how to check to see if this is the case?

What's the point?

- Research shows that lighting should be one of the most profitable services offered by an electric utility
- Many utilities treat lighting as a nuisance rather than a revenue stream
- Treating your lighting program like a business can mean avoided costs, increased revenues, and happier Operations employees

Background

- Lighting was not a priority for CHELCO
- Operations handled lighting (and hated it)
- Newly installed lights were inconsistently entered into the billing system
- Lights were inconsistently removed from the field after a customer moved out
- None of our numbers used to track lighting matched (Plant Accounting, Billing, Mapping)
- Cost of service study indicated that the utility was making around 8% by pure luck



Get Control

- Make someone responsible
  - Needs to be the right person for the job
- Identify inconsistencies
  - $100 Incentives
- Put proper procedures in place
  - Implement internal controls
  - Establish proper tracking systems
  - Hire a contractor?
- Fix problems
  - Add lights to bills
  - Remove unclaimed lights

Retrofitting Your Lighting

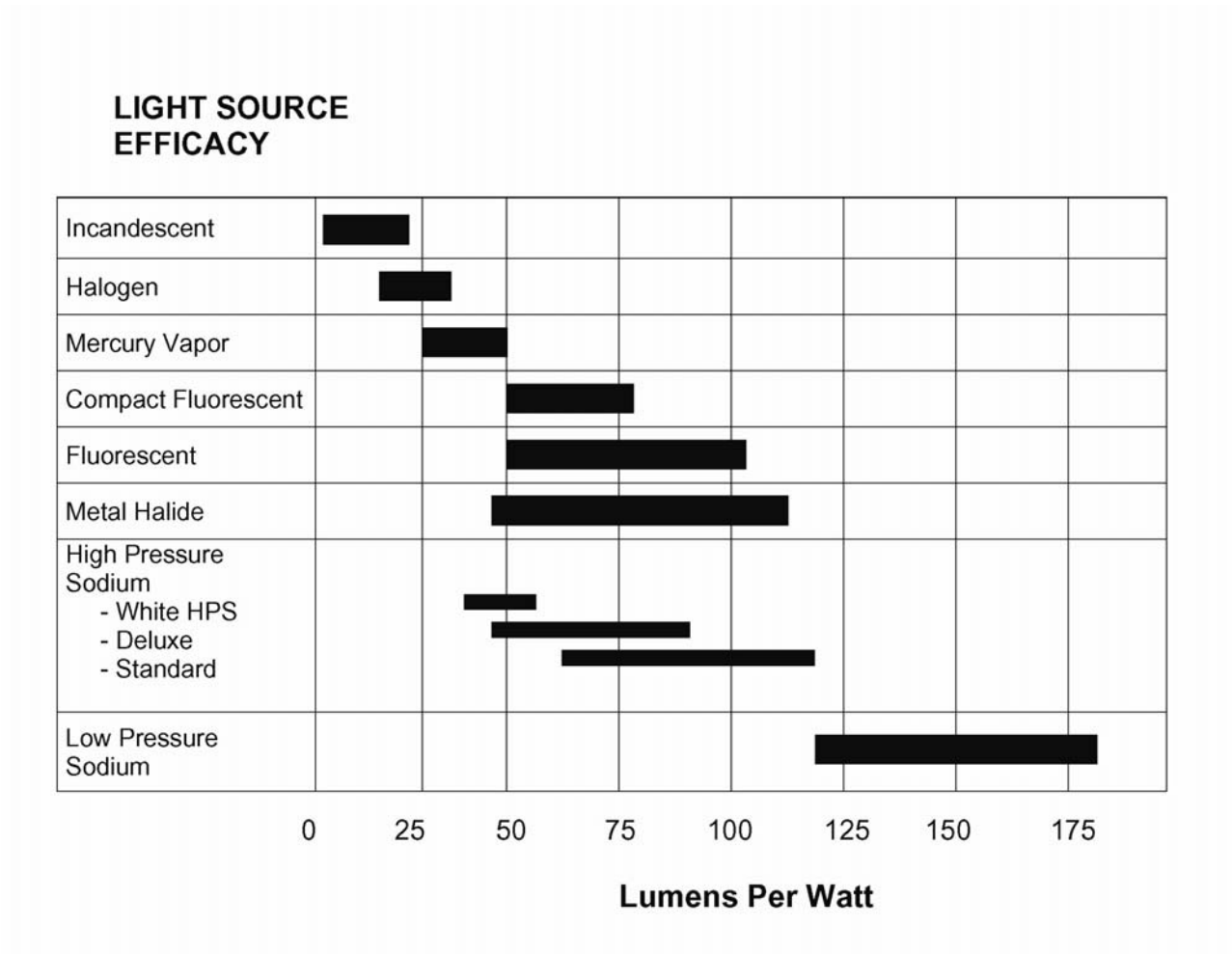
Our first lesson from the ESCOs

- Replacing antiquated lighting usually has a short payback (usually only a couple of years)
- Businesses retrofit lighting to save energy
- Utilities can also save on labor & overhead

Mercury Vapor

- Known for its long life
- Popular with utilities until recently
- Under fire for issues with disposal, energy use, & light pollution
- Ballasts banned under EPACT of 2005
- Officially on its way out.

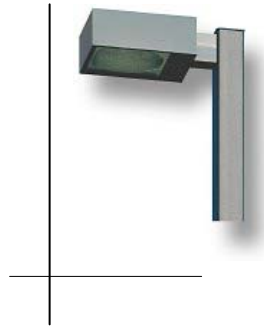
Lighting Comparison Chart



Lighting Comparison Chart

Lighting Type	Lighting Category	Efficacy (lumens/watt)	Lifetime (hours)	Indoors/Outdoors
Standard "A" bulb	Incandescent	10–17	750–2500	Indoors/outdoors
Tungsten halogen	Incandescent	12–22	2000–4000	Indoors/outdoors
Reflector	Incandescent	12–19	2000–3000	Indoors/outdoors
Straight tube	Fluorescent	30–110	7000–24,000	Indoors/outdoors
Compact fluorescent lamp (CFL)	Fluorescent	50–70	10,000	Indoors/outdoors
Circline	Fluorescent	40–50	12,000	Indoors
Mercury vapor	High-Intensity Discharge (HID)	25–60	16,000–24,000	Outdoors
Metal halide	High-Intensity Discharge (HID)	70–115	5000–20,000	Indoors/outdoors
High-pressure sodium	High-Intensity Discharge (HID)	50–140	16,000–24,000	Outdoors
Low-Pressure Sodium	High-Intensity Discharge (HID)	60–150	12,000–18,000	Outdoors

Saving on Labor & Overhead



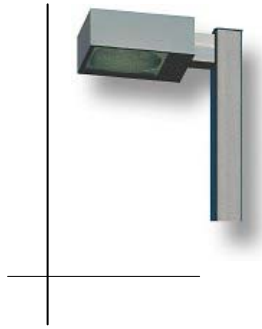
- Cost to roll a bucket
  - Fuel
  - mileage
- Employee salary and benefits
  - Number of linemen
  - Level of training
  - Benefit ratio 25% - 40%
  - Time on job
- Time per repair or replacement
  - Travel time
  - MOT
  - Time to address problem
  - Additional trip?

Options in HPS

- Standard HPS Lamp
  - Good burn rating (24,000 hours)
  - Bright amber light
  - Cycles near end of life
- Long-life Non-Cycling HPS Lamp
  - Better burn rating (30,000 hours)
  - Bright amber light
  - Doesn’t cycle
- Instant Restrike HPS Lamp
  - Great burn rating (40,000 hours)
  - Bright Amber light
  - Reaches full brightness more quickly
  - Cycles near end of life

Burn Rating

Burn Rating



Re-Lamping

Our next lesson from the ESCOs

- Commonly used by large industrial facilities
- Relies on process improvement rather than product improvement
- Aims to reduce operations expense
- Does not utilize lamps for their full expected life
- Is based on the concept that money can be saved through replacement efficiency

Re-Lamping

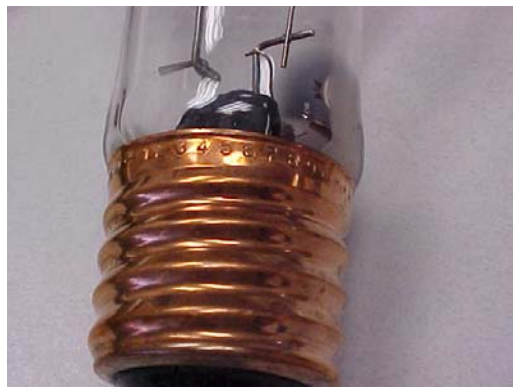
Tracking your lamp life

J, F, M, A, M, J, J, A, S, O, N, D

Month

Properly Marked

1, 2, 3, 4, 5, 6, 7, 8, 9, 0



Year

Financial Proforma

Group Re-lamping example (1000 lights)

	Spot Re-lamping (Regular HPS)	Spot Re-lamping (LL NC / HPS)	Group Re-lamping (LL NC / HPS)
Re-lamp Cycle	24,000 hrs	30,000 hrs	30,000 hrs (80% life - 24,000)
Average Re-lamps/yr (spot)	192.5	156	10
Average Re-lamps/yr (group)			182.5
Average Material cost/yr	$1,540.00	$1,786.20	$2,204.13
Lamp Disposal	$96.25	$78.00	$96.25
Avg. labor & Ops cost/yr	$7,026.25	$5,694.00	$4,549.73
Total Annual Cost	**$8,662.50**	**$7,558.20**	**$6,850.10**

Standard HPS	$8.00
Long Life Non-cycling HPS	$11.45
Lamp Disposal	$0.50
Spot Replacement (Labor & Ops)	$36.50
Group Re-Lamp (Labor & Ops)	$22.93

CHELCO's Progress

- Hired a Lighting Coordinator
  - Overseeing
  - Tracking
  - Sales
- Identified 1765 unbilled lights ($17,650)
  - 726 have been signed for by customers ($50,000)
  - 503 have been removed ($10,000)
  - 536 are currently unbilled
- Restructured rates to take advantage of growth
  - Low/No up front cost
  - Higher monthly fee (highest $26.33)
- Added new decorative lighting styles

CHELCO's Progress

- Hired Contractor
  - Maintenance
  - Installs
  - Removals
- Switched to Long-life Non-cycling Lamps
- Began numbering all lighting
- Began Re-lamping
  - Initial four year cycle switch to five
  - Half done by year end 2007
- Installed 949 new decorative lights
- Increased revenue stream by nearly 40%

What could a review of lighting mean for your utility?

- Less expense
- Increased revenue
- Happier customers
- Planned rather than reactive maintenance
- Unburdening of your Operations crews
- Less liability

Getting Started

- Review your numbers
  - Billing
  - Mapping
  - Plant Accounting
- Talk to Operations
- Figure out your costs
- Come up with a plan