

Lower Your Costs & Carbon Footprint— Perform an Energy Assessment

PA Environmental Professionals Annual Conference

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PennTAP

What I'll Cover

- Energy Assessment Motivators
 - Market Pricing of Energy
 - Electric Rate Cap Removal
- What is an Energy Assessment?
- Types of Assessments
- Assessment Reporting for Informed Energy Project Decisions

Market Pricing of Energy

- History
 - Long-term Contracts
 - Average Pricing
- Today
 - Spot Contracts
 - Marginal Pricing

Electric Rate Cap Removal

- History
 - Complete Regulation of Utility Rates
 - Utilities as Monopolies
- Today
 - Deregulation of Rates
 - Competition for your Energy Dollar
 - “Sunk Costs”
 - Fixed Rates Agreed to in Exchange for Recovery of Sunk Costs

Average Residential Price of Electricity in Cents Per Kilowatt-hour – 1970-1990

	1970	1990
Duquesne	2.51	12.20
Met-Ed	2.30	8.01
Penelec	2.28	7.86
Penn Power	2.39	9.96
PP&L	2.07	7.92
PECO	2.54	12.58
West Penn	2.15	5.04
Pennsylvania	2.32	9.08

Source: Pennsylvania PUC, Electric Power Outlook, July, 1993

Electric Rate Cap Removal

- Baltimore Gas & Electric Company (Maryland) – 72% overall increase.
- Delmarva Power & Light Company (Delaware) – 59% overall increase.
- Pike County Light & Power (PA) – 75% overall increase.

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Electric Rate Cap Removal

- December 31, 2009 – PPL
- December 31, 2010 – PennElec,
MetEd, PECO & several smaller utilities

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- That's just the beginning.

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Electric Rate Cap Removal

Are You the Squirrel or the Ostrich?

What is an Energy Assessment?

An analysis of one or more aspects of a company's energy usage

What is an Energy Assessment?

An assessment looks at:

- Energy bills (rate schedule, seasonal usage, demand, marginal rates)
- Types of usage within the facility

What is an Energy Assessment?

Types of usage within the facility:

- Lighting
- HVAC (boilers, air conditioners, etc.)
- Motors
- Pumps

What is an Energy Assessment?

Types of usage within the facility (cont.):

- Fan systems
- Air compressors
- Process heating
- Process cooling

What is an Energy Assessment?

An assessment could be shallow...

- A facility walk-through and verbal report
- A walk-through and a brief written report
- Targeted on one or two topics (i.e., electric bill and compressed air system)

What is an Energy Assessment?

...or deep:

- An in-depth look at all types of energy consumption followed by a detailed written report

What is an Energy Assessment?

Tiered Energy Assessments:

- **Tier 1**—A facility walk-through and a verbal or a brief written report
- **Tier 2**—Targeted assessment focused on one or two topics
- **Tier 3**—An in-depth, comprehensive look at all types of energy consumption followed by a detailed written report

PennTAP Energy Assessments

All 3 Tiers

- **Tier 1**—Walk-through with short report
- **Tier 2**—Focused on one or two topics
- **Tier 3**—A comprehensive assessment, *but excludes process heating and cooling.*

PennTAP Energy Assessments

Client Criteria:

- A small to medium sized company that can't afford a consultant
- A referral from a partner for which we are the only acceptable option
- As a partner to a consulting firm that does not have all of the needed expertise

Energy Assessment Options

- The PA Small Business Development Centers (SBDCs) – Free < www.pasbdc.org/ >
- PennTAP – Free or highly subsidized
<www.penntap.psu.edu>
- Lehigh Industrial Assistance Center (IAC) – Free <<http://www.lehigh.edu/~inluiac/index.html>>
- Private consultants – Fee, NOT free
- ETAC – Fee, NOT free

Energy Assessment Options

- PennTAP, the SBDCs & the IACs have limited funding and limited capacity
- PennTAP non-compete policy

Energy Assessment Reporting

Types of Assessment Reports

- Letter Reports (Rules of Thumb and Generalities)
- Targeted Assessment (Tier 2) Reports (In-depth analysis about one or two topics)
- Comprehensive Assessment Reports (In-depth analysis & reporting on all types of energy systems)
- “Investment Grade” Assessment Reports (In-depth report with upgrade cost analysis and expected payback)

Report Example

QuickTime™ and a
decompressor
are needed to see this picture.

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Infrared Analyses

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Compressed Air

Measuring Leaks

- Ultrasonic Leak Detection
- 1/64" Leak – \$150 / yr.
- 1/4" Leak – \$7000 / yr.

Compressed Air Systems

Eliminate inappropriate use





P2/E2 Site Assessments – Verified Results

15 Comprehensive Assessments as of 8/1/2007

Energy Reduction		Waste & Emissions Reductions		
Electric Power	Natural Gas	Air Emissions	Solid Wastes	Water Use & Wastewater
kWh/yr	mcf/yr	lb/yr	lb/yr	Gal/yr
10,000,000	110,000	26,000,000	2,200,000	147,000,000

	Cost Savings	Implementation Cost	Payback
E2	\$1,000,000/yr	\$500,000	0.5 Yrs
P2	\$1,800,000/yr	\$500,000	0.3 Yrs
Total	\$2,800,000/yr	\$1,000,000	0.4 Yrs





The Pennsylvania Technical
Assistance Program

www.penntap.psu.edu

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