

Dealing With Utilities In The Philadelphia Area

Hospitality Financial & Technology Professionals

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Issues Briefly Discussed

- Buying Energy
- Saving Energy
- Deregulation
- Alternative Energy
- Utility Rebates
- Demand Response
- Smart Metering
- Performance Contracts
- Tax Deductions
- Green Buildings

Three Basic Rules

- Buy It At The Lowest Price
- Use Less
- Determine Risk
 - Price
 - Operation

Other Utilities

- Much of this applies to:
 - Steam
 - Gas
 - Water
 - Sewer
 - Other Utility Companies

Common Utility Provisions

- Sales Tax
- Meter Reading Dates
- Frozen Rates
- Demand Waivers
- Choice of Rates
- Submetering

Other Cost Components

- Measured or Metered Demand
- Power Factor
- Adjusted Demand
- Demand Ratchet
- Contract Demand
- State Tax Adjustment
- Fuel Adjustment
- Sales Tax
- High Voltage Discount

Rate Riders & Others

- Night Service
- Construction
- Others
 - Estimated Bills
 - Prorated Bills
 - 27 to 34 Days per month

Utility Billing Errors

- Do Not Tolerate Estimates
 - Automatic Meter Reading Systems
- How Often Do Errors Happen?
- Centralized Bill Paying
- Rate Pirates And Consultants

Changing Utility Rates

- Always Possible
 - Provided Tariff Provisions Met
- Beware of Summer and Winter Prices
- Beware of Contract Length Required
- Beware of Ratchets and Contracts
- Transformer Responsibility
- Do Not Rely on Utility Advice
- Rate GS Often Cheaper Than Rate HT

Utility Tariff Rates

- Utility Obligations to Customers
- Choice of Rates - PECO

"When the class of service-supply or conditions of use are such that two or more Base Rates are available, a customer shall select the Base Rate on which the customer will be billed. The Company upon request will, to a reasonable extent, assist customers in selecting the most advantageous Base Rate or rate application."
- Errors – PECO Wager
- New PECO Customer Billing

How Much Can You Save? What Should You Do? Savings Potential

- How do your buildings compare with norms?
 - If low – then do not do much
 - If high – then do a lot
 - If average – then do some
- Be careful about using some measures to justify others

National Average Lodging Energy

| | <u>kWh/SF/Yr*</u> | <u>Btu/SF/Yr*</u> | <u>\$/SF/Yr*</u> |
|-------------------------------------------------------|-------------------|-------------------|------------------|
| • Electric | | | |
| • Heating | 0.8 | 2730 | 0.096 |
| • Cooling | 1.4 | 4778 | 0.168 |
| • Ventilation | 0.8 | 2730 | 0.096 |
| • Water Heat | 0.7 | 2389 | 0.084 |
| • Lighting | 7.1 | 24232 | 0.852 |
| • Cooking | 0.1 | 341 | 0.012 |
| • Refrigeration | 0.7 | 2389 | 0.084 |
| • Office Equip | 0.0 | 0 | 0.000 |
| • Computers | 0.4 | 1365 | 0.048 |
| • Other | <u>1.4</u> | <u>4778</u> | <u>0.168</u> |
| • Total | 13.5 | 45732 | 1.608 |
| • Gas | | | |
| • Heating | | 14600 | 0.219 |
| • Water Heat | | 28300 | 0.425 |
| • Cooking | | 3200 | 0.048 |
| • Other | | <u>0</u> | <u>0.000</u> |
| • Total | | 48900 | 0.692 |
| *Source: 2003 CBECS; Electric 12¢/kWh, Gas \$1.50/CCF | | | |

Hotel Energy Issues

- Laundry
- Back of House
- Number of Rooms
- Room Rate
- Food and Beverage Ratio
- Common Areas
- Central HVAC
- Room Energy
- Occupancy
- Water Use

Buying Deregulated Energy Brokers—Agents—Speculators

- Almost No Suppliers Own The Commodity They Sell
- Almost No Generators Sell Their Output To Consumers
- Some Consultants Get Kickbacks From Suppliers
- **Suppliers Never Lose**

Deregulation Lessons Learned Supplier Prices All Over The Lot

And Bore No Relation To kWh Consumption Or Load Factor
 Virtually All Were ¢ Per kWh, With No Demand Aggregation Gave Competitors A Target To Beat
 Aggregation Did Not Benefit Half Of The Accounts
 Aggregation Benefits The Aggregator
 Suppliers Cherry Picked Customers
 Customers Cherry Picked Suppliers

Predictions



Future Electric Prices

- After Legislated And Regulated Rate Caps Expire, Prices Are Unknown In PA
- Maryland And Delaware Rate Caps Expired 4 Years Ago
- And Total Electric Prices Went Up By Double And Triple Digits
- Here Some Went Up and Some Went Down

PAPUC PECO Price Projections As of January 2011

| As of Date | Residential | Commercial | Industrial |
|------------|-------------|------------|------------|
| 9/29/2008 | 9.30% | 8.80% | 14.9% |
| 12/30/2008 | 1.00% | -2.00% | 2.70% |
| 3/30/2009 | -7.40% | -13.1% | -10.0% |
| 6/30/2009 | -4.60% | -9.60% | -6.80% |
| 9/30/2009 | -2.90% | -7.50% | -4.40% |
| 12/31/2009 | -0.60% | -4.30% | -0.90% |
| 3/31/2010 | -8.20% | -14.3% | -12.3% |

Electric And Gas Prices

- Natural Gas Prices Were Much Higher Than They Were A Few Years Ago
- How Much Has Gas Consumption Really Been Reduced?
- Even With Alternatives Like Oil?
- People Will Pay Higher Prices For Energy
- Just Like They Do For Gasoline
- Prices Are Volatile

Results

Regulation Has Been Replaced By Speculation

Deregulation Today in PA

| Percentage of Customers Served By An Alternative Supplier As Of 1/1/2010 | | | | |
|-----------------------------------------------------------------------------|-------------|------------|------------|-------|
| | Residential | Commercial | Industrial | Total |
| Allegheny Power | 0 | 0 | 0 | 0 |
| Duquesne Light | 20.5 | 19 | 52.7 | 20.4 |
| MetEd/Penelec | 0 | 0 | 1 | 0 |
| PECO Energy | 0.2 | 12.3 | 0.2 | 1.4 |
| Penn Power | 14.5 | 13.6 | 67.9 | 14.4 |
| PPL* | 16.9 | 23.3 | 68.6 | 17.7 |
| UGI | 0 | 0.3 | 3.7 | 0.1 |

Totals may differ due to rounding.

Pennsylvania Office of Consumer Advocate
1-1-2010

* PPL's statistics include active and pending shopping customers as of January 16, 2010.

Band-Aids On Cancer

With Almost No Voluntary Buying Of Deregulated Utilities

Legislators And Regulators Have Attempted To Cover Up And Obscure Their Mistakes And Bad Judgment By Even More Expensive Programs
The Law of Unintended Consequences

PECO Customers Using Other Suppliers

| DATE | Residential | Commercial | Industrial | |
|------------------------|-------------|------------|------------|--|
| January 2000 | 201,874 | 37,789 | 1,891 | |
| January 2001 | 218,850 | 49,052 | 1,493 | |
| January 2002 | 363,671 | 7,731 | 98 | |
| January 2003 | 104,116 | 11,743 | 172 | |
| January 2004 | 280,499 | 60,331 | 134 | |
| January 2005 | 52,360 | 52,526 | 256 | |
| January 2006 | 12,290 | 36,453 | 62 | |
| January 2007 | 5,303 | 30,009 | 7 | |
| January 2008 | 3,880 | 25,533 | 3 | |
| January 2009 | 3,006 | 22,381 | 4 | |
| January 2010 | 2,579 | 19,295 | 7 | |
| Percentage of all load | 0.2 | 5.6 | 0.13 | |

Utility Deregulation

- Would Utility Customers Be Better Off If Deregulation Had Never Happened?
- Who Has Proven That There Was Anything Really Wrong With Utility Regulation?
- What Will It Take To Put The Genie Back In The Bottle?

Energy Can Be Bought Based On

- Price
- Convenience
- Politics
- Ideology
- Volatility
- Risk
- Availability
- Greenhouse Gases
- Global Warming
- Pollution
- Taxes
- Efficiency
- Cleanliness
- Origin

Which Criteria Should Be Chosen?

- Which Ones Are Important To You?
- How Do You Rank Them?
- How Much Are You Willing To Pay?
- How Much Are Others Willing To Pay?
- How Much Choice Do You Have?
- Should We Let Others Choose?
- Will These Change Over Time?
- Important To Use Less

Alternative Energy

- Both Pennsylvania And New Jersey Have **Renewable Portfolio Standards**
- Utilities And Suppliers Must Supply A Certain Percentage Of All Their Electricity With Renewables, Such As Wind, Solar, Biomass, Etc.

Alternative Energy

- In Pennsylvania, Utilities And Suppliers Are Allowed To Substitute Conservation kWh For Renewables
- They Call This Demand Side Management, Energy Efficiency, And Load Management Programs And Technologies
- The PAPUC Established kWh Values And Fixed Use Assumptions For Various Conservation Measures

Electric Ratepayers Are Being Extorted Without Their Consent or Permission

- By Their Utilities Having To Pay For
 - Rebates For Installation
 - "Conservation"
 - Conservation Never Achieved
 - Renewable Energy
 - Publicity and Education
- Free Riders
 - Get Benefits They Would Have Paid For On Their Own Anyway

Pennsylvania Act 129

- Environmentalists well represented
- We were not
- Consumer education
- Residential audits
 - One day wonders
 - Licenses and insurance?
- Time of use rates
- Possible elimination of electric heat rates
- Promote Energy Star appliances
- Rate increase 0.27¢/kWh except HT \$0.91/kWh

Pennsylvania Assumptions Electric Motor Credits

- TEFC (Totally Enclosed Fan Cooled) Motors Operate 4,599 Hours Per Year, While ODP (Open Drip Proof) Motors Operate 2,502 Hours Per Year
- These Assumptions Also Apply To Fire Pump And Spare Pump Motors That Never Operate
- Source: Annex A 9/29/2005 PUC Order Pages 14, 15

Pennsylvania Assumptions Lighting Hours Assumptions For Credits

- Manufacturing 5,913
- Colleges 5,010
- Hotel/Motel 2,697
- Warehouse 2,388
- Source: Annex A 9/29/2005 PUC Order Page 19

Demand Response

- Promoted By:
 - Regulators
 - PJM
 - Energy Advocates
 - People Selling
 - Products, i.e. Generators & Thermal Storage
 - Services, i.e. Load Shedding
- How Much Difference Does It Really Make?
- How Much Is It Worth?
- Emissions Penalties

The Myth Of Hourly Pricing

- New Jersey CIEP Program
- Commercial Industrial Electricity Program
- Mandated For 2,000 Largest Electric Users
- Pay PJM Hourly Price + ½¢ Adder, Or
- Buy From 3rd Party Supplier
 - At Fixed Price, Or
 - Price Indexed To PJM Hourly Price
- Smart Meters

Peak Electricity Cost

- There Has Always Been A Strong Price Signal For Peak Electric Use
- PECO Energy Tariffs For Their Largest Customers Have Demand Charges, Declining Rate Blocks, And Ratchets
- The Cost For Peak Hour Electric Use Is Not 20¢, Or \$2, Or \$20 Per kWh, But Over \$200 For Each kWh Of Peak Summer Use

PECO Rate HT Tariff - January 1, 2009

Demand Ratchet Cost
No Customer, Fuel Or Tax Adjustment Charges
For PLR Customers Only

| | Summer Month - Basic Use = 49 kW & 20,000 kWh | |
|----------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| | BEFORE | AFTER |
| DEMAND | 49 KW X \$14.33 = \$702.17 | 50 KW X \$14.33 = \$716.50 |
| ENERGY | 49 X 150 X \$0.0932 = 685.02 49 X 150 X \$0.0618 = 454.23 5,300 X \$0.0308 = 163.24 | 50 X 150 X \$0.0932 = 699.00 50 X 150 X \$0.0618 = 463.50 5,001 X \$0.0308 = 154.03 |
| SUBTOTAL | 20,000 KWH \$2,004.66 | 20,001 KWH 2,033.03 |
| STATE TAX @ 7% | 140.33 | 142.31 |
| TOTAL | \$2,144.99 | \$2,175.34 |

Difference= \$30.35 For One kWh For One Summer Month

Winter Month - Basic Use = 35 kW & 17,000 kWh

| | =====BEFORE===== | =====AFTER===== |
|----------------|--------------------------------|-------------------------------|
| DEMAND | 49 X 0.8 X \$14.33 = \$561.74 | 50 X 0.8 X \$14.33 = \$573.20 |
| ENERGY | | |
| | 39.2 X 150 X \$0.0932 = 548.02 | 40 X 150 X \$0.0932 = 559.20 |
| | 39.2 X 150 X \$0.0618 = 363.38 | 40 X 150 X \$0.0618 = 370.80 |
| | 5,240 X \$0.0308 = 161.39 | 5,000 X \$0.0308 = 154.00 |
| SUBTOTAL | 17,000 KWH \$1,634.53 | 17,000 KWH \$1,657.20 |
| STATE TAX @ 7% | 114.42 | 116.00 |
| TOTAL | \$1,748.94 | \$1,773.20 |

Difference Of \$24.26 Per Winter Month For One Summer kWh

Demand Ratchet Annual Cost

1 Summer Month @ \$30.35 + 8 Winter Months @ \$24.26 = \$224.43

Therefore, The Cost Of 1 On Peak Summer Kilowatthour Is **\$224.43**

- ## Shared Savings Contracts Energy Performance Contracts
- Who is doing it
 - Why are they doing it
 - How well are they working
 - Cost of risk
 - Unforeseen changes
 - Contracts
 - Disputes

Government Case Studies

| Project | Self | ESPC | % Incr. |
|-----------------|-------|-------|---------|
| Navy Region SW | 13.66 | 14.69 | 8 |
| Patuxent River | 4.33 | 5.77 | 33 |
| Navy Sub Bangor | 4.33 | 5.34 | 23 |
| Gulfport Court | 1.60 | 2.50 | 56 |
| NC Bundled | 1.39 | 1.93 | 39 |
| Atlanta Bundled | 6.15 | 7.78 | 27 |

Source: GAO-05-55 December 2004
Dollars in millions

- ## One Basic Premise of Energy Laws, Codes, and Standards
- To provide and require a variety of means and measures to enable efficient building operation
 - Especially controls and limits

- ## One Consequence of Energy Laws, Codes, and Standards
- They provide and require a variety of means to waste energy efficiently
 - This is why so many green and LEED® buildings have high energy use

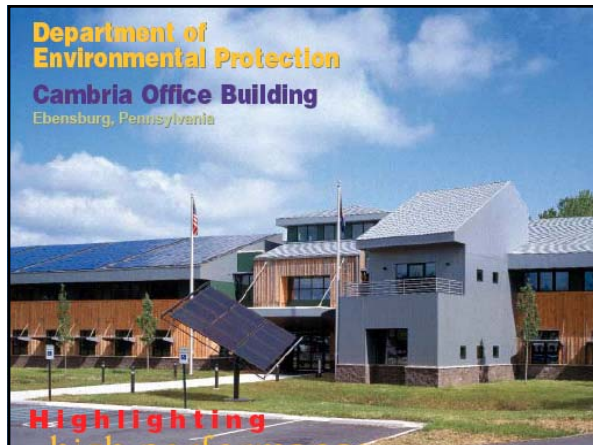
- ## 2005 Federal Energy Policy Act (EPACT)
- Tax Deduction for Exceeding ASHRAE 90.1 **Energy Cost** by 50%
 - IRS Rules and Regulations Not Yet Published
 - For Envelope, Mechanical, and Lighting
 - Up to \$1.80 Per Square Foot
 - Partial Deduction For Parts
 - Federal Buildings Must Exceed ASHRAE 90.1 **Energy Consumption** by 30%
 - When Cost Effective

Disclaimer & Comments

- This Is Not Tax, Legal, Engineering, Or Accounting Advice
- For Particular Situations, Consult Your Professionals
- Neither Proposed Nor Final IRS And DOE Regulations Have Yet Been Issued.
- Be Especially Cautious About Information and Advice From Those Who Have Something To Gain
- The Law Deals With Energy Cost, Not Consumption

Tax Deduction Conclusions

- Taking advantage of the EPACT tax deductions for building envelope, HVAC, and water heating systems and equipment in buildings will be very difficult technically and almost impossible economically for both new and existing buildings.
- While interior lighting systems may be able to achieve their 16% reduction in the total building energy cost beyond 90.1, it is not likely that further reductions in interior lighting will be sufficient to overcome the gap created by the building envelope, HVAC, and water heating systems.
- Therefore, the most likely benefit of the tax deductions available in EPACT will be for interior lighting.



This is the First USGBC LEED® Gold Building

The Design Claims:
 Solar Provides 28-40% of Energy
 Lighting At 0.7 Watts/Square Foot
 Triple Glazed Low E Argon Windows
 Their Estimated Energy Use Is
 25,000 BTU/SqFt/Year

Second Year Energy Use

- Extensive DOE Onsite Monitoring
- Purchased Electric Only
- 423,120 kWh
- OR 12.3 kWh/SqFt/Year
- OR 41,900 BTU/SqFt/Year
- OR 68% More Than Proposed
 - Without Considering the Solar

Building Energy Consumption Analysis
 Energy Opportunities
 Client: PA Department of Environmental Protection
 Building: Cambria Main Building
 ID#: _____ Area (Sq. Ft.): 34511
 Fuel: Electricity
 Rate: GS
 Acct. #: GPU Energy 10-00-35-4862-7-1
 Date: 02/06/02

| Month | Billing Period From: | To: | A or E | kWh metered | kWh billed | kWh billed | Total \$ | Avg Cost per kWh |
|-----------------|----------------------|------------|--------|-------------|------------|------------|-------------|------------------|
| Feb 2001 | 1 31 2001 | 2 28 2001 | A | 90.2 | 90.2 | 39,520 | \$2,616.14 | \$0.066 |
| Mar 2001 | 3 1 2001 | 3 30 2001 | A | 82.8 | 82.8 | 40,360 | \$2,550.34 | \$0.063 |
| Apr 2001 | 3 31 2001 | 4 30 2001 | A | 76.8 | 76.8 | 35,490 | \$2,258.58 | \$0.065 |
| May 2001 | 5 1 2001 | 5 31 2001 | A | 78.7 | 78.7 | 34,480 | \$2,287.49 | \$0.066 |
| Jun 2001 | 6 1 2001 | 6 29 2001 | A | 77.8 | 77.8 | 31,560 | \$2,171.67 | \$0.069 |
| Jul 2001 | 6 30 2001 | 8 1 2001 | A | 78.8 | 78.8 | 34,600 | \$2,328.81 | \$0.067 |
| Aug 2001 | 8 2 2001 | 8 30 2001 | A | 80.6 | 80.6 | 32,600 | \$2,279.94 | \$0.070 |
| Sep 2001 | 8 31 2001 | 10 1 2001 | A | 73.8 | 73.8 | 32,680 | \$2,159.86 | \$0.066 |
| Oct 2001 | 10 2 2001 | 10 30 2001 | A | 80.2 | 80.2 | 31,520 | \$2,232.90 | \$0.071 |
| Nov 2001 | 10 31 2001 | 11 29 2001 | A | 76.3 | 76.3 | 33,600 | \$2,227.48 | \$0.066 |
| Dec 2001 | 11 30 2001 | 1 2 2002 | A | 83.6 | 83.6 | 42,400 | \$2,635.70 | \$0.082 |
| Jan 2002 | 1 3 2002 | 1 30 2002 | A | 82.9 | 82.9 | 34,000 | \$2,360.76 | \$0.069 |
| Total: | | | | --- | --- | 423,120 | \$28,149.67 | --- |
| Maximum: | | | | 90.2 | 90.2 | 42,400 | \$2,635.70 | \$0.07 |
| Minimum: | | | | 73.8 | 73.8 | 31,520 | \$2,159.86 | \$0.06 |
| Average: | | | | 80.2 | 80.2 | 35,260 | \$2,345.81 | \$0.07 |

Electric Costs

| | |
|---------|--------------------|
| \$2,800 | \$/Sq.Ft.: \$0.82 |
| | \$/MMBtu: \$19.49 |
| | Btu/Sq.Ft.: 41,645 |
| | Watt/Sq.Ft.: 2.61 |



<http://www.ashrae.org/publications/page/1604>

Advanced Energy Design Guide
for Highway Lodging
Achieving 30% Energy Savings
Toward a Net Zero Energy Building

Developed by the U.S. Green Building Council and the U.S. Department of Energy
with the assistance of the U.S. Green Building Council's U.S. Green Building Council
U.S. Green Building Council
U.S. Department of Energy

Conclusions

- Get a Balanced Unbiased View
- See Why Others Are Doing Things
- Show Me Your Metered Data
- If It Does Not Make Common Sense It Probably Will Not Work
- Be Prepared For Gaming

PLEASE DO NOT
HELP US ANY
MORE!