ALTERNATIVE ENERGY OPPORTUNITIES: WHAT TO LOOK FOR AND WHAT TO AVOID

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PRESENTATION OVERVIEW

- Types of Alternative Energy Opportunities
  - Competitive Energy Suppliers
  - Demand Response Programs
  - Combined Heat & Power System
  - Solar Energy
- Maximizing Value – What to Look For & What to Avoid
- Questions

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INTRODUCTION

- ESCM Utilities & Telecom Practice Group
  - Counsel to regulated industries & those who interact with them
  - Telecom, Electric, Water, Gas, Transportation
- Diverse Practice
  - Federal and State agencies (PA Public Utility Commission) as well as Federal and State Courts (both civil and appellate)
  - Regulation and Compliance, Licensing, Legal Advice, Restructuring

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Competitive Energy Suppliers

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Competitive Energy Suppliers

- In 1997, the Electricity Generation Customer Choice and Competition Act opened electricity market to retail competition
  - 66 Pa. C.S. § 2801 et seq.
- In 1999, the Natural Gas Choice and Competition Act opened natural gas market to retail competition
  - 66 Pa. C.S. § 2201 et seq.

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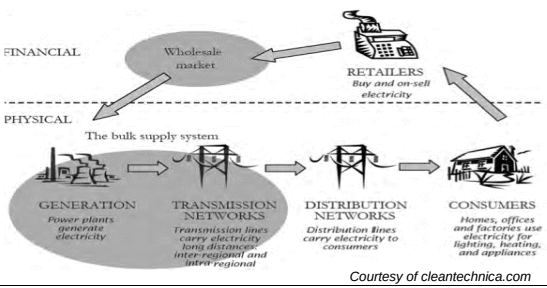
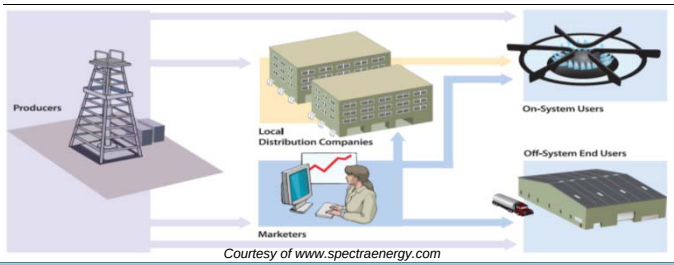
Competitive Energy Suppliers

Structure of both electricity and natural gas markets enable competitive energy suppliers (aka, EGSs, NGSs, retailers or marketers) to offer supply to retail end users via contract directly with the end user



Courtesy of cleantechnica.com



Courtesy of www.spectraenergy.com

Illustrations of retail electricity market (top) and natural gas market (left)

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Competitive Energy Suppliers

- Licensed by PA Public Utility Commission ("PaPUC")
- As of June 30, 2014, 330 licensed EGSs and 130 licensed NGSs
- PaPUC shopping tools to find a supplier

PA Gas Switch
Pennsylvania Public Utility Commission
http://www.puc.pa.gov/consumer_info/natural_gas/natural_gas_shopping/gas_shopping_tool.aspx

Shop for Your Home

Choose your natural gas distribution company: Select a Distributor
OR
Search for suppliers by zip code: Go

PAPowerSwitch.com
Pennsylvania Public Utility Commission
Shop Switch Save

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Competitive Energy Suppliers

- Look for:
  - PaPUC Licensed Supplier
  - Competitive Pricing
  - Customized Services
  - Innovative Products
- Avoid:
  - False comparisons to Price to Compare of utility
  - Not understanding contract terms
  - Automatic renewal of contract without notice

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Competitive Energy Suppliers

- How to maximize value:
  - Consider:
    - Broker: Agent of suppliers or customer; fee paid by customer as addition to energy price; total cost varies
    - Consultant: Agent of customer; fee paid by customer; total cost (usually) fixed

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Competitive Energy Suppliers

- Brokers: Advantage/Disadvantages
  - <u>Advantages</u>
    - Able to get real pricing from suppliers
    - Usually has intimate knowledge of supplier offers contracts to get the best deal
    - Cost of expertise rolled into energy price – payment spread out
  - <u>Disadvantages</u>
    - Offers may reflect only the suppliers with which broker has relationship
      - Better contracts may be out there
    - Cost of service for large users is high

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Competitive Energy Suppliers

- Consultant
  - Advantages
    - Objective advice, not tied to specific suppliers
    - Not paid on basis of usage so more willing to find value added products with energy efficiency, alternative energy rolled in
  - Disadvantages
    - May not have intimate knowledge of supplier products or contracts
    - Fee is due up front

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Demand Response Programs

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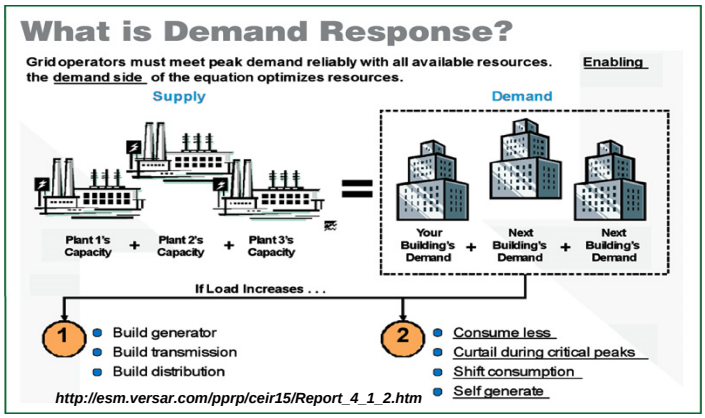
Demand Response Programs

- By law, electric utilities are required to implement programs to reduce energy demand and consumption *See* 66 Pa. C.S. § 2806.1



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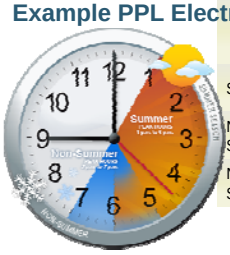
Demand Response Programs

- Programs Offering Price-Based Options
  - The price paid for energy is priced based on pre-determined criteria such as time of day, real-time pricing or critical peak pricing
  - Generally, by using less electricity in high peak periods, customer can save money

Example PPL Electric TOU Rates



	Months	Peak Hours	Price for Peak Hours	Price for Off-Peak Hours
Summer	June 2013 - Sept. 2013	1 p.m.-6 p.m.	12.551 cents/kwh	10.830 cents/kwh
Non-Summer	Oct. 2013 - Dec. 2013	5 p.m.-7 p.m.	12.551 cents/kwh	10.830 cents/kwh
Non-Summer	Jan. 2014 - May 2014	5 p.m.-7 p.m.	12.563 cents/kwh	10.839 cents/kwh

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Demand Response Programs

- Incentive-Based Programs
  - Offers to businesses that reduce the energy use of their facilities during times of peak demand
  - Include direct load control, interruptible/curtailable service, demand bidding/buyback programs, emergency demand response programs, capacity market programs, ancillary services market programs

Example: PECO Smart A/C Saver Program

- On selected days from June through September, PECO automatically cycles participating air conditioners to help balance the region's demand for electricity.
- Customers receive bill credits for participation

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Demand Response Programs

- Look for:
  - Utility programs available to leverage existing usage patterns
  - Tailored advice from Conservation Service Provider

- Avoid:
  - Costly equipment which cannot be recouped over life of program
  - Inability to curtail energy use

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Combined Heat and Power Systems

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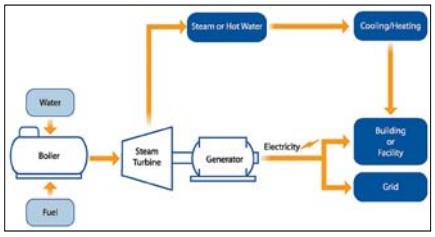
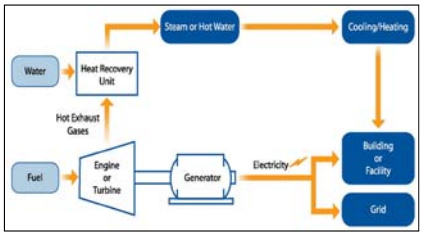
Combined Heat & Power System

- Integrated energy system that simultaneously produces electricity and heat from a single fuel source
- Captures the wasted heat energy typically lost through power generation, using it to provide heating and cooling



Example 1: Gas Turbine or Engine with Heat Recovery Unit (Ideally suited for large industrial or commercial application requiring ample amounts of electricity and heat)



Example 2: Steam Boiler with Steam Turbine (Typical in industrial processes, where solid fuels or waste products are readily available to fuel the boiler unit)

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Combined Heat & Power System

- Commercial business like hotels, universities and hospitals can benefit
- PaPUC increasing its focus on the technology and currently examining the viability of increased implementation of CHP through research and consultation with industry experts

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Combined Heat & Power System

- Look for:
  - Uses where the “H” can be utilized
  - Uses that enhance reliability
  - Approaches that do not require upfront capital outlay

- Avoid:
  - Utility rate structures discouraging CHP
  - Lack of interconnection standards

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Solar Energy

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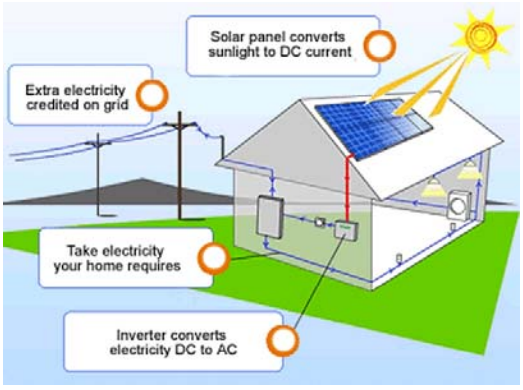
Solar Energy

- Energy produced by solar can be used for individual needs and excess can be sold back to the grid



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Solar Energy

- Electric companies are required by law to include a specific percentage of electricity from alternative resources (including solar) in their retail end-user products. *See* 73 P.S. 1648.3(b)(2).
- Many solar projects eligible for net-metering
- Price of installing solar has been decreasing

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Solar Energy

- Look for:
  - Opportunities to produce solar energy
  - Opportunities to use net-metering
  - Ability to enter into mutually beneficial partnership with solar provider – avoid upfront costs

- Avoid:
  - Inability to realize potential due to specific location and weather patterns
  - Expensive installation costs that cannot be recovered in reasonable period of time
  - Restrictions on use of net-metering
  - Downside long-term contracts/leases

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Questions?

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