ENERGY COSTS, USAGE AND BUDGETARY RISK - MYTHBUSTERS!

Illinois Energy Consortium
ICCCFO Fall Conference
2012
Fact or Fiction???

• A Fixed Price is Lowest in Cost.
• All Power Proposals are the Same.
• You Can’t Be Cheap AND Green.
• Energy Efficiency is Hard and Costly.
MYTH #1

A Fixed Price is Lowest in Cost.
Energy Strategy – Bottom Line

\[ \text{COST} = \frac{\text{PRICE}}{(P \times Q)T} \]

Budget

Index/Spot

19XX
Is Fixed Price Low in Risk?
Blending Options

Risk

FP

Point in Time

I

Index

Blended

ES

E – Strategy

(Energy Strategy)

A

C

Constellation Energy

The way energy works.
Cost Components
Narrowing the Scope of Your Strategy

% Fixed?
Forward Timeframe

Manual vs. Systematic
Self Service or Guidance

AP  FIN
HR  SALES
ENERGY
Managing Usage & Offsets

Risk

C ← E – Strategy (Energy Strategy) → A

FP

Point in Time

I

First of Month

ES

BLENDED
MYTH #2
All Power Proposals are the Same.
Which Offer is Lower?

- Supplier A: $5.385\text{¢} \text{ per kWh}$
- Supplier B: $5.933\text{¢} \text{ per kWh}$
What To Look For:

Every price has several components included. Knowing those components helps you determine if you getting a true “apples-to-apples” comparison.

– Energy Price
– Capacity
– Ancillaries and RTO costs
– Transmission
– Distribution Losses
– Renewable Portfolio Standards
– Administrative Fees
– Delivery Service Charges
A Closer Look….

<table>
<thead>
<tr>
<th></th>
<th>Supplier A</th>
<th>Supplier B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>4.789¢/kwh</td>
<td>3.974¢/kwh</td>
</tr>
<tr>
<td>Capacity</td>
<td>Pass Thru</td>
<td>0.896¢/kwh</td>
</tr>
<tr>
<td>Distribution Losses</td>
<td>Pass Thru</td>
<td>0.242¢/kwh</td>
</tr>
<tr>
<td>Transmission &amp; Ancillaries</td>
<td>0.596¢/kwh</td>
<td>0.596¢/kwh</td>
</tr>
<tr>
<td>RPS</td>
<td>Pass Thru</td>
<td>(Included in Energy)</td>
</tr>
<tr>
<td>Other RTO Charges</td>
<td>Pass Thru</td>
<td>0.225¢/kwh</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5.385¢/kwh</td>
<td>5.933¢/kwh</td>
</tr>
</tbody>
</table>

Who is Cheaper Now?????
Know What You’re Buying and How to Tell an Apple from a Lemon

<table>
<thead>
<tr>
<th></th>
<th>Other Supplier</th>
<th>IEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>4.789¢/kwh</td>
<td>3.974¢/kwh</td>
</tr>
<tr>
<td>Capacity</td>
<td>Pass Thru</td>
<td>0.896¢/kwh</td>
</tr>
<tr>
<td>Distribution Losses</td>
<td>Pass Thru</td>
<td>0.242¢/kwh</td>
</tr>
<tr>
<td>Transmission &amp; Ancillaries</td>
<td>0.596¢/kwh</td>
<td>0.596¢/kwh</td>
</tr>
<tr>
<td>RPS</td>
<td>Pass Thru</td>
<td>included</td>
</tr>
<tr>
<td>Other RTO Charges</td>
<td>Pass Thru</td>
<td>0.225¢/kwh</td>
</tr>
<tr>
<td>How Much will you pay?</td>
<td><strong>5.385 + ???</strong></td>
<td><strong>5.933¢/kwh</strong></td>
</tr>
</tbody>
</table>

When comparing offers from suppliers, **demand** they show you transparency in the pricing. If they won’t – Show them the **door**.
MYTH #3

You Can’t Be Cheap and GREEN.
But I Can’t Afford a Wind Farm…. …and you don’t have to.

- Customers wishing to support renewable energy can purchase Renewable Energy Certificates (RECs) to help offset their own carbon footprint.
- RECs are your way of promoting the production of renewable energy without incurring the expense of installing solar panels, wind turbines or other costly generation facilities.
- These RECs could be from renewable energy created on a northern Illinois wind farm, or a solar energy facility in Arizona. The key is that your dollars are used to increase the amount of renewable energy overall.
Know What You Are Already Buying

- As required by the Renewable Portfolio Standard (RPS) rules for any Alternative Retail Electric Supplies (ARES), suppliers must purchase at least the required amount of renewable energy for their customers.

  - 2012 = 6%
  - 2014 = 8%
  - 2016 = 10%
  - 2018 = 13%
  - 2020 = 16%
  - 2013 = 7%
  - 2015 = 9%
  - 2017 = 11.5%
  - 2019 = 14.5%
  - 2021 = 17.5%
More Shades of GREEN.....

• Varying amounts of REC’s can be purchased by anyone to create an ongoing Renewable program, a special event, to support a Green Month, or perhaps as part of a classroom research project.

• Customized prices and programs are available – if you just know to ask.
## What Does It REALLY Cost?

<table>
<thead>
<tr>
<th></th>
<th>2008 Procurement</th>
<th>2009 Procurement</th>
<th>2010 Procurement</th>
<th>2011 Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For PY08/09</td>
<td>For PY 09/10</td>
<td>For PY 10/11</td>
<td>For PY 11/12*</td>
</tr>
<tr>
<td><strong>Illinois Wind</strong></td>
<td>$29.32/REC (AIU)</td>
<td>$16.66/REC (AIU)</td>
<td>$4.06/REC (AIU)</td>
<td>$0.99/REC (AIU)</td>
</tr>
<tr>
<td></td>
<td>$35.72/REC (CE)</td>
<td>$21.11/REC (CE)</td>
<td>$5.00/REC (CE)</td>
<td>$1.05/REC (CE)</td>
</tr>
<tr>
<td><strong>Illinois Non-Wind</strong></td>
<td>$17.50/REC (AIU)</td>
<td>$13.46/REC (AIU)</td>
<td>$3.90/REC (AIU)</td>
<td>$0.72/REC (AIU)</td>
</tr>
<tr>
<td></td>
<td>$21.85/REC (CE)</td>
<td>$13.69/REC (CE)</td>
<td>$4.40/REC (CE)</td>
<td>$0.65/REC (CE)</td>
</tr>
</tbody>
</table>
MYTH #4

Energy Efficiency is Hard and Costly.
### Energy Efficiency Technologies (ECMs)

<table>
<thead>
<tr>
<th>Water Conservation</th>
<th>Lighting System Upgrades</th>
<th>HVAC System Upgrades</th>
<th>Building Automation System Upgrades</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ultra-low flow toilets</td>
<td>• Occupancy based redesign</td>
<td>• New air handling system installations</td>
<td>• Enhance existing systems</td>
<td>• High efficiency motors</td>
</tr>
<tr>
<td>• Ultra-low flow urinals</td>
<td>• Direct/indirect systems</td>
<td>• Economizer / HVAC Damper</td>
<td>• Complete new DDC systems</td>
<td>• Kitchen exhaust hood control systems</td>
</tr>
<tr>
<td>• Low flow faucet aerators</td>
<td>• Intelligent lighting system controls</td>
<td>• Zone isolation</td>
<td>• Unoccupied setback control</td>
<td>• Variable speed drives on many systems</td>
</tr>
<tr>
<td>• Low flow showerheads</td>
<td>• High efficiency re-lamp and re-ballast</td>
<td>• Constant volume to variable air volume conversions</td>
<td>• Integration of multiple systems</td>
<td>• Elevator controllers</td>
</tr>
<tr>
<td>• Groundwater irrigation</td>
<td>• LED Applications</td>
<td>• De-stratification fans</td>
<td>• Remote access and monitoring</td>
<td>• Instantaneous hot water heaters</td>
</tr>
<tr>
<td>• Laundry Ozone systems</td>
<td>• Street and traffic lighting upgrades</td>
<td></td>
<td>• Efficient operation algorithms</td>
<td>• Retro / Continuous commissioning</td>
</tr>
<tr>
<td>• Leak detection systems</td>
<td>• Incandescent to fluorescent conversion</td>
<td></td>
<td>• Outside air control strategies</td>
<td>• Appliance / plug load timers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication, Training &amp; Awareness</th>
<th>Central Plants</th>
<th>Renewable Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stakeholder involvement</td>
<td>• Steam to hot water conversion</td>
<td>• On-site Solar Energy Systems</td>
</tr>
<tr>
<td>• Communications – internal &amp; external</td>
<td>• District steam &amp; HW systems</td>
<td>• Geothermal system</td>
</tr>
<tr>
<td>• Community participation</td>
<td>• New chiller &amp; boiler installations</td>
<td>• Heat pump installation</td>
</tr>
<tr>
<td></td>
<td>• New cooling tower installations</td>
<td>• Wind energy</td>
</tr>
<tr>
<td></td>
<td>• Primary/secondary systems</td>
<td>• Alternative fuel conversion</td>
</tr>
<tr>
<td></td>
<td>• Heat recovery systems</td>
<td></td>
</tr>
</tbody>
</table>
Primary Technologies

**INDOOR LIGHTING:**

- **T12** = 12”/8” = 1.5” Diameter
- **T8** = 8”/8” = 1” Diameter
- **T5** = 5”/8” = 0.625” Diameter

As of July 14, 2012, production and sale of most T12 lamps and even some T8 lamps have been **phased out**, following new DOE fluorescent lamp regs. It is estimated that as many as 500 million (obsolete) T12 lamps are still installed.

DOE expects the purchase price of new lamps will be between 47 to 64% higher due to increased demand along with the rare-earth shortage.

**OUTDOOR LIGHTING:** Warehouses & Parking Complexes

- Metal Halide Light
- High Pressure Sodium
Secondary Technologies

Utility Management Systems (UMS): Classrooms and Offices

- Wireless Thermostats and Load Control
- Linked to Reservation System

Variable Frequency Drives (VFD): All facility types

- Conversion of Constant Speed - Fans and Pumps

Miscellaneous

- PTAC units
- Water Conservation
- Instantaneous Water Heaters
- TV’s

Constellation. An Exxon Company
Other Energy Conservation Measures (ECMs)

Appliance/Plug-load reductions:
- Plug timers
- VendMiser

- Upgrade of Heating, Ventilating, and Air Conditioning (HVAC)
- Upgrade/expansion of existing energy management control systems

Heating, Ventilating, Air Conditioning (HVAC, not including boilers, chillers, BAS/EMCS):
- HVAC damper and controller repair or replacement
- Economizer damper and control installation
- Fan and pump replacement / efficiency improvement

Building Envelope Modifications:
- Weatherization – caulking, door sweeps, general tightening up of building envelope
- Reflective solar window tinting
Efficiency Made Easy

- Lighting Retrofits & Controls
- Simple HVAC Options
- Building Weatherization
- Efficient Motors
- Variable Speed Drives
- Water Conservation

Graph:

- kW
- Year 1 - 24
- 10%

Equation:

\[ \text{COST} = P \times Q \]

Year 4
- Lower Quantity
- Lower Capacity & Transmission Obligations
- Lower Distribution Charges
- Improved Load Profile
- Asset Appreciation

\[ \text{COST} = (\downarrow P \times \downarrow Q ) T \]
# Efficiency – Are You A Candidate?

<table>
<thead>
<tr>
<th>Primary Criteria</th>
<th>Secondary Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Electricity budget:</td>
<td>✓ Energy Star rating (if known) – 65 or below</td>
</tr>
<tr>
<td>▪ &gt; $250,000 (single site)</td>
<td>✓ If account comprised of multiple buildings, average building size ≥ 20,000 ft</td>
</tr>
<tr>
<td>▪ &gt; $1,000,000 (multiple sites)</td>
<td>✓ Access to financial incentives for energy efficiency (utility rebates, tax credits...)</td>
</tr>
<tr>
<td>✓ No lighting retrofits in the past 5 years</td>
<td>✓ Average Operating Hours &gt; 3500 Annually (5 days x 12 hours; 7 days x 10 hours)</td>
</tr>
<tr>
<td>✓ Significant hours of operation</td>
<td></td>
</tr>
<tr>
<td>✓ Own your own building or alternatively triple net lease structures for a minimum of an additional 5 years.</td>
<td></td>
</tr>
</tbody>
</table>

If you meet any of the criteria above you are a candidate
Results?

A Fixed Price is Lowest in Cost. - BUSTED

All Power Proposals are the Same. - BUSTED

You Can’t Be Cheap AND Green. - BUSTED

Energy Efficiency is Hard and Costly. - BUSTED
QUESTIONS????
Helpful Information:

If you have any questions or would like to discuss any of our Now-Busted Myths, please contact us any time.

Glen Grimm - IEC Natural Gas Program Administrator
Constellation
Glen.Grimm@constellation.com
630-657-4455

Tonya Powel -
IEC Electric Program Administrator
Ameren Energy Marketing
tpowell2@ameren.com
618-343-7760
Pricing Components Descriptions

- **Energy** – The Wholesale Energy cost secured by the IEC through block purchases
- **Capacity** – Charges dictated by MISO or PJM to ensure reliability
- **Ancillaries and RTO costs** – includes imbalance fees, Market administration fees, etc…
- **Transmission** – rate charged to transport energy from generator to service point
- **Distribution Losses** – cost of the percentage of energy that is “Lost” while traveling from Point A to B.
Pricing Components Descriptions (cont’d)

- **Renewable Portfolio Standards** – Cost to supplies to ensure required percentage of energy derives from approved Renewable resources

- **Administrative Fees** – Because the IEC is a non-profit organization, Administrative fees are charged to cover the cost of administering the Program (marketing, communications, Program Administration, Advisor Services, etc…)

- **Delivery Service Charges** – fees charged by the local utility to use their poles, wires, metering services, etc.