Westar Energy
Conservation Initiatives

IFMA Meeting
March 4th, 2010

Presented by:
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Paul Heitkotter
Uncertainties create new realities

- Carbon tax
- Soaring construction costs
- Future environmental regulations
- Nuclear disposal
- Long-term performance of wind power
- Public attitudes on traditional coal
- Rising fuel costs
- Global Economic Crisis
Growing demand for electricity
Matching supply with demand

- **Coal/nuclear** -- low cost, steady, predictable
- **Wind** -- variable, unpredictable
- **Natural Gas-fired peak power** -- higher cost, very flexible

[Diagram showing consumer usage, demand response, and supply sources from 6:00 AM to 9:00 PM]
Our Generation:
Nuclear – Coal – Wind – Natural Gas

- Concordia
  Meridian Way
  Wind Farm
- St Marys
- Topeka
- Lawrence
- Abilene
- Emporia
- Burlington
- Wichita
- Neosho
- Joplin
- Leoti
  Central Plains
  Wind Farm
- Medicine Lodge
  Flat Ridge
  Wind Farm
- Edmond
  Oklahoma
Investing in our future energy independence

Westar Emission Reductions

- Particulates
- NOx
- SO2

Tons per Year

Investing in our future energy independence

EMISSION CONTROLS

GAS PEAK POWER
Transmission

• Wichita – Salina
  – Wichita to Hutchinson complete
  – Hutchinson to Salina under construction
  – Investment ≈$290 million

• Prairie Wind, LLC
  – Propose 230 mile, 765 kV line Wichita west, south to Oklahoma
  – First built west of Mississippi
  – Enable development/transport of renewable energy
  – Joint venture with Westar and two other utilities
  – Awaiting resolution of state and regional issues
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EMISSION CONTROLS

GAS PEAK POWER

TRANSMISSION

WIND POWER
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- Combined Cycle Gas Plants
- Transmission
- Emission Controls
- Wind Power
- Base Load
Turbine blades
Turbo-generator set
Green initiatives for a sustainable future

- Landfill gas-fueled generation
- Among top 10 utilities for wind power per customer
- Investing in cleaner air at our fossil-fuel plants
- Retired old plants with higher emissions
- No longer use fuel oil for generation
- Wolf Creek provides energy with no air emissions
Protecting our water

- Substation oil containment
- Secondary container in case first fails
- Used in all new substations
- Installing in existing
  – prioritized based on risk
Protecting our water
Where Kansas stacks up

Average Electricity Rates by State
Westar Energy efficiency programs

- Building Operator Certification (BOC)
- EfficiencyWorks Certified Real Estate
- Member of Green Biz Wichita
- WattSaver program
- Program connections with HVAC contractors and builders
- School program (K-12 and scouts)
- SmartStar Lawrence
SmartStar Lawrence

- Creates a smart grid concept town in Lawrence
- $40 million project
  - Installs over 47,000 smart meters
- Federal funding covering up to 50% of the project cost has been applied for
- Builds the Westar IT infrastructure required for full system deployment
- Project would begin in the 1st quarter of 2010 if funding received
- Meter installation begins 3rd quarter of 2010
Customers will have updated energy use and cost information daily

Project will provide enhanced system reliability and improved outage and restoration management

SmartStar will provide the information necessary to make informed decisions for future smart grid deployment at Westar

More information will be provided as the DOE grant review process proceeds
Assessing your business energy performance

• Develop a profile for your business
  – Guidelines for energy management

• Data Collection and Management
  – Gather and track energy use data

• Baselining and Benchmarking
  – Determine a starting point from which to measure progress
  – Make comparisons to similar businesses and prioritize improvements needed
Key areas to assess

Commercial Lighting

• Lighting represents 40% of the average commercial building’s electric bill, followed by motors/HVAC (40%) and other equipment (20%). ¹

• Energy-efficient lighting projects generate an average of 45% return on investment, paying for themselves in just 2.2 years. ²

• Only 20% of existing commercial buildings feature some degree of upgraded lighting technology, while 80% continue to operate lighting systems installed before 1986. ³

¹, ³ US Department of Energy (DOE), ² Energy Cost Savings Council
<table>
<thead>
<tr>
<th>Tubular Lighting</th>
<th>Efficiency</th>
<th>General Cost</th>
<th>CRI levels (Color Rendering Index)</th>
<th>LPW levels (Lumens per Watt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T12</td>
<td>Old and inefficient</td>
<td>Lowest lamp, ballast and fixture cost</td>
<td>62</td>
<td>78</td>
</tr>
<tr>
<td>T8</td>
<td>Higher efficiency 40% more efficient than T12</td>
<td>Approx. 20% more than T12</td>
<td>85</td>
<td>92</td>
</tr>
<tr>
<td>T5</td>
<td>Highest efficiency 51% more efficient than T12</td>
<td>3-4 times the cost of T8</td>
<td>85</td>
<td>103</td>
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</tbody>
</table>
Energy savings equals dollars

<table>
<thead>
<tr>
<th>Lamp Quantity</th>
<th>Existing System F34 T12 Lamps</th>
<th>High Efficiency Electronic System F32 T8 Lamps</th>
<th>F28 T8 Lamps</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>44</td>
<td>25</td>
<td>19</td>
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<tr>
<td>2</td>
<td>74</td>
<td>48</td>
<td>26</td>
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<tr>
<td>3</td>
<td>118</td>
<td>73</td>
<td>45</td>
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<tr>
<td>4</td>
<td>148</td>
<td>96</td>
<td>52</td>
</tr>
</tbody>
</table>
T means *tubular* in shape

- T12 = 12/8” in diameter
- T8 = 8/8” (1”) in diameter
- T5 = 5/8” in diameter
- T2 = 2/8” (1/4”) in diameter

Compact Fluorescent Lamp (CFL)

- Twin-tube, Quad-tube, Triple Tube
- 2D, Circline
- BX = Biax Lamp
HVAC key areas for efficiency

- Cooling tower maintenance
- Boiler maintenance
- Scheduled air filter replacement
- Economizers function properly
- Optimal boiler and chiller fluid temperatures
- Air cooled condenser coil maintenance
- Water and refrigerant piping insulation
Commercial building tax deduction

- Created by the Energy Policy Act of 2005 to reduce initial cost of investing in energy-efficient lighting and other building systems.

- CBTD allows building owners (or tenants) to write off the complete cost of upgrading all lighting, HVAC/hot water and building envelope in the year the new equipment placed in service, capped at $1.80/sq.ft.

- Upgrading just one of the three systems can earn up to $.060/sq.ft.

- Single tax year claim instead of amortize over a period of years.

- CBTD can be claimed for qualifying projects completed before January 1, 2014.

www.lightingtaxdeduction.org/tax_deduction
Building Operator Certification program
Background

• Joint licensing agreement between Westar Energy, KCP&L, Midwest Energy, and Midwest Energy Efficiency Alliance (MEEA) signed 12/08
  – MEEA is the licensed regional administrator

• KCC approved 6/15/09
National training

2009 BOC States

BOC training held in locations around the country
Go to www.theBOC.info
Level I course series

- 7 classes on 8 dates
  - Building Systems Overview
  - Energy Conservation Techniques
  - HVAC Systems and Controls (2 days)
  - Efficient Lighting Fundamentals
  - Operation and Maintenance Practices for Sustainable Buildings
  - Indoor Air Quality
  - Facility Electrical Systems
November 2009
   - Two Level I course series began
     • Wichita (November 3)
     • Topeka (November 18)

2010
   - Three Level I course series will be offered
     • Wichita (April 28)
     • Salina (July 21)
     • Pittsburg (October 19)
2009 BOC participants

- **City/County/Government**
  - Harvey County
  - Leavenworth County
  - Saline County
  - Sedgwick County
  - City of Andover
  - City of De Soto
  - City of Lawrence
  - City of Newton
  - City of Rose Hill
  - GSA Kansas Field Office
  - KS Dept of Administration

- **Other**
  - Capitol Federal Savings
  - Cargill Meat Solutions
  - Koch Supply Co.
  - Lawrence Memorial Hospital
  - Protection One

- **Education**
  - Cowley County Community College
  - Kansas Wesleyan University
  - USD 305 Salina
  - USD 343 Perry-Lecompton
  - USD 490 El Dorado

- **Manufacturing**
  - Bombardier/Learjet
  - Case New Holland
  - Hallmark Cards
  - Hills Pet Nutrition
  - Johnson Controls/BNSF
  - Landoll Corporation
  - Manko Window Systems
  - Monarch Cement
  - Pitt Plastics
  - PTMW
  - Russell Stover Candies
  - SPIRIT Aerosystems
Testimonials

• **Hill’s Pet Nutrition, Topeka**
  – “The program content … builds a more complete perspective of essential operations and maintenance necessary to achieve and maintain maximum energy efficiency. The program is beneficial for managers, as well as operations/maintenance staff.”

• **Harvey County, Newton**
  – “I have enjoyed the 2009-2010 BOC classes. The teachers and subjects were very informative. The variety of systems covered helps me in maintaining and upgrading various heating and air systems by their age. The information I gathered will help me implement projects based on efficiency.”

• **Kansas Department of Administration, Topeka**
  – “I am truly impressed with the course materials and knowledge of the instructors in the BOC classes. I have been in maintenance for over 30 years and have a pretty good background in facilities management. The diversity of the class participants and facilities each is involved with brings real world problems and experiences to this class. This is the best overall class I have taken.”

• **City of Newton**
  – “The BOC Level I class has been very beneficial. I've taken something away from nearly every class period, either directly from the material, from the instructor or another participant that I didn’t already know or hadn’t thought of, that will be useful in daily operations. I'd do it again in a heartbeat.”

• **USD 305 Salina Public Schools**
  – "BOC is a great way for new facilities managers to gain a better understanding of their building's HVAC and electrical systems. … BOC has enabled me to discuss intelligently preventative maintenance of aged systems and recommend energy efficiency improvements with our district's maintenance team."
National accreditation

- BOC is accredited for continuing education by the following organizations:
  - The International Facility Management Association (IFMA)
  - The Building Owners and Managers Institute (BOMI)
  - The American Hotel and Lodging Educational Institute
  - The National Association of Power Engineers (NAPE)
  - National School Plant Management Association (NSPMA)
Program parameters

• Available to commercial and industrial customers in Westar Energy’s service territory
• Tuition per course series is $1150
• Westar will reimburse 50% of the tuition after a participant has successfully completed all training requirements
  – Technical classroom training
  – Exams
  – Projects applied in facility
  – BOC certification
Register for BOC

• Register on-line

• 3 methods of payment
  – Credit card
    • Mastercard or VISA
  – Check
  – P.O.
10 WAYS BOC TRAINING PAYS OFF:

1. Learn energy conservation strategies that save time, energy and money.
2. Advance your career and your potential to earn more by expanding your current skills.
3. Be exposed to the latest technologies, trends and tools in building operations.
4. Gain hands-on experience with the tools and methods taught in class.
5. Network with industry experts and peers regarding troubleshooting and best practices.
6. Receive in-depth reference tools and materials specific to your facility.
7. Minimize the need for unscheduled maintenance.
8. Improve your credibility by managing a more comfortable facility while reducing energy bills.
9. Earn continuing education credits and certification that are recognized in 21 states.
10. Receive a $575 tuition reimbursement upon certification.
Thank you!
www.WestarEnergy.com