



Lessons Learned in Impacting Industrial Energy Efficiency

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Speaker Background

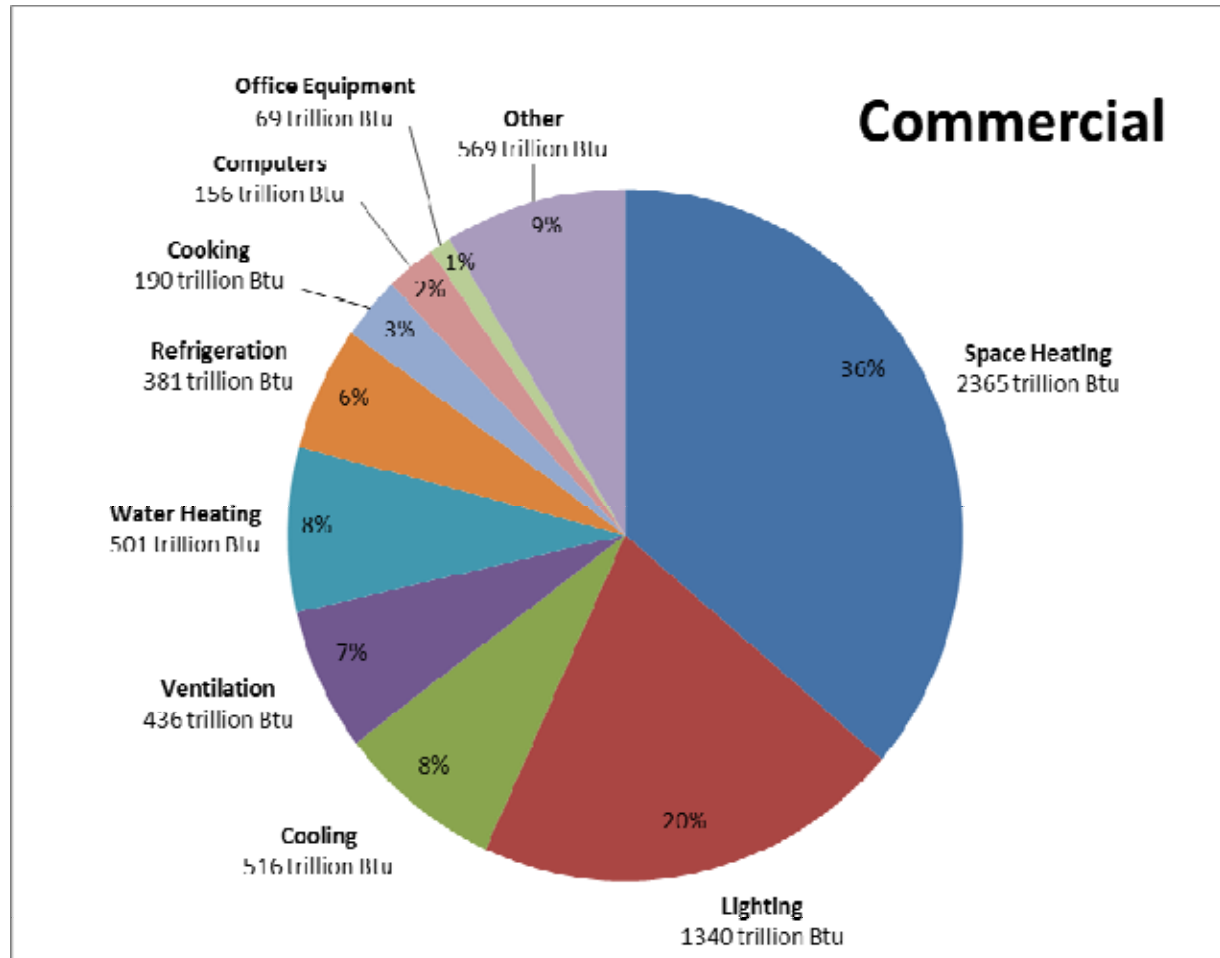
- 30 years working in energy efficiency
 - Technical side – energy engineer
 - Program side – design and implementation
- Implementing energy efficiency programs since 1988
- Program director
 - Wisconsin's Focus on Energy – industrial sector since 2001
 - Hawaii Energy program since 2009
 - Ameren Illinois' Act on Energy – business program since 2008

Commercial vs. Industrial

- Industrial sector uses about 40 percent of the U.S. electric and gas use
- EE business programs tend to target commercial sector partly because it is usually less complex
- Commercial sector programs target
 - Lighting
 - HVAC

EE = energy efficiency; HVAC = heating, ventilation, and air conditioning

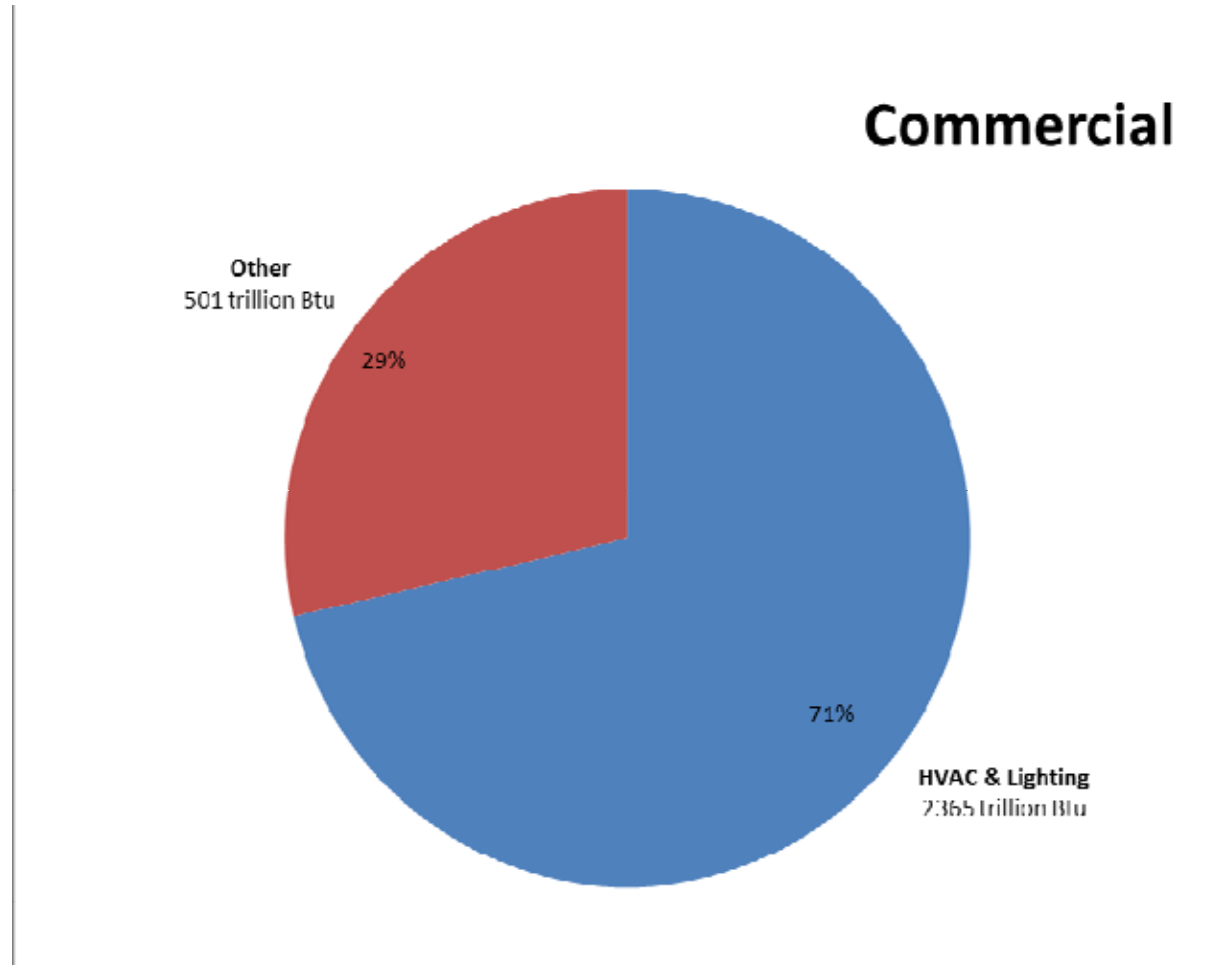
Commercial Energy Use



Based on data from the U.S. Energy Information Agency

Btu = British thermal unit

Commercial Energy Use in Lighting and HVAC (71 percent)



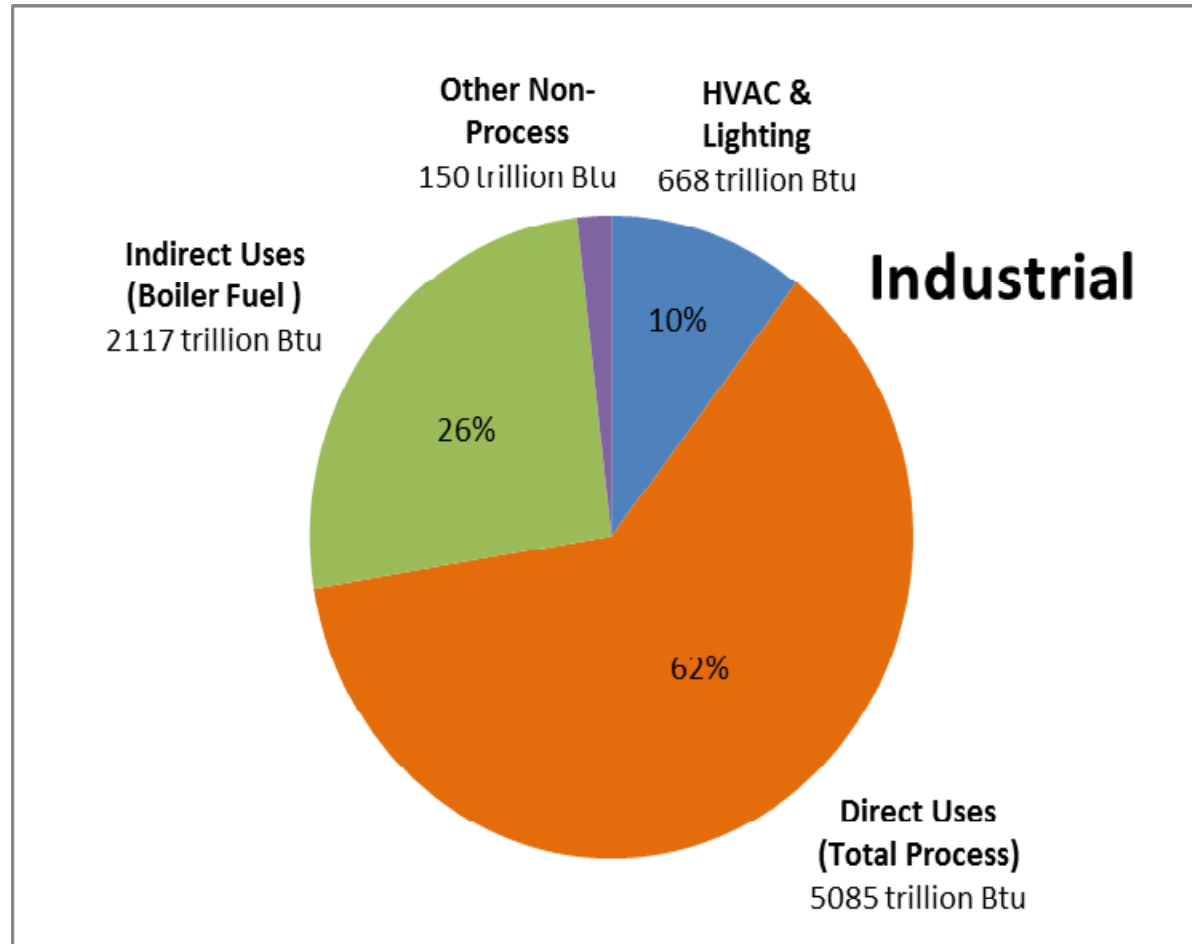
Based on data from the U.S. Energy Information Agency

HVAC = heating, ventilation, and air conditioning; Btu = British thermal unit



Industrial Energy Use

Lighting and HVAC (10 percent)



Industrial Energy Use

- Unlike commercial facilities, industrial facilities use only 10 percent of the energy use for lighting and HVAC
- 62 percent of industrial sector energy use in the core processes
- High diversity of processes

HVAC = heating, ventilation, and air conditioning

Business Program Challenges

- Commercial sector low-hanging fruit drying up
 - T12 changes
 - Code changes
 - Market saturation
- Industrial sector is complex
- But ... industrial sector program efforts can be more cost-effective

Industrial Program Barriers

- More complex uses of energy
- Focused on core business
- Highly technical staff
- Limited staff time
 - Project identification
 - Project implementation
- High ROI requirements
- High business diversity

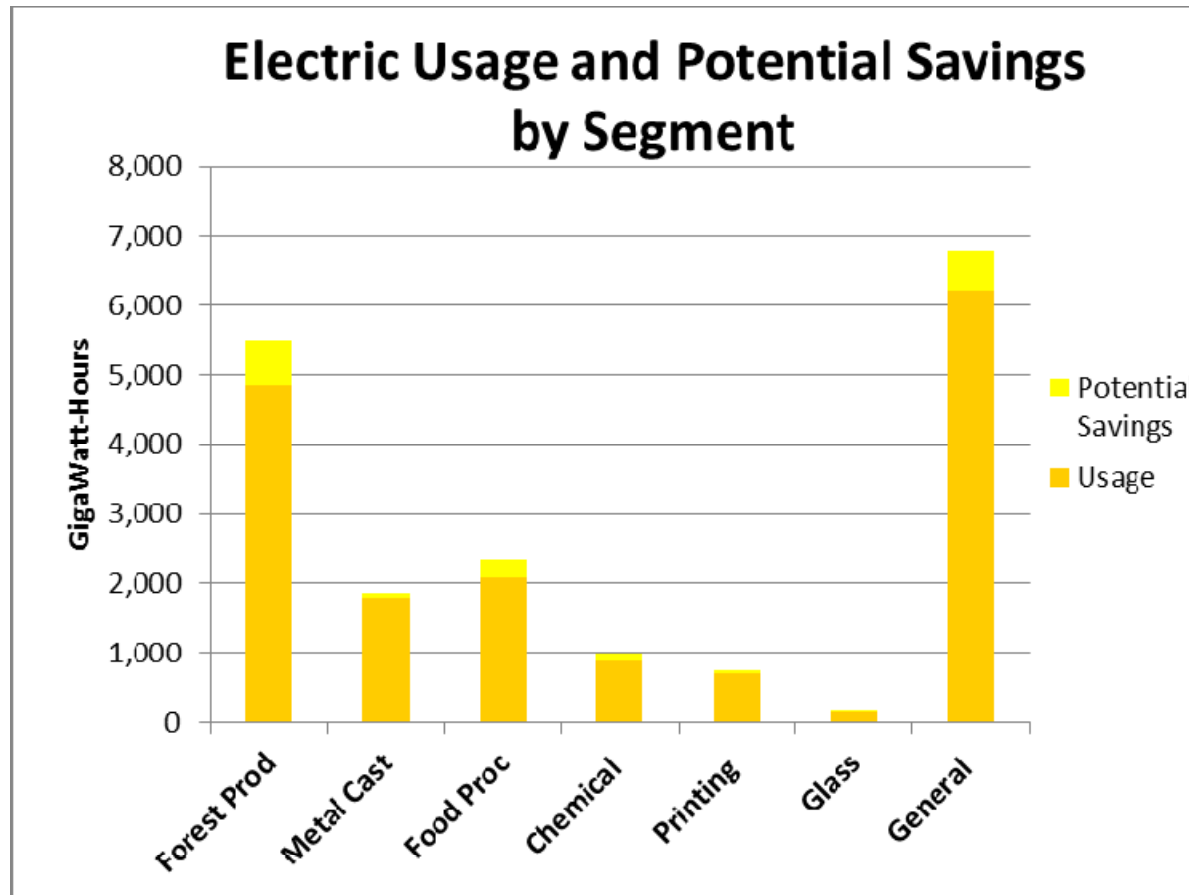
ROI = return on investment

Industrial Program Lessons

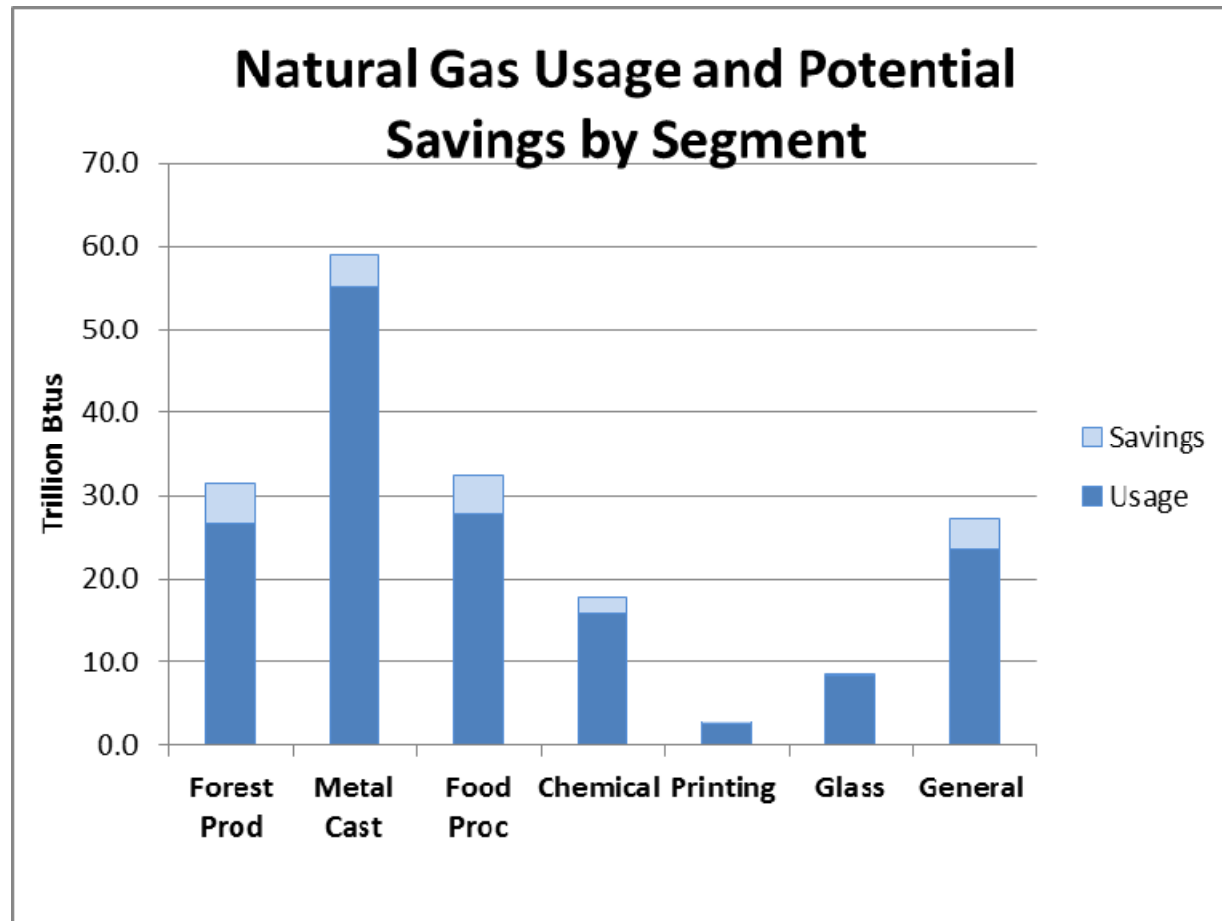
1) Industrial sector market segmentation

- Target submarkets
- Overcomes high business diversity
- Develop understanding of submarket needs and opportunities
- Implement specific program elements to better meet submarket needs and opportunities

Wisconsin Industrial Submarket Electric Usage and Potential



Wisconsin Industrial Submarket Gas Usage and Potential



Baseline Market Research Wisconsin Focus on Energy Report, November, 2001

Btus = British thermal units



Wisconsin Industrial Submarket

- Wisconsin industrial energy use is similar to U.S. at 35 percent of total energy use
- Wisconsin is the tenth largest state for manufacturing revenue
- Targeted submarkets represent
 - 70 percent of the electricity used in industry
 - 75 percent of the gas used in industry

Industrial Program Lessons

2) Need strong industry and process experience

- Experience in each key submarket
- Understand/relate to specific customer needs
- Use experts – allies or consultants
- Offer study incentives
- Build program credibility

Industrial Program Lessons

3) Develop technical tools

- Tools that the customer typically does not have
 - Audit tools
 - Metering tools
- Valued unbiased information
- Used by customer to make project decisions

Industrial Program Lessons

4) Direct contact with customers and allies

- Develop relationship and trust
- Deeper understanding of barriers
- Able to help allies close sales
- Leverage utility relationships
 - Long-term relationships
 - Potential high-level connections

Industrial Program Lessons

5) Develop ally network for end-uses

- More informed allies means more sales/projects
- Specialized process allies need targeted support
- Feedback to program from allies important

Industrial Program Lessons

6) Engage trade associations

- Builds program credibility
- Enhances outreach
- Provides training opportunities at their events
- Allows another avenue to engage specialty allies

Industrial Program Lessons

7) Training classes are worthwhile

- Builds program credibility
- Enhances outreach
- Use trainings that have solid value
- Follow-up with attendees – feedback and projects
- Long-term market transformation

Industrial Program Lessons

8) Offer more than audits

- Usually audits are not what they need
- Good projects already identified
- Run with these “good” projects
- Need deeper engagement to influence
- Engage with energy management support

Industrial Program Lessons

9) Celebrate achievements

- Builds market awareness
- Others want to be recognized
- Stimulates additional projects
- Provides objectivity for “green” statements
- Shapes more efficiency-aware culture

Industrial Program Lessons

10) Leverage other programs

- DOE and EPA tools/trainings
- Additional training opportunities
- Greater or national recognition
- Possibly additional funds
- Connect their facilities to others in the U.S.
- Adds value without much program cost

DOE = U.S. Department of Energy; EPA = U.S. Environmental Protection Agency

Industrial Program Lessons

11) Support for emerging technologies (ET)

- Brings great value to customer
 - New idea
 - Unbiased information
- Clear impact by program (low free-rider)
- Wisconsin approach
 - ET and ET savings vetted
 - ET business vetted
 - Project loans or leases – paid by measured savings

Industrial Program Lessons

12) Industrial system retro-commissioning (RCx)

- Detailed review of system parameters to uncover potential actions to save energy
- Incentive for RCx study is only paid when enough measures identified are implemented
- Low-cost measures for very good, cost-effective program savings
- Low free-ridership

Conclusion

- Industrial sector has many opportunities
- Right expertise is needed to design and deliver program
- There are many different steps a program can perform to increase effectiveness in the industrial sector

Contact Information

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