Capturing Co-Benefits of Industrial Energy Efficiency in U.S. DOE Programs

IEA Roundtable on Industrial Productivity and Competitiveness Impacts
Paris, France
January 27, 2014

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Introduction DOE Programs: Better Plants and SEP

Better Plants:
- Corporate commitment to save 25% (energy intensity) over 10 years
- ~120 U.S. companies enlisted
- Design and implement energy efficiency action plans (discrete projects)
- Technical assistance from DOE to baseline energy use only
- DOE-sponsored training and recognition
- Energy savings data collected to determine impact on national energy use
- Energy savings data used to estimate power plant emissions reductions
- Co-benefit information not systematically collected
  - If co-benefits achieved, BP partners can submit them voluntarily
Better Plants Co-benefits Examples

- Nissan North America new paint plant construction project:
  - Avoided purchase of commodities (wood, metal, concrete) through recycling of construction materials
  - Landfill cost savings by recycling materials
  - Diverted 4,060 yards$^2$ of materials that would have been sent to landfill

- Saint-Gobain compressed air system optimization:
  - Purchased water savings from installing closed-loop cooling system
  - Reduced sewerage fees due to reduction in discharge of spent cooling water to local sewer system

- Cost savings were not quantified
Introduction DOE Programs: Better Plants and SEP

- Superior Energy Performance:
  - Plant-level program intended to certify energy performance
  - Developed with input from manufacturers (U.S. CEEM)
  - Requires conformance to ISO 50001 and attainment of minimum savings levels
  - Energy savings are validated using M&V protocol
  - Significant workforce training accompanies implementation

- In depth interviews conducted to discern business value of SEP implementation
- Co-benefits of energy efficiency not collected during demo phase
- Starting 12/13 interview process include qualitative questions on co-benefits
Superior Energy Performance Costs

- Internal costs include staff time to implement EnMS
- External technical assistance includes help with ISO 50001 & energy audits
- Third party audit includes ISO 50001 and performance verification
Superior Energy Performance

- Expected benefits of SEP implementation:
  - Significant improvement in energy performance
  - Third-party validation of energy savings (better transparency)
  - Permanence of energy management system (better corporate culture)
  - Brand enhancement (prove commitment to sustainability)
  - Employee engagement (energy management expertise)

- The latter two benefits are important co-benefits that could be quantified
Conclusions

- Most industrial energy efficiency programs do not uncover and quantify co-benefits of industrial energy efficiency efforts.

- For many programs, quantifying co-benefits may be desirable to justify implementation costs.

- Energy assessments need to be integrated with quality/competitiveness assessments to:
  - Properly estimate co-benefits of energy efficiency measures.
  - Account for energy savings from measures intended to improve productivity.
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