
Energy Efficiency Programs for Small and Medium Sized Industry

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Importance of Small and Medium Sized Industry

- 25%+ of industrial energy use is by facilities with less than 250 employees
- Half of the total industrial energy use is by plants with fewer than 500 employees
- 80% of all manufacturing establishments have fewer than 250 employees
- We focus on plants with fewer than 500 employees and energy requirements less than 1 MW



Potential for Energy Savings

- Experience from programs such as the IAC indicates that a 10% reduction in energy use is readily obtainable
- Smaller industrial plants may have larger savings potential than larger facilities because they have not yet taken advantage of many of the efficiency opportunities that have already been implemented at the more energy-intensive facilities



Motivation

- Smaller manufacturers often pay more for energy per unit of production than larger firms
- They tend to use less efficient equipment and processes
- They usually lack the capital and technical skills to invest in efficiency improvements
- Improvements can translate to big savings!



Timing of Efficiency Investments

- The life of a manufacturing plant can be divided into four stages:
 - New Plant : all initial equipment investments in a plant are complete. No more investment is required.
 - Operating Plant : the plant expenses include operating and maintenance costs.
 - Old Plant : much of the equipment is so old or outdated that not even basic maintenance is often performed.
 - End of Life : This is the point at which a plant is either completely refitted or demolished.

Factors in Decision Making

- Payback
 - usually the most common method for determining project value
 - at most, 24 month payback is desired by small and medium industrial managers
 - frequently, the benefits achieved after the payback period are ignored

Factors in Decision Making

- Risk
 - Smaller firms tolerate less risk than their larger counterparts
 - The risk in energy-efficiency improvements is frequently overestimated, simply due to lack to understanding and information
 - Lowering payback periods can lessen the impression of risk to the small industrial



Challenges of the Small and Medium Sized Industrial Segment

- Limited staff (and usually no energy staff)
- Limited capital
- Lack of knowledge of energy issues
- Perception that energy-efficiency is ‘more trouble than it is worth’



Efficiency Programs

- Services currently offered:
 - on-site assessments
 - specific recommendations
 - referrals to technical resources
 - rebates/grants/financing
 - technology demonstration
 - information dissemination and education
 - manufacturing research



Efficiency Programs

- Industrial Assessment Centers
 - Assessment team led by a university professor conducts an energy audit that results in specific recommendations for efficiency improvements



Advantages:
Detailed, tailored
recommendations



Disadvantages:
Little implementation
assistance

Efficiency Programs

- NYSERDA FlexTech Program
 - Offers energy audits and detailed recommendations with cost-shared implementation assistance from a stable of contractors



Advantages:
Tailored
recommendations,
implementation
assistance



Disadvantages:
Demand exceeds
available resources

Elements of a Successful Program

- Opportunity identification
- Technology identification and project design
- Financial analysis
- Purchasing and procurement
- Financing
- Installation
- Startup and training



Program Failures

- Education
 - Facility operators are often unaware of availability of programs or of the benefits of increasing energy efficiency
- Rebates
 - Some data indicates that rebates have little impact on long-term behavior and may encourage oversimplification of complex systems



Potential Programmatic Strategies

- Energy audit is key first step to increasing energy efficiency!
- Customers can first be enticed with with “low-hanging fruit”
 - low risk
 - easy to implement



Potential Programmatic Strategies

- Create targeted campaign to make managers aware of the benefits of energy efficiency and the availability of assistance
- Development of a network of energy efficiency providers
- Maintain relationships



Conclusions

- Support must be all-encompassing for the small and medium-sized manufacturer
 - Opportunity identification
 - Technology identification and project design
 - Financial analysis
 - Purchasing and procurement
 - Financing
 - Installation
 - Startup and training

