

UNDERSTANDING THE ENERGY EFFICIENCY INVESTMENT DECISIONS OF SMALLER MANUFACTURERS: A REPORT ON A SERIES OF ENERGY EFFICIENCY INDUSTRY ROUNDTABLES

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FOREWORD

This report documents findings from a series of industry roundtables conducted by the Alliance to Save Energy with representatives of smaller manufacturers to explore the incentives and obstacles to investing in energy efficient process improvements. The report follows closely behind an Alliance to Save Energy analysis of industrial energy efficiency in small- and medium-sized firms, *Getting in Gear, How Energy Efficiency Can Help Smaller Manufacturers Compete in the Global Marketplace*. As such, it supports the Alliance's renewed efforts to draw attention to this issue for an important, but difficult to reach market -- small- and medium-sized manufacturing firms.

INTRODUCTION

America's manufacturing companies use energy-efficient manufacturing equipment and process technologies to boost manufacturing productivity, lower production costs and minimize pollution. While many large corporations have the financial and technical resources to implement efficiency measures, smaller manufacturers have more constraints and are less likely to make similar improvements.

Smaller manufacturers (those employing 500 or less) accounted for almost half of the manufacturing sector's total energy bill of \$61 billion in 1991. According to DOE surveys, the potential savings for smaller plants are great because small and medium-sized companies use over 42 percent of the nation's manufacturing energy and represent over 98 percent of all U.S. manufacturing plants.

Smaller manufacturers often pay more for energy per unit of production than larger firms for several reasons -- they do not qualify for the large volume discounts, they use less efficient equipment and processes, and they lack the capital and technical expertise to invest in efficiency improvements. Because of these resource differences, there is an untapped "gold mine" of energy efficiency opportunities in smaller firms.

There are a number of federal, state, and utility-sponsored programs that offer energy efficiency assistance to smaller manufacturing firms. For instance, through the Energy Analysis and Diagnostics Center/Industrial Assessment Center (EADC/IAC) program the Department of Energy provides smaller companies with no-cost energy audits and recommends appropriate energy conservation measures. Over the past decade, the EADC program has conducted over 5,000 energy audits at smaller-manufacturing plants and has helped save over half a billion dollars in energy costs. However, only 40-50 percent of EADC audit recommendations are implemented on average. Reasons for this gap between what is technically cost-effective and what businesses actually implement---the industrial "efficiency gap" -- are not well understood among providers of energy efficiency services.

Understanding exactly why the "efficiency gap" exists requires a better understanding of how industry makes these investment decisions. Very little is known about how company situations, market conditions, environmental regulations, utility programs, and other factors inhibit or encourage energy efficiency investments for process-related improvements. To gain a better insight into the decision-making process of

smaller manufacturing firms, the Alliance to Save Energy, in cooperation with the U.S. Department of Energy Office of Industrial Technologies, conducted three industry roundtables.

METHODOLOGY

Over 68 people participated in the Alliance-DOE Industry Roundtables -- 26 of them from industry. State and federal government energy offices with programs relating to industrial conservation as well as local utility representatives were also invited to present and share their views. Each roundtable was held in a different region to determine how responses varied across different business and utility supplier environments. Roundtables were held in Houston, Boston, and Portland, Oregon.

The objective of each industry roundtable was to identify key factors which encourage or discourage small- and medium-sized manufacturers to invest in energy saving technologies for manufacturing processes. Improvements in building envelope, lighting and comfort related technologies do not generally impact the quality or expense of the plant output and were not a focus of this study. To address this information, each industry roundtable followed a similar format. Each roundtable meeting was kicked-off with a short presentation from a utility representative or EADC/IAC staff member and then focused on decision making in small and medium-sized manufacturing firms. A few of the firms participating in the roundtables had greater than 500 employees -- such as Compaq Computers in Houston, Texas. Their insights, however, also appear to be applicable for small- and medium-sized companies.

Roundtables were structured to address seven general discussion topics:

1. Origin of Energy Efficiency Projects
2. Evaluation Techniques
3. The Role of Risk and Uncertainty
4. Access to the Right Information
5. Operations and Maintenance Training for New Equipment
6. Utility Demand Side Management (DSM) Programs
7. Environmental Considerations

In addition to providing insights on these topics, the roundtables enabled plant decision makers to learn about different energy efficiency improvements and exchange insights about industrial energy efficiency opportunities. Several industry representatives said that they participated in the roundtables to help improve the level of service offered by government programs, utilities, trade associations, the energy efficiency industry, and state energy offices.

FINDINGS

The following report summarizes the numerous responses from roundtable participants to each of the seven discussion topics listed above.

1. The Origin of Energy Efficiency Projects

The origin of energy efficiency projects vary dramatically in small and medium manufacturing firms. They originate from both inside the plant and outside the plant.

Energy Efficiency Ideas Originating From Inside the Plant

Participants generally said they preferred to rely on internal resources for energy efficiency ideas. One roundtable participant claimed that everyone in his plant has contributed ideas on how to save energy including the plant engineers, production managers, the chief operating officer, and the chief financial officer. In fact, many project ideas have come directly from the president. According to another participant, the company's controller and vice president of manufacturing are the most likely to identify new efficiency opportunities.

In a few companies, innovative committee structures had been developed to help solicit ideas from employees. One industry participant described a gains sharing program that encourages everyone in the plant to identify energy efficiency as well as other types of projects that will improve the operating performance of the plant. Everyone in the plant is encouraged to complete a standardized form describing their ideas. Each project idea is then reviewed by committee with selected projects recommended to management for implementation. Another industry representative described a similar plant committee structure that focused solely on energy projects and was a key source of energy efficiency project ideas in the plant.

Several of the manufacturers mentioned that regular energy monitoring and reporting helped to identify projects to help keep costs down. For instance, one industry representative said that energy efficiency projects were identified on a "cost driven" basis at his plant. If energy prices are high or there is a spike in energy costs the comptroller will focus plant resources toward controlling the increase through efficiency measures. For this reason, semi-monthly and weekly reporting is crucial to the firm in order to identify any irregularities in energy consumption.

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In cases where smaller firms were owned by large corporations, it was not uncommon for the smaller firms to adopt corporate strategies and goals to increase energy efficiency. In these instances, parent companies frequently provided financing and technical expertise in addition to guidance on energy efficiency investments. This type of support is extremely helpful to smaller manufacturing firms.

Several participants expressed frustration in getting fundamental information about energy efficiency projects. They complained about the difficulty and expense involved in finding efficiency projects that were worth serious investigation. Smaller plants often lack the resources to adequately research energy efficiency opportunities to an extent that an investment decision can be made by management. When they do investigate projects, they are likely to get conflicting answers. One energy manager told of investigating a cogeneration system and receiving very different advice from equipment vendors and the company's local utility representative. As a result, he did not know who to believe.

Peers Offer Valuable Insights into Energy Efficiency Technologies

Colleagues and peers in the industry were identified as being a very valuable resource for new energy efficiency ideas and insights into equipment performance, operations and maintenance requirements, training needs, etc.. Several roundtable participants commented that they were more trusting of information provided by colleagues in industry than by vendors or utility personnel. Unfortunately, advice from peers in industry is often hard to obtain, especially when it comes to getting specific information on different types of equipment in specific manufacturing processes. This is due to the great variations in industry .

Utility Personnel, Consultants, and Vendors

When internal expertise and industry contacts are lacking, many smaller plants rely heavily on information from outside vendors and peers for efficiency ideas. Several larger industry representatives recounted stories of consultants or vendors being brought in for specific investments (i.e., for HVAC or cogeneration). Larger plants tended to be more aware of and adept in using outside resources such as utility DSM, engineering consultant services, and trade association resources.

Audits, engineering studies, and technical information services of utility personnel and engineering consultants have been used by several of the industry participants in each roundtable meeting and were considered by most to be valuable sources of new ideas for energy efficiency and other projects. However, some participants had no experience with utilities and consultant services and were not particularly interested in getting outside help. A broad range of resource materials, such as trade press, periodicals, equipment vendors, industry workshops, and seminars were also mentioned by industry representatives as being useful sources of information on energy efficient process equipment.

2. Evaluation Techniques

The type of evaluation technique used to determine the appropriateness of a proposed energy efficiency project has a major impact on meeting a company's go, no-go criteria. The payback criteria were no different for different types of efficiency investments (process vs. building systems).

Simple Payback Used Most Frequently

Most of the industry participants relied on simple payback analysis to evaluate projects. Projects were generally limited to two-year paybacks; some larger companies considered three- year paybacks. In addition to payback analysis, a few firms mentioned that they also used internal rate of return calculations to help evaluate discretionary investment opportunities.

Several roundtable participants also said that extensive energy efficiency projects must be approved on a capital budgeting basis, i.e. funds must be identified prior to the budget cycle, the budget for the item(s) approved, and the project initiated during the fiscal cycle.

Most industry participants rely on simple payback analysis to evaluate projects. . .

3. The Role of Risk and Uncertainty

Smaller manufacturers face many risks and uncertainties when it comes to making investments in energy saving projects such as general economic conditions and risk that the new technologies may not work. Manufacturers indicated that risks related to future economic conditions and technologies working properly were strong deterrents to energy efficiency improvements. The overwhelming consideration on whether to investigate an energy efficiency project hinged upon on its potential impact (real or perceived) on product quality, cost, and production time. For instance, when a critical piece of equipment breaks down, there is frequently little time to evaluate an alternative investment adequately. The fear of an unknown, adverse impact on production was cited frequently as the reason process related energy efficiency improvements were rarely undertaken exclusively for cost-savings opportunities.

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Uncertainty About Future Sales Inhibits Efficiency Investments

Energy efficiency investments are often dependent on business conditions and the health of the economy in general. When the economy is tight there is more pressure on quarterly earnings before undertaking discretionary projects like energy efficient process equipment. Others agreed that a lag in product sales often delays the purchase of equipment. However, after receiving a large order, firms were much more receptive to making discretionary, energy efficiency investments.

Lack of Reliable Performance Information Inhibits Investments

Most firms agreed that having better access to accurate information on performance is a good way to reduce the risk and uncertainty associated with these capital investments. For instance, one industry representative told of his company's difficulty in getting sufficient information on a thermal reclamation unit. Another company had similar difficulties in getting reliable information about a cogeneration unit; the information was often contradictory. Information from vendors, utilities, and consultants often varied -- adding confusion and further uncertainty. EADC program participants indicated that audit recommendations were very useful in removing uncertainty.

Manufacturers Test New Equipment to Lower Risk

Several participants expressed concern about being the first to adopt new technologies in their plants. Most would much rather learn from the experiences of others by seeing the technology tested in the field and not repeating others' mistakes. Even then, the new piece of equipment would be reviewed and tested by plant engineers and line workers before being widely adopted within the plant. One industry representative said that

he preferred to test new equipment on a limited scale before implementing it on a plant-wide basis. Manufacturers also indicated a general willingness to share risk with a third party such as a utility or vendor.

Utility Influence On Decision Making Varies

Industry participants expressed mixed views on the role of utilities in helping reduce the risks and uncertainties associated with energy efficiency investments. Some participants thought that utilities could help reduce uncertainty if they were willing to spend more time at their plant to learn about manufacturing processes. However, utility information often tended to be non-process specific and too general to be of benefit. Others indicated that they had received helpful, specific information on proposed process improvements from EPRI sponsored research. The small manufacturers appeared much more inclined to rely on peers in industry or industrial associations than on utilities for information about new equipment or process improvements.

4. Access to the Right Information

Participants were asked to comment on the significance of the right information when making energy efficiency decisions and what sources were used most frequently. The source of the information and availability were cited as key factors when evaluating projects by the roundtable participants.

Sources of Information Vary Widely

The most frequently cited sources of information were: 1) past in-house experiences, 2) experiences of peers and trade associations, 3) utility representatives, 4) engineering and third-party consultants, 5) industry trade publications and 6) government sources such as the federal EADC program and state-based technology information programs in Massachusetts and Oregon.

Limited Access To Appropriate Information

Many manufacturers told of their difficulties in getting the right information to make good decisions on whether to implement energy efficiency projects. They simply did not have the time and did not know where to look, or were hesitant to invest in a consulting report given the lack of priority and/or level of uncertainty of the projects.

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Reliance on Information Varies by Source

The willingness to rely on differing sources of third-party information varied among the participants. Smaller manufacturers attending the roundtable were more likely to trust equipment vendors and periodicals for information on energy-efficient equipment than larger manufacturers. Several manufacturers recommended checking with the vendor customers to get a better understanding of flaws in the product or the services provided by the vendor.

Larger firms often appeared more willing to hire engineering consultants than smaller plants. This could be attributed to the lack of in-house engineering staff to oversee the consultants' work and financial resources. Both small and medium-sized firms were quite willing to rely on EADC information when it was available. Access to EADC audits was limited based upon geographic proximity to a center. Trade and professional journals helped many industry representatives learn more about new energy efficiency technologies and provided useful points of reference. When evaluating new technologies, many plant engineers relied on professional standards such as UL, ASME, NEMA, and ASHRAE standards.

5. Operations and Maintenance Training for New Equipment

The impact from the increased need for employee training to properly maintain and use new energy-related equipment was investigated. New equipment and technologies are often more complex and have different operational characteristics than the older equipment it replaced.

Training Costs Not A Deterrent

Training costs for new equipment were not considered to be a major deterrent to investing in new equipment by most participants. To determine the training requirements needed for new, energy-efficient equipment, most roundtable manufacturers said they checked with other manufacturers, equipment manuals, and vendor information.

One participant stated that operations and maintenance considerations are typically factored into the cost-effectiveness analysis, including added salary requirements, training time, preventive maintenance, etc. One representative commented that as more specialized equipment comes into the plant, more is being spent on training, but the productivity gains more than justify the investment. Although training and education programs were considered to be an excellent approach, some smaller firms claimed that there was not enough time or money available to conduct training and expressed an unwillingness to conduct full life cycle cost analysis. In general, most participants felt that this was not a deterrent -- it was viewed as the "cost of doing business." About half of the industry participants claimed that additional training was required for investments in new energy efficient equipment purchased in the last five years. When required, training is often conducted in-house.

In general, most participants felt that this (training) was not a deterrent and viewed it as the "cost of doing business."

Retaining and Motivating Plant Personnel

One unexpected comment was the fact that several firms stated that training was an opportunity to increase employee value, increase retention, and improve motivation. What appeared to be a barrier was actually viewed as an opportunity.

6. Utility Demand Side Management Programs

Most of the roundtable manufacturers were generally aware of demand side management programs and incentive rate structures offered by their local utilities. However, their participation in these program varied widely.

Incentive Rate Structures

Almost all of the firms represented at the roundtable were either aware of or were using incentive rate structures such as off-peak rates. Larger companies tended to know of these programs more often than smaller companies. One manufacturer expressed an interest in using off-peak power, but noted that it also required him to pay a premium for higher labor rates off peak (night shifts). One manufacturer had shifted manufacturing to off-peak hours and split the cost savings with those working the later shift. There were concerns that personnel were unwilling to work during the evening hours to take full advantage of this cost savings.

Utility DSM Programs Usefulness Vary

Although several roundtable participants said that utility programs had improved over time, many believed that their local utility was not doing enough to provide the services most needed by manufacturers. The intensity of this response varied by geographic region and was most apparent in the Boston workshop. More emphasis on process improvements by utilities and the need to increase the level of rebates were cited as areas for improvement. The cost and availability of DSM programs over time were raised as key concerns among the roundtable participants. Some thought they were paying too much for the programs, that too few firms participated, and that the programs changed or disappeared over time. No participants viewed DSM programs and rebates as "free."

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One firm manager indicated that he was going to use the programs to increase his competitive advantage locally and internationally. Some manufacturers said that the availability of utility rebates was a significant factor in their previous decision making. The utility's technical assistance and rebates were significant factors in the companies' decisions to invest in energy efficiency projects. Through the DSM program, an analysis was conducted in one plant, focusing on the design of a specific process efficiency application. The utility also metered and helped verify the plant's process energy use.

Manufacturers Would Like Utilities To Offer Metering

Participants indicated that energy metering and verification would be very helpful. For instance, utilities could offer metering and submetering services targeted to the needs of smaller industrial to help them see the savings gained through the purchase of more energy efficient equipment. One industry representative had participated in a number of utility programs, but there was no visible impact on the plant's total utility bill and felt they had not worked. The roundtable participants said that utilities could do more to assist small firms to measure the energy flows in industrial processes and needed help evaluating the savings from energy efficiency improvements.

7. Environmental Considerations

The role of environmental regulations and mandatory improvements on the decision to make energy efficiency investments was also investigated. In general, most participants believed that environmental improvements were counterproductive, often increased energy consumption, and competed for limited company resources.

Energy Efficiency and Environment Viewed as Separate, Unrelated Issues

Most firms viewed energy efficiency and environmental projects as separate, unrelated issues. According to the roundtable companies, energy efficiency improvements play a secondary or very minor role when they assess the merits of an environmental requirement. The only time environmental benefits of efficiency improvements are taken into account is when the energy savings are potentially significant, such as replacing CFCs in chillers. Then, the improved equipment efficiencies can be used to pay for the cost of the replacement equipment.

Environmental Regulations Can Result in Increased Energy Use

Several industry participants argued that environmental regulations often result in significantly increased energy use. For instance, to meet air quality requirements one participant replaced the plant air filtration system with a new more powerful system. The new air handling system was a better, more effective system, but used larger, more energy-intensive motors. Many industry representatives felt that EPA requirements were excessive, forcing them to use more energy with more powerful equipment in order to meet more stringent environmental regulations.

Environmental Projects Can Take Away From Energy Efficiency Projects

Since environmental regulations are mandatory, environmental projects often have a higher priority than discretionary energy efficiency projects. One industry engineer said that he spends most of his time making sure that his plant is in compliance with Federal and state environmental regulations, and that as a result he has little time left to focus on energy-related projects. Environmental projects often compete for the same personnel and capital resources as energy efficiency projects. When asked why, the engineer said that decisions regarding energy efficiency projects are economically driven, while environmental projects are mandated.

Environmental projects often compete for the same personnel and capital resources as energy efficiency projects.

While several of the larger companies participating in the Alliance industry roundtables had dedicated environmental programs, most of the smaller companies did not have personnel dedicated to environmental compliance. Many of the smaller manufacturers that participated in the EADC energy audits were aware of specific environmental regulations and were very concerned about compliance.

CONCLUSIONS AND OBSERVATIONS

As expected, the diversity of size, type of industry, geographic location, regional diversity of energy prices, and the professional background of the participants were primary determinants on the responses noted in this report. However, several important, general conclusions can be made from the roundtable discussions with the 26 industry participants:

Origin of Energy Efficiency Projects -- The origin of energy efficiency projects varied dramatically within a plant -- from the CEO to the line worker. Projects from outside sources originated from consultants, utilities, vendors and peers.

Evaluation Techniques -- Companies rarely used sophisticated life cycle cost analysis to investigate energy saving investments and viewed discretionary (production process changes) versus non-discretionary improvements (equipment failures) quite differently.

Role of Risk and Uncertainties -- Risks related to future economic conditions and performance of new technologies are strong deterrents to energy related improvements. The primary consideration on whether to investigate an energy efficiency project depends on the potential impact, real or perceived, on the overall manufacturing process.

Access to the Right Information -- The sources of information used to evaluate an energy efficiency improvement varies dramatically, based on the size of the firm. Smaller firms have limited access to information, dedicated in-house engineering staff, and time for peer-to-peer exchanges.

Operations and Maintenance Training for New Equipment -- The cost of training to use new, more complicated equipment is not considered to be a deterrent. The key to successful energy projects is highly dependent upon having a project "champion" who shepherds the idea through the system.

Utility DSM Programs -- The importance of utility DSM programs varies widely depending on the size of the firm as well as among utilities. DSM rebates are strong incentives, but are not viewed as "free."

Environmental Considerations -- Most firms viewed energy efficiency and environmental projects as separate issues, felt that both competed for limited financial and personnel resources, and believed that they did not always offer an opportunity for energy cost savings.

RECOMMENDATIONS

This section contains Alliance recommendations based on the project's findings. The Alliance's recommendations focus on constructive steps that DOE regional programs, state energy offices, and utilities can take to assist smaller manufacturing companies with their energy efficiency investments choices. Alliance recommendations fall into three categories:

- Helping Small Firms Access and Evaluate Energy Efficiency Information
- Increasing Efficiency Investments Through Financing Assistance
- Fostering Energy Efficiency Networks

Helping Small Firms Access Energy Efficiency Information

Smaller industrial firms have limited access to energy efficiency information and the financial and technical resources to conduct in-house evaluations. Lack of first-hand performance and cost information should be minimized.

Recommendation: *Local utilities, state energy offices, and regional DOE offices should work closely together to provide accurate cost and performance information for energy efficiency process technologies and*

cooperatively demonstrate these technologies at the request of smaller manufacturing firms. Proactive information/demonstration programs will enhance many existing programs that already reach out to smaller manufacturers, such as DOE's EADC program and many state-sponsored programs.

One approach to meeting these needs would be to expand the role of the EADC/IAC's or establish dedicated Energy-efficiency Testing, Education, and Demonstration (ETED) centers. The ETED centers would have three objectives: (1) to demonstrate and test energy efficient equipment and practices targeted to the needs of smaller manufacturing plants, (2) educate local plant personnel about energy efficiency opportunities in their plants, (3) serve as an ongoing technical resource for plant managers on energy efficient technologies and environmental issues. Technical assistance would be provided in key areas, such as evaluating energy efficiency opportunities, conducting feasibility studies, and designing efficiency improvements.

Helping Small Firms See the Savings Quickly

In order to pursue energy efficiency investments, smaller companies need to see the savings on their utility bill. Generally, the savings realized through energy efficiency improvements need to pay for the cost of more efficient equipment within two years. Submetering is required to properly evaluate energy flows for process changes. Utility billing analysis and metering services are terribly important in providing this vital link between wise energy efficiency investment choices and lower production costs.

Recommendation: *Utilities and DOE should greatly expand their efforts to work directly with smaller manufacturers in their service territories to establish energy use reporting systems. This can be accomplished through enhanced metering and submetering assistance programs, which help smaller firms measure, understand, and manage their process energy flows. DSM rebates should be increased to pay for the incremental costs (3 to 6 % of project costs typically). These activities are crucial in helping small firms see quickly the savings behind energy efficiency investments.*

The voluntary reporting mechanism called for under Section 1605 (b) of the Energy Policy Act could serve as an example of the types of information to collect, such as total plant energy use and production activity. Companies should also be encouraged to track capital investments and housekeeping actions taken to reduce fuel consumption, along with one-year forecasts of energy use by fuel type.

Once a voluntary, uniform reporting system is in place, energy saving goals for smaller manufacturers should be strongly encouraged by state and utility programs at the company and plant level.

Increasing Investments Through Financing Assistance

Several firms commented on the scarcity of capital for energy-efficiency investments. The accessibility and uncertainty of future capital due to economic downturns could be reduced if small firms were informed of the availability of financing.

Recommendation: *EADC audit reports should also contain information on sources of financing such as vendor and energy service companies specializing in process improvements. Seminars and workshops should be conducted by DOE and/or local utilities to educate industrial decision makers on energy service companies and vendor financing opportunities similar to the workshops provided by the Federal Energy Management Program or include small industry as invited participants. Financing referrals could also be incorporated into ETED centers.*

Fostering Networks for Energy Efficiency

Increasing Contact with Peers in Industry

Several avenues for reaching smaller manufacturing firms were revealed during the course of the three industry roundtables. It was evident that smaller manufacturers look to one another for project ideas, savings verification, and advice. According to the roundtable participants, networking among peers in industry is occurring more often and utilities often help to make this happen. Unfortunately the pool of industry contacts

available to most decision makers is limited because they usually do not have the time or financial resources to be involved in various industry associations, technical seminars, and workshops.

Recommendation: *The EADCs should develop individual and regional programs to increase peer-to-peer exchange in industry by: 1) encouraging participation in energy-related associations such as Association of Energy Engineers (AEE), Association of Industrial Plant Engineers (AIPE), the Association of Professional Energy Managers (APEM), and the energy committees of their industry associations; 2) developing energy engineer program groups or chapters of these national organization (EADCs are ideal starter organizations for local energy engineer chapters); and 3) helping foster industry-related local energy engineering groups in areas where there are heavy concentrations of one type of industry, such as food processing or metal fabrication.*

Centralizing Energy Efficiency Contacts and Information

Roundtable participants also said that the manufacturers and distributors of energy efficient equipment and services are a major source of technical information for small- and medium-sized manufacturing firms. Vendors of energy efficient equipment and their materials were often used by industry representatives to answer questions they had about special training needs for new equipment and for other technical information. Unfortunately, vendors cannot afford to call on smaller manufacturers; hence, this valuable resource of efficiency information is often not available to small industry.

Recommendation: *Smaller manufacturing companies need more opportunities to exchange information on energy efficiency projects. Regional clearinghouses for energy efficiency should be established to: 1) serve as information clearing houses for energy efficiency technologies, 2) provide a single point of contact to locate people who are knowledgeable about energy efficient equipment, and 3) serve as a regional technology demonstration and training site for EADC/IAC participants, utility DSM program personnel, and plant engineers. These centers could be provided through expanded utility DSM program efforts, or expanded missions for the EADC centers.*

Corporate-Wide Energy Policies

Small manufacturing firms that are in regular contact with larger, parent firms often enjoy certain advantages when it comes to investing in energy efficiency projects. Several small manufacturing companies related that they had adopted parent-company energy efficiency standards, or goals and were receiving assistance from the company in meeting them. For instance, under its newly adopted corporate energy policy AT&T is committed to assist all of its manufacturing plants consider energy efficiency and cost in the criteria by which manufacturing processes are designed and implemented.

Recommendation: *Like Alliance Associates, AT&T, Honeywell, General Electric, etc. other large corporations that own smaller manufacturing plants or subsidiaries should be encouraged to adopt corporate-wide energy efficiency policies that impact the investment decisions made by their own facilities, including small and medium-sized plants.*

Although the potential for energy conservation is great, smaller manufacturing plants are a difficult audience to reach. Most smaller firms have limited personnel and financial resources to pursue energy efficiency opportunities, which means good projects are either overlooked, poorly investigated, or simply "squeezed out" by larger concerns, such as meeting product quality and delivery requirements, or complying with environmental regulations. Small firms need help in accessing and evaluating energy efficiency opportunities. Implementation of these recommendations will significantly increase the ability of small industry to remove critical barriers which currently exist in the marketplace.

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** Did not attend roundtable but expressed interest.*

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