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Strategic Energy Management Market Assessment Study: Small, Medium, and Metals Manufacturers

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Executive Summary

Introduction

For the current funding cycle (2010 to 2014), NEEA's Industrial Sector will target new markets in the Northwest region. NEEA engaged Market Strategies to conduct a research study to establish a baseline of strategic energy management (SEM) practices in the new markets of interest in order to compare against future years to determine the degree of market diffusion of strategic energy management practices in the target markets due to NEEA's efforts.

The primary objective of this research engagement is to determine the percentage of industrial companies within eight specified sectors in the Northwest that have implemented all or some of the elements of SEM.

This report details findings from the Small Manufacturing Businesses (with fewer than 100 employees), Medium Manufacturing Businesses (with 100 to 249 employees), and the Metals Manufacturing sector. Market Strategies has provided separate reports detailing findings for the other industrial sectors included in this project – Dairies, Food Processing, Beverage Manufacturing, Irrigators (agricultural operations), and Nurseries.

Key Findings

Although nearly all of the small, medium and metal manufacturers state they are familiar with energy efficient operating practices, only about half (48 percent) are familiar with specific SEM practices and less than 10 percent meet NEEA's criteria for implementing SEM. Among this group, the medium manufacturers are the farthest along with respect to SEM as they are somewhat more familiar with the practices and more of them meet NEEA criteria compared to the small and metal manufacturers; 12 percent of medium manufacturers meet the criteria versus three percent of small and seven percent of the metal manufacturers.

Familiarity with Strategic Energy Management

Nearly all manufacturing facility energy decision-makers interviewed report some level of familiarity with energy efficient operating practices. Energy decision- makers representing three-quarters (75 percent) of small and medium manufacturers are very familiar with energy efficient operating practices; 87 percent of metal manufacturers are very familiar. Reported familiarity is notably higher among very small and medium sized manufacturers compared to small manufacturers (78 percent and 88 percent versus 57 percent, respectively). Familiarity drops considerably when energy decision- makers are asked specifically about SEM practices (48 percent are somewhat or very familiar). Consistent with familiarity with energy efficient operating practices, SEM familiarity is greatest among medium manufacturers as compared to small manufacturers (65 versus 45 percent). Across both groups, the percentage of decision–makers who are very familiar with SEM is only 23 percent.

Implementation of Strategic Energy Management Practices

A facility has to satisfy all three criteria below in order to meet the minimum requirement for evidence of SEM at the facility:

1. The company has set a goal related to energy;
2. The company's top leadership has dedicated resources (e.g., staff, budget, training, capital improvements) to achieve the goal.
3. Staff responsible for the goal regularly reports to top leadership on progress toward the goal.

Currently, five percent of small and medium manufacturing facilities in the northwest meet all three SEM criteria (three and twelve percent, respectively). Among metal manufacturers, seven percent meet the NEEA criteria for SEM implementation.

Across all manufacturers (small, medium and metal), the barrier to meeting SEM criteria is the dedication of resources to energy reduction as defined by NEEA. While 14 percent of medium manufacturers meet this criterion, only three percent of very small and seven percent of metal manufacturers meet this criterion.

Energy reduction goal setting is the criterion met by the largest percentage of manufacturers (25 percent). A significantly higher percentage of medium versus small manufacturers say they have set energy reduction goals (49 percent versus 22 percent); 40 percent of metal manufacturers have set goals. An additional 28 percent of small and medium manufacturers say their companies will likely set goals within the next two years. Only one percent of energy decision-makers indicate that NEEA influenced their decision to set energy reduction goals.

Meeting the third SEM criterion, one in five (20 percent) small and medium manufacturers regularly report progress toward goal to top leadership. A significantly higher percentage of medium manufacturers meet this criterion compared to small manufacturers (40 versus 17 percent); 33 percent of metal manufacturers say they regularly report progress to top management.

More than half (58 percent) of small and medium manufacturers report installing energy efficient equipment during the past two years, another 25 percent say they are currently installing energy efficient equipment. Compared to small manufacturers (54 percent), medium manufacturers (84 percent) report more instances of upgrading to energy efficient equipment and receiving rebates or incentives for doing so. About seven in ten (73 percent) metal manufacturers installed energy efficient equipment during the past two year and 46 percent say they are in the process of doing so.

NEEA's Role in SEM Implementation

Energy decision-makers from small and medium manufacturers report very limited involvement with NEEA. As previously mentioned, only one percent of those interviewed say that NEEA influenced their decision to set energy reduction goals; all of these companies were among the very small manufacturers group.

Across all manufacturers, familiarity with energy management systems offered through NEEA, Bonneville Power Administration (BPA) and Energy Trust of Oregon (ETO) is quite low (two percent of those interviewed).

Recommendations

Small and medium manufacturers as well as metal manufacturers represent a significant opportunity with respect to increasing SEM awareness and implementation.

Although about half (48 percent) of small and medium manufacturers report some level of familiarity with SEM, implementation efforts among these companies is nominal with only 5 percent meeting minimal requirements. As a result, this category of manufacturers offers tremendous opportunity for expansion of SEM practices.

While most have already either set or plan to set energy reduction goals, fewer (5 percent) are able to garner the resources they need to follow through.

Among those who have set goals, the vast majority (99 percent) characterizes management support for the goal as supportive. "Reducing operating costs" is most often cited factor for management support (46 percent).

NEEA should work with its partners to demonstrate the beneficial outcomes of a systematic approach to energy management in terms of cost savings and enhanced profitability beyond that of less managed attempts to reduce energy usage and costs. With this approach, NEEA can provide support that will help energy decision-makers build strong business cases for energy efficiency programs that will appeal to top management.

Most of these organizations may lack the resources and bandwidth to focus on the establishment of an SEM system. Therefore, NEEA and its partners should also provide significant direction and support regarding how to implement the various elements of SEM within a smaller operation, most of which are very small in comparison to the large facilities that have been the focus of the past several years.

As evidenced throughout the smaller industrial sectors explored through this research effort, there may be a need to recalibrate or redefine some SEM criteria to ensure a better fit with their organizational and operational constraints. While energy reduction goal setting is a relatively straightforward concept, NEEA may need to define the "dedication of resources" to energy reduction in terms that are more feasible, or in a way that is a better fit for small organizations – at least in terms of how these criteria are measured when quantifying progress of SEM in the marketplace.

Introduction

The Northwest Energy Efficiency Alliance (NEEA) is a non-profit organization working to maximize energy efficiency in the Northwest. NEEA is supported by, and works in collaboration with the Bonneville Power Administration, Energy Trust of Oregon and more than 100 Northwest utilities on behalf of 12 million energy consumers. By accelerating market adoption of energy efficient products, services and practices, NEEA's initiatives assist the region in maximizing energy efficiency and meeting its energy efficiency goals.

During the previous funding cycle (2004 to 2009), NEEA focused on the food processing and pulp and paper sectors for its energy efficiency initiatives in the Industrial sector in the Northwest region, specifically, Idaho, Montana, Oregon and Washington.

For the current funding cycle (2010 to 2014), NEEA's Industrial Sector will target new markets beyond the food processing and pulp and paper markets in the Northwest region.

NEEA engaged Market Strategies to conduct a research study to establish a baseline of strategic energy management (SEM) practices in the new markets of interest in order to compare against future years to determine the degree of market diffusion of strategic energy management practices in the target markets due to NEEA's efforts.

The primary objective of this research engagement is to determine the percentage of industrial companies within eight specified sectors in the Northwest that have implemented all or some of the elements of SEM. These sectors include:

- Food Processing
- Beverage Manufacturers
- Metal Manufacturers
- Small Manufacturers (with less than 100 employees company-wide)
- Medium Manufacturers (with 100 to 249 employees company-wide)
- Dairies
- Irrigators (agricultural operations)
- Nurseries

Key measures include:

- Awareness and understanding of SEM business practices
- Sources of awareness of SEM business practices (to establish if NEEA is one of the sources of awareness)
- Involvement of industrial companies in SEM business practices, determining if companies showed evidence of the "threshold of a system" defined by NEEA's Industrial Sector Team as:
    - The company has set a goal related to energy;
    - The company's top leadership has dedicated resources (e.g., staff, budget, training, capital improvements) to achieve the goal.

    - Staff responsible for the goal regularly reports to top leadership on progress toward the goal
- Incidence of other energy management activities undertaken by industrial companies, e.g., leak detection and repair, lighting reduction, equipment operation schedule, equipment settings, equipment maintenance, etc.; barriers to implementing energy management activities
- Any technical assistance received for the activities undertaken, and if so, technical assistance from whom
- Incidence of installing energy efficient equipment, including the following related areas of interest:
    - Motivation for installing such equipment (including company policy for replacing worn equipment with energy efficient equipment; influence of equipment dealers)
    - Receipt of financial incentives (tax credits, rebates, utility incentives, etc.) for installing the equipment

This report presents findings from the Small and Medium Manufacturers and Metals Manufacturers sectors. Two additional reports present findings from Food and Beverage Processing, and Dairies, Irrigators and Nurseries.

Methodology

Market Strategies used the Dun & Bradstreet (D&B) database to develop lists of companies within these industries across the four Northwest states. The D&B database assigned companies to one of the eight sectors based on NAICS/SIC codes.

The sample included all facilities within these sectors within the four Northwest states (Oregon, Washington, Idaho and Montana). Due to the finite number of facilities in the region for most sectors (all except Small Manufacturers and Irrigators), Market Strategies sought to achieve the maximum number of completed interviews for each.

Market Strategies completed a total of 631 interviews this project, including 99 among Food Processing facilities and 27 among Beverage Manufacturing facilities. The final count of completed interviews for each sector is below:

- Food Processors: n=99
- Beverage Manufacturing: n=27
- Metal Manufacturers: n=15
- Small Manufacturers (with less than 100): n=269
  (includes Food Processors, Beverage Manufacturers, and Metal Manufacturers from the above cells, and other small manufacturing businesses with fewer than 100 employees)
- Medium Manufacturers (with 100 to 249 employees): n=43
  (includes Food Processors, Beverage Manufacturers, and Metal Manufacturers from the above cells, and other medium-size manufacturing businesses with 100 to 249 employees)
- Dairies: n=79

- Irrigators (agricultural operations): n=123
- Nurseries: n=87

Table 1 below shows the sample disposition showing the population, target sample and final sample:

Table 1. Sample Disposition

Sector	Population (# of facilities***)	Number of Facilities Attempted to Contact	Target Sample	Final Sample (# of facilities interviewed)	Confidence Intervals for Final Sample****
Food Processors	2,069	1691	125	99	+/-9.6% at 95%
Beverage Manufacturers	886	630	NA*	27	+/-18.6% at 95%
Metals Manufacturers	551	298	NA*	15	+/-25.6% at 95%
Small Manufacturers (with fewer than 100 employees)	34,234	8275	125	269**	+/-5.9% at 95%
Medium Manufacturers (with 100 to 249 employees)	475	447	125	43**	+/-14.3% at 95%
Dairies	1318	1098	125	79	+/-10.7% at 95%
Irrigators	17,024	3627	125	123	+/-8.8% at 95%
Nurseries	1,168	902	125	87	+/-10.1% at 95%

* Toward the end of data collection, Market Strategies found that the completion rates for Medium Manufacturing, Dairies and Nurseries were hitting a ceiling due to the small population sizes of these sectors. NEEA then added the Beverage Manufacturing and Metals Manufacturing sectors to the study and directed MSI to shift remaining data collection efforts to target these two additional sectors.
** Small and Medium Manufacturers include Food Processors, Beverage Manufacturers, Metal Manufacturers and other manufacturing businesses.
*** Market Strategies derived facility counts from Dunn & Bradstreet records for facilities within each industry category across the four Northwest states (WA, OR, ID, MT).
**** Note on Confidence Intervals: These are standard, theoretical, ranges of how well the sample represents the relevant population responses and are for reference only. Formally, they assume a general, very heterogeneous, population. In reality, the relatively small reference populations in this study (specific types of manufacturers) can be assumed to be much more homogeneous than the general population as a whole. As such, response generalizability is higher than what these formal Confidence Intervals indicate; however, statisticians cannot calculate those true Confidence Intervals.

Market Strategies conducted data collection via telephone interviews, which averaged between 16 and 17 minutes in length from December 2010 through March 2011. The qualified survey respondent was the person at the facility responsible for energy management and/or decisions related to energy usage and energy efficiency efforts.

Questionnaire Design

NEEA provided an outline of desired questionnaire content and examples of questionnaires addressing the study objectives that NEEA implemented for past studies. Market Strategies and NEEA collaborated to develop and finalize the questionnaire. Appendix D includes a copy of the questionnaire.

Analytical Approach

Market Strategies International analyzed findings for the following subgroups:

- Employee size: Very Small = 1 to 19 employees, Small = 20 to 99 employees, and Medium = 100 to 249 employees
- Geographic classifications (Idaho, Montana, Oregon and Washington)
- Job title (Executive versus Non-Executive)
- Implementation of SEM practices

Market Strategies tested the data at the 95 percent confidence level. Market Strategies included only statistically significant differences between subgroups in this report.

Detailed Findings – Small & Medium Manufacturing

Small & Medium Manufacturing Facility Profiles

As part of the 2011 Strategic Energy Management (SEM) Market Assessment Survey, Market Strategies interviewed energy managers and decision-makers for 312 small and medium manufacturers located in the four Northwest states.

About two-thirds (67 percent) of the small and medium manufacturers surveyed are very small (1-19 employees); 14 percent are medium manufacturers with between 100 and 249 employees.

The largest percentage of small and medium manufacturers interviewed is located in the state of Washington (39 percent). Manufacturers from Oregon and Montana account for just under half of those interviewed (20 and 25 percent, respectively). Slightly more than one in ten (16 percent) of participating manufacturers are located in Idaho.

More than half (58 percent) of those interviewed were executive level personnel.

Only one in ten (10 percent) manufacturers indicate that energy costs account for more than 20 percent of their operating costs; most (58 percent) indicate that energy costs are less than 10 percent of their operating costs.

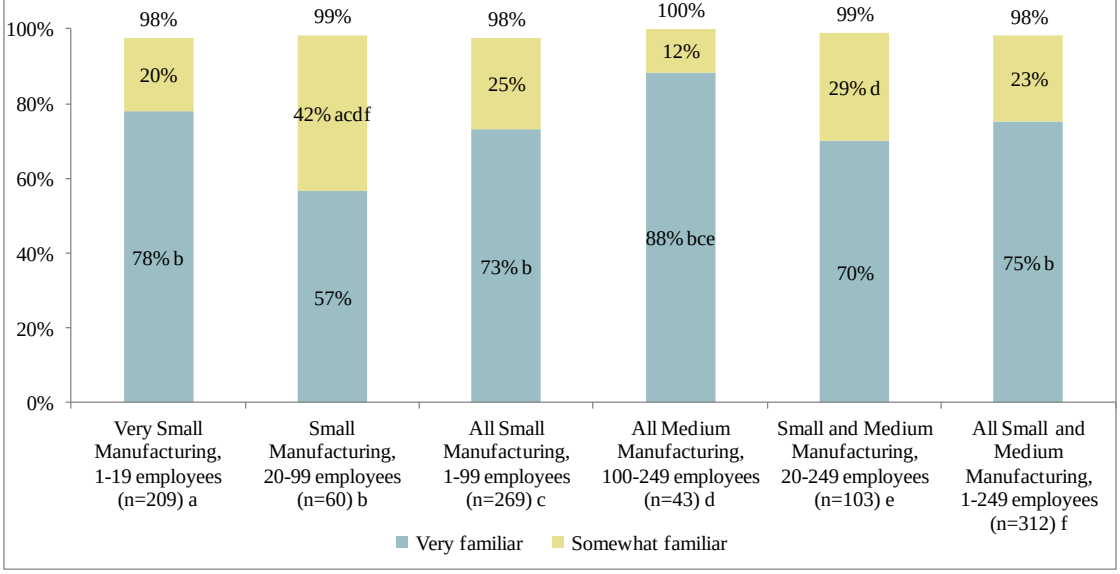
Few of the manufacturers represented in this study are ISO-9000 (quality management) or ISO-14000 (environmental management) certified (8 and 4 percent, respectively). Overall, about half (47 percent) use LEAN manufacturing; use of LEAN is notably more prevalent among medium manufacturers versus small manufacturers (65 percent versus 44 percent).

Table 1 in Appendix A details the small and medium manufacturing profiles for this survey.

Familiarity with Energy Efficiency and SEM

Familiarity with energy efficient operating practices is nearly universal (98 to 100 percent) among manufacturers. Nearly nine in ten (88 percent) medium manufacturing companies are very familiar, compared to only 57 percent of small manufacturing. (Figure 1)

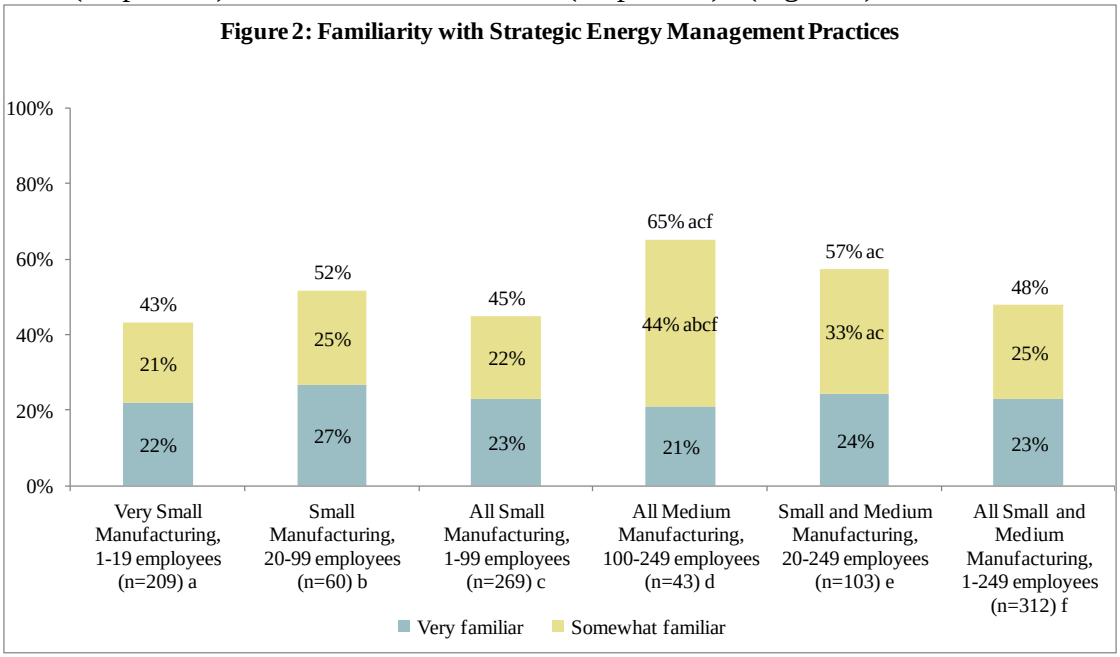
Figure 1: Familiarity with Energy Efficient Operating Practices



Q2. How familiar is this facility with energy efficient operating practices, such as turning equipment or lights off when not in use, maintaining equipment so that it runs efficiently, checking for air leaks, etc.?

Fewer are familiar with SEM, with 48 percent of all manufacturing facilities being somewhat or very familiar with the practice. Significantly more medium manufacturers are familiar with SEM (65 percent) than small manufacturers (45 percent). (Figure 2)

Figure 2: Familiarity with Strategic Energy Management Practices



Q3. Strategic Energy Management, or S-E-M, is a system of practices that leads to reliable and persistent energy savings. At a minimum, these practices include setting a goal related to energy, dedication of resources by top leadership to achieve the goal, ensuring staff regularly reports progress toward the goal to top management. How familiar are you with Strategic Energy Management practices?

Among respondents who are familiar with SEM, almost one-quarter (23 percent) say they learned about SEM through previous experience. Significantly more small manufacturing customers (20 to 99 employees) learned about SEM through a utility compared to medium manufacturers (20 versus 3 percent). In contrast, more medium manufacturers than smaller facilities learned about SEM through the PUD (12 versus 1 percent). Just two percent of the small manufacturers and none of the medium indicated that they learned about SEM from NEEA. (Table 2)

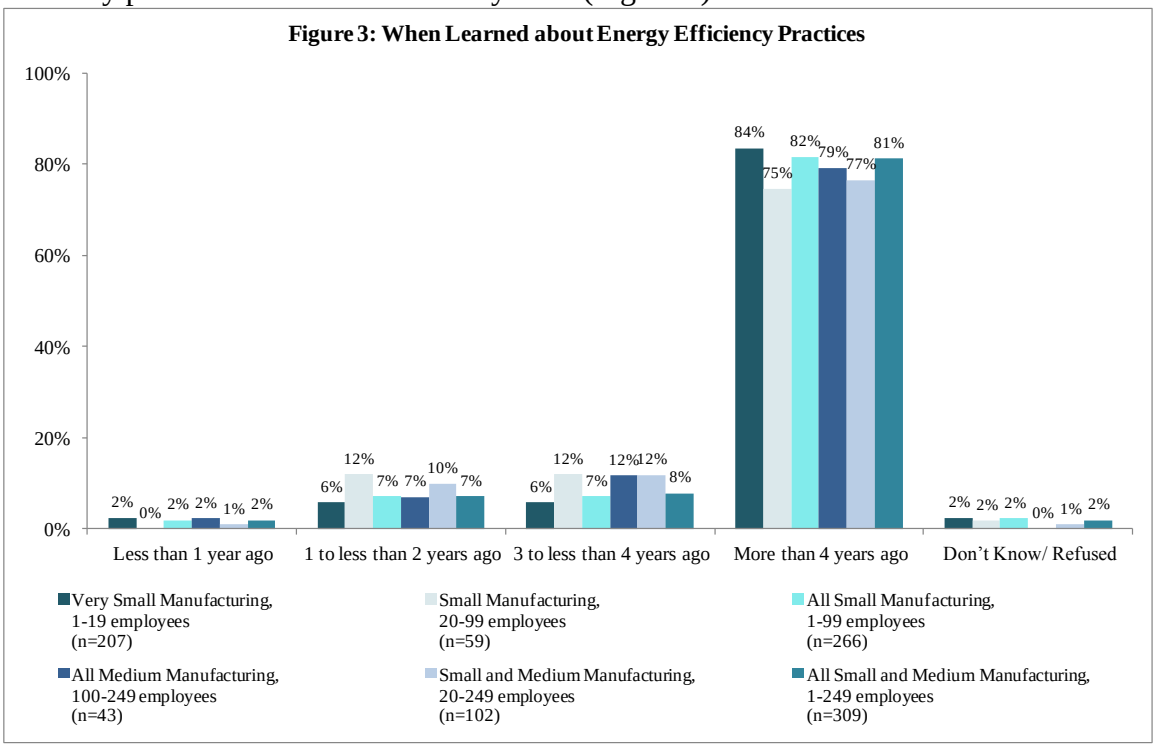
Table 2. How Learned about Strategic Energy Management

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Self awareness/Always done this/Previous employer	26%	13%	23%	24%	18%	23%
Newsletters/magazines / Newspaper/TV/General media	9%	13%	10%	12%	13%	10%
A utility company (general)	7%	20%adf	10%	3%	13%	9%
Word of mouth	5%	4%	5%	6%	5%	5%
NEEA(Northwest Energy Efficiency Alliance)	2%	2%	2%	-	1%	2%
Public Utility District (PUD)	1%	-	1%	12%abcf	5%ac	2%
BPA (Bonneville Power Authority)	2%	2%	2%	3%	3%	2%
ETO (Energy Trust of Oregon)	1%	4%	2%	3%	4%	2%
An educational facility	2%	9%	4%	-	5%	3%
Puget Sound Energy	1%	-	1%	3%	1%	1%
Internet	2%	2%	2%	3%	3%	2%
Contractor	3%	-	2%	3%	1%	2%
Rocky Mountain Power	-	-	-	3%ac	1%	1%
Consultant	-	-	-	3%ac	1%	1%
DOE (U.S. Department of Energy)	1%	-	1%	3%	1%	1%
Engineer/Architect	-	2%	1%	3%a	3%	1%
Other	7%	4%	7%	12%	8%	7%
Don't Know/ Refused	21%	17%	20%	9%	14%	19%
Base (n)	***136***	***46***	***182***	***34***	***80***	***216***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Table includes categories with responses of three percent or higher.
Full table shown in Appendix C.
Q3A. How did you first learn about strategic energy management practices?

The vast majority (75 to 84 percent) of manufacturing facilities have been aware of energy efficiency practices for more than four years. (Figure 3)

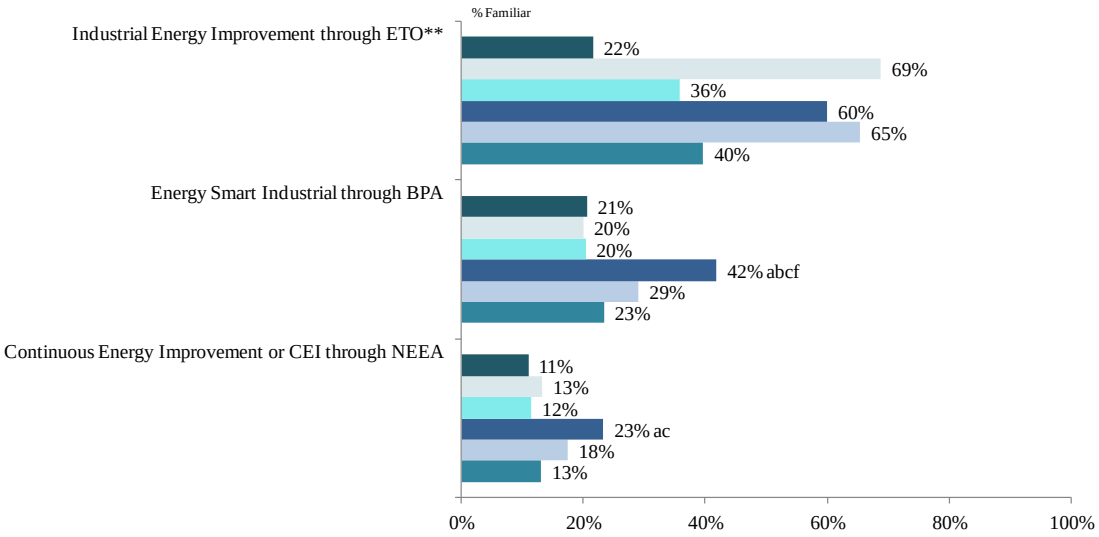
Figure 3: When Learned about Energy Efficiency Practices



Q2A. When did this facility first learn about energy efficient operating practices, for example turning equipment or lights off when not in use, maintaining equipment so that it runs efficiently, checking for air leaks, etc.?

Familiarity with energy management systems offered through NEEA and BPA is higher among medium sized manufacturing facilities than those with fewer than 100 employees are. Familiarity with Industrial Energy Improvement through ETO is highest among facilities with 20 to 99 employees (69 percent), and lowest among very small facilities with fewer than 20 employees (22 percent). (Figure 4)

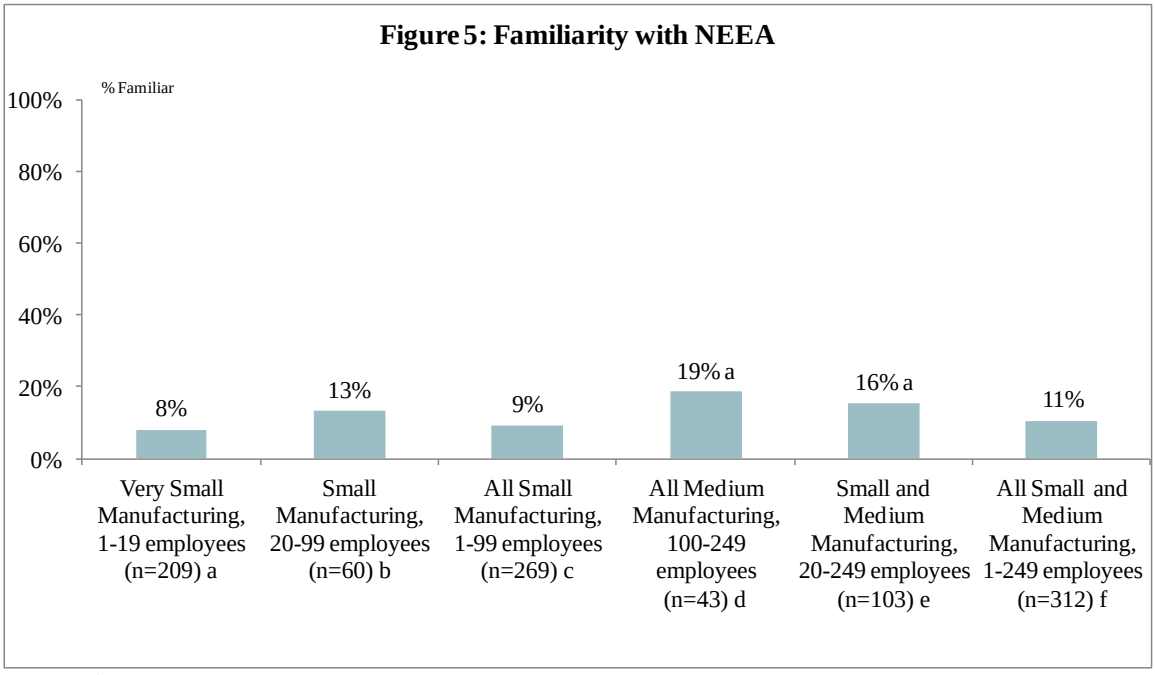
Figure 4: Familiarity with SEM Systems



Q4-6. For each of the energy management systems I name, please tell me whether you are very familiar, somewhat familiar, not very familiar, or not at all familiar with the program. How familiar are you with...

Significantly more medium manufacturing facilities are very or somewhat familiar with NEEA and its initiatives (19 percent) than very small facilities (8 percent). (Figure 5)

Figure 5: Familiarity with NEEA



Q52. How familiar are you with NEEA and its initiatives? Would you say that you are...?

Top three concerns / Importance of energy management practices

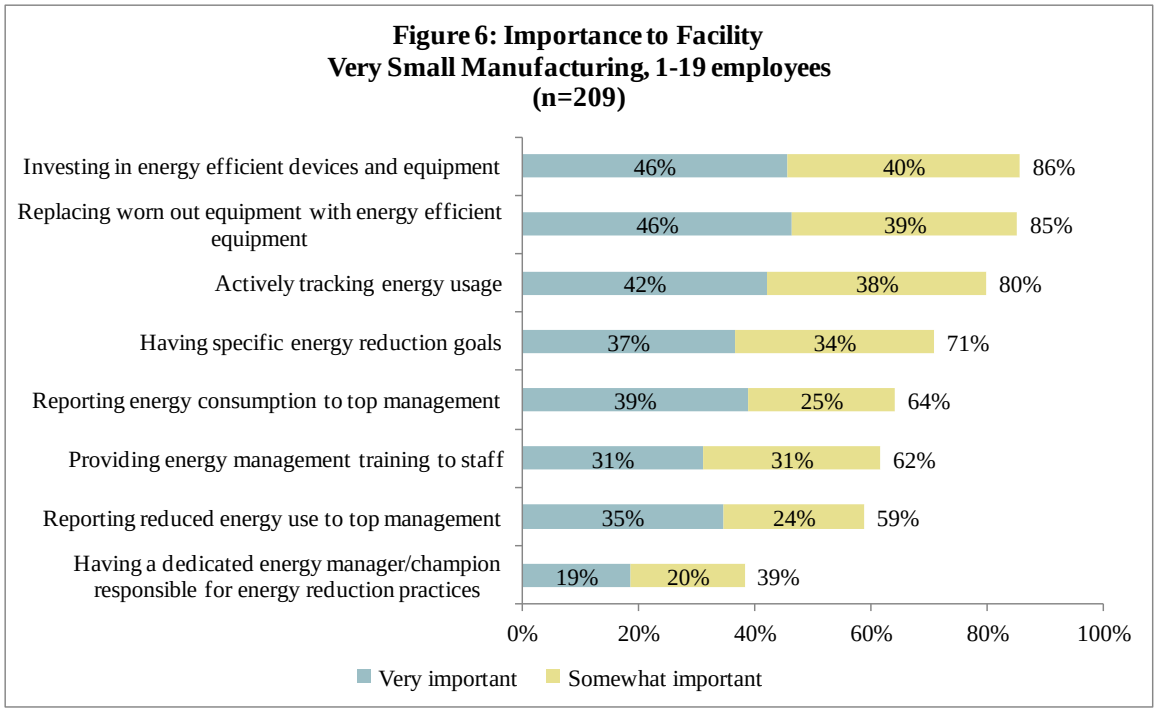
Among all manufacturing facilities, 24 percent state that *Profitability* is the top facility concern. More medium sized facilities feel that *Operational Efficiency* is a top concern (33 percent versus 12 percent among smaller facilities). (Table 3)

Table 3. Top Three Facility Concerns

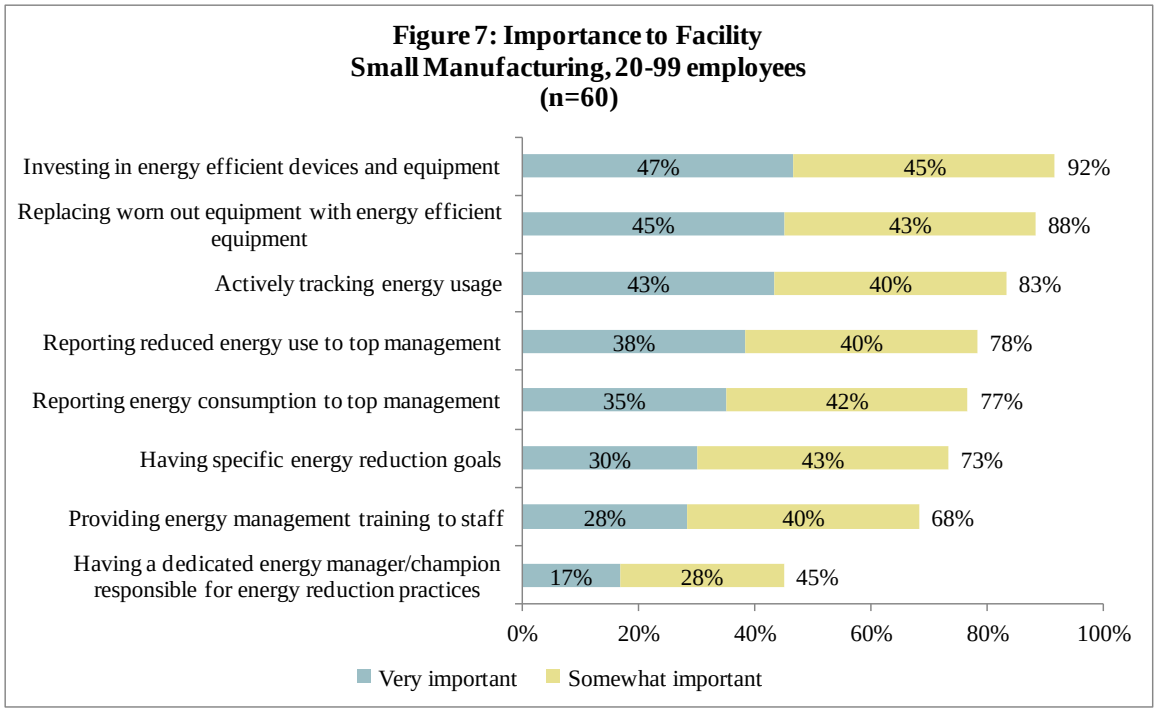
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Profitability	25%	23%	25%	19%	21%	24%
Operational costs (rent/ machinery/materials/labor)	15%	7%	13%	12%	9%	13%
Cost of utilities	12%	8%	11%	9%	9%	11%
Operational efficiency	12%	13%	12%	33%abcf	21%ac	15%
Efficient use of electricity/water/fuel	15%	18%	16%	9%	15%	15%
Longevity/Viability/ Sustainability	14%	7%	12%	14%	10%	13%
Quality production	8%	18%a	10%	16%	18%a	11%
Maintenance	8%	15%	9%	5%	11%	9%
Safety	5%	18%ac	8%	23%acf	20%acf	10%a
Weather/Environment	5%	2%	5%	7%	4%	5%
Employee retention/ quality	4%	7%	5%	9%	8%	5%
Cost reduction	3%	3%	3%	16%abcf	9%ac	5%
Cost (general)	2%	-	2%	7%bc	3%	3%
Other	18%	12%	16%	9%	11%	15%
Don't Know/Refused	7%	13%	8%	2%	9%	7%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Table includes categories with responses of seven percent or higher.
Appendix E details the verbatim responses for this open-end question.
Q1. What are your company's top three concerns for this facility?

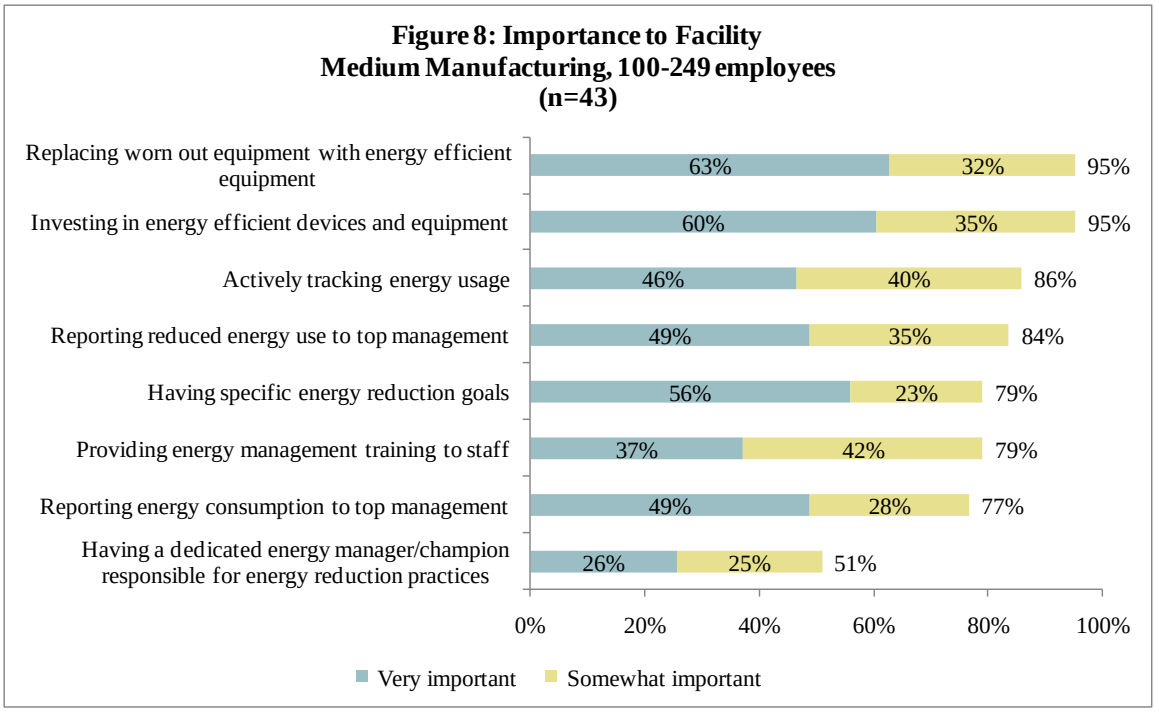
Most manufacturing facility energy managers/decision-makers recognize various energy efficiency and energy management activities as important, with almost all (85 to 95 percent) indicating that *Replacing worn out equipment with energy efficient equipment* and *Investing in energy efficient devices and equipment* is very or somewhat important to their company. *Having a dedicated energy manager/champion responsible for energy reduction practices* registers the lowest proportion of facilities rating it as important (39 to 51 percent). (Figures 6-8)



Q7-13. For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company. How important is...



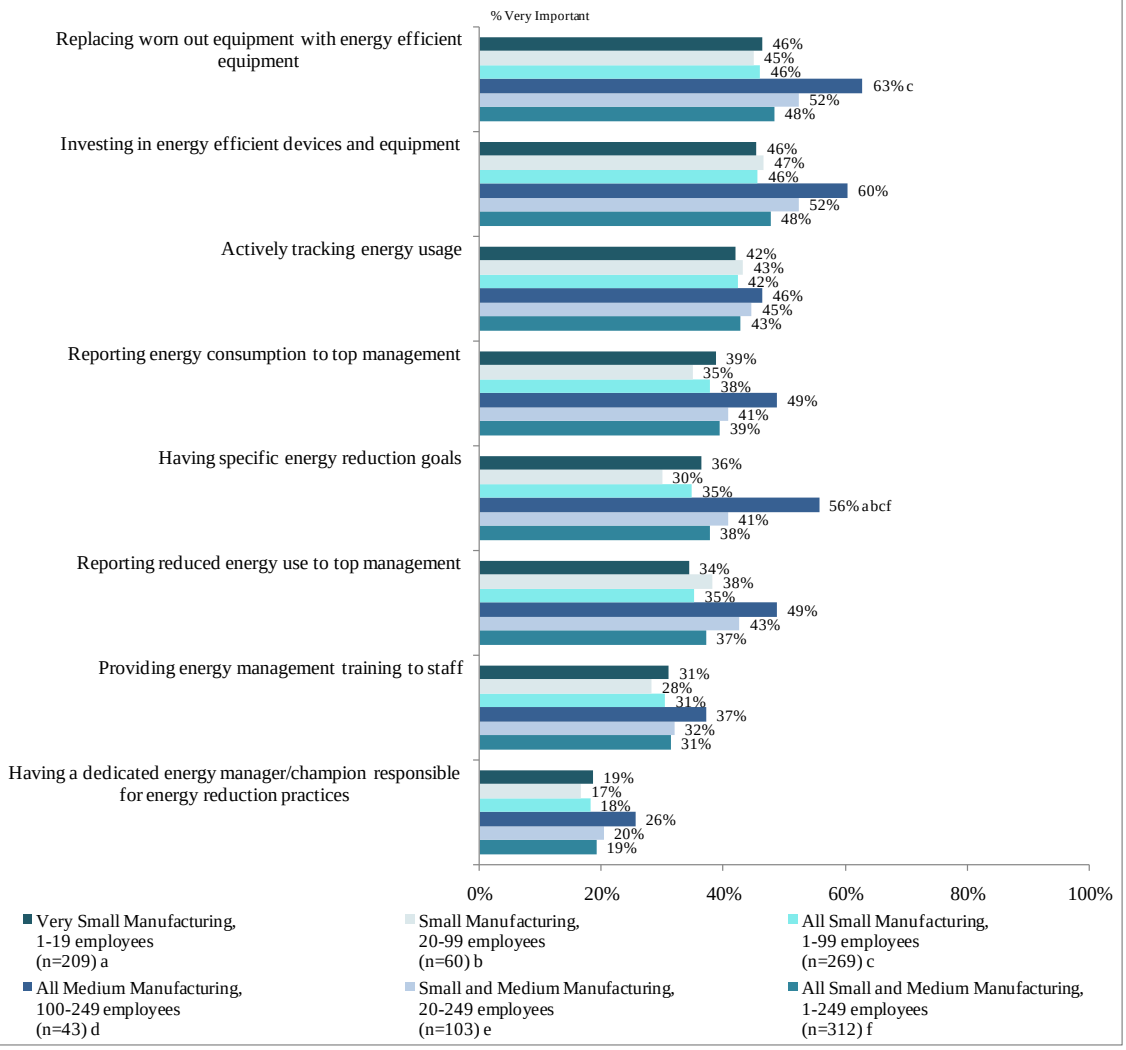
Q7-13. For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company. How important is...



Q7-13. For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company. How important is...

Focusing on "very important" responses for these measures, there are notable differences between medium sized facilities with 100 to 249 employees and their smaller counterparts. More than six in ten (63 percent) of medium manufacturing facilities view *Replacing worn out equipment with energy efficient equipment* as "very important," significantly higher than the proportion of small manufacturing facilities (46 percent) who indicate this. There are similarly large gaps between larger medium and smaller facilities viewing *Investing in energy efficiency devices and equipment* (60 percent versus 46 percent), *Reporting energy consumption to top management* (49 percent versus 38 percent), *Having specific energy reduction goals* (56 percent versus 35 percent), and *Reporting reduced energy use to top management* (49 percent versus 35 percent). (Figure 9)

Figure 9: Importance to Facility



Q7-13. For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company. How important is...

Implementation of SEM, Elements of SEM

A facility has to satisfy all three criteria below in order to meet the minimum requirement for evidence of SEM at the facility:

1. The company has set a goal related to energy;
2. The company's top leadership has dedicated resources (e.g., staff, budget, training, capital improvements) to achieve the goal.
3. Staff responsible for the goal regularly reports to top leadership on progress toward the goal.

Currently, five percent of all Northwest manufacturing facilities meet all three SEM criteria. Twelve percent of medium sized facilities (100 to 249 employees) meet the SEM criteria compared to only five percent of small manufacturing (20 to 99 employees), and only three percent of very small facilities (fewer than 20 employees).

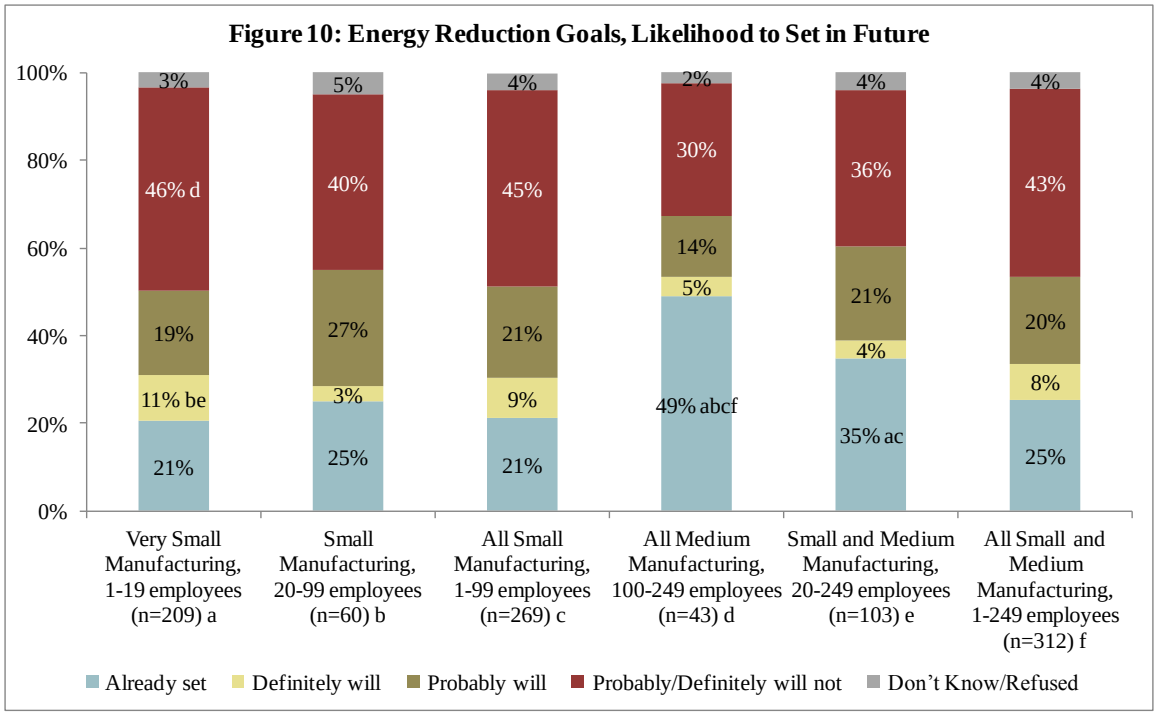
A major barrier to meeting SEM criteria among smaller companies appears to be dedicating resources to energy reduction. Only four percent of facilities that are part of companies with fewer than 100 employees report having a dedicated energy champion compared to 14 percent of companies with 100 to 249 employees. (Table 4)

Table 4: Meets SEM Criteria

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Have set energy reduction goals	21%	25%	21%	49%abcf	35%ac	25%
Dedicated resources to energy reduction (dedicated energy champion, staff trained in energy reduction, and investment in EE equipment)	3%	5%	4%	14%a	9%	5%
Regularly report progress toward goal to top leadership	16%	20%	17%	40%abcf	28%ab	20%
Meet SEM criteria (conduct all three activities above)	3%	5%	3%	12%	8%	5%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

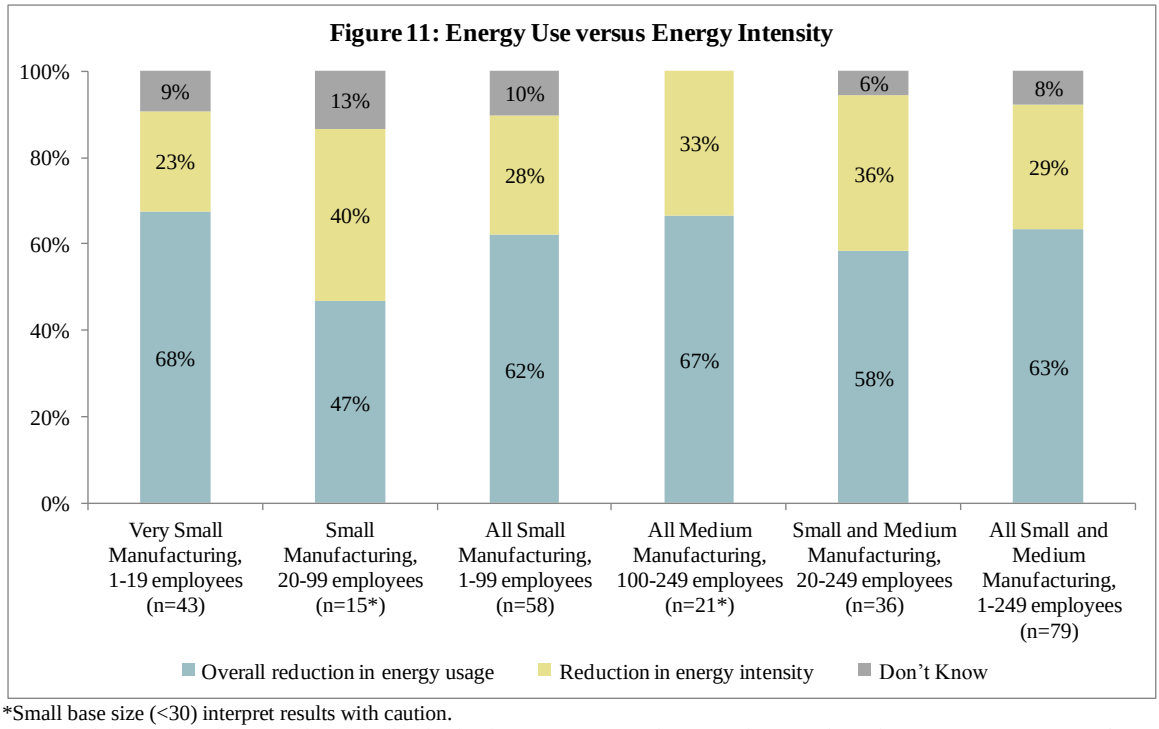
Energy Reduction Goals

Among manufacturing facilities, significantly more medium manufacturing facilities already set an energy reduction goal (49 percent) than smaller manufacturing facilities (21 percent). Twenty-eight percent of all manufacturing facilities indicate that they definitely or probably will set reduction goals in the future. (Figure 10)



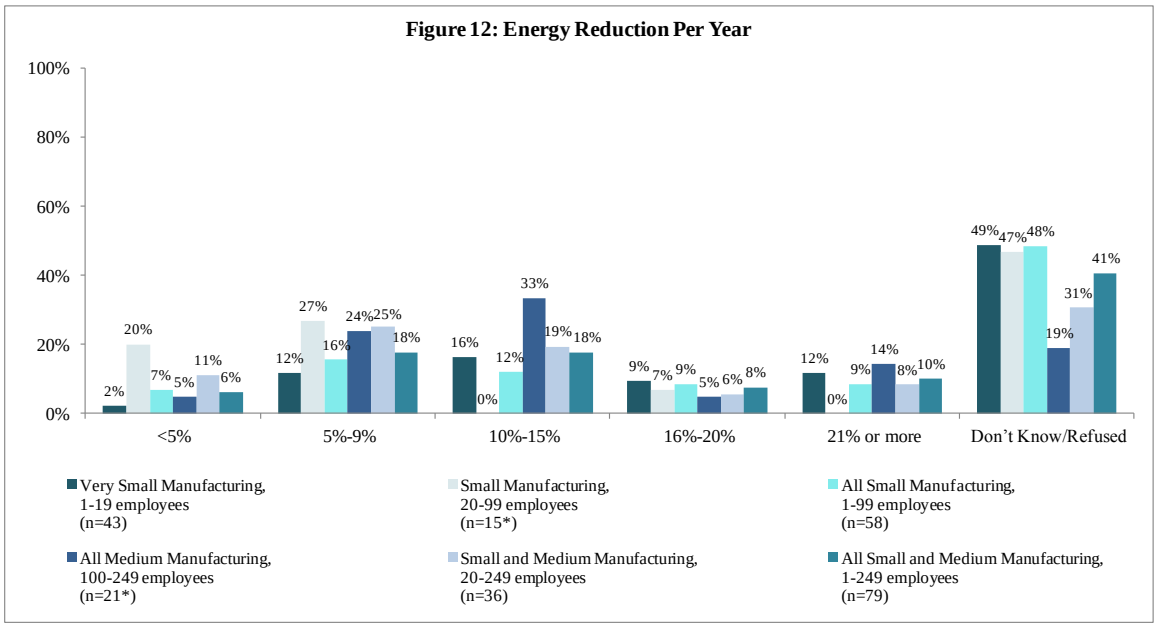
Q14. Does your company set energy reduction goals for this facility?
Q14A. Will your facility definitely, probably, probably not, or definitely not set energy reduction goals for this facility within the next two years?

Of the manufacturing facilities that have already set energy reduction goals, more report that it is an overall reduction in *energy usage* (47 to 68 percent), while fewer (23 to 40 percent) report a reduction in *energy intensity*. (Figure 11)



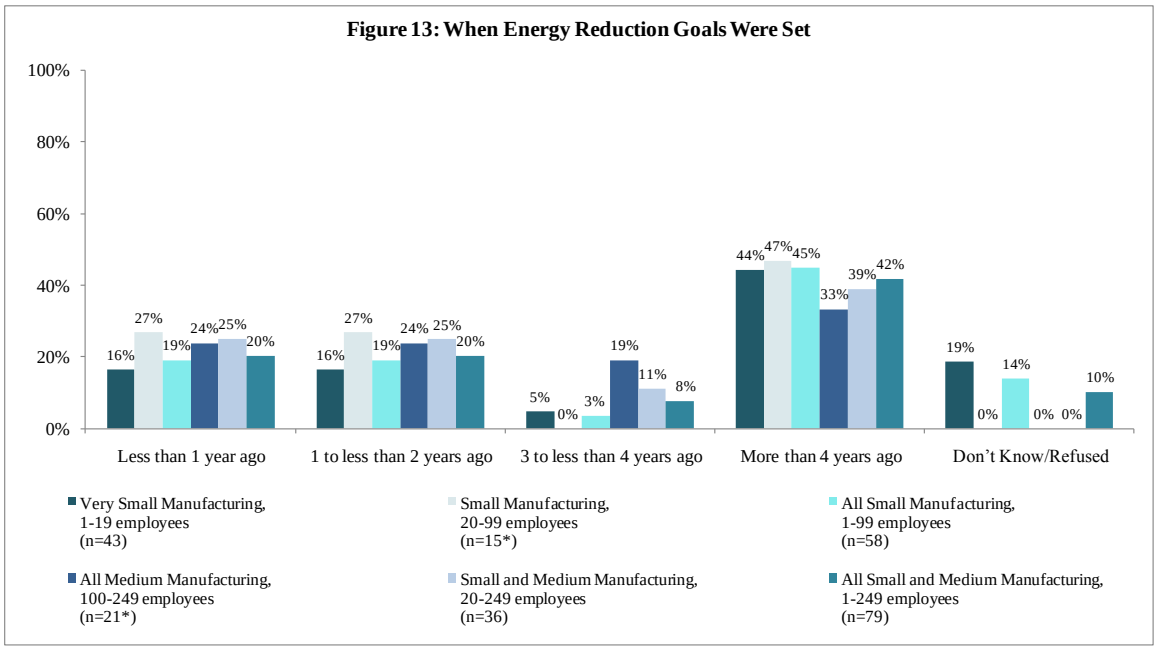
*Small base size (<30) interpret results with caution.
Q15. Are these goals set in terms of an overall reduction in energy usage, or in terms of "energy intensity" which is the amount of energy used per unit of production?

Among those with goals, one-third (33 percent) of medium manufacturers set a goal of a 10 to 15 percent reduction, while almost half (48 percent) of small manufacturing facilities do not know their energy reduction goals. (Figure 12)



*Small base size (<30) interpret results with caution.
Q16. In terms of a percentage reduction per year, what is your facility's specific goal for energy/energy intensity reduction?

Almost half (45 percent) of smaller manufacturing facilities set their energy reduction goals more than four years ago, compared to one-third (33 percent) of medium manufacturing facilities who set their goals more than four years ago. (Figure 13)



*Small base size (<30) interpret results with caution.
Q17. Approximately how long ago were these goals set?

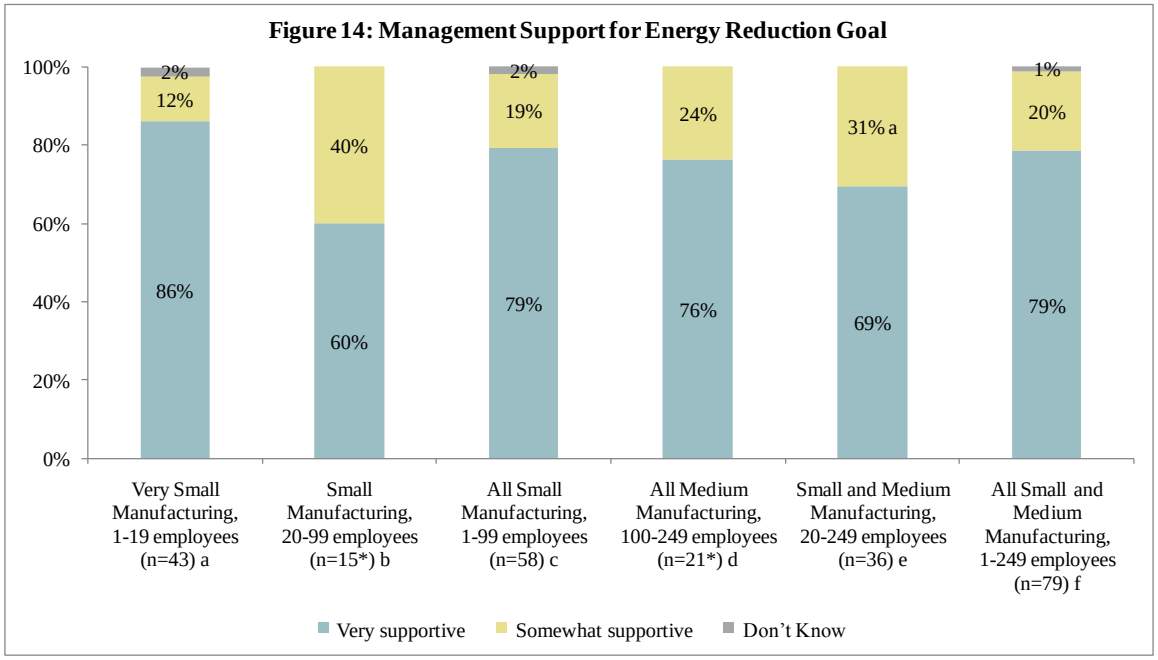
Among manufacturing facilities with energy reduction goals, more than one-quarter (27 percent) report that a utility influenced their decision to set energy reduction goals, with nearly four in ten (38 percent) medium manufacturing facilities reporting this. Two percent of small manufacturers cited NEEA as influencing their decision to set energy reduction goals. (Table 5)

Table 5. Organizations Influencing Decision to Set Energy Reduction Goals

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
Utilities (general)	28%	7%	22%	38%	25%	27%
Self awareness/Internal	12%	7%	10%	14%	11%	11%
BPA (Bonneville Power Authority)	5%	-	3%	19%	11%	8%
ETO (Energy Trust of Oregon)	2%	7%	3%	10%	8%	5%
NEEA (Northwest Energy Efficiency Alliance)	2%	-	2%	-	-	1%
Other	7%	20%	10%	24%	22%	14%
None	7%	20%	10%	-	8%	8%
Don't Know/Refused	33%	40%	35%	10%	22%	28%
Base (n)	***43***	***15****	***58***	***21****	***36***	***79***

*Small base size (<30) interpret results with caution.
Q18. What organizations, if any, influenced the decision to set energy/energy intensity reduction goals?

Management support for energy reduction goals is universal across all manufacturing facilities with goals in place (98 to 100 percent). (Figure 14)



*Small base size (<30) interpret results with caution.
Q19. Would you describe the level of management support for your facility's energy/energy intensity reduction goals as...?

Almost half (46 percent) of all small and medium manufacturing facilities report that *saving money* is a factor contributing to energy reduction goals. One-quarter (25 percent) of all small

facilities say that *energy efficiency* is a factor, compared to only one in ten (10 percent) medium manufacturers who say this. (Table 6)

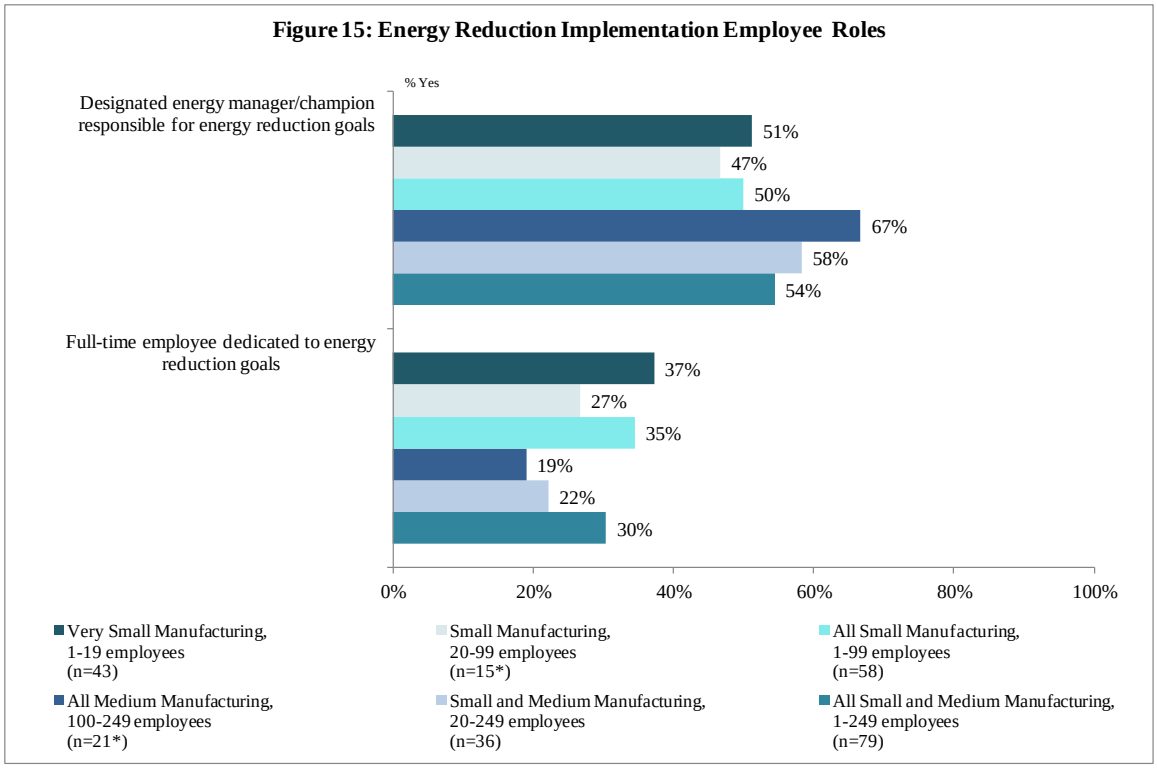
Table 6. Factors Contributing to Energy Reduction Goals

	Very Small Manufacturing, 1-19 employees	Small Manufacturing, 20-99 employees	All Small Manufacturing, 1-99 employees	All Medium Manufacturing, 100-249 employees	Small and Medium Manufacturing, 20-249 employees	All Small and Medium Manufacturing, 1-249 employees
Want to save money	48%	27%	42%	57%	44%	46%
Corporate support	10%	13%	11%	19%	17%	13%
Energy efficiency	29%	13%	25%	10%	11%	21%
Sole employee/Manager	12%	7%	11%	10%	8%	10%
Environmental stewardship	7%	20%	11%	-	8%	8%
Other	14%	33%	19%	19%	25%	19%
None	-	7%	2%	5%	6%	3%
Don't Know/Refused	17%	7%	14%	0%	3%	10%
Base (n)	***42***	***15****	***57***	***21****	***36***	***78***

*Small base size (<30) interpret results with caution.
Q20. What factors contributed to your rating of management support for your facility's energy/ energy intensity reduction goals as [RESTORE Q19].

Dedicated Resources to Energy Reduction: Energy Champion

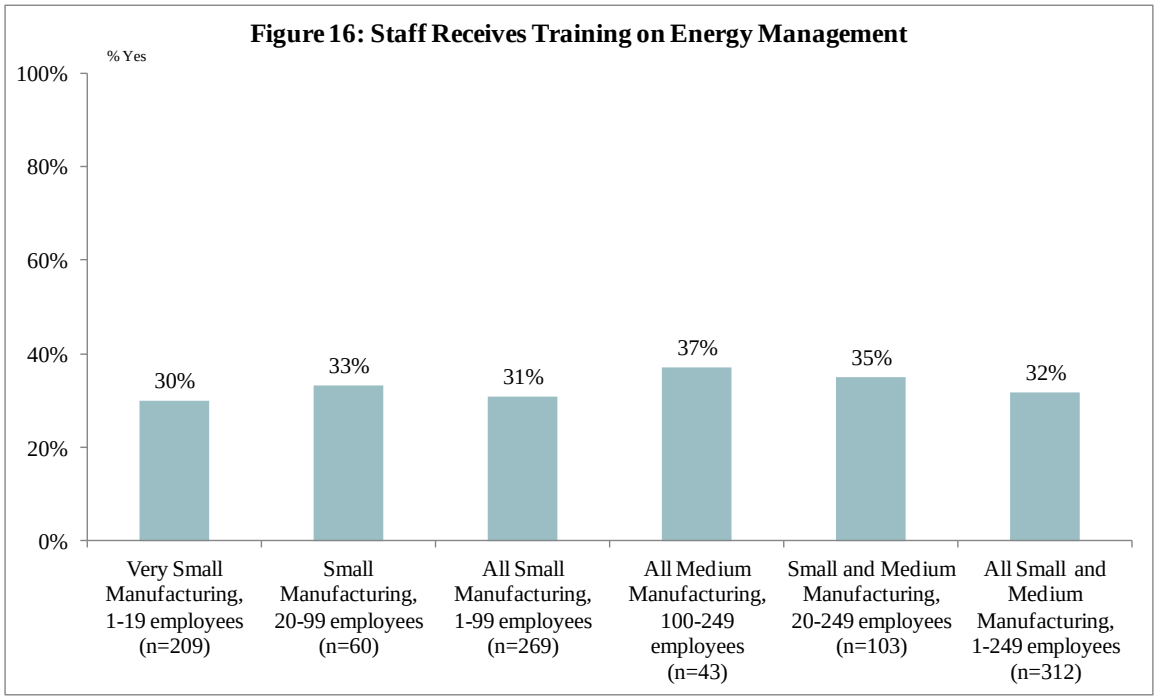
Among facilities with energy reduction goals in place, half of small manufacturing facilities (50 percent) and two-thirds (67 percent) of medium manufacturers report having a designated energy manager or champion who is responsible for implementing the energy reduction goals, while fewer have a full-time employee dedicated to that effort (19 to 37 percent). (Figure 15)



*Small base size (<30) interpret results with caution.
Q21. Does your facility have a full-time employee dedicated to implementing the facility's energy/energy intensity reduction goals?
Q22. Is someone at your facility is a designated "energy manager" or an "energy champion" who is charged with implementing the energy/energy intensity reduction goals?

Dedicated Resources to Energy Reduction: Energy Management Training

Between 30 to 37 percent of manufacturing facilities cite that the staff at their facility receives energy management training. (Figure 16)



Q23. Does staff at your facility receive training on energy management?

Among manufacturing facilities where staff does receive energy management training, 86 percent indicate that *Efficient operation of equipment* is a topic that is included in the training. Compared to only 60 percent of smaller facilities, almost nine in ten (88 percent) of medium manufacturers train employees on *Purchasing efficient equipment*. (Table 7)

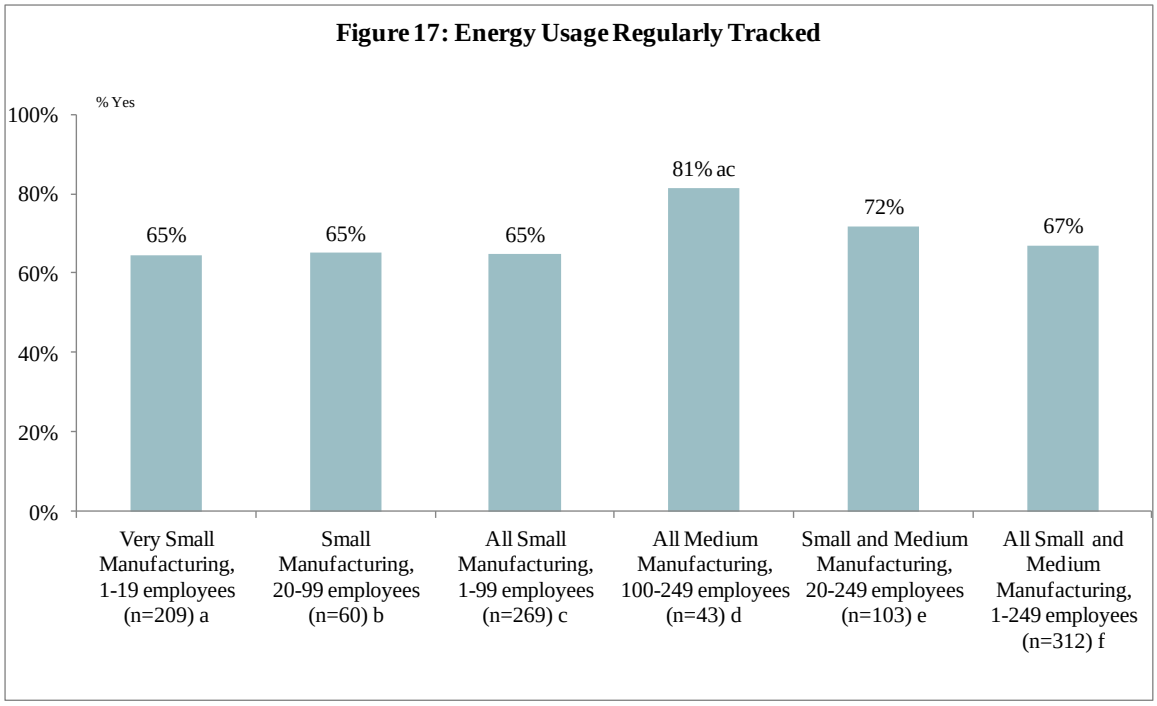
Table 7. Topics Included in Employee Energy Management Training

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Efficient operation of equipment	86%	90%	87%	81%	86%	86%
Purchasing efficient equipment	57%	70%	60%	88%	78%a	65%
Tracking energy use	49%	45%	48%	63%	53%	51%
Available technical resources (where to go for help)	37%	50%	40%	81%	64%ac	47%
Setting energy reduction goals	40%	45%	41%	56%	50%	43%
Availability of financial incentives for projects	24%	30%	25%	63%	44%ac	31%
Writing an energy management plan	14%	20%	16%	19%	19%	16%
Other	5%	-	4%	-	-	3%
Don't Know	2%	5%	2%	-	3%	2%
Base (n)	***63***	***20****	***83***	***16****	***36***	***99***

*Small base size (<30) interpret results with caution.
Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q24. Which of the following topics are typically included in energy management training for staff at your facility?

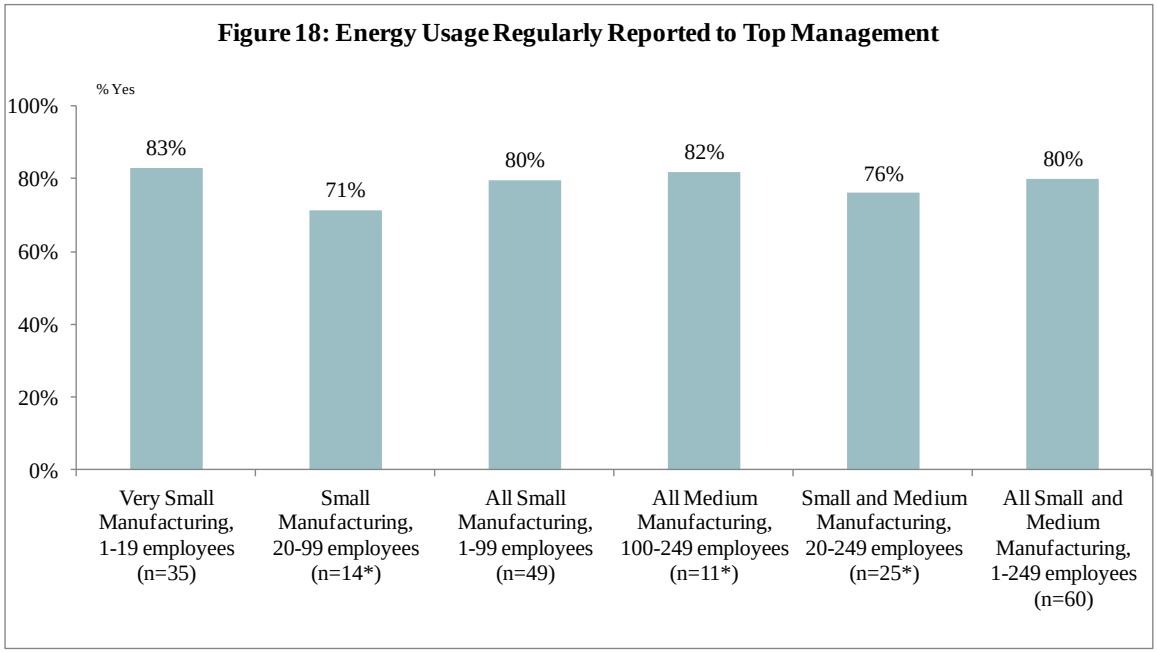
Energy Tracking and Reporting to Top Management

Eight in ten (81 percent) of medium manufacturing facilities regularly track their energy usage, a significantly higher proportion than smaller manufacturing facilities (65 percent) reporting this. (Figure 17)



Q25. Is energy usage regularly tracked at this facility?

Eight in ten (80 percent) of all manufacturing facilities that track usage indicate that this information is regularly reported to top management. (Figure 18)

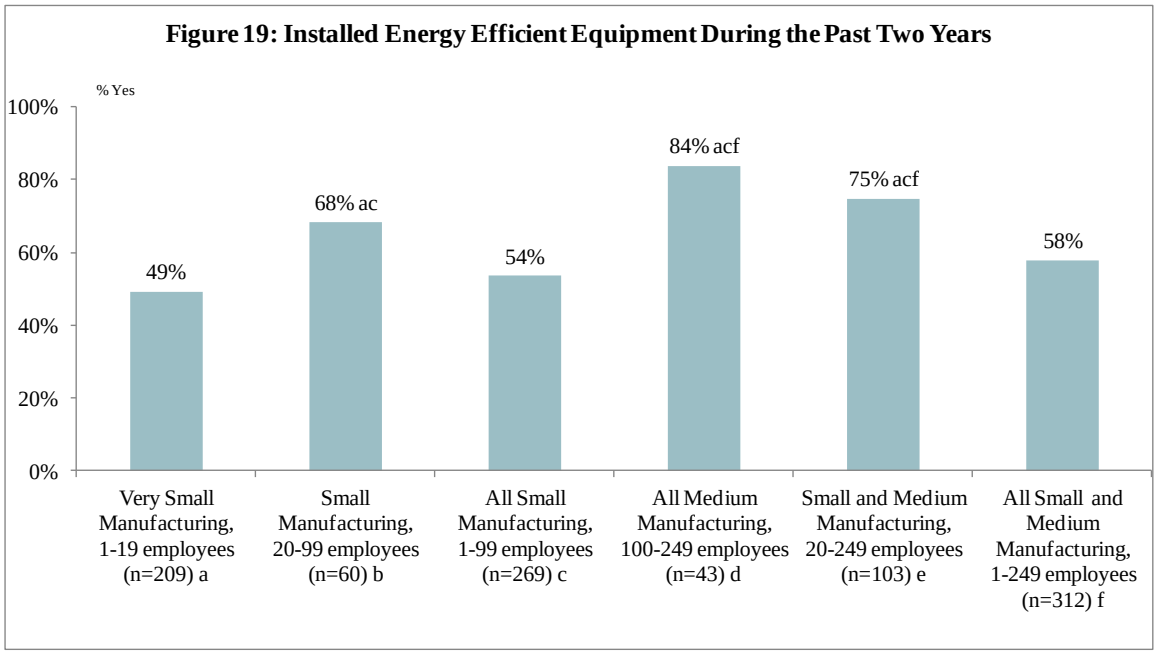


*Small base size (<30) interpret results with caution.
Note: This question was added during fielding resulting in small base sizes.
Q25A. Is energy usage at your facility regularly reported to the top leadership of your company?

Capital Improvements – Energy Efficient Equipment Installation

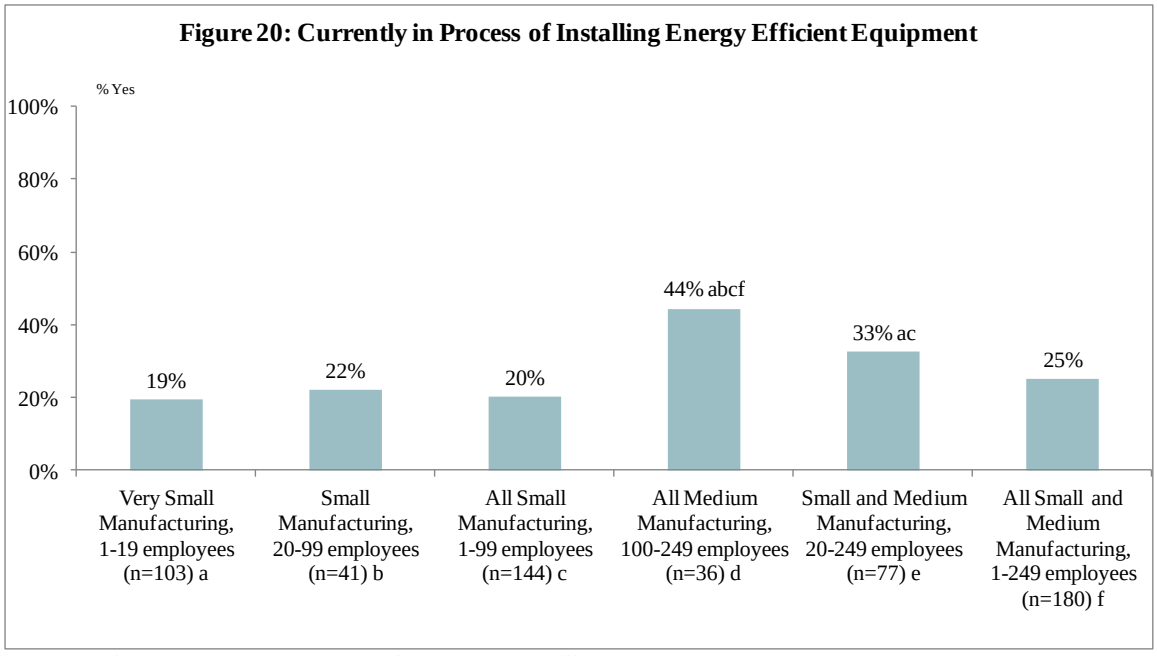
Over eight in ten (84 percent) of medium manufacturing facilities have installed energy efficient equipment during the past two years, significantly higher than the proportion of small

manufacturing facilities that have installed energy efficient equipment (54 percent). (Figure 19)



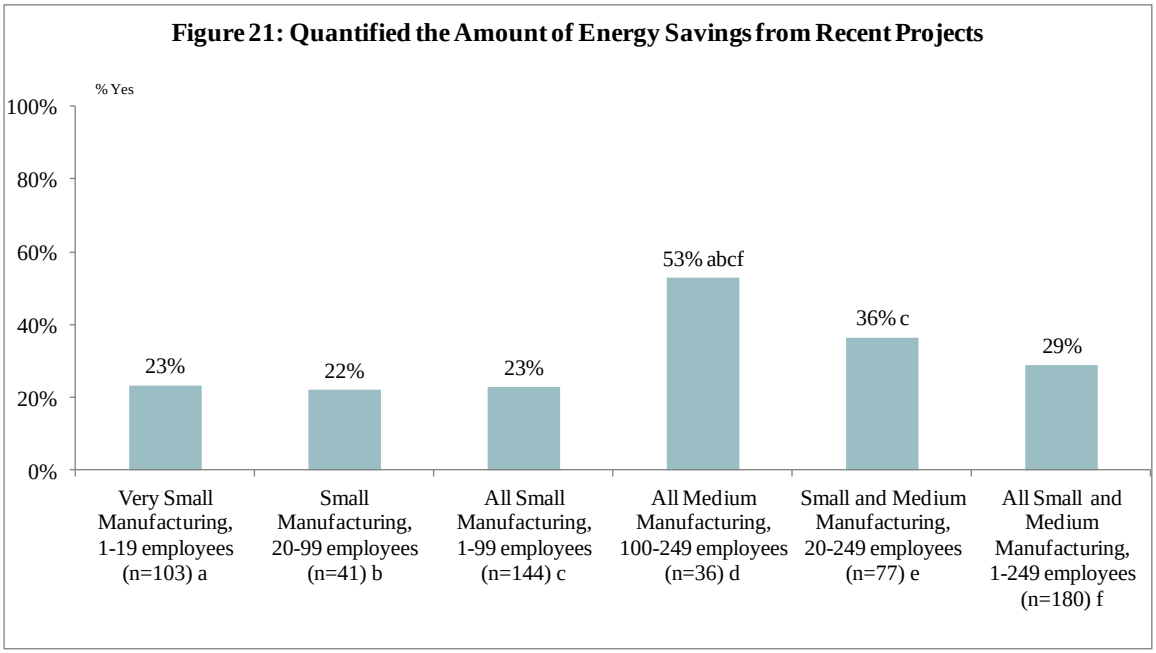
Q36. Has your facility installed energy efficient equipment during the past two years?

Among the manufacturing facilities that have installed energy efficiency equipment within the past two years, 44 percent of medium sized manufacturers are currently in the process of doing so, significantly more than small manufacturers (20 percent). (Figure 20)



Q37. Is your facility currently in the process of installing energy efficient equipment?

One-half (53 percent) of medium manufacturing facilities report that they have quantified the amount of energy savings resulting from installing energy efficiency equipment, while fewer than one-quarter (23 percent) of smaller manufacturing facilities report doing so. (Figure 21)



Q39. Has your facility specifically quantified the amount of energy savings from these projects?

Among facilities that have or are in the process of installing energy efficiency equipment, most (74 percent) report that *saving energy and money* was the primary motivating factor. (Table 8)

Table 8 Motivating Factors to Install Energy Efficient Equipment

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Save energy and money	71%	76%	72%	83%	79%	74%
Needed to be replaced	9%	10%	9%	6%	8%	8%
Environmental stewardship	8%	7%	8%	14%	10%	9%
Tax incentives or rebates	7%	17%	10%	11%	14%	10%
To save money	6%	2%	5%	3%	3%	4%
The equipment distributor or manufacturer recommended it	3%	-	2%	3%	1%	2%
Recommended in an energy audit	1%	2%	1%	6%	4%	2%
To save energy	1%	5%	2%	3%	4%	2%
Other	10%	2%	8%	17%b	9%	9%
Don't Know	5%	5%	5%	-	3%	4%
Base (n)	***103***	***41***	***144***	***36***	***77***	***180***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q40. What factors motivated your facility to install energy efficient equipment?

Among facilities making energy efficiency upgrades, 44 percent mention using the *efficiency rating or label on the equipment* to determine if it was energy efficient. One-quarter (27 percent) relied on *information from the equipment dealer*. Significantly more medium sized

facilities report that they use *the utility bill* to determine energy efficiency than smaller sized facilities (19 versus 6 percent). (Table 9)

Table 9. Information Sources to Determine Energy Efficiency

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Efficiency rating or label of equipment	48%	42%	46%	36%	39%	44%
Equipment dealer said it was efficient	29%	24%	28%	25%	25%	27%
Personal experience	11%	17%	13%	8%	13%	12%
Research/Reviews (general)	13%	5%	10%	6%	5%	9%
Recommendations	8%	10%	8%	3%	7%	7%
Equipment documents/ Specs/Manufacturer	7%	7%	7%	3%	5%	6%
The utility bill	6%	5%	6%	19%acf	12%	8%
Met utility rebate requirements	4%	2%	4%	14%ac	8%	6%
Tracking our consumption	1%	2%	1%	3%	3%	2%
Information from the utility company	1%	-	1%	-	-	1%
Other	1%	2%	1%	3%	3%	2%
Don't Know	6%	7%	6%	11%	9%	7%
Base (n)	***103***	***41***	***144***	***36***	***77***	***180***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q38. What information does your facility rely upon to tell if the equipment that is purchased is energy efficient?

Among this same group, 32 percent received a rebate or incentive from a utility or other organization for installing energy efficient equipment, with significantly more medium manufacturers receiving a rebate than smaller manufacturers (61 versus 25 percent). (Table 10)

Table 10. Incentives Received for Installing Energy Efficient Equipment

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Rebate or incentive from a utility, other organization or institution	20%	37%a	25%	61%abcf	48%acf	32%a
State tax credit	9%	22%a	13%	17%	20%a	13%
Federal tax credit	11%	17%	13%	11%	14%	12%
Other	2%	-	1%	-	-	1%
None	71%bdef	49%	65%de	28%	39%	57%de
Don't Know/Refused	3%	2%	3%	6%	4%	3%
Base (n)	***103***	***41***	***144***	***36***	***77***	***180***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q41. Which of the following financial incentives, if any, did your company receive for installing energy efficient equipment at this facility?

Among facilities receiving an incentive or rebate from a utility or other organization, one-quarter (26 percent) say it was from a utility in general while nine percent say the incentive came from either ETO or BPA. (Table 11)

Table 11. Utility, Organization or Institution Providing Incentive, Tax Credit or Rebate

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Utility (general)	24%	33%	28%	23%	27%	26%
ETO (Energy Trust of Oregon)	-	13%	6%	14%	14%	9%
Idaho Power	-	20%	8%	9%	14%	9%
BPA (Bonneville Power Authority)	-	7%	3%	18%	14%	9%
Puget Sound Energy	5%	20%	11%	9%	14%	10%
State or Federal Government	10%	-	6%	-	-	3%
PGE	5%	-	3%	5%	3%	3%
Other	76%	20%	53%	36%	30%	47%
Base (n)	***21****	***15****	***36***	***22****	***37***	***58***

*Small base size (<30) interpret results with caution.
Q42. Which utility, organization or institution provided the incentive, tax credit, or rebate?

One-fifth (22 percent) of manufacturing facilities currently have policies to replace worn out equipment with high-efficiency equipment.

Most facilities (66 percent) report that they are aware of efficient equipment for their type of work, with significantly more medium sized facilities being aware than smaller facilities (84 versus 63 percent). Of those that are aware, the majority (65 percent) have been aware for more than four years.

Most facilities (66 percent) report that energy efficiency is always (20 percent) or sometimes (46 percent) emphasized by equipment dealers. (Table 12)

Table 12. Energy Efficiency Replacement Policy and Awareness

	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Has equipment replacement policy						
Yes	23%	15%	21%	30%	21%	22%
No	76%	83%	78%	68%	77%	76%
Don't Know/Refused	1%	2%	1%	2%	2%	2%
Aware of efficient equipment for type of work						
Yes	62%	68%	63%	84%acf	75%ac	66%
No	36%de	27%d	34%de	5%	17%d	30%de
Don't Know	2%	5%	3%	11%acf	8%ac	4%
Length of time aware of energy efficient equipment**						
Less than 1 year	7%	-	5%	3%	1%	5%
1 to less than 3 years ago	12%	17%	13%	22%	20%	15%
3 to less than 4 years ago	11%	10%	11%	17%	13%	12%
More than 4 years ago	67%	71%	68%	53%	62%	65%
Don't Know/Refused	3%	2%	3%	5%	4%	3%
Energy efficiency emphasized by equipment dealers						
Always	21%	13%	19%	26%	19%	20%
Sometimes	40%	64%acf	45%	53%	59%acf	46%
Never	33%de	20%	30%e	16%	18%	28%
Don't Know/Refused	7%	3%	6%	5%	4%	6%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

**If Q44=Yes; Very Small Manufacturing 1-19 employees n=129, Small Manufacturing 20-99 employees n=41, All Small Manufacturing 1-99 employees n=170, All Medium Manufacturing 100-249 employees n=36, Small and Medium Manufacturing 20-249 employees n=77, All Small and Medium Manufacturing 1-249 employees n=206

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.

Q43. Does your facility have a specific policy that says you should replace worn out equipment with "high efficiency" equipment – that is, equipment that is more efficient than what is considered standard efficiency or code at the time of purchase?

Q44. Is your company aware of energy efficient equipment for the type of work done at this facility?

Q45. Has your company been aware of energy efficient equipment for the type of work done at this facility for…?

Q46. Do your equipment dealers emphasize energy efficiency when explaining your equipment options…?

Operations and Maintenance Activities

When asked what actions or steps have been taken in the past two years to reduce energy usage, over half of respondents mention *turning off lights when not in use* (53 percent), followed by *developing an equipment operations schedule* (31 percent). Significantly more medium facilities *employed a leak tag program* (23 percent) than small facilities (7 percent). (Table 13)

Table 13. Actions Taken in the Past Two Years to Reduce Energy Usage

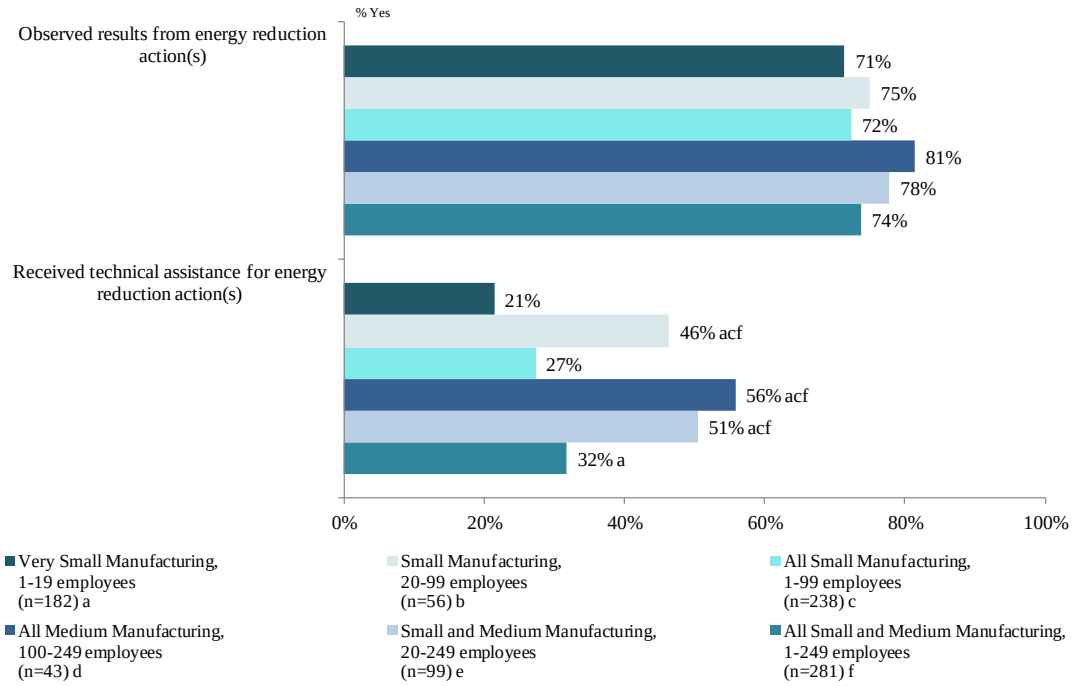
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Lighting reduction, turning lights off when not in use	49%	57%	51%	63%	59%	53%
Equipment operation schedule or turning equipment off when not in use	32%	27%	31%	35%	30%	31%
Equipment Operations and Maintenance	25%	38%	28%	35%	37%a	29%
Equipment settings (decreasing temperature, pressure, motor speed)	18%	23%	19%	30%	26%	21%
Insulate pipes or tanks	16%	12%	15%	14%	13%	15%
Upgraded equipment	9%	12%	9%	12%	12%	10%
Leak tag program / leak detection and repair (check for air leaks.)	7%	10%	7%	23%acf	16%ac	10%
Removing equipment	8%	8%	8%	14%	11%	9%
Weatherizing	8%e	2%	7%e	-	1%	6%e
Upgraded lighting	6%	5%	6%	9%	7%	6%
Production floor cleaning practices	4%	5%	4%	5%	5%	4%
General conservation/ awareness	3%	-	2%	5%	2%	3%
Other	8%	5%	7%	19%abcf	11%	9%
No actions taken in the past two years	12%de	5%	11%de	-	3%	9%de
Don't Know	1%	2%	1%	-	1%	1%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Table includes categories with responses of four percent or higher.
Full table shown in Appendix C.
Q31. What actions have been taken in the past two years to reduce energy usage at this facility?

Most facilities indicate they have observed energy savings resulting from the steps they took to reduce energy usage (71 to 81 percent), with more medium sized manufacturers (81 percent) observing results than small manufacturers (72 percent). More than half (56 percent) of medium manufacturers received technical assistance for the energy reducing actions,

significantly more than the 27 percent of small manufacturing facilities that received assistance. (Figure 21)

Figure 22: Energy Reduction Actions



Q32. Has your facility observed energy savings resulting from any of these actions?
Q33. Did your facility receive technical assistance for any of these actions?

Sixteen percent of all Northwest manufacturing facilities received assistance from a contractor or a utility company. Only two percent of all facilities received technical assistance from NEEA; all of those customers have fewer than 20 employees. (Table 14)

Table 14. Who Provided Technical Assistance for Energy Usage Reduction						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Contractor	26%e	8%	19%	8%	8%	16%
Equipment distributor	10%	15%	12%	17%	16%	14%
A utility company (general)	10%	23%	15%	17%	20%	16%
A supplier	8%	19%	12%	8%	14%	11%
Consultant	5%	4%	5%	8%	6%	6%
NEEA (Northwest Energy Efficiency Alliance)	5%	-	3%	-	-	2%
ETO (Energy Trust of Oregon)	-	-	-	13%	6%c	3%
Puget Sound Energy	-	4%	2%	8%	6%	3%
BPA (Bonneville Power Authority)	3%	-	2%	4%	2%	2%
An energy efficiency company	3%	-	2%	8%	4%	3%
City	5%	-	3%	-	-	2%
Other	5%	8%	6%	4%	6%	6%
Don't Know/Refused	5%	4%	5%	4%	4%	5%
Base (n)	***39***	***26****	***65***	***24****	***50***	***89***

*Small base size (<30) interpret results with caution.
Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Table includes categories with responses of five percent or higher.
Full table shown in Appendix C.
Q34. Who provided the technical assistance for these actions?

Detailed Findings – Metals Manufacturing

Metals Manufacturing Facility/Company Profiles

One-third (33 percent) of metals manufacturing customers are located in Idaho, with the majority (87 percent) being in an Urban area. Among those interviewed 47 percent provided executive level titles and 53 percent provided Non-Executive level titles.

Twenty seven percent of metals manufacturers are ISO 9000 certified, while 13 percent are ISO 14000 certified. Forty percent practice LEAN Manufacturing. None of the metals manufacturers surveyed belongs to an industry association. (Table 15)

Table 15. 2011 Metals Manufacturing Respondent Profile

	Metals Manufacturing
State	
Washington	27%
Oregon	13%
Idaho	33%
Montana	27%
Geography	
Urban	87%
Rural	13%
Job Title	
Executive	47%
Non-Executive	53%
Number of Employees	
Less than 10	53%
11-40	20%
41 or more	27%
Energy Costs as Proportion of Operating Costs	
Less than 1%	13%
1% to less than 5%	27%
5% to less than 10%	7%
10% to less than 20%	13%
More than 20%	33%
Don't know/Prefer not to answer	7%
Revenue	
Under $100,000	27%
$100,000 to less than $250,000	-
$250,000 to less than $500,000	-
$500,000 to less than $1 million	20%
$1 million to less than $5 million	-
$5 million to less than $10 million	13%
$10 million or more	20%
Don't know/Prefer not to answer	20%
Base (n)	***15****

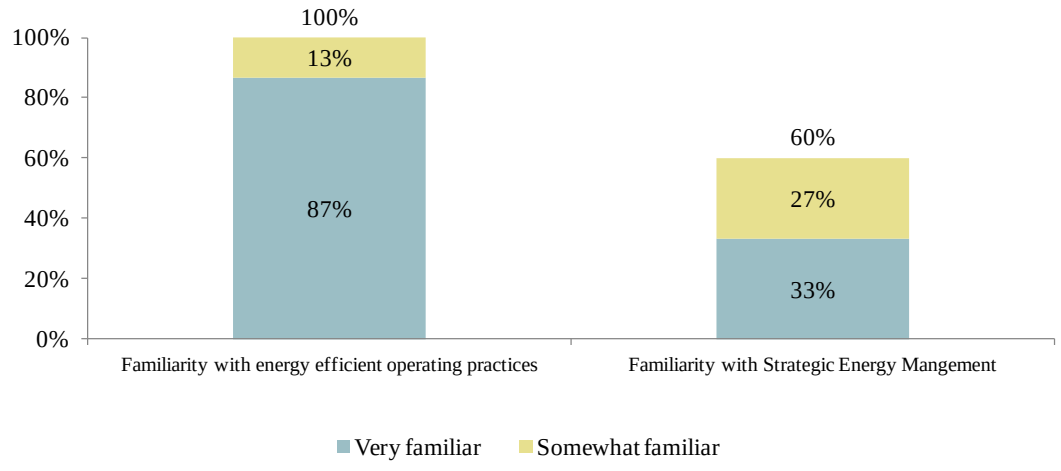
Table 15 (cont'd). 2011 Metals Manufacturing Respondent Profile	
	Metals Manufacturing
ISO-9000 Certification (Quality Management)	
Yes	27%
No	73%
ISO-14000 Certification (Environmental Management)	
Yes	13%
No	80%
LEAN Manufacturing	
Yes	40%
No	53%
Industry Associations	
None	93%
Don't know	7%
Base (n)	***15****

*Small base size (<30) interpret results with caution.
SC2. What is your job title?
SC7. In total, about how many employees does your company currently have across all its sites and locations combined?
F4. About what proportion of your total operating costs for this facility (not including labor costs) would you say are accounted for by your total energy costs?
F8. Approximately what were the TOTAL REVENUES for your company in 2010?
Q47. Is this facility ISO-9000 certified for quality management?
Q48. Is this facility ISO-14000 certified for environmental management?
Q49. Does this facility practice Lean manufacturing?
Q51. Does your company belong to any of the following industry associations?

Familiarity with Energy Efficiency and SEM

Familiarity with energy efficient operating practices is universal among the metals manufacturing facilities (100 percent). However, only 60 percent are familiar with SEM specifically. (Figure 23)

Figure 23. Familiarity with Energy Efficiency Practices and Strategic Energy Management (n=15*)



*Small base size (<30) interpret results with caution.
Q2. How familiar is this facility with energy efficient operating practices, such as turning equipment or lights off when not in use, maintaining equipment so that it runs efficiently, checking for air leaks, etc.? Are you...
Q3. Strategic Energy Management, or S-E-M, is a system of practices that leads to reliable and persistent energy savings. At a minimum, these

practices include setting a goal related to energy, dedication of resources by top leadership to achieve the goal, ensuring staff regularly reports progress toward the goal to top management. How familiar are you with Strategic Energy Management practices?

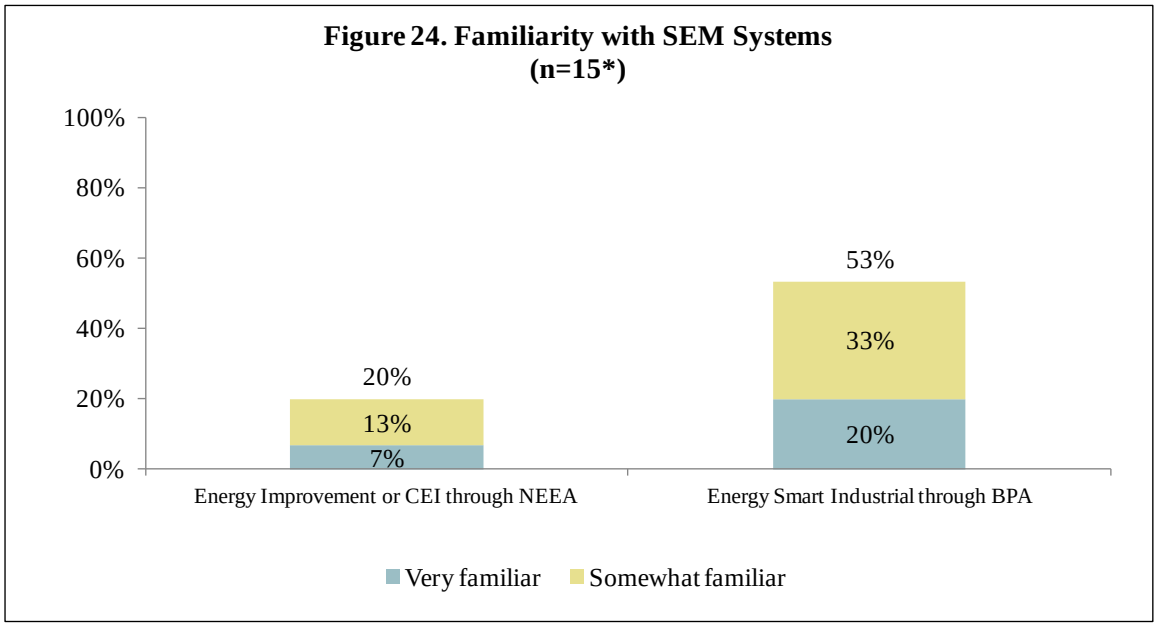
One in five (18 percent) of metals manufacturing respondents learned about energy efficiency practices *through a previous employer or from previous actions*. (Table 16)

Table 16. How Learned about Strategic Energy Management

	Metals Manufacturing
Self awareness/ previous employer	18%
Newsletters/ Magazines/ Media	9%
Public Utility District (PUD)	9%
Bonneville Power Administration	9%
Utility company	9%
The city	9%
Base (n)	***11****

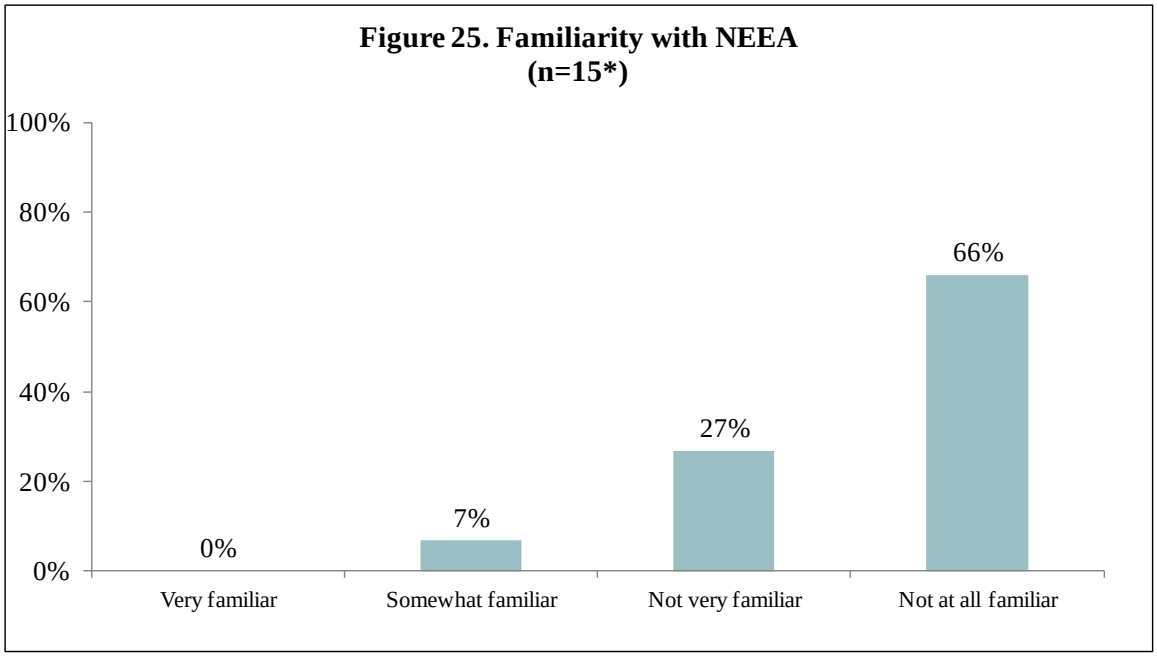
*Small base size (<30) interpret results with caution.
Q3A. How did you first learn about strategic energy management practices?

One in five (20 percent) respondents is very or somewhat familiar with Continuous Energy Improvement through NEEA. Over half (53 percent) of metals manufacturers are familiar with Energy Smart Industrial through BPA. (Figure 24)



*Small base size (<30) interpret results with caution.
Q4-5. For each of the energy management systems I name, please tell me whether you are very familiar, somewhat familiar, not very familiar, or not at all familiar with the program. How familiar are you with...

No metals manufacturing facilities are very familiar with NEEA and its initiatives, while a few (seven percent) are somewhat familiar. Two-thirds (66 percent) say they are not at all familiar. (Figure 25)



*Small base size (<30) interpret results with caution.
Q52. How familiar are you with NEEA and its initiatives? Would you say that you are...?

Top three concerns / Importance of Energy Management Practices

When asked about the top concerns for their facility, one in five (20 percent) of metals manufacturers say they are worried about the *Cost of electricity, gas, or water*; or *Operational efficiency*. (Table 17)

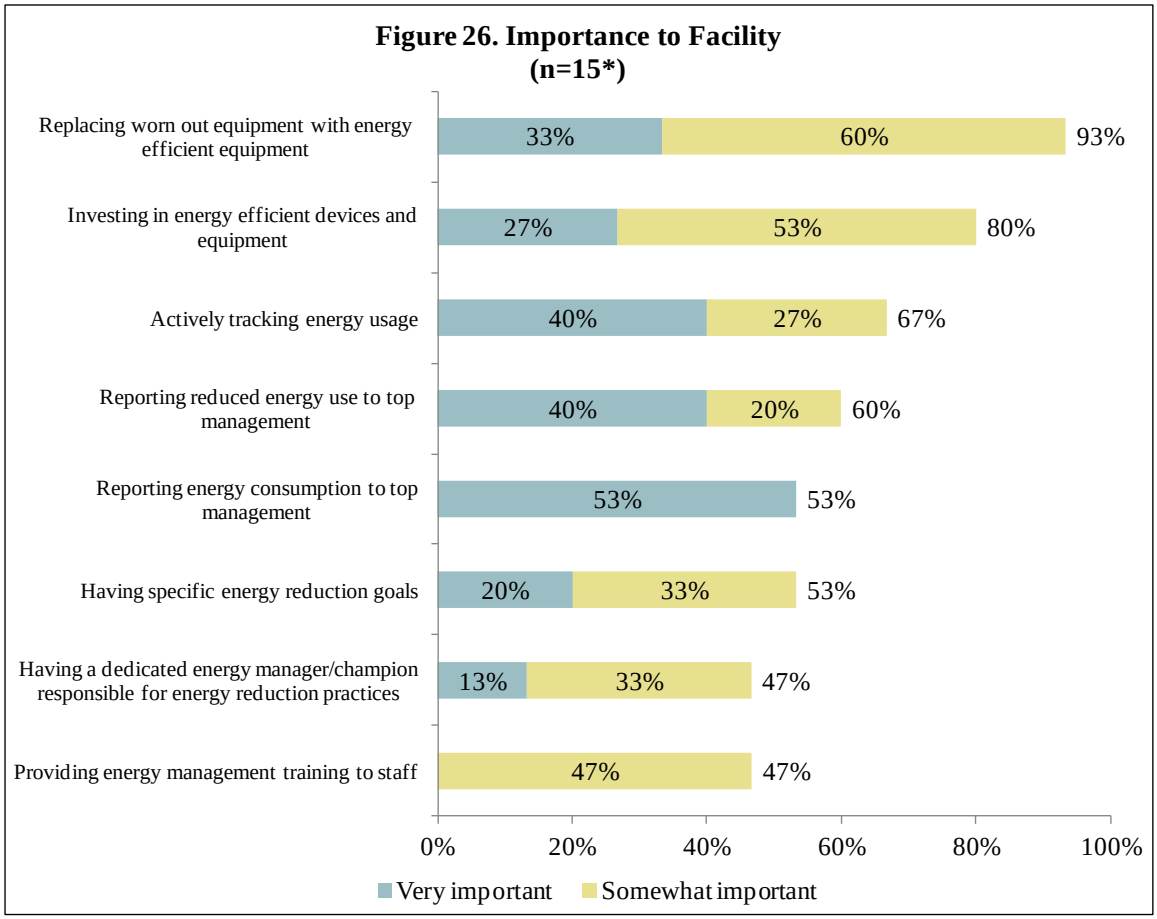
Table 17. Top Three Facility Concerns

	Total Beverage Manufacturing
Cost of electricity/gas/water	20%
Operational efficiency	20%
Efficient use of electricity/ water/ fuel	13%
Profitability	13%
Employee retention/quality	13%
Operational costs (rent/machinery/materials/labor)	13%
Maintenance	7%
Quality production	7%
Weather/ Environment	7%
Safety	7%
Market stability/ condition	7%
Electricity reliability/ quality	7%
Lighting	7%
Base (n)	***15****

*Small base size (<30) interpret results with caution.
Verbatim responses for this open-end question are shown in Appendix E.
Q1. What are your company's top three concerns for this facility?

The survey included a series of questions about the importance of eight energy management practices. Eight in ten or more (93 percent and 80 percent) say that *Replacing worn out*

equipment with energy efficient equipment and *Investing in energy efficient devices and equipment* is important. Fewer than half (47 percent) feel that *Having a dedicated energy manager/champion responsible for energy reduction practices* or *Providing energy management training to staff* is important. (Figure 26)



*Small base size (<30) interpret results with caution.
Q7-13. For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company. How important is...

Implementation of SEM, Elements of SEM

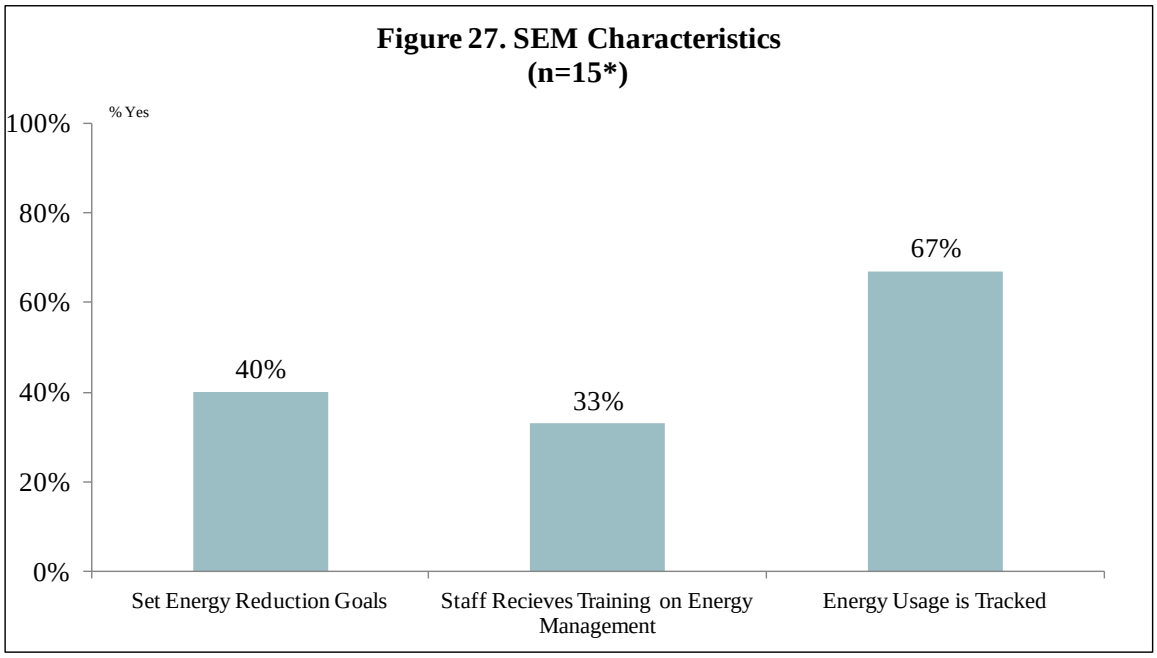
Seven percent of metals manufacturers meet SEM criteria as shown below. As with other segments, a major barrier to full SEM implementation among metals manufacturers appears to be dedicating resources to energy reduction. (Table 18)

Table 18: Meets SEM Criteria

	Metal Manufacturing
Have set energy reduction goals	40%
Dedicated resources to energy reduction (dedicated energy champion, staff trained in energy reduction, and investment in EE equipment)	7%
Regularly report progress toward goal to top leadership	33%
Meet SEM criteria (conduct all three activities above)	**7%**
Base (n)	***15****

*Small base size (<30) interpret results with caution.

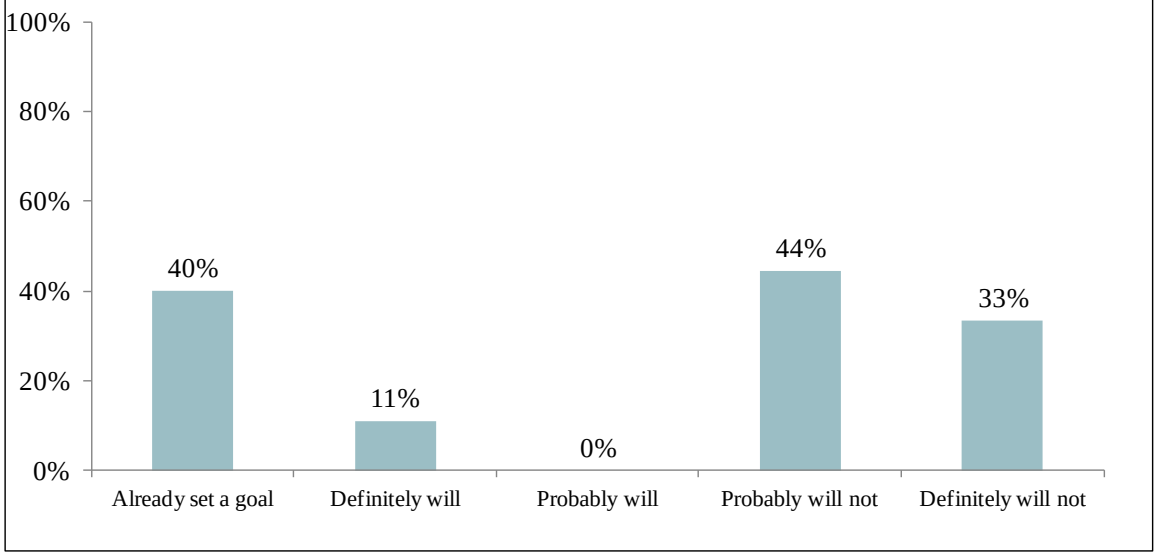
Two-thirds (67 percent) of metals manufacturers track their energy usage, while one-third (33 percent) provide staff with energy management training. Four in ten (40 percent) set energy reduction goals. (Figure 27)



*Small base size (<30) interpret results with caution.
Q14. Does your company set energy reduction goals for this facility?
Q23. Does staff at your facility receive training on energy management?
Q25. Is energy usage regularly tracked at this facility?

Among the 60 percent who do not currently set energy reduction goals, 11 percent of customers say that they "definitely will" set a reduction goal in the next two years. (Figure 28)

Figure 28. Energy Reduction Goals, Likelihood to Set in Future (n=15*)



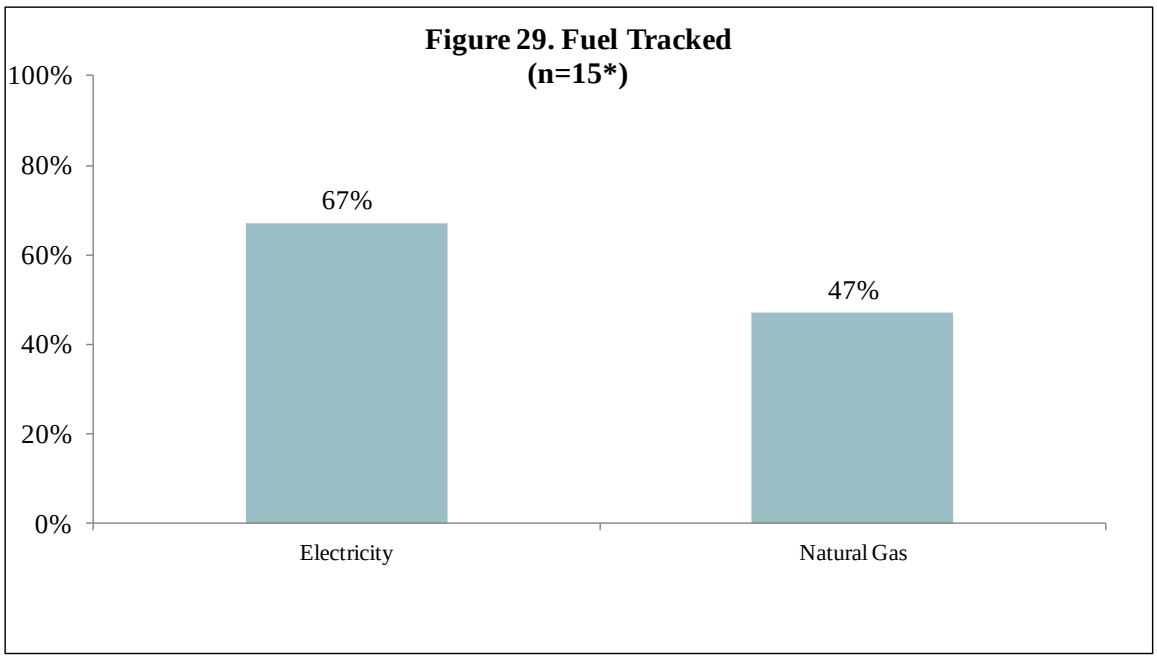
*Small base size (<30) interpret results with caution.
Q14. Does your company set energy reduction goals for this facility?
Q14A. Will your facility definitely, probably, probably not, or definitely not set energy reduction goals for this facility within the next two years?

Among the six respondents who have set an energy reduction goal, three say it is a reduction in overall electricity usage, while two say it is a reduction in energy intensity (the remaining customer does not know). One respondent says their reduction goal is less than five percent, two say it is between 10 to 15 percent, while the remaining respondent who is aware of the reduction amount says it is between 16 to 20 percent.

One respondent says their energy reduction goals were set less than one year ago, two say it was one to two years ago, and two set their goals three to four years ago.

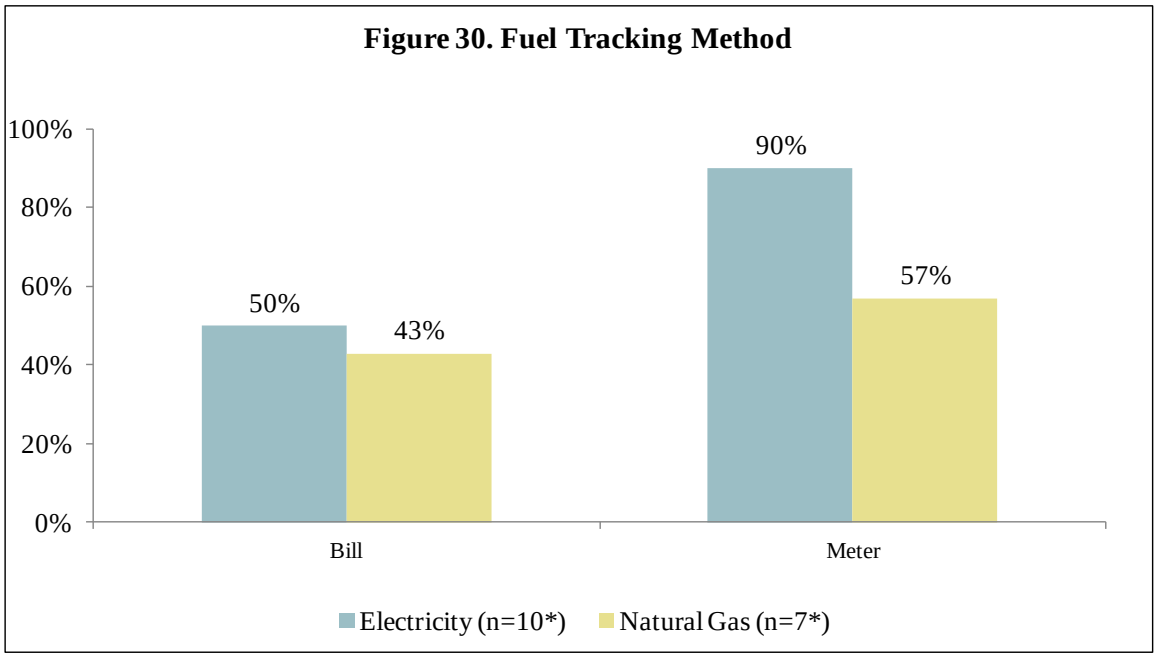
Five metals manufacturing customers who set energy reduction goals say that management is "very supportive," with the remaining customer saying management is "somewhat supportive." However, only one of the six metals manufacturers who set energy reduction goals has a full-time employee or designated energy champion dedicated to implementing these reduction goals.

Two-thirds (67 percent) of metals manufacturing respondents monitor electricity, while 47 percent monitor natural gas. (Figure 29)



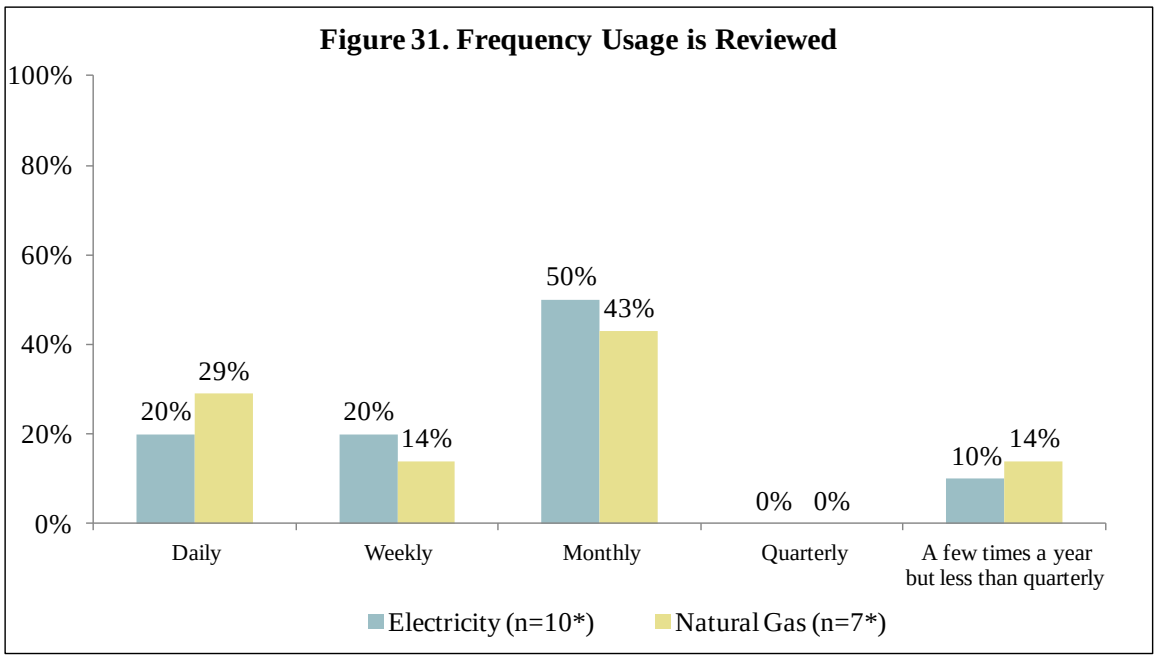
*Small base size (<30) interpret results with caution.
Q26. Does this facility track the usage of electricity, natural gas, or both?

The majority of metals manufacturers that monitor fuel usage say they track electricity (90 percent) and natural gas (57 percent) through their meter while fewer (50 percent for electricity and 43 percent for natural gas) track fuel through the bill. (Figure 30)



*Small base size (<30) interpret results with caution.
Q27. Is electricity usage tracked via the bill, the meter, or some other way?
Q29. Is natural gas usage tracked via the bill, the meter, or some other way?

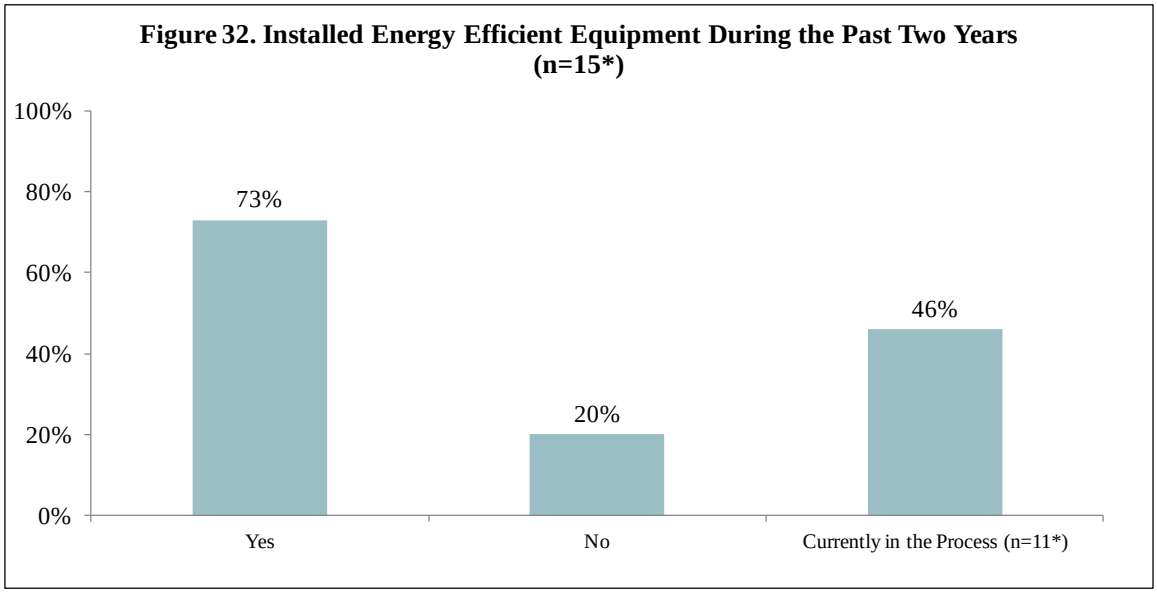
Of the metals manufacturers that track fuel, most track their natural gas (43 percent) and electricity usage (50 percent) on a monthly basis, while 20 percent (for electricity) and 29 percent (for natural gas) track usage on a daily basis. (Figure 31)



*Small base size (<30) interpret results with caution.
Q28. How often is the tracked information for electricity usage typically reviewed?
Q30. How often is the tracked information for natural gas usage typically reviewed?

Capital Improvements – EE equipment Installed / Being Installed

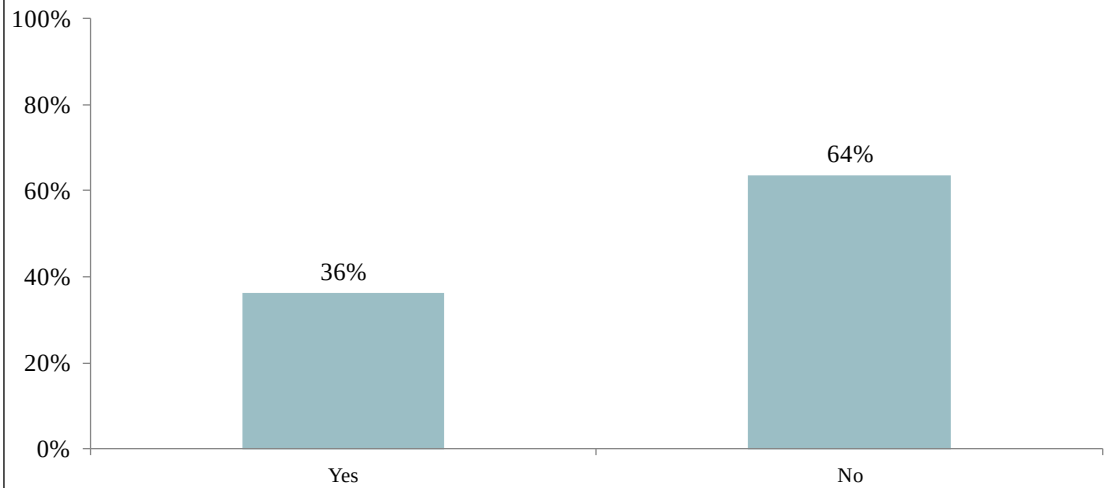
Almost three-quarters (73 percent) of customers have installed energy efficient equipment during the past two years, and 46 percent say they are currently in the process of doing this. (Figure 32)



*Small base size (<30) interpret results with caution.
Q36. Has your facility installed energy efficient equipment during the past two years?
Q37. Is your facility currently in the process of installing energy efficient equipment?

Among the customers who have installed energy efficient equipment in the past two years, 36 percent have quantified the energy savings. (Figure 33)

Figure 33. Quantified the Amount of Energy Savings from Recent Projects (n=11*)



*Small base size (<30) interpret results with caution.
Q39. Has your facility specifically quantified the amount of energy savings from these projects?

Nearly three-quarter (73 percent) of those who installed energy efficient equipment say that *energy and money savings* are a motivating factor. (Table 19)

Table 19. Motivating Factors to Install Energy Efficient Equipment

	Metals Manufacturing
Save energy and money	73%
Existing equipment needed to be replaced	9%
To save money	9%
Other	27%
Base (n)	***11****

*Small base size (<30) interpret results with caution.
Q40. What factors motivated your facility to install energy efficient equipment?

Close to half (46 percent) of metals manufacturing received a rebate from a utility or other organization, while 18 percent received a state tax credit. One-third (36%) did not receive any incentive for installing energy efficient equipment. (Table 20)

Table 20. Incentives Received for Installing Energy Efficient Equipment

	Metals Manufacturing
Rebate or incentive from a utility, other organization or institution	46%
State tax credit	18%
Federal tax credit	9%
Or something else	9%
None	36%
Don't know	9%
Base (n)	***11****

*Small base size (<30) interpret results with caution.
Q41. Which of the following financial incentives, if any, did your company receive for installing energy efficient equipment at this facility?

Twenty percent (20 percent) of metals manufacturing facilities have a policy in place that mandates replacing worn out equipment with high-efficiency equipment. Eight in ten (80 percent) are aware of energy efficient equipment for the type of work done at their facility. Of those that are aware of efficient equipment, three-quarters (75 percent) have been aware for more than four years. Almost one-in-three (27 percent) metals manufacturers report that equipment dealers always emphasize energy efficient equipment. (Table 21)

Table 21. Energy Efficiency Replacement Policy and Awareness

	Total Beverage Manufacturing
Equipment replacement policy with high-efficient equipment	
Yes	20%
No	80%
Aware of efficient equipment for type of work	
Yes	80%
No	20%
Length of time aware of energy efficient equipment (if Q44=Yes, n=12)	
Less than 1 year ago	8%
1 to less than 3 years ago	8%
3 to less than 4 years ago	8%
More than 4 years ago	75%
Energy efficiency emphasized by equipment dealers	
Always	27%
Sometimes	33%
Never	33%
Don't Know/Refused	7%
Base (n)	***15****

*Small base size (<30) interpret results with caution.
Q43. Does your facility have a specific policy that says you should replace worn out equipment with "high efficiency" equipment – that is, equipment that is more efficient than what is considered standard efficiency or code at the time of purchase?
Q44. Is your company aware of energy efficient equipment for the type of work done at this facility?
Q45. Has your company been aware of energy efficient equipment for the type of work done at this facility for…?
Q46. Do your equipment dealers emphasize energy efficiency when explaining your equipment options…?

Operations and Maintenance Activities

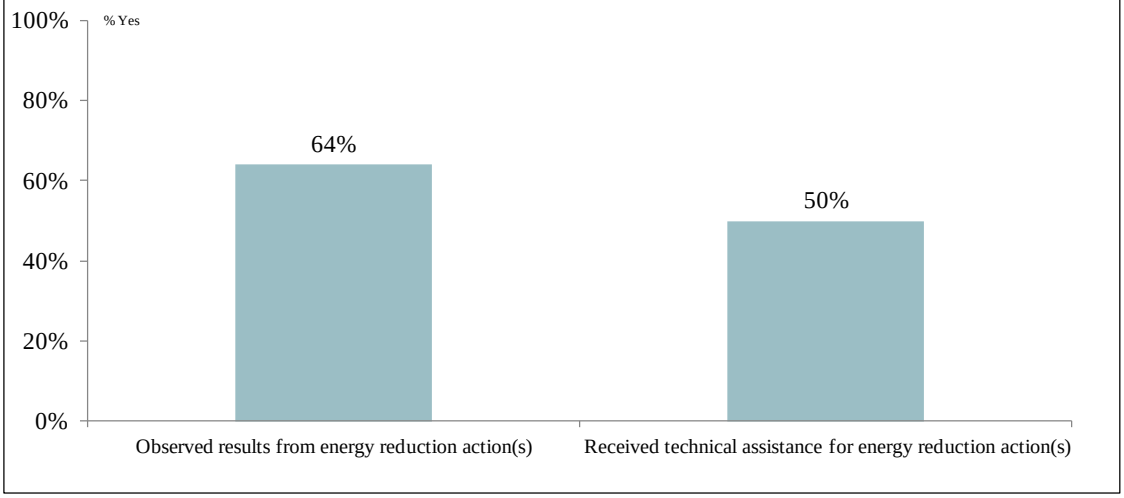
The action most often taken during the past two years to reduce energy usage among metals manufacturers is simply turning off the lights (53 percent). One in three (27 percent) perform equipment maintenance, while 20 percent adjust the equipment operation schedule, a leak tag program, or adjust equipment settings. Seven percent have taken no actions in the past two years. The one customer who did not take any energy reducing actions in the past two years stated it was because he or she did not know what else to do. (Table 22)

Table 22. Actions Taken in the Past Two Years to Reduce Energy Usage	
	Total Beverage Manufacturing
Lighting reduction, turning lights off when not in use	53%
Equipment Operations and Maintenance	27%
Equipment operation schedule or turning equipment off when not in use	20%
Leak tag program / leak detection and repair (check for air leaks.)	20%
Equipment settings (decreasing temperature, pressure, motor speed)	20%
Insulate pipes or tanks	13%
Upgraded equipment	13%
Weatherizing	13%
Removing equipment	13%
Production floor cleaning practices	7%
Control water usage	7%
Changed heater/furnace	7%
Something else	7%
No actions taken in the past two years	7%
Base (n)	***15****

*Small base size (<30) interpret results with caution.
Q31. What actions have been taken in the past two years to reduce energy usage at this facility?

Among the customers who took at least some energy saving action, 64 percent observed results from that action. Half (50 percent) received technical assistance with the energy reduction action taken. (Figure 34)

Figure 34. Energy Reduction Actions
(n=14*)



*Small base size (<30) interpret results with caution.
Q32. Has your facility observed energy savings resulting from any of these actions?
Q33. Did your facility receive technical assistance for any of these actions?

Among metals manufacturers who received technical assistance for their energy reduction action, 29 percent had assistance from a utility, while the same proportion had a consultant assist. No customers reported that NEEA provided assistance. (Table 23)

Table 23. Provider of Technical Assistance for Energy Usage Reduction

	Metals Manufacturing
A utility company (general)	29%
Consultant	29%
Public Utility District	14%
Bonneville Power Administration	14%
Other	14%
Base (n)	***7****

*Small base size (<30) interpret results with caution.
Q34. Who provided the technical assistance for these actions?

Conclusions

Small and medium manufacturers, as well as metal manufacturers, represent a significant opportunity with respect to increasing SEM awareness and implementation.

Although about half (48 percent) of small and medium manufacturers report some level of familiarity with SEM, implementation efforts among these companies is nominal with only five percent meeting minimal requirements. As a result, this category of manufacturers offers tremendous opportunity for expansion of SEM practices.

While most have already either set or plan to set energy reduction goals, fewer (five percent) are able to garner the resources they need to follow through.

Among those who have set goals, the vast majority (99 percent) characterizes management support for the goal as very supportive. "Reducing operating costs" (46 percent) is the most common factor contributing to this level of support.

Recommendations

NEEA should work with its partners to demonstrate the beneficial outcomes of a systematic approach to energy management in terms of cost savings and enhanced profitability beyond that of less managed attempts to reduce energy usage and costs. With this approach, NEEA can provide support that will help energy decision-makers build strong business cases for energy efficiency programs that will appeal to top management.

Most of these organizations may lack the resources and bandwidth to focus on the establishment of an SEM system. Therefore, NEEA and its partners should also provide significant direction and support regarding how to implement the various elements of SEM within a smaller operation, most of which are very small (less than 100 employees) in comparison to the large facilities that have been the focus of the past several years.

As evidenced throughout the smaller industrial sectors explored through this research effort, NEEA may need to recalibrate or redefine some SEM criteria in recognition of the organizational and operational constraints of the smaller manufacturers. While energy reduction goal setting is a relatively straightforward concept, NEEA may need to define the "dedication of resources" to energy reduction in terms that are more feasible, or in a way that is a better fit for small organizations – at least in terms of how these criteria are measured when quantifying progress of SEM in the marketplace.

Appendices

Appendix A: Facility Profiles

Table 1. 2011 Small & Medium Manufacturing Respondent Profile						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
State						
Oregon	18%	27%	20%	23%	25%	20%
Washington	33%	47%	36%	56%af	50%	39%
Idaho	17%	15%	17%	9%	13%	16%
Montana	32%bde	11%	27%bde	12%	12%	25%bde
Job Title						
Executive	73%bdef	35%	65%bde	19%	28%	58%bde
Non-Executive	26%	65%acf	35%	79%acf	71%acf	41%a
Energy Costs as Proportion of Operating Costs						
Less than 1%	15%	10%	14%	5%	8%	13%
1% to less than 5%	26%	32%	28%	33%	32%	28%
5% to less than 10%	17%	18%	18%	16%	18%	17%
10% to less than 20%	18%	8%	16%	21%	14%	16%
More than 20%	10%	10%	10%	9%	10%	10%
Don't know/Prefer not to answer	14%	22%a	16%	16%	19%	16%

Cont'd. Table 1. 2011 Small & Medium Manufacturing Respondent Profile						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Revenue						
Under $100,000	24%bdef	-	19%bde	-	-	16%bde
$100,000 to less than $250,000	16%bde	5%	13%de	-	3%	12%de
$250,000 to less than $500,000	15%de	8%	14%de	-	5%	12%de
$500,000 to less than $1 million	20%bde	7%	17%bde	-	4%	15%de
$1 million to less than $5 million	12%	7%acdf	16%d	2%	17%d	14%d
$5 million to less than $10 million	3%	15%acf	6%	5%	11%a	5%
$10 million or more	1%	20%ac	5%a	61%abcef	37%abcf	13%ac
Don't know/Prefer not to answer	8%	18%	10%	33%	24%	14%
ISO-9000 Certification (Quality Management)						
Yes	4%	13%a	6%	19%acf	16%acf	8%
No	79%	73%	78%	74%	74%	77%
ISO-14000 Certification (Environmental Management)						
Yes	3%	5%	3%	7%	6%	4%
No	79%	75%	78%	79%	77%	78%
LEAN Manufacturing						
Yes	45%	43%	44%	65%abcf	52%	47%
No	40%	47%d	42%d	26%	38%	39%

Cont'd. Table 1. 2011 Small & Medium Manufacturing Respondent Profile						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Industry Associations**						
Northwest Food Processors Association	1%	7%a	2%	12%acf	9%acf	4%
Northwest High Performance Enterprise Consortium	-	2%	0%	5%ac	3%ac	1%
Other Industry Association	14%	10%	13%	28%abcf	18%	15%
None	79%de	75%d	78%de	49%	64%	74%de
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

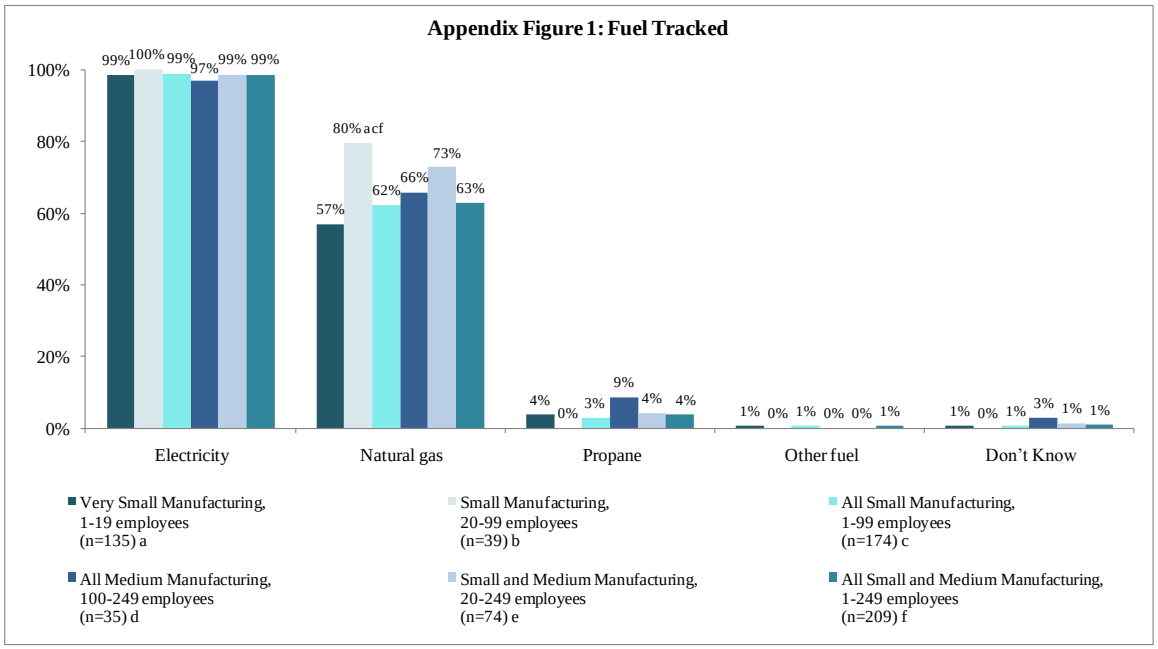
**Full table shown in Appendix C.
Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
SC2. What is your job title?
SC7. In total, about how many employees does your company currently have across all its sites and locations combined?
F4. About what proportion of your total operating costs for this facility (not including labor costs) would you say are accounted for by your total energy costs?
F8. Approximately what were the TOTAL REVENUES for your company in 2010?
Q47. Is this facility ISO-9000 certified for quality management?
Q48. Is this facility ISO-14000 certified for environmental management?
Q49. Does this facility practice Lean manufacturing?
Q51. Does your company belong to any of the following industry associations?

Appendix Table 2. 2011 Metals Manufacturing Respondent Profile	
	Metals Manufacturing
State	
Washington	27%
Oregon	13%
Idaho	33%
Montana	27%
Geography	
Urban	87%
Rural	13%
Job Title	
Executive	47%
Non-Executive	53%
Number of Employees	
Less than 10	53%
11-40	20%
41 or more	27%
Energy Costs as Proportion of Operating Costs	
Less than 1%	13%
1% to less than 5%	27%
5% to less than 10%	7%
10% to less than 20%	13%
More than 20%	33%
Don't know/Prefer not to answer	7%
Revenue	
Under $100,000	27%
$100,000 to less than $250,000	-
$250,000 to less than $500,000	-
$500,000 to less than $1 million	20%
$1 million to less than $5 million	-
$5 million to less than $10 million	13%
$10 million or more	20%
Don't know/Prefer not to answer	20%
ISO-9000 Certification (Quality Management)	
Yes	27%
No	73%
ISO-14000 Certification (Environmental Management)	
Yes	13%
No	80%
LEAN Manufacturing	
Yes	40%
No	53%
Industry Associations	
None	93%
Don't know	7%
Base (n)	***15****

*Small base size (<30) interpret results with caution.
SC2. What is your job title?
SC7. In total, about how many employees does your company currently have across all its sites and locations combined?
F4. About what proportion of your total operating costs for this facility (not including labor costs) would you say are accounted for by your total energy costs?
F8. Approximately what were the TOTAL REVENUES for your company in 2010?
Q47. Is this facility ISO-9000 certified for quality management?
Q48. Is this facility ISO-14000 certified for environmental management?
Q49. Does this facility practice Lean manufacturing?
Q51. Does your company belong to any of the following industry associations?

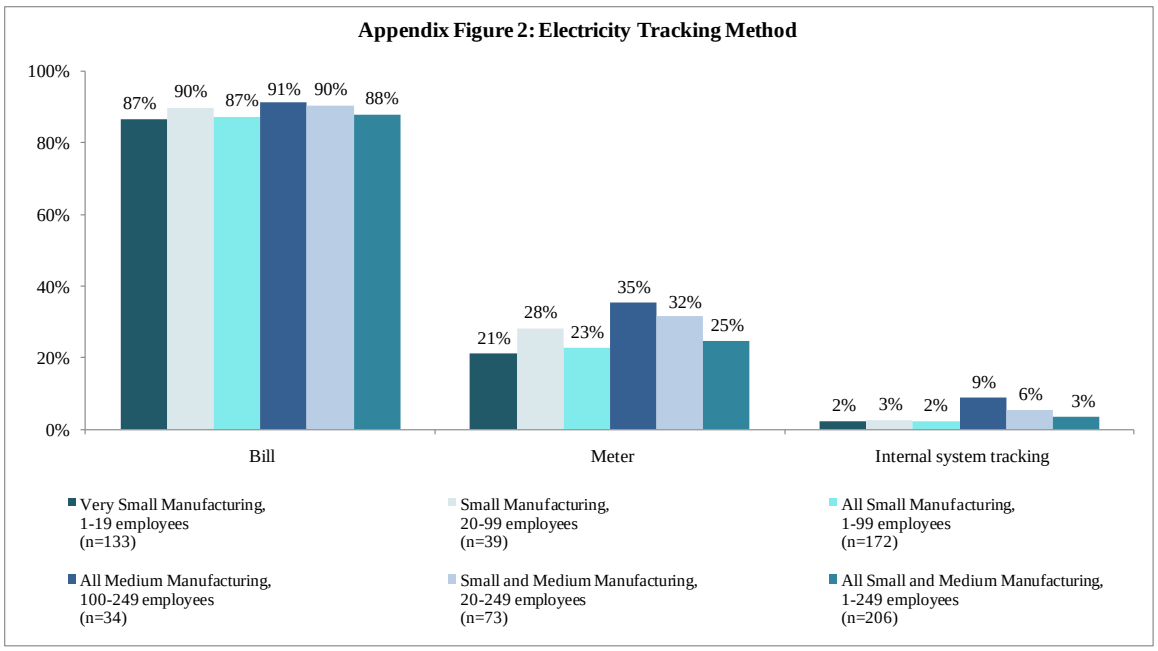
Appendix B: Fuel Tracking Mini-Report

Almost all manufacturing facilities who track fuel track electricity (99 percent), while 63 percent track natural gas. (Appendix Figure 1)



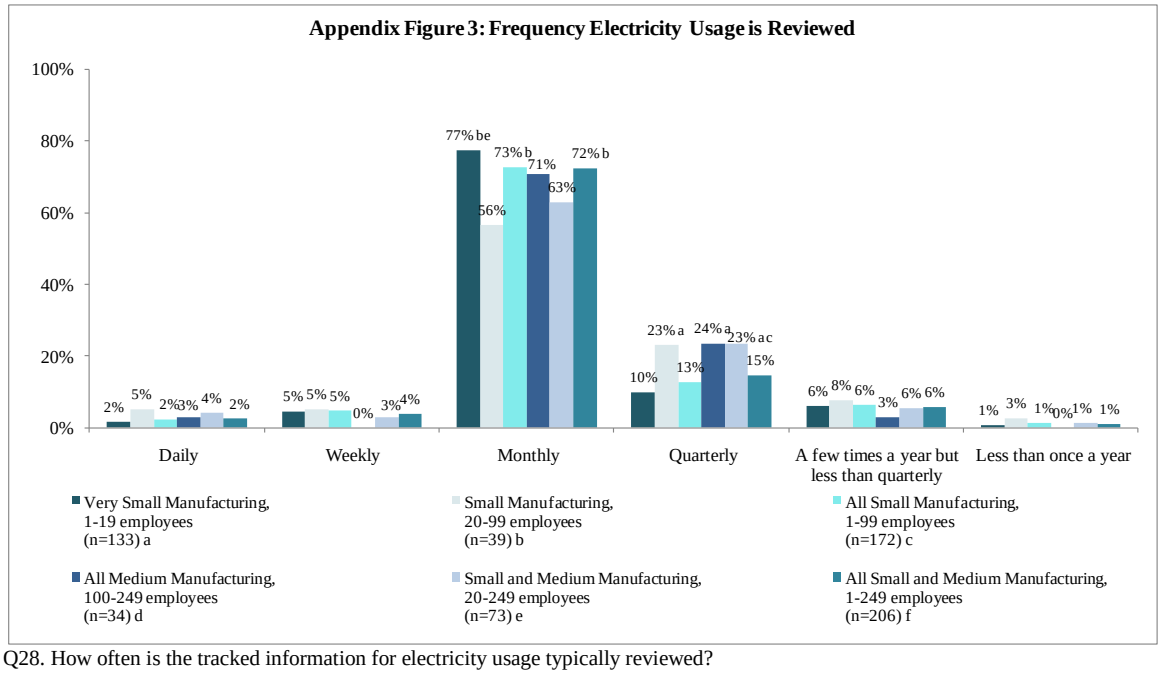
Q26. Does this facility track the usage of electricity, natural gas, or both?

Eighty-eight percent of facilities that report tracking electricity usage state that they use the bill for their tracking method compared to 25 percent that state they use the meter for their electricity usage tracking method. (Appendix Figure 2)



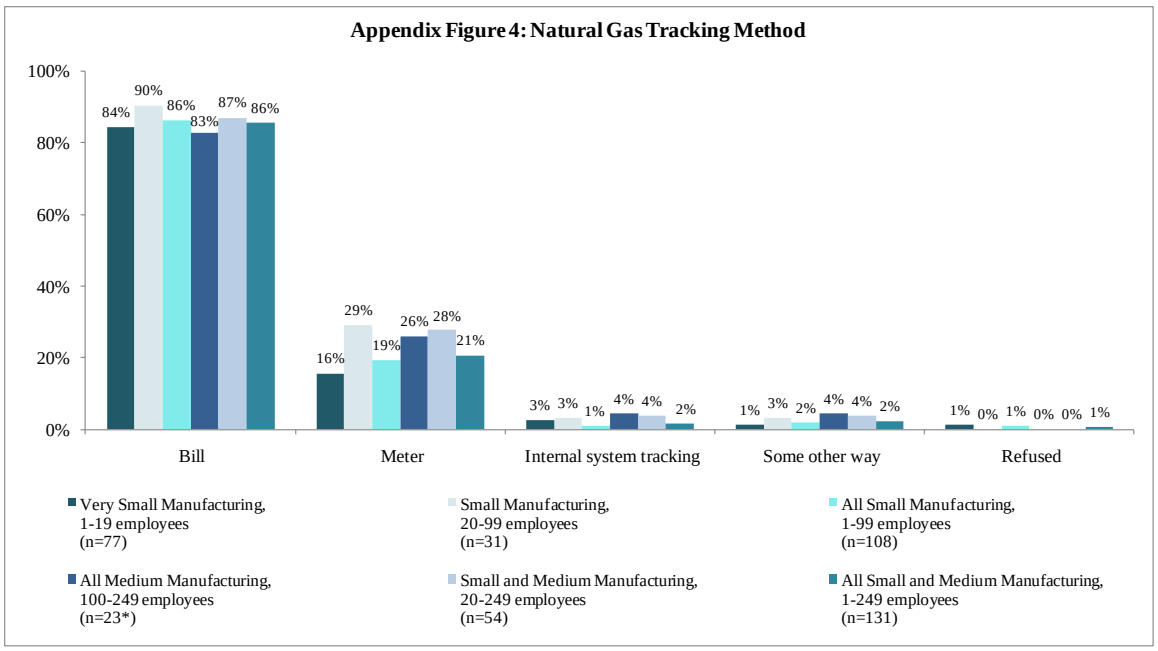
Q27. Is electricity usage tracked via the bill, the meter, or some other way?

Tracked electricity usage is most commonly viewed on a monthly basis for manufacturing facilities at 72 percent. (Appendix Figure 3)



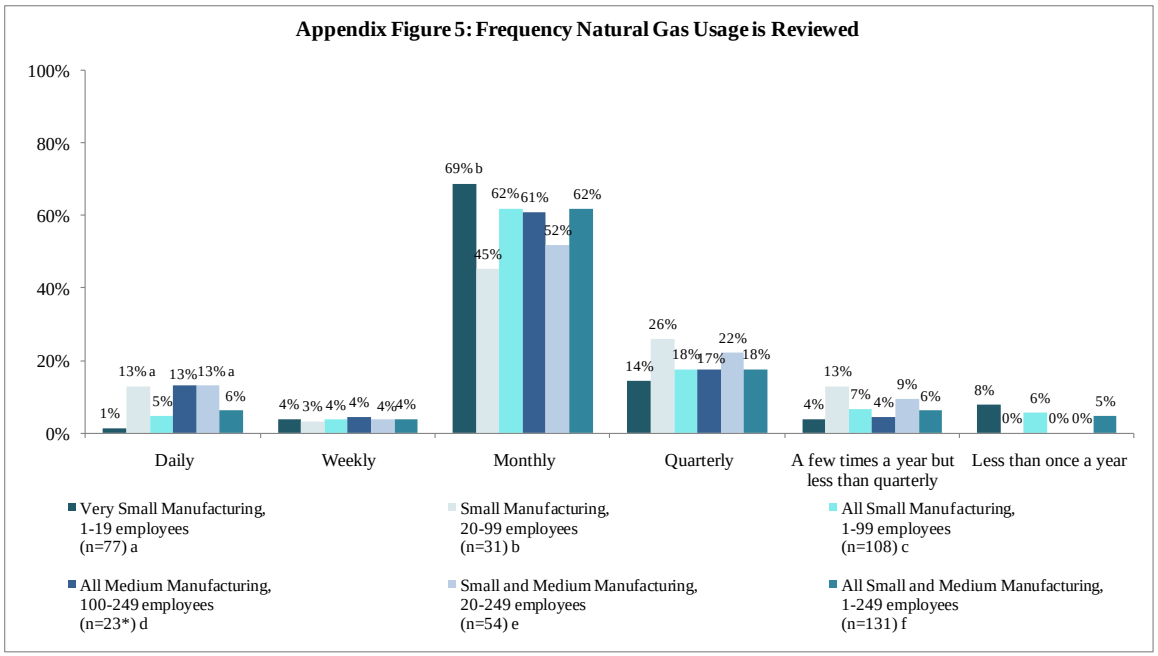
Q28. How often is the tracked information for electricity usage typically reviewed?

Eighty-six percent of respondents that report tracking natural gas usage state that they use the bill for their tracking method compared to 21 percent that state they use the meter for their natural gas usage tracking method. (Appendix Figure 4)



Q29. Is natural gas usage tracked via the bill, the meter, or some other way?

Sixty-two percent of manufacturing facilities review and track natural gas usage on a monthly basis. Thirteen percent of medium facilities track usage on a daily basis, compared to only five percent of all smaller facilities. (Appendix Figure 5)



*Small base size (<30) interpret results with caution.

Q30. How often is the tracked information for natural gas usage typically reviewed?

Appendix C: Additional Tables

Appendix Table 3. How Learned about Strategic Energy Management						
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Self awareness/Always done this/Previous employer	26%	13%	23%	24%	18%	23%
Newsletters/magazines/ Newspaper/TV/General media	9%	13%	10%	12%	13%	10%
A utility company (general)	7%	20%adf	10%	3%	13%	9%
Word of mouth	5%	4%	5%	6%	5%	5%
This survey	2%	2%	2%	-	1%	2%
NEEA (Northwest Energy Efficiency Alliance)	2%	2%	2%	-	1%	2%
Public Utility District (PUD)	1%	-	1%	12%abcf	5%ac	2%
BPA (Bonneville Power Authority)	2%	2%	2%	3%	3%	2%
Idaho Power	-	2%	1%	-	1%	1%
ETO (Energy Trust of Oregon)	1%	4%	2%	3%	4%	2%
An educational facility	2%	9%	4%	-	5%	3%
Workshops/educational seminars	1%	2%	1%	-	1%	1%
Puget Sound Energy	1%	-	1%	3%	1%	1%
Pacific Power	2%	-	2%	-	-	1%
Internet	2%	2%	2%	3%	3%	2%
Contractor	3%	-	2%	3%	1%	2%
A supplier	2%	-	2%	-	-	1%
Rocky Mountain Power	-	-	-	3%ac	1%	1%
Environmental groups (general)	1%	-	1%	-	-	1%
Employer	1%	-	1%	-	-	1%
Consultant	-	-	-	3%ac	1%	1%
DOE (U.S. Department of Energy)	1%	-	1%	3%	1%	1%
NWFPA (Northwest Food Processors Association)	1%	2%	1%	-	1%	1%

Cont'd. Appendix Table 3. How Learned about Strategic Energy Management						
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Engineer/Architect	-	2%	1%	3%a	3%	1%
City	1%	-	1%	-	-	1%
Other	7%	4%	7%	12%	8%	7%
Don't know	20%	15%	19%	9%	13%	17%
Refused	2%	2%	2%	-	1%	1%
Base (n)	***136***	***46***	***182***	***34***	***80***	***216***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q3A. How did you first learn about strategic energy management practices?

Appendix Table 4. Actions Taken in the Past Two Years to Reduce Energy Usage						
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Lighting reduction, turning lights off when not in use	49%	57%	51%	63%	59%	53%
Equipment operation schedule or turning equipment off when not in use	32%	27%	31%	35%	30%	31%
Equipment Operations and Maintenance	25%	38%	28%	35%	37%a	29%
Equipment settings (decreasing temperature, pressure, motor speed)	18%	23%	19%	30%	26%	21%
Insulate pipes or tanks	16%	12%	15%	14%	13%	15%
Upgraded equipment	9%	12%	9%	12%	12%	10%

Cont'd. Appendix Table 4. Actions Taken in the Past Two Years to Reduce Energy Usage						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Leak tag program / leak detection and repair (check for air leaks.)	7%	10%	7%	23%acf	16%ac	10%
Removing equipment	8%	8%	8%	14%	11%	9%
Weatherizing	8%e	2%	7%e	-	1%	6%e
Upgraded lighting	6%	5%	6%	9%	7%	6%
Production floor cleaning practices	4%	5%	4%	5%	5%	4%
General conservation/ awareness	3%	-	2%	5%	2%	3%
Changed heater/furnace	3%	-	2%	-	-	2%
Monitor usage	1%	3%	1%	-	2%	1%
Replaced windows	1%	2%	1%	-	1%	1%
Provided employee education	1%	-	1%	-	-	1%
Control our water usage	1%	-	-	-	-	-
Energy audit	-	2%	-	2%a	2%a	1%
Close/replace doors	1%	-	1%	2%	1%	1%
Use solar energy	-	2%	-	-	1%	-
Use wood heat	1%	-	-	-	-	-
Other	8%	5%	7%	19%abcf	11%	9%
No actions taken in the past two years	12%de	5%	11%de	-	3%	9%de
Don't Know	1%	2%	1%	-	1%	1%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q31. What actions have been taken in the past two years to reduce energy usage at this facility?

Appendix Table 5. Who Provided Technical Assistance for Energy Usage Reduction						
	Very Small Manufacturing 1-19 employees	Small Manufacturing 20-99 employees	All Small Manufacturing 1-99 employees	All Medium Manufacturing 100-249 employees	Small and Medium Manufacturing 20-249 employees	All Small and Medium Manufacturing 1-249 employees
	(a)	(b)	(c)	(d)	(e)	(f)
Contractor	26%e	8%	19%	8%	8%	16%
Equipment distributor	10%	15%	12%	17%	16%	14%
A utility company (general)	10%	23%	15%	17%	20%	16%
A supplier	8%	19%	12%	8%	14%	11%
Consultant	5%	4%	5%	8%	6%	6%
NEEA (Northwest Energy Efficiency Alliance)	5%	-	3%	-	-	2%
ETO (Energy Trust of Oregon)	-	-	-	13%	6%c	3%
Public Utility District (PUD)	3%	4%	3%	4%	4%	3%
Idaho Power	-	4%	2%	-	2%	1%
Puget Sound Energy	-	4%	2%	8%	6%	3%
BPA (Bonneville Power Authority)	3%	-	2%	4%	2%	2%
An energy efficiency company	3%	-	2%	8%	4%	3%
Engineer/Architect	3%	-	2%	4%	2%	2%
Word of mouth	3%	4%	3%	4%	4%	3%
An educational facility	-	4%	2%	-	2%	1%
Pacific Power	-	4%	2%	-	2%	1%
Rocky Mountain Power	3%	-	2%	-	-	1%
PGE	3%	-	2%	-	-	1%
Environmental groups (general)	3%	-	2%	-	-	1%
City	5%	-	3%	-	-	2%
Other	5%	8%	6%	4%	6%	6%
Don't Know	5%	4%	5%	4%	4%	5%
Base (n)	***39***	***26****	***65***	***24****	***50***	***89***

*Small base size (<30) interpret results with caution.
Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q34. Who provided the technical assistance for these actions?

Appendix Table 6. Industry Trade Associations						
	Very Small Manufacturing 1-19 employees	**Small Manufacturing 20-99 employees**	**All Small Manufacturing 1-99 employees**	**All Medium Manufacturing 100-249 employees**	**Small and Medium Manufacturing 20-249 employees**	**All Small and Medium Manufacturing 1-249 employees**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Northwest Food Processors Association	1%	7%a	2%	12%acf	9%acf	4%
Farm Bureau (general)	1%	-	0%	-	-	0%
Wine association (general)	2%	2%	2%	-	1%	2%
Restaurant association (general)	1%	2%	1%	2%	2%	1%
Northwest High Performance Enterprise Consortium	-	2%	0%	5%ac	3%ac	1%
Brewing association (general)	1%	-	1%	-	-	1%
Meat association (general)	1%	-	0%	-	-	0%
Organic association (general)	1%	-	0%	-	-	0%
Manufacturing 21	1%	-	0%	-	-	0%
Another industry association	14%	10%	13%	28%abcf	18%	15%
None	79%de	75%d	78%de	49%	64%	74%de
Don't Know/Refused	-	3%a	1%	5%ac	4%ac	1%
Base (n)	***209***	***60***	***269***	***43***	***103***	***312***

Letters indicate a number is significantly higher at 95 percent confidence than the corresponding segment.
Q51. Does your company belong to any of the following industry associations?

Appendix D: Questionnaire

CATEGORY: Move-In from sample

1 Food processing
2 Dairies
3 Irrigators (farmers/growers)
4 Nurseries
5 Small manufacturing business (100 or fewer employees)
6 Medium manufacturing businesses (101 to 250 employees)

_____break_____

COMPANY: Move-In from sample

[OPEN END]

_____break_____

CITY: Move-In from sample

[OPEN END]

_____break_____

STATE: Move-In from sample

[OPEN END]

_____break_____

SIZE. Move-in number of employees from sample

_____break_____

NOTE: INTRODUCTION / SCREENER

NOTE: THE ABBREVIATED NAME FOR NORTHWEST ENERGY EFFICIENCY ALLIANCE IS "NEEA." THIS IS PRONOUNCED "NEE-ah."

NOTE: Gatekeeper Intro:
Hello, I'm _____ calling on behalf of the Northwest Energy Efficiency Alliance. I need to speak to the person responsible for making decisions about energy use for the (RESTORE: [COMPANY NAME]) facility located in (RESTORE: [CITY], [STATE]).

NOTE: Energy Decision-Maker Intro (once energy decision-maker is reached):
Hello, I'm _____ from MSI calling on behalf of the Northwest Energy Efficiency Alliance, also referred to as NEEA. We're conducting a study to better understand how industrial and agricultural facilities in the Northwest region manage their energy use. Your participation will help NEEA design and deliver energy efficiency tools for businesses like yours in our region.

We are only interested in your experiences and opinions, and at no time will I attempt to sell you anything. This survey will take 10 to 15 minutes to complete; and all responses will be kept confidential.

_____break_____

NOTE: SCREENER

SC1. Are you the person who is responsible for making decisions about energy usage for the facility in (RESTORE: [CITY], [STATE])?

1 Yes
2 No {ASK FOR REFERRAL}
REF

_____break_____

SC2. What is your job title?

1 Chief Executive Officer/President
2 Senior Vice President/Vice President
3 Energy Manager
4 Plant Manager
5 Senior Engineer
6 Other [SPECIFY:S]
DK
REF

_____break_____

SC3. How involved are you in energy management for this facility, including any energy efficiency or energy reduction efforts?

1 Very involved
2 Somewhat involved
3 Not very involved, or
4 Not at all involved
DK
REF

{IF SC3=3, 4, DK, REF, TERMINATE: 101}

_____break_____

SC4. How would you describe the facility your business occupies at this location? *(TECHNOTE: Ask as open end, do not read codes. ACCCEPT 1 MENTION)*

1 A food processing facility or plant
2 A dairy
3 A nursery or greenhouse facility
4 An agricultural farm or other type of crop growing operation
5 Another type of manufacturing facility or plant

7 A metal manufacturing facility
8 A fertilizer manufacturing facility
6 Something else [SPECIFY:S]
DK
REF

{IF SC4=6, DK, REF, TERMINATE:102 }

_____break_____

{IF SC4=3 or 4 ASK SC8; OTHERWISE, SKIP TO SC5}

SC8. Do you use irrigation equipment at this facility?

1 Yes
2 No
DK
REF

{IF SC8=2, DK, REF AND SC4=4, TERMINATE:108}

_____break_____

SC5. About how many full and part time employees work at this facility?

[RECORD NUMBER OF EMPLOYEES 1-9998]
9999 10,000 or more
DK
REF

{IF SC4=5 AND SC5=251 THRU 9999, TERMINATE: 103}

{IF SC5=DK, REF, TERMINATE: 104}

_____break_____

SC6. Does your company have more than one facility?

1 Yes
2 No
DK
REF

{IF SC6=DK, REF, TERMINATE:105}

_____break_____

{IF SC6=2 SET SC7=SC5}

SC7. In total, about how many employees does your company currently have across <u>all</u> its sites and locations combined? Your best guess is fine.

[RECORD NUMBER OF EMPLOYEES 1-9998]
9999 10,000 or more
DK

REF

{IF SC4=5 AND SC7=251 THRU 9999, TERMINATE: 106}

{IF SC7=DK, REF, TERMINATE:107}

{IF SC4=5 AND SC7=1 THRU 50 TERMINATE: 109}

_____break_____

CELL. SET CELL

1 {Set if SC4=1} Food processing
2 {Set if SC4=2} Dairies
3 {Set if SC4=4} Irrigators (farmers/growers)
4 {Set if SC4=3} Nurseries
5 {Set if (SC4=5 OR SC4=7 OR SC4=8) AND SC7=1 THRU 100} Small manufacturing business (100 or fewer employees)
6 {Set if (SC4=5 OR SC4=7 OR SC4=8) AND SC7=101 THRU 250} Medium manufacturing businesses (101 to 250 employees)

_____break_____

TOP THREE CONCERNS

Q1. What are your company's top three concerns for this facility? *(Probe for specifics, probe for three mentions)*

[OPEN END:L]

_____break_____

FAMILIARITY WITH ENERGY MANAGEMENT, SEM

Q2. How familiar is this facility with energy efficient operating practices, such as turning equipment or lights off when not in use, maintaining equipment so that it runs efficiently, checking for air leaks, etc.? Are you… *(Read list)*

1 Very familiar
2 Somewhat familiar
3 Not very familiar
4 Not at all familiar
DK
REF

_____break_____

{IF Q2=1 THRU 3, ASK Q2A; OTHERWISE, SKIP TO Q3}

Q2A. When did this facility first learn about energy efficient operating practices, for example turning equipment or lights off when not in use, maintaining equipment so that it runs efficiently, checking for air leaks, etc?

1 Less than 1 year ago
2 1 to less than 2 years ago
3 3 to less than 4 years ago
4 More than 4 years ago
DK
REF

_____break_____

Q3. Strategic Energy Management, or S-E-M, is a system of practices that leads to reliable and persistent energy savings. At a minimum, these practices include setting a goal related to energy, dedication of resources by top leadership to achieve the goal, ensuring staff regularly reports progress toward the goal to top management.

How familiar are you with Strategic Energy Management practices? *(READ LIST)*

1 Very familiar
2 Somewhat familiar
3 Not very familiar
4 Not at all familiar
DK
REF

_____break_____

{IF Q3=1 THRU 3, ASK Q3A; OTHERWISE, SKIP TO Q4}

Q3A. How did you first learn about strategic energy management practices?

(ASK AS OPEN END. ACCEPT UP TO 8 MENTIONS. IF A PERSON'S NAME IS MENTIONED, PROBE FOR COMPANY AND ROLE. IF RESPONDENT SAYS, "A UTILITY, A STATE OR FEDERAL AGENCY, A TRADE CONFERENCE," PROBE FOR THE SPECIFIC ONE, AND INPUT IN OTHER SPECIFY.)

1 NEEA (Northwest Energy Efficiency Alliance)
2 BPA (Bonneville Power Authority)
3 ETO (Energy Trust of Oregon)
4 NWFPA (Northwest Food Processors Association)
5 Oregon Association of Nurseries
6 Equipment distributor
7 DOE (U.S. Department of Energy)
8 Other [OTHER: S]
DK
REF

_____break_____

DESIGN: ROW GRID, RANDOMIZE Q4-Q6

For each of the energy management systems I name, please tell me whether you are very familiar, somewhat familiar, not very familiar, or not at all familiar with the program. How familiar are you with…*(READ LIST)*?

1 Very familiar
2 Somewhat familiar
3 Not very familiar
4 Not at all familiar
DK
REF

Q4. Continuous Energy Improvement or C-E-I, through NEEA (Northwest Energy Efficiency Alliance)

Q5. Energy Smart Industrial, through BPA (Bonneville Power Authority) and public utilities

Q6. {SHOW IF STATE=OR} Industrial Energy Improvement, through ETO (Energy Trust of Oregon)

_____break_____

IMPORTANCE OF ENERGY MANAGEMENT PRACTICES

DESIGN: ROW GRID, RANDOMIZE Q7-Q13

For each item I read, please tell me whether it is very important, somewhat important, not very important or not at all important to your company.

How important is…*(READ LIST)*?

1 Very important
2 Somewhat important
3 Not very important
4 Not at all important
DK
REF

Q7. Having specific energy reduction goals

Q8. Having a dedicated "energy manager" or "energy champion" responsible for energy reduction practices

Q8. Reporting energy consumption to top management

Q9. Reporting reduced energy use to top management

Q10. Providing energy management training to staff

Q11. Actively tracking energy usage

Q12. Investing in energy efficient devices and equipment

Q13. Replacing worn out equipment with energy efficient equipment

_____break_____

GOAL SETTING

Q14. Does your company set energy reduction goals for this facility?

1 Yes
2 No
DK
REF

_____break_____

{IF Q14=2 OR DK/REF, ASK Q14A; OTHERWISE, SKIP TO FILTER ABOVE Q15}

Q14A. Will your facility definitely, probably, probably not, or definitely not set energy reduction goals for this facility within the next two years?

1 Definitely will
2 Probably will
3 Probably will not
4 Definitely will not
DK
REF

_____break_____

{IF Q14=1, ASK Q15; OTHERWISE, SKIP TO Q23}

Q15. Are these goals set in terms of <u>an overall reduction in energy usage,</u> or in terms of <u>"energy intensity"</u> which is the amount of energy used per unit of production?

1 Overall reduction in energy usage
2 Reduction in "energy intensity"
DK
REF

_____break_____

Q16. In terms of a percentage reduction per year, what is your facility's specific goal for {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction?

[RECORD NUMBER 1-99] % per year
DK
REF

_____break_____

Q17. Approximately how long ago were these goals set?

1 Less than 1 year ago
2 1 to less than 2 years ago
3 3 to less than 4 years ago
4 More than 4 years ago
DK
REF

_____break_____

Q18. What organizations, if any, influenced the decision to set {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals?

(ASK AS OPEN END. ACCEPT UP TO 8 MENTIONS. IF A PERSON'S NAME IS MENTIONED, PROBE FOR COMPANY AND ROLE. IF RESPONDENT SAYS, "A UTILITY, A STATE OR FEDERAL AGENCY, A TRADE CONFERENCE," PROBE FOR THE SPECIFIC ONE, AND INPUT IN OTHER SPECIFY.)

1 NEEA (Northwest Energy Efficiency Alliance)
2 BPA (Bonneville Power Authority)
3 ETO (Energy Trust of Oregon)
4 NWFPA (Northwest Food Processors Association)
5 Oregon Association of Nurseries
6 Equipment distributor
7 DOE (U.S. Department of Energy)
8 Other [OTHER: S]
DK
REF

_____break_____

SUPPORT FROM COMPANY LEADERSHIP

Q19. Would you describe the level of management support for your facility's {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals as…*(READ LIST)*?

1 Very supportive
2 Somewhat supportive
3 Not very supportive
4 Not at all supportive
DK
REF

_____break_____

{IF Q19=1-4, ASK Q20; OTHERWISE SKIP TO Q21}

Q20. What factors contributed to your of rating management support for your facility's {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals as [RESTORE Q19]. *(Probe for specifics)*

[OPEN END:L]

_____break_____

Q21. Does your facility have a full-time employee dedicated to implementing the facility's {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals?

1 Yes
2 No
DK
REF

_____break_____

Q22. Is someone at your facility is a designated "energy manager" or an "energy champion" who is charged with implementing the {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals?

1 Yes
2 No
DK
REF

_____break_____

{ASK Q22A IF Q14=1 OTHERWISE SKIP TO Q23}

Q22A. Is progress toward achieving the {SHOW IF Q15=1 OR DK/REF: energy} {SHOW IF Q15=2: energy intensity} reduction goals at your facility regularly reported to the top leadership of your company?

1 Yes
2 No
DK
REF

_____break_____

{ASK ALL}

Q23. Does staff at your facility receive training on energy management?

1 Yes
2 No
DK
REF

_____break_____

{IF Q23=1, ASK Q24; OTHERWISE SKIP TO Q25}

Q24. Which of the following topics are typically included in energy management training for staff at your facility? (*READ LIST. ACCEPT UP TO 8 MENTIONS.)*

[RANDOMIZE CODES 1-7]

1 Purchasing efficient equipment
2 Efficient operation of equipment
3 Tracking energy use
4 Setting energy reduction goals
5 Writing an energy management plan
6 Available technical resources (where to go for help)
7 Availability of financial incentives for projects
8 Any others [OTHER: S]
DK
REF

_____break_____

TRACKING OF ENERGY USAGE

Q25. Is energy usage regularly tracked at this facility?

1 Yes
2 No
DK
REF

_____break_____

Q25A. Is energy usage at your facility regularly reported to the top leadership of your company?

1 Yes
2 No
DK
REF

_____break_____

{IF Q25=1 ASK Q26; OTHERWISE SKIP TO Q31}

Q26. Does this facility track the usage of electricity, natural gas, or both? *(ACCEPT UP TO 2 MENTIONS)*

1 Electricity only
2 Natural gas only
3 Both electricity and natural gas
4 Other fuel [OTHER: S]

DK
REF

_____break_____

{IF Q26=1 OR 3, ASK Q27; OTHERWISE SKIP TO FILTER ABOVE Q29}

Q27. Is electricity usage tracked via the bill, the meter, or some other way? *(ACCEPT UP TO 3 MENTIONS)*

1 Bill
2 Meter
3 Some other way [OTHER: S]
DK
REF

_____break_____

Q28. How often is the tracked information for electricity usage typically reviewed?

1 Daily
2 Weekly
3 Monthly
4 Quarterly
5 A few times a year but less than quarterly
6 Less than once a year
7 Never
DK
REF

_____break_____

{IF Q26=2 OR 3, ASK Q29; OTHERWISE SKIP TO Q31}

Q29. Is natural gas usage tracked via the bill, the meter, or some other way? *(ACCEPT UP TO 3 MENTIONS)*

1 Bill
2 Meter
3 Some other way [OTHER: S]
DK
REF

_____break_____

Q30. How often is the tracked information for natural gas usage typically reviewed?

1 Daily
2 Weekly
3 Monthly
4 Quarterly

5 A few times a year but less than quarterly
6 Less than once a year
7 Never
DK
REF

_____break_____

ENERGY MANAGEMENT BEHAVIOR – OPERATIONS AND MAINTENANCE ACTIVITIES

Q31. Now let's turn to your facility's efforts to save energy.
What actions have been taken in the past two years to reduce energy usage at this facility? *(ASK AS OPEN END, ACCEPT 9 MENTIONS)*

[RANDOMIZE CODES 1-8]

1 Leak tag program / leak detection and repair (check for air leaks.)
2 Lighting reduction, turning lights off when not in use
3 Equipment operation schedule or turning equipment off when not in use
4 Equipment settings (decreasing temperature, pressure, motor speed)
5 Removing equipment
6 Equipment Operations and Maintenance
7 Production floor cleaning practices
8 Insulate pipes or tanks
9 Or something else [OTHER: S]
10 No actions taken in the past two years [VOL]
DK
REF

_____break_____

{IF Q31=1-9, ASK Q32; OTHERWISE, SKIP TO Q35}

Q32. Has your facility observed energy savings resulting from any of these actions?

1 Yes
2 No
DK
REF

_____break_____

Q33. Did your facility receive technical assistance for any of these actions?

1 Yes
2 No
DK
REF

_____break_____

{IF Q33=1 ASK Q34, OTHERWISE SKIP TO FILTER ABOVE Q35}

Q34. Who provided the technical assistance for these actions?

(ASK AS OPEN END. ACCEPT UP TO 8 MENTIONS. IF A PERSON'S NAME IS MENTIONED, PROBE FOR COMPANY AND ROLE. IF RESPONDENT SAYS, "A UTILITY, A STATE OR FEDERAL AGENCY, A TRADE CONFERENCE," PROBE FOR THE SPECIFIC ONE, AND INPUT IN OTHER SPECIFY.)

1 NEEA (Northwest Energy Efficiency Alliance)
2 BPA (Bonneville Power Authority)
3 ETO (Energy Trust of Oregon)
4 NWFPA (Northwest Food Processors Association)
5 Oregon Association of Nurseries
6 Equipment distributor
7 DOE (U.S. Department of Energy)
8 Other [OTHER: S]
DK
REF

_____break_____

{IF Q31=10, ASK Q35; OTHERWISE, SKIP TO Q36}

Q35. What were the barriers to implementing actions to reduce energy usage at your facility?
(ASK AS OPEN END. ALLOW UP TO 6 RESPONSES.)

1 Too expensive to implement
2 Expensive to maintain
3 Do not have technical skills to implement
4 Cannot get approval from management
5 Other priorities demand resources
6 Other [OTHER: S]
DK
REF

_____break_____

ENERGY MANAGEMENT BEHAVIOR – CAPITAL IMPROVEMENTS

Q36. Has your facility installed energy efficient equipment during the past two years?

1 Yes
2 No
DK
REF

_____break_____

{IF Q36=1, ASK Q37; OTHERWISE, SKIP TO Q43}

Q37. Is your facility currently in the process of installing energy efficient equipment?

1 Yes
2 No
DK
REF

_____break_____

Q38. What information does your facility rely upon to tell if the equipment that is purchased is energy efficient? *(ASK AS OPEN END. ALLOW UP TO 5 RESPONSES.)*

1 Efficiency rating or label of equipment
2 Equipment dealer said it was efficient
3 Personal experience
4 Met utility rebate requirements
5 Other [OTHER: S]
DK
REF

_____break_____

Q39. Has your facility specifically quantified the amount of energy savings from these projects?

1 Yes
2 No
DK
REF

_____break_____

Q40. What factors motivated your facility to install energy efficient equipment? *(ASK AS OPEN END. ALLOW UP TO 5 RESPONSES.)*

1 Save energy and money
2 The equipment distributor or manufacturer recommended it
3 Recommended in an energy audit
4 Tax incentives or rebates
5 Other [OTHER: S]
DK
REF

_____break_____

Q41. Which of the following financial incentives, if any, did your company receive for installing energy efficient equipment at this facility? *(READ CODES 1 THRU 4. ALLOW UP TO 4 RESPONSES.)*

1 Federal tax credit
2 State tax credit
3 Rebate or incentive from a utility, other organization or institution
4 Or something else [OTHER: S]
5 None [VOL]
DK
REF

_____break_____

{IF Q41=3, ASK Q42; OTHERWISE, SKIP TO Q43}

Q42. Which utility, organization or institution provided the incentive, tax credit, or rebate?
(ASK AS OPEN END. ALLOW UP TO 5 RESPONSES.)

1 BPA (Bonneville Power Authority)
2 ETO (Energy Trust of Oregon)
3 Utility (*Probe for specific utility)*
4 State or Federal Government
5 Other [OTHER: S]
DK
REF

_____break_____

ENERGY EFFICIENT EQUIPMENT

Q43. Does your facility have a specific policy that says you should replace worn out equipment with "high efficiency" equipment – that is, equipment that is more efficient than what is considered standard efficiency or code at the time of purchase?

1 Yes
2 No
DK
REF

_____break_____

Q44. Is your company aware of energy efficient equipment for the type of work done at this facility?

1 Yes
2 No
DK
REF

_____break_____

{IF Q44=1, ASK Q45; OTHERWISE, SKIP TO Q46}

Q45. Has your company been aware of energy efficient equipment for the type of work done at this facility for*…(READ CODES 1 THRU 4)*?

1 Less than 1 year
2 1 to less than 3 years ago
3 3 to less than 4 years ago, or
4 More than 4 years ago
DK
REF

_____break_____

Q46. Do your equipment dealers emphasize energy efficiency when explaining your equipment options*…(READ CODES 1 THRU 3)*?

1 Always
2 Sometimes, or
3 Never
DK
REF

_____break_____

ISO/LEAN

Q47. Is this facility ISO-9000 certified for quality management?

1 Yes
2 No
DK
REF

_____break_____

Q48. Is this facility ISO-14000 certified for environmental management?

1 Yes
2 No
DK
REF

_____break_____

Q49. Does this facility practice Lean manufacturing?

1 Yes
2 No
DK
REF

_____break_____

{IF SC6=1, ASK Q50; OTHERWISE SKIP TO Q51}

Q50. Are decisions regarding implementation of energy management and energy efficiency programs usually made at the individual facility level, or at a corporate or company-wide level?

1 At the facility level
2 At the corporate or company-wide level
DK
REF

_____break_____

INDUSTRY ASSOCIATIONS

Q51. Does your company belong to any of the following industry associations? (*READ CODES 1 THRU 6)*

[RANDOMIZE CODES 1-5]

1 {SHOW IF CELL=1} Northwest Food Processors Association
2 {SHOW IF CELL=4} Oregon Association of Nurseries
3 Northwest High Performance Enterprise Consortium
4 Tech America
5 Manufacturing 21
6 Another industry association [OTHER: S]
7 None
DK
REF

_____break_____

FAMILIARITY WITH NEEA

Q52. How familiar are you with NEEA and its initiatives? Would you say that you are…*(READ CODES 1-4)*?

1 Very familiar
2 Somewhat familiar
3 Not very familiar
4 Not at all familiar
DK

_____break_____

FIRMOGRAPHICS

These last few questions are for classification purposes only.

F1. Is this facility best described as:
(READ CODES 1-2)

1 A free standing building or facility
2 Occupied space that is part of a larger building, industrial park, or office complex
DK
REF

_____break_____

F2. Does your organization own or lease this facility?

1 Own
2 Lease
DK
REF

_____break_____

For this facility, approximately how much is spent annually on:

[RECORD $ AMOUNT: $0 - $100,000]
100001 More than $100,000
DK
REF

F3A. Electricity
F3B. Natural Gas
F3C. Propane / Liquefied Petroleum Gas
F3D. Diesel
F3E. Gasoline
F3F. Coal / Coke

_____break_____

F4. About what proportion of your total operating costs for this facility (not including labor costs) would you say are accounted for by your total energy costs? *(READ CODES 1-5)*

1 Less than 1%
2 1% to less than 5%
3 5% to less than10%
4 10% to less than 20%
5 More than 20%
DK
REF

_____break_____

{If SC6=1, ASK F5; OTHERWISE SKIP TO F8}

F5. In total, how many facilities does your company have? If you are unsure, your best guess is fine.

[RECORD NUMBER OF FACILITIES 1-999]
DK
REF

_____break_____

{IF F5=2 THRU 999 ASK F5A THRU F6D; OTHERWISE SKIP TO F8}

F5A. In what state is your facility headquarters located?

[OPEN END RECORD STATE]

_____break_____

{IF F5=2 THRU 999 ASK F6A THRU F6D; OTHERWISE SKIP TO F8}

How many facilities do you have in…

[RECORD NUMBER OF FACILITIES 0-999]
DK
REF

F6A. Washington
F6B. Oregon
F6C. Idaho
F6D. Montana

_____break_____

How many employees work at the facility(s) in…

[RECORD NUMBER OF EMPLOYEES 0-999]
DK
REF

F7A. {SHOW IF F6A=1 THRU 999} Washington
F7B. {SHOW IF F6B=1 THRU 999} Oregon
F7C. {SHOW IF F6C=1 THRU 999} Idaho
F7D. {SHOW IF F6D=1 THRU 999} Montana

_____break_____

F8. Approximately what were the TOTAL REVENUES for your company in 2010?

(READ CODES 1–7)

1 Under $100,000
2 $100,000 to less than $250,000
3 $250,000 to less than $500,000
4 $500,000 to less than $1 million
5 $1 million to less than $5 million
6 $5 million to less than $10 million
7 $10 million or more
DK
REF

_____break_____

{If SC6=1, ASK F9}

F9. Approximately what percentage of your company's total revenues were accounted for by this facility?

1 Less than 1%
2 1% to less than 5%
3 5% to less than10%
4 10% to less than 20%
5 More than 20%
DK
REF

_____break_____

These are all the questions I have. Thank you for your participation.

Appendix E: Verbatim Responses to Open End Questions[1]

Q1. What are your company's top three concerns for this facility?

Small Manufacturing (fewer than 100 employees)

Energy stability. /SPE/ Pricing. /WE/ Competent employees.

Heating the building with less energy. /WE/ No.

I don't have any concerns/any/no, not that

The electricity prices are going up. /WE/ No.

Making more money. Selling the business.

First, this is a leased facility and I hope that we can maintain our fixed costs. If people don't have jobs and purchase things, we just sit there. Second, the quality of our products is very important. Companies have said, "Come on, Wal-Mart. Why don't you make everything." Third, we've all been turned into customers of each other. Large corporations have taken the resources and titles and they feel like they own everything. When profit becomes the biggest concern, they reduce the quality of their products. There are ways to bring free energy into our businesses. People are making the connection that we have the resources. We need to start recognizing that when we are not all able treat things properly, the suppression of great energy ideas cannot continue.

Profits. /WE/ Efficiencies. /WE/ Sales.

Keeping costs down. Bringing in income. Manufacturing. /WE/ Staying in business. /WE/ No.

Ventilation. /SPE/ Getting fresh air into the area.

My first concern is safety. Second, the environment. Third, storage. /SPE/ The physical safety of my working procedures and equipment. /SPE/ I use toxic products and I need to handle correctly with protective clothing and stuff. /SPE/ I like to keep my inventory of paints and lacquers in a fireproof cabinet. I get my wood and my raw materials out of the shop. They are stored in a separate room that I can close off.

Marketing. The website is a big concern. Production. /WE/ No, not really.

Customers or the lack of them. The economy. We have shut down the production line. We don't have energy concerns at this point.

The cost of gas. The cost of fruit.

Getting rid of the leak in my greenhouse. /WE/ No.

We are not-for-profit, so raising money to keep us going is important. /WE/ Making sure that all of our riders are safe. /WE/ Serving the community as best we can.

Our biggest concern is our budget. There are so many hard questions this early.

Location. Lighting. /WE/ Efficiency in heating.

The expense. /SPE/ It costs so much as the weather changes. Electricity. /SPE/ Just that it is very expensive. /WE/ Structural things in case of extreme weather.

Making sure the roof doesn't leak. Having as little air loss as I can. Somebody breaking in.

Paying our mortgage. Make the best wine we can. Selling as much of our wine onsite as possible.

Getting more business. /WE/ Correcting our lighting, but that's being done by the utility. /WE/ No.

The sheer size of the bill. /WE/ Shutting off lights that get left on quite a bit. /WE/ No.

Our top three concerns are profitability, customer satisfaction, and anything after that.

The property taxes will go up. /WE/ My rent will go up. Other than that, there are no concerns.

Production.

Profitability. Health coverage. Being able to afford additional employees.

Keeping warm and keeping enough income coming in. /WE/ No.

First is probably our growth potential. Second, profitability. Third, longevity. /SPE/ The ability to add on more equipment and employees and grow our revenue. /SPE/ The ability to control costs. /SPE/ Satisfying the regulatory requirements where I'm located.

Making money. /WE/ No.

More business. The integrity of the building. Better lighting and heating.

The economy, profits and recreation.

Overhead costs and labor costs.

Quality marketing and sales to keep things going.

Combined accounts by the REA. Getting the rates stabilized. Minimizing electricity and using less heat.

I have no concerns. /ANY/ No.

Keeping people employed. Putting out quality products.

Right now, getting enough orders. Second, the environmental regulations that keep hammering us. Some of that is energy with the greenhouse gas stuff. I guess the third would be finding quality people to work at the facility. /SPE/ That is good for now.

Productivity. /WE/ Efficiency. /WE/ Continued work.

The price of electricity. The quality of the electricity. We constantly have power surges in our area. They take out some of our electronic equipment. /WE/ No.

Making money. Keeping people employed. Safety.

Power usage. Cleanliness. Upgrades whenever possible.

Manufacturing and selling early American brooms.

First, space. Second, flooding. Third, electricity costs.

Energy efficiency. Safety. Water usage.

Making money. Producing a good product. Safety.

Profitability, job security and longevity.

Making money and keeping the doors open.

Security. Rent and lease payments,. Visibility. /WE/ No.

One concern is that our power bill is extravagant. It's our cash flow. Second, production, efficiency and quality. Third, we are in the USDA. In our world, we are concerned about sanitation. This is a deli. We are the only plant in Montana where people can bring in their livestock and walk out with beef jerky sticks. Without power and water we don't have a plant, period.

Productivity, profit, and efficiency.

Energy costs. /SPE/ Keeping our power and gas bills down. /WE/ Building insulation. /WE/ No.

Heating and cooling. That is about it. /SPE/ Nothing.

Profit, costs, and production efficiency.

Affording a better one.

Production, like getting stuff out on time.

Our workload. Rate increases. Material costs.

We need good space. /WE/ No.

Sales, efficiency and the production of a good product.

Economic concerns. /WE/ No.

Machinery repairs and maintenance. /WE/ No.

Sales. /WE/ Reducing the costs.

Production, customer service, and whether the workers are happy.

Maintenance. /WE/ Safety. /WE/ Logistics. /SPE/ For the logistics, we mean moving materials from building to building.

Increased fuel costs. /WE/ Increased energy costs across the board. Stuff we can't control, like natural gas, electricity, and diesel.

There are only two major areas. One is that we run a hot water boiler for our manufacturing process, and it is about 10 years old. There might be more energy ways to do it. Second, we are a large commercial facility and we have equipment that is not very energy-efficient. Replacing the equipment. Those are the two areas I would focus on from an energy standpoint. /WE/ No.

Keeping jobs and getting jobs. /WE/ No.

The housing market, timber availability and shipping costs.

Saving energy. /WE/ No.

The price of energy. Clean energy.

Number one, our economy. Number two would probably be the government regulations. I am not sure what to put for number three.

Staying busy. Keeping the doors open.

Having employees. Weather. The price. The cost of the chemicals we have to use. Getting the spray rotation right. Hoping the equipment operates correctly and doesn't break down.

Energy, because it's a three-phase line, which is the most efficient. /WE/ Changing to more energy-efficient lighting and gas, and an electric water heater. /WE/ No.

Staying in business. Maintaining it and keeping it running. Food safety.

Overhead costs.

Consuming less power. /WE/ More business. /WE/ Having a safe environment.

Quality products. /SPE/ We do work for farmers and people who hunt. We're not a food manufacturing company. I go the farmer, I bring it here, and I process it. Ways to put them out more quickly. /SPE/ Everything that I set up. It all goes one way with no backtracking. Everything has to have a good flow to it. Keeping our costs down. /SPE/ Equipment costs. The things we run. Maintenance. /WE/ Nothing else.

Electricity usage. /WE/ The ability to heat the building. /WE/ Using the facility to its fullest efficiency.

Production, efficiency and overhead costs.

Energy efficiency.

The lack of space. Parking inaccessibility.

First, energy prices and costs. Second, raw material costs. Third, labor costs. /SPE/ Electrical energy costs. We're a big electricity user. /SPE/ Our aluminum oxide and petroleum coke. /SPE/ Our production and workers' wages.

Energy, taxes and the prices for energy.

Health.

Making money. /WE/ Staying afloat. /WE/ Customer service is number one. /WE/ Conserving our output as far as saving money. /WE/ No.

Sales. Probably our operating expenses and freight costs.

We're concerned about the hike in propane prices here, and usage. /WE/ No. Our utility bill is our highest cost. We can't think of any way to make it smaller. /WE/ No.

Energy efficiency due to the construction of the building. /WE/ That's it.

The amount of energy used to produce our product, and the cost factor. The way they calculate our energy use. /WE/ That's it.

Economy. /WE/ Advertising costs. /WE/ The use of energy.

Having enough office and manufacturing space. /WE/ No.

Energy efficiency. We use 220 volts as often as we can. Disposal of waste. The scraps we donate to our neighbors.

Heat loss. /WE/ Personnel. /WE/ Sales and marketing. /WE/ No.

First, the economic recovery, at least in our market share. Second, the availability of raw materials. /SPE/ Logs. Third, running and operating safely. /SPE/ No one getting hurt.

Energy costs. /WE/ No.

Politics. If we keep going in the same political direction we are going in now, we are in deep trouble. /SPE/ Over-regulation. An all-encompassing government is literally killing my customers in the construction industry and the recovery industry. /WE/ If we could get rid of 50 percent of the government, we would all be fine. /WE/ No.

Natural gas pricing. Electricity. That's it.

Making money. /WE/ Surviving. /WE/ Being efficient.

The roof leaks in the spring. /WE/ No.

We are moving because it's too expensive here. /WE/ No, just the cost.

The lack of business. That's it.

Money. /SPE/ We would like to put in three-phase power underground. This would be more efficient. We are getting the power grid put together. It will cost us to do that. By the time we are done, it will cost us $100,000. /WE/ We also want to put in underground wires. I would like to put in solar panels. The buildings are old. This is a small farm. We are trying to find out what options are available. We are looking at a plan. /WE/ I am more than the janitor. /WE/ That covers it.

Money.

The lack of job availability. A lower lease rate. People paying faster.

Heating efficiency. The kilowatt-hours of the running time for our tools. The electricity bill. /WE/ No.

The fuel prices are going up. The electrical costs. The supply costs are going up as well.

Expansion. That is probably one thing. I don't know that we have any other concerns. /WE/ No.

Trying to keep the electric bill down. The water bill. Paying for fuel to deliver it with. /WE/ No.

For energy. /SPE/ We have a production area we heat with gas heaters, and that's our biggest consumer. /WE/ Nothing else I can think of.

My machine tool uses a vacuum pump so I consume a fair amount of electricity doing that. There's not much I can do to fix that. I've already done what I can there. I recycle the waste heat from that to heat the building. In the summertime, I exhaust it outside. In the winter, I exhaust it inside. /WE/ I use a little bit of electricity to run electric motors and that's it.

Having adequate space. Having adequate power. Freight pickup and delivery.

I'm not really concerned. It's not on my radar screen.

The health and welfare of my family. I cut costs where I can. The environment.

Right now there are none. / Better systems to drain the water and ice from the roof. /WE/ Maybe better lighting inside. /WE/ That's probably about it.

Profitability, efficiency and productivity. /SPE/ We need to make more money. We want to produce the product faster so we make more money. /WE/ No.

Heating and cooling, primarily heating. /SPE/ The building is not insulated. /WE/ The landlord's an [EXPLETIVE]. With the heat, it's cold in the winter. For the nature of my work, being able to heat the space. It is better for the type of work I do. /WE/ That's it.

Finishing our main facility. The appearance and productivity of the facility.

Electricity, gas and water. /SPE/ Trying no to waste them.

Heating, water and waste.

The cost of operation. /WE/ Maintaining product quality. /WE/ Profits.

Water quality. Rodent control and equipment maintenance. /WE/ No.

Making money. Making a good product. Keeping our employees safe and happy.

Sales, of course. /WE/ The cost of supplies, which includes facilities. /WE/ the rest depends on how busy we are.

Sustainability. Annual revenue. /WE/ No.

Quality, the efficiency of our production and keeping costs down.

I don't know that I have concerns. /WE/ If I were to design a plan, I would have radiant heat and solar panels. I would try to restrict the usage of energy.

Trying to make my rent.

The manufacturing of ice and the delivery of ice.

First, getting capital to operate. Second, getting the government to cooperate. Having supplies for materials.

Well, having work and getting paid. /WE/ That's it.

Energy efficiency. /SPE/ The insulation was not done very well. We lose a lot of heat from the ceiling. /WE/ No.

Insulation. Computers. Energy efficiency. Three-phase power efficiency.

Leaks, earthquakes and fires.

Well, we have machines that do a lot of lathing. We need to stay in control of that. Heating and cooling. Improving the ways. Using extra foam to insulate the doors. We have done things to insulate the building.

Our top three concerns are security, accessibility and privacy.

I don't really have any right now.

Power consumption. Lighting. Quality is a big thing, too. We don't want equipment. /WE/ Reliability. /SPE/ We have power when we need it. /WE/ Obviously, costs are an issue. /SPE/ Electrical costs. /WE/ No.

Production, quality, and profitability.

Size. Our size is our main concern.

A quality product. /WE/ Profitability. /WE/ Energy efficiency.

The price of energy. /WE/ Consumption of energy like gas, propane fuel, oil and electricity. /WE/ That's all.

Staying in business. Running it wisely. Helping the community as well.

Energy-wise? I am not sure. It would be the heating, proper lighting, and keeping our machines in good shape.

Health and safety. Cost containment and cash flow.

First, product quality. Second, safety. Third, energy use.

Maintenance. /WE/ No.

Energy costs. We're on a small island in Alaska and our energy is provided by fossil fuels, so we pay a high cost for energy. /WE/ No.

Sales, growth, and the condition of the market.

The building. It's an older building. Having enough business to keep our doors open year-round. Quality and products. /WE/ No.

Revenue, expenses and energy conservation.

Customers would be good. In the first part of January, it's dead. Production and revenue.

We're outgrowing the facility. It is too hot in the summertime, and it is not ventilated well enough.

Our energy overhead. Quality control. The economy and business.

Efficiency. Safety.

Raising our sales. Lowering our costs. Increased profits.

Sanitation and cleanliness for good food manufacturing. Being safe as well. Having that lend to efficiency, which it doesn't do well. /WE/ No.

Paying our bank debts. Producing the best product possible. Marketing our products.

The age of the building.

Well, energy. /WE/ Government regulation. /SPE/ No more telling us how we can run our facility. It is more like the government is getting in the way. /WE/ The potential loss of customers because of the economy. I don't know how many we'll lose.

Gas savings. /WE/ The biggest thing is the gas savings. Everything is on when we're open. We installed the hot water heater.

Keeping the doors open. /WE/ No.

Making enough to pay the bills. /WE/ No.

The rising cost of food, energy and healthcare.

New business, energy efficiency and sustainability. Sewer costs.

First, to keep the doors open and make money. Second, keeping our equipment operating. Third, customer service. /WE/ No.

Making a quality beer product. /WE/ It takes a lot to make a profit. We're actually doing quite well. Nothing else comes to mind.

Customer service. /WE/ Resources for raw materials. /WE/ Keeping employees happy. /WE/ No.

Government regulations. /WE/ Nothing else.

Staying in business is a top concern right now given the way things are right now. Making sure everything is done as efficiently as possible in terms of both the produce and the employees. /WE/ No.

The cost per ton. That's the main one. Safety. Not necessarily in that order. Throughput. /SPE/ Just getting the product through the plant. /WE/ No.

Keeping the doors open. Finding the product needed. /WE/ Those are the only two.

Building maintenance. Lighting. /WE/ No.

Expansion. I don't know. /WE/ No.

The prices for energy are too high. /WE/ We have a problem with squirrels disrupting our electricity, so we lose power. /WE/ Our power supply is not always reliable. /WE/ No.

Food safety. /WE/ A positive cash flow. Economic sales. /WE/ Employee safety. /WE/ No.

Lighting, heating, and cooling in the summertime.

Energy costs. /WE/ Our customer base. /WE/ Advertising.

The ease of access for customers. Location. A facility that is able to house what we do.

Visibility to the customer. /WE/ Efficient operations. /WE/ Stability.

I would like to sell it and get it out of here. /WE/ No.

Costs, product availability, and our employees. /SPE/ It is not easy to find people to work. /WE/ No.

Energy costs. /WE/ Energy efficiency. /WE/ Food costs.

The quality of the power. /WE/ That's really the main one.

Well, making my mortgage payment. Keeping up the sales, I suppose. /WE/ No.

Maintenance, cleanliness and energy efficiency.

Producing a quality product. /WE/ Cleanliness and safety.

Producing an excellent product. Giving excellent customer service and being very streamlined or very efficient.

The economy. The regulations that drive prices up, which make it hard for us to compete. The elimination of logging, mining and manufacturing jobs, which means people move out of the area. That means less work for us.

Gas, electricity and sales.

Maintaining our sales. Keeping my employees happy so that I don't lose good employees.

Business growth, equipment and the cost of materials.

Healthcare. Getting more work. Customer service.

Profits. Stable employment. Safety.

Being efficient. Making money.

The energy use in our electrical bill and our natural gas bill. Safety issues. /WE/ No.

More work.

Too much snow caved in the roof.

Energy use, safety and market trends. /WE/ No.

That it doesn't burn down, that it can withstand an earthquake, and that the roof doesn't leak.

I don't really have too many concerns. We could have more energy-efficient heaters and water heaters. /WE/ Insulation could be better. /WE/ No.

Sales. Getting more sales. That opens up a whole lot of questions. We are used to doing four times the amount we are doing. People aren't buying anything, especially with housing, because we make furniture. /WE/ The new banking regulations and how they will affect my credit in the future. /WE/ Keeping trained employees employed. With the recession, it is hard to keep them around so they have a job. The money is running out now and I have to lay them off. /WE/ No.

The cost of our rent and utilities. Profits. /WE/ No.

Enough work to continue being in business. /WE/ Just getting our economy rolling. /WE/ No.

The economy, customers and marketing. /WE/ No.

Safety. Energy efficiency. Maintaining preventative maintenance.

Production. Sales. Quality.

Making money. /WE/ No.

Road access. Space. The climate.

Not burning down. This is an old building with ceramic kilns. Saving energy. Keeping up the growth.

Changing technology. Commodities. The pricing of various components.

Keeping the doors open. /WE/ That's about it at this point.

Production, sales and shipping.

Security and energy savings. /SPE/ Alarm system to ensure the building doesn't burn down.

Getting more. Efficiency. Getting paid.

Keeping warm in the winter. Getting the overall power bill lower.

Environmental compliance. Fisheries management.

Too much credit being given to clients. The overhead costs of fuel, etc. The nature of the business.

The old age of the facility. That's about it.

Right now I am paying $1,000 a month for heating. That is electrical. That is for heating and running the compressor.

I don't know. /WE/ I don't feel I have any concerns at this time. Everything is fine.

Getting the economy going.

I don't think we have any concerns. Everything is working just fine.

Making a good product. There is nothing else.

Space for growing bigger. Maintenance. /WE/ No.

Outgrowing this facility. Continued or better sales. The cost of having to get a bigger place.

The economy. The availability of resources. Vendor pricing.

Sales, sales and sales.

My first concern would be electricity and the costs. That's our biggest concern. Everything runs on electricity here. We are a machine shop. Heating is a big concern as well. We spend a lot on heating. I would like to see it made more accessible to use solar or wind energy. I know it's feasible, as I have a friend who has a small farm and it worked for him. /SPE/ The second concern would be transportation issues, as well as the infrastructure and the costs associated with that. I know it's not an immediate concern right now but we have to start thinking about railroads. We need to be moving people with the railroads and moving products by rail. We need to make that more economical and efficient. It's an effective way to move products and people. /WE/ My third concern would be that the dams here need to be fixed and we need more. It has no footprint and it is a good source of electricity and water storage.

Finding work. /WE/ No.

I don't know. That is vague. Having enough work. Hiring employees. Producing a better product.

Expansion capability. I don't think I have any others at this point. /WE/ No.

Taxes, weather, and money-making production.

Long-term operation, maintenance and upkeep. /WE/ No.

Having the building trade pick up to sell our products. //WE/ The in-house infrastructure has been improved over our down time.//WE/ Upgrading our machinery for safety issues.

Energy. Labor savings. Material savings.

Space. /SPE/ Not running out of space. /WE/ Current technology and maintaining the current structure. /SPE/ Keeping up with technology that is efficient in cost and profitability. /SPE/ Making sure it doesn't fall down. /WE/ No.

Log supply. /WE/ No. That is the only one. /WE/ No.

Providing for the customers. On-time delivery and quality. /SPE/ Customer satisfaction. /SPE/ No.

Security. Keeping the building warmer.

Medium Manufacturing (101 to 249 employees)

Sustainability, safety and saving money. /SPE/ Well, we are working toward becoming much more energy efficient and trying to reduce our impact on the environment. That's our number one initiative for 2011 and later. /SPE/ We're trying to be a safe environment. We're still trying to make more improvements towards safety, in terms of equipment and the food supplies we make.

Profitability. Environmental consciousness.

Efficiency, productivity and the profit margin.

During the day, it's more. We are not a 24-hour facility. We typically pay more money for electricity than a residence would. /WE/ No.

Safety and efficiency. Maintaining a low amount of inventory.

Safety for employees. /WE/ The quality of the product. /WE/ Productivity.

Energy is right up there. /SPE/ Productivity. /WE/ The strength of the market.

Overhead. /WE/ No.

The economy. /WE/ Controlling our costs. /WE/ Future growth and expansion. /WE/ No.

Production. Right now we are currently working with the PUD to get our lighting revamped, and we are working on our compressor and high-efficiency motors.

Safety, security and comfort.

Profitability. /WE/ Sales growth. /WE/ Environmental management.

I don't know how to answer/we/no top concerns/we/nothing/no

Cost efficiencies, product qualities and employee retention.

Sustainability. /WE/ The integrity of the energy supply. /WE/ The costs are important. /WE/ How the energy is derived. /WE/ No.

Making a profit. Good quality products. Servicing our customers.

Keeping work and finding more jobs. /WE/ Doing good work and being professional in what we do. /WE/ We do a good job and we provide good service. We are proud of our city. /WE/ No.

Cost reductions. /WE/ Efficiency. /WE/ Improvements. /WE/ No.

Production.

Raw materials. /WE/ Sales growth. /WE/ Personnel.

Meeting the needs of what the customers are ordering. Keeping up with the needs of the employees we have in the building. /WE/ No.

Political uncertainty. Rising costs.

Affordability. Reliability.

Space. We do not have enough space. /WE/ Consolidating into a larger facility.

Safety, productivity and maintenance.

Low-energy lighting. /WE/ No.

Energy costs.

Operating efficiently as best as we can. /WE/ Controlling the costs. /WE/ No.

Energy costs, crop costs and trying to keep our labor costs down.

Sales and product quality. /WE/ No.

Labor costs. Volume of production and waste water.

Customer satisfaction, quality and safety.

Safety, efficiency and productivity.

Using as little as possible. Having it available when we need it. Having good quality.

Productivity and manufacturing costs.

The top concern would be safety because we have a lot of hazardous materials. Employee training and involvement is number two. Third would be to have a profitable business because we're part of [BUSINESS NAME].

Being green. Being cost-effective. Being well-maintained.

Profitable business.

Making money. /WE/ Cutting cost as much as we can. /WE/ Safety. /WE/ That's pretty much it.

The safety of our employees. Servicing our customers. Productivity.

Energy costs. Weather insulation. Being weather-efficient. Equipment and energy options. Will these save money?

Metals Manufacturers

Energy stability. /SPE/ Pricing. /WE/ Competent employees.

Ventilation. /SPE/ Getting fresh air into the area.

Energy efficiency.

First, energy prices and costs. Second, raw material costs. Third, labor costs. /SPE/ Electrical energy costs. We're a big electricity user. /SPE/ Our aluminum oxide and petroleum coke. /SPE/ Our production and workers' wages.

Energy-wise? I am not sure. It would be the heating, proper lighting, and keeping our machines in good shape.

Energy use, safety and market trends. /WE/ No.

Productivity and manufacturing costs.

Profitable business.

My first concern would be electricity and the costs. That's our biggest concern. Everything runs on electricity here. We are a machine shop. Heating is a big concern as well. We spend a lot on heating. I would like to see it made more accessible to use solar or wind energy. I know it's feasible, as I have a friend who has a small farm and it worked for him. /SPE/ The second concern would be transportation issues, as well as the infrastructure and the costs associated with that. I know it's not an immediate concern right now but we have to start thinking about railroads. We need to be moving people with the railroads and moving products by rail. We need to make that more economical and efficient. It's an effective way to move products and people. /WE/ My third concern would be that the dams here need to be fixed and we need more. It has no footprint and it is a good source of electricity and water storage.

Finding work. /WE/ No.

I don't know. That is vague. Having enough work. Hiring employees. Producing a better product.

Taxes, weather, and money-making production.

Security. Keeping the building warmer.

Q20. What factors contributed to your rating of management support for your facility's energy/energy intensity reduction goals as supportive/not supportive.

Small Manufacturing (100 or fewer employees)

Being thrifty and cheap.
Mgmt support goals: Very supportive

I guess it's because they seek knowledge about energy conservation and what works better. /WE/ No.
Mgmt support goals: Very supportive

Setting my own goals. Look at the bottom line.
Mgmt support goals: Very supportive

Energy savings and money.
Mgmt support goals: Very supportive

Money. I am the manager here.
Mgmt support goals: Very supportive

Because they want to save money. /WE/ No.
Mgmt support goals: Very supportive

Cost reduction and the environment.
Mgmt support goals: Very supportive

Because of the amount of money I was paying for energy. /WE/ No.
Mgmt support goals: Very supportive

Reducing the electric bill. /WE/ No.
Mgmt support goals: Very supportive

The cost factor. /WE/ No.
Mgmt support goals: Very supportive

Capital investment. /SPE/ If they will invest capital to reduce energy usage, then they are supportive. If not, then they are not. /WE/ No.
Mgmt support goals: Very supportive

We went from incandescent bulbs to fluorescent bulbs. We're looking at going to the energy-efficient bulbs. /WE/ No.
Mgmt support goals: Very supportive

The economy.

Mgmt support goals: Very supportive

Reducing the power bills. /WE/ Reducing the gas bill. /WE/ Basic environmental consciousness. /WE/ No.
Mgmt support goals: Very supportive

Everything I can turn off, I do. /WE/ No.
Mgmt support goals: Very supportive

Leading and giving general instructions on keeping the equipment operating properly to reduce energy. /WE/ No.
Mgmt support goals: Very supportive

We just don't like to use too much energy.
Mgmt support goals: Very supportive

We do not want a high power bill. /WE/ No.
Mgmt support goals: Very supportive

We are a small business and everyone is in the same place.
Mgmt support goals: Very supportive

Just the idea of having goals for energy reduction. /WE/ Continuing to emphasize both the cost and the intensity. /WE/ No, that's all.
Mgmt support goals: Very supportive

We're all shooting for the same goal. /WE/ No.
Mgmt support goals: Very supportive

The price of power, the economy, and the need to cut things down.
Mgmt support goals: Very supportive

We tried to maintain the energy costs down by turning off equipment whenever possible.
Mgmt support goals: Very supportive

Well, they basically demand it.
Mgmt support goals: Very supportive

Just the greenhouse gas initiative that we have. /WE/ No.
Mgmt support goals: Very supportive

My sister and I are the owners and we are concerned about the environment. /WE/ No.
Mgmt support goals: Very supportive

Money. /WE/ Reducing costs. That is the main driver. /WE/ No.
Mgmt support goals: Very supportive

Because it is talked about constantly.
Mgmt support goals: Very supportive

Cost reduction for the overall manufacturing costs. /WE/ No.
Mgmt support goals: Very supportive

I am the boss. I am the top management. I am very supportive of myself. /WE/ No.
Mgmt support goals: Very supportive

One program was when we planted some trees. That was because of Al Gore. I was raised in a household where we didn't waste anything. It is also a generational thing. /WE/ No.
Mgmt support goals: Very supportive

A high energy bill. /WE/ No.
Mgmt support goals: Very supportive

I don't understand the factors. We just have discussions about how to reduce energy, such as not having lights on when they are not in use. We have several rooms that are connected to the same switch. We are trying to remedy that by separating the rooms. We are looking into government support systems that will help us pay for it. /WE/ No.
Mgmt support goals: Very supportive

There are so few of us so we all work together to reduce energy. /WE/ No.
Mgmt support goals: Very supportive

This goes back to the size of the electric bill, which is an ongoing issue. /WE/ We have a very intensive energy usage. We are a machine shop. Everything runs on electricity. We have recently expanded other equipment and increased our production. Combined with energy efficiency issues, we have experienced an extreme jump in our energy bill. We are grappling with how to deal with this, especially in the area in heating the building. We have specific goals and targets. We hope to achieve a 50-percent reduction in that cost. We have also looked into alternate heating sources, but we can't find anything that we believe is going to achieve any reduction in the cost to supply the heat and which also fits within the type of business we are running. /WE/ Probably not.
Mgmt support goals: Very supportive

Cost savings and efficiency. /WE/ No.
Mgmt support goals: Very supportive

The money savings. /SPE/ Business is slow. We had to cut back on what we needed to keep the doors open.
Mgmt support goals: Very supportive

Cost efficiency and environmental concerns. /WE/ No.

Mgmt support goals: Very supportive

They are supportive of the goals we have set. /SPE/ They have to do what I say. /WE/ No.
Mgmt support goals: Very supportive

A lot of it is because of the size of the company and the amount of energy that certain parts need. Not all of our management is focused on that, but on the other areas.
Mgmt support goals: Somewhat supportive

I really don't know how to answer it.
Mgmt support goals: Somewhat supportive

We talk about it when we do our goal review with ISO. /SPE/ No.
Mgmt support goals: Somewhat supportive

It is harder to teach our upper management that these measures are important.
Mgmt support goals: Somewhat supportive

Looking at our options and grants. /WE/ No.
Mgmt support goals: Somewhat supportive

Money. The cost. Trying not to use any more energy than we have to.
Mgmt support goals: Somewhat supportive

How much time I have. Everything here is very well maintained, and most of my equipment is new and energy-efficient. /WE/ No. /SPE/ Two new energy-efficient water heaters. /WE/ No.
Mgmt support goals: Somewhat supportive

The production schedule over the energy savings, or the energy savings over the production schedule. /WE/ It is more important to save money and energy as opposed to production. /WE/ No.
Mgmt support goals: Somewhat supportive

The influence of the industry. /WE/ Market controls and finances. /WE/ No. /WE/ Knowledge of energy consumption and the products available. /WE/ No.
Mgmt support goals: Somewhat supportive

Medium Manufacturing (101 to 250 employees)

Number one is the huge cost of energy. We're convinced that it's not only going to go higher, but much higher.
Mgmt support goals: Very supportive

We have management meetings that we have to hold ourselves accountable for every quarter. We have outside auditors. /WE/ They come in every year. /WE/ No.
Mgmt support goals: Very supportive

Because it's primarily me. Every one of these projects is tied to money. /SPE/ The management is very supportive. /WE/ It just means better productivity.
Mgmt support goals: Very supportive

Overall costs. We always try to make more with less. /WE/ That is about it.
Mgmt support goals: Very supportive

Saving money. /WE/ No.
Mgmt support goals: Very supportive

The fact that we have quarterly management meetings where we review our progress. This keeps it at the forefront. /WE/ No.
Mgmt support goals: Very supportive

I would just say it was the monthly cost.
Mgmt support goals: Very supportive

We're the ones who came up with a lot of the ideas ourselves about what we can do and which areas we can work on. "We" as in the management. /WE/ No.
Mgmt support goals: Very supportive

To reduce our costs and production.
Mgmt support goals: Very supportive

The need to reduce costs so we could be more competitive. /WE/ No.
Mgmt support goals: Very supportive

Money.
Mgmt support goals: Very supportive

They directed us to do energy audits. They took the information and implemented many of them. /WE/ No.
Mgmt support goals: Very supportive

Interest.
Mgmt support goals: Very supportive

A willingness to commit funds to buy down our energy consumption. /WE/ Specific acquisition of energy-efficient lighting and compressors. /WE/ We design products, which are energy-efficient. /WE/ No.
Mgmt support goals: Very supportive

We are actively working on this all the time.
Mgmt support goals: Very supportive

The bills. /WE/ Being more efficient. /WE/ No, that's it.
Mgmt support goals: Very supportive

Cost. /WE/ No.
Mgmt support goals: Somewhat supportive

Well, it's basically a business decision, which would return investment capital. If I spend $100,000, when am I going to get it back? /WE/ Generally, we are looking for less than 18 months for our return on that investment.
Mgmt support goals: Somewhat supportive

Specifically the return on investment.
Mgmt support goals: Somewhat supportive

The energy costs. The bills. /WE/ No.
Mgmt support goals: Somewhat supportive

Metal Manufacturers

Capital investment. /SPE/ If they will invest capital to reduce energy usage, then they are supportive. If not, then they are not. /WE/ No.
Mgmt support goals: Very supportive

Cost reduction for the overall manufacturing costs. /WE/ No.
Mgmt support goals: Very supportive

We are actively working on this all the time.
Mgmt support goals: Very supportive

There are so few of us so we all work together to reduce energy. /WE/ No.
Mgmt support goals: Very supportive

This goes back to the size of the electric bill, which is an ongoing issue. /WE/ We have a very intensive energy usage. We are a machine shop. Everything runs on electricity. We have recently expanded other equipment and increased our production. Combined with energy efficiency issues, we have experienced an extreme jump in our energy bill. We are grappling with how to deal with this, especially in the area in heating the building. We have specific goals and targets. We hope to achieve a 50-percent reduction in that cost. We have also looked into alternate heating sources, but we can't find anything that we believe is going to achieve any reduction in the cost to supply the heat and which also fits within the type of business we are running. /WE/ Probably not.
Mgmt support goals: Very supportive

A lot of it is because of the size of the company and the amount of energy that certain parts need. Not all of our management is focused on that, but on the other areas.
Mgmt support goals: Somewhat supportive

[1] Market Strategies interviewers probe with the question "What else" which they shorten to "WE", and "Can you be more specific?" which they shorten to "SPE" in the verbatim responses.