

Learning to Play Well with Others: Obtaining Shipment and Sales Data through Long-Term Relationships with Manufacturers

Lynn Hoefgen, Nexus Market Research, Inc.
Shel Feldman, Shel Feldman Management Consulting
Dorothy Conant, Independent
Elizabeth Titus, Northeast Energy Efficiency Partnerships, Inc.
Susan Oman, Nexus Market Research, Inc.
Betty Tolkin, Nexus Market Research, Inc.

ABSTRACT

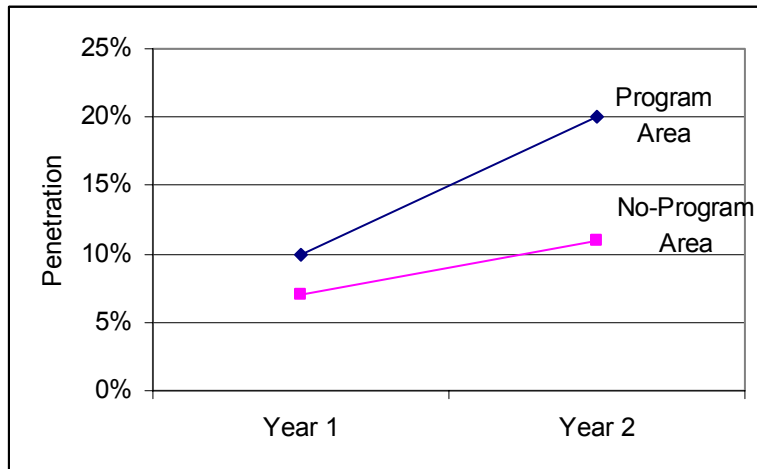
Working with key market actors has been crucial to the energy efficiency industry for purposes of encouraging technical improvements, training retailers, and promoting qualifying products. This paper discusses how working with key market actors can also help address another strategic objective: providing evidence—required by policy makers and funding agencies—that programs are increasing sales of energy-efficient products beyond what would be expected from market forces alone. The paper focuses on lessons learned in seeking to obtain market penetration data from manufacturers through their trade associations. Although these lessons may seem obvious in retrospect, learning them has involved years of effort and some missteps. These are lessons we learned as children about how to play well with others, essentially involving respect, listening, and trust.

Introduction

For market transformation programs, changes in the market penetration of the energy-efficient products promoted and their causal linkage to the intervention are among the most crucial metrics—and often the most difficult to monitor. Sales of energy-efficient products are strongly correlated with energy and demand savings and are a direct outcome of efforts to work effectively with key market actors and to increase end-user awareness and willingness to purchase energy-efficient equipment. Capturing changes in market penetration of qualifying units requires reporting on the sales of qualifying units relative to the sales of total units.

With market penetration data there are two primary tools for attribution: assessing changes over time, and assessing geographic differences. If a program is effective, one would expect the market penetration of energy-efficient equipment, as indexed by shipment or sales data, to increase over time. Similarly, one would expect the penetration of energy-efficient equipment to be higher in areas with programs than in areas without programs. If one has data over time but not over space, one cannot be sure whether the increases in market penetration are also occurring in areas without programs; if one has data over space but not over time, one cannot be sure if the higher penetration in the areas with programs is due to the program or to some other factor. Hence, attribution of market effects requires data over *both* time and space. The pattern that would allow one to attribute market effects to a program is one that shows *a higher rate of increase* in the market penetration of efficient equipment in areas with programs than in areas without programs, as depicted in Figure 1 (Titus & Feldman 2003; Titus et al. 2004).

Figure 1. Comparisons Allowing Program Attribution



Having data over time and space will not allow the identification of all variables affecting penetration, but it will help to determine whether the differences are constants (such as geographic/weather differences or industrial activity that dictates different usage patterns) and will help to place the sales/shipment data in context of program efforts. For example, regression analyses on appliance market penetration data, controlling for demographics and other context differences, clearly show that sponsors' programs have had an effect on sales of energy-efficient models (Hoefgen, Feldman & Wilson-Wright 2004; Rosenberg 2003) and on energy savings (Hoefgen, Feldman & Wilson-Wright 2004).

Potential Sources of Data

There are several possible sources of data for tracking market penetration. Although it is not our purpose in this paper to examine all such sources in detail, some of these sources and their most noteworthy advantages and disadvantages are outlined in Table 1. The extent to which they are advantages and disadvantages depends on the technology of interest, its associated marketing channels, and program evaluation and information needs. There is no "best" approach, or any objective way of ranking approaches across all situations.

Some of these approaches have been used by program implementers and evaluators, with varying degrees of success. For example, the Energy Center of Wisconsin has been collecting and analyzing distributor and contractor sales data to track market penetration of energy-efficient furnaces for many years (e.g., ECW 1996). While generating useful insights about differences in market penetration among geographic areas within Wisconsin, the system lacks the cooperation of one of the largest manufacturers—which affects its representativeness—and does not easily allow for comparisons with other states, unless other states implement and share the results of a similar system.

Itron (formerly, Regional Economic Research) has purchased and analyzed point-of-sale data obtained from market intelligence firms to estimate the market penetration of CFLs out of all medium screw-based lamps in California—compared with parallel national data—for several years, and has recently added Wisconsin and Massachusetts to the mix (Fields et al. 2003; Itron 2003). However, this method is possible only for those items for which barcodes are normally

scanned at checkout during the sales process, which do not consistently include motors, HVAC, and appliances.

KEMA-Xenergy has used retailer surveys to provide market penetration estimates for CFLs, fixtures, and appliances on Long Island and in Vermont, using Philadelphia and Maine, respectively, as comparison areas (Mauldin, Franks & Cush-Grasso 2003). The Massachusetts program also used retailer telephone surveys to estimate market penetration of selected types of ENERGY STAR[®]-labeled appliances (RLW 1999). While valuable, these studies rely on self-reporting by retailers and relatively small sample sizes, raising questions about representativeness.

The Wisconsin, Massachusetts, and NYSERDA programs have used mail or random-digit dial residential customer surveys to estimate the market penetration of selected types of ENERGY STAR-labeled appliances (e.g., Ellefson 2003; NMR et al. 2003; WCDSR 1994). Because appliance model information does not consistently appear in readily accessible locations on room air conditioners and clothes washers, however, this method works well only for refrigerators and dishwashers. Again, the reliance on voluntary participation and self-reporting raises concerns about possible biases. The California utilities sponsored an on-site assessment of appliance market penetration, which entailed many of the problems of the random-digit dial approach, with the added issue of extremely high cost (RLW 2000).

D&R International, through DOE, provides retailer-based market penetration data for appliances nationally and by state (D&R International 2004), but the retailers represented are national chains and do not include independents, which account for a substantial proportion of appliance sales, and which vary in importance across states. Independents can be addressed separately and the results combined with the national chain data from D&R, although the results from independents are subject to the disadvantages outlined under “Dealers/Distributors/Retailers” in Table 1.

Another option is to seek market penetration data from manufacturers. Obtaining such information from individual manufacturers means dealing with multiple decision makers, and overcoming the same obstacles over and over again, which is more or less of a problem depending on the number of manufacturers involved. The issue of dealing with multiple decision makers can be addressed by seeking data through manufacturers’ associations, including buyers groups and trade associations.

Whether the data come from individual manufacturers or their associations, one of the main problems of relying on manufacturer shipment data is that the places to which products are initially shipped are not necessarily the places where they will end up; distributors and dealers often sell to contractors, end-users, or retailers in different states. Insofar as products shipped to dealers/distributors in a state without a program cross over to a state with a program (or vice versa), this creates a problem for attribution of sales to programs. It is less of a problem in a large state like California where the population centers are relatively far from state borders; it is much more of a problem for the smaller states in the Northeast where many population centers are near state borders, because manufacturers may establish regional distribution centers to serve multiple states.¹ Certain products with more local and more numerous distributors—such as motors—may be less susceptible to the border-crossing phenomenon than those with broader regional distribution—such as appliances. In any case, program effects have to be large enough to compensate for unknown border-crossing effects.

¹ With the spread of energy efficiency programs throughout the region (with some notable exceptions), however, this is becoming less of a problem.

Another possible disadvantage of relying on associations for market penetration information is the possibility of bias if some manufacturers do not provide data. Assessing whether such bias exists depends on the willingness of the association and its participating manufacturers to divulge the extent of member cooperation.

If the second potential drawback can be dispelled, the association-based approach has the key advantage of representing virtually the entire market for a given technology, year-in and year-out, both nationally and by state. Another enormous advantage over all the other approaches is the substantially lower cost. We are not recommending that all of the other approaches be discontinued. Rather, we believe that data from manufacturers' associations could supplement some of these other approaches and demonstrate convergent validity (or triangulation) of attribution results for organizations that can afford the added certainty. For organizations that are not willing to pay for these other approaches, the manufacturers' association approach offers the possibility of obtaining reasonable market penetration data at a fairly low cost.

Table 1. Comparison of Data Sources

Source	Approach	Selected Advantages	Selected Disadvantages
Individual Manufacturers	Shipment data	<ul style="list-style-type: none"> • Relatively few companies to deal with 	<ul style="list-style-type: none"> • Shipments are not sales, so may not represent where products end up • Incomplete cooperation likely, thus high potential for selective biases
Manufacturers' Associations	Aggregated reports of shipment data	<ul style="list-style-type: none"> • Many associations already receive data from manufacturers • Single point of contact • Relatively low cost • Disaggregation by state possible • Entire market covered 	<ul style="list-style-type: none"> • Shipments are not sales, so may not represent where products end up • Data may not be tracked by desired categories—e.g., water-source heat pumps • Issues with releasing competitive info. • Manufacturers can pull out
Distribution Centers	Shipment data and turnover	<ul style="list-style-type: none"> • Relatively few companies • Some geographic disaggregation possible 	<ul style="list-style-type: none"> • Distribution centers not the norm for all products or manufacturers • Shipments are not sales
Dealers/Distributors/Retailers	Regular collection of sales data	<ul style="list-style-type: none"> • Sales rather than shipment data • Easier to disaggregate by geography and by market channel than shipments 	<ul style="list-style-type: none"> • Relatively high cost • Record keeping done differently or not at all by different players • Many companies to deal with • Nonresponse bias likely • Difficult to get data from comparison area • Dealers/Distributors/Retailers can pull out
End Users	Telephone/mail/ on-site surveys	<ul style="list-style-type: none"> • Disaggregation possible • Can tie with end-user characteristics 	<ul style="list-style-type: none"> • Unreliable information (phone & mail) • High cost, and no savings w repetition
Hybrid	National manufacturer/ association data plus sales data from dealers/ distributors/ retailers	<ul style="list-style-type: none"> • Can leverage shipment data w limited sales data to disaggregate by geography 	<ul style="list-style-type: none"> • High cost • No way to test disaggregation assumptions • Nonresponse bias likely
Existing point-of-sales data sources (AC Nielsen & Vista)	Scanner data (CFLs, lamps, other retail products)	<ul style="list-style-type: none"> • Disaggregation possible • Historical data exist 	<ul style="list-style-type: none"> • Not available for all products • Relatively high cost (not as high as primary collection from retailers) • Retailers can pull out • Dependent on model for expanding sales from sample stores
National retail chains	Sales data collected independently for DOE (appliances only)	<ul style="list-style-type: none"> • Sales rather than shipment data • Disaggregated by state 	<ul style="list-style-type: none"> • Sales by independent retailers not included • Sales by some major chains not included • National chains can pull out, as participation in data collection is voluntary

Ability of Industry Associations to Provide Market Penetration Data

This section of the paper is based on two projects, the first having to do with motors and commercial HVAC, and the second having to do with appliances. The first project was a scoping study of options for tracking the market penetration of NEMA-Premium motors (a designation provided by the National Electrical Manufacturers Association, or NEMA) and qualifying commercial HVAC units in the Northeast, sponsored by members of Northeast Energy Efficiency Partnerships, Inc. (NEEP).² This work was conducted by Nexus Market Research (NMR), in conjunction with Shel Feldman Management Consulting (SFMC) and Dorothy Conant (NMR, Conant, & SFMC 2003).

The second project was a scoping study for appliance market penetration tracking in Massachusetts, conducted for a group of Massachusetts utilities.³ This study was conducted by NMR in conjunction with Research Into Action, Inc. and SFMC (NMR, SFMC, & RIA 2002). It led directly to a letter from the Massachusetts utilities to the Association of Home Appliances Manufacturers (AHAM), requesting market appliance penetration tracking data. The Massachusetts utilities brought their letter to the attention of the Consortium of Energy Efficiency (CEE) in a working group meeting of evaluators from program sponsors that are members of the national organization. CEE, in turn, sent a similar letter to AHAM endorsed by dozens of utilities and market transformation organizations across the country. CEE, representing the other organizations, has since been the prime negotiator with AHAM for access to these data.

The purpose of these scoping studies was to develop an understanding of what data elements are required by program sponsors, what data elements are available or potentially available, and to explore what feasible, cost-effective options exist for meeting energy efficiency programs' needs. As market penetration tracking efforts are considered for other technologies, scoping studies would be prudent investments in that they prevent energy efficiency organizations from making inappropriate expenditures, and could help inform program design if done early enough.

Industry associations already enjoy strong relationships and credibility with most manufacturers in their markets and routinely collect some market information on their sectors; several trade associations make some of this information publicly available, while others restrict reporting to members only. Moreover, a trade association represents a single point of contact, simplifying the tasks of developing ongoing relationships, crafting confidentiality agreements, and maintaining effective communication links. Furthermore, in personal interviews, individual manufacturers—sometimes communicating through associations—indicate that they would not be likely to cooperate in a tracking system *unless* it were coordinated through their industry association, partly because they have already developed mechanisms for collecting data with proven safeguards for confidentiality, and partly because they are not willing to provide these data more than once.

In considering the data the associations might be able to provide, it is necessary to consider what would be minimally acceptable to sponsors of energy-efficiency programs for a

² Cape Light Compact, Efficiency Vermont, Fitchburg Gas and Electric Light Company, National Grid, NSTAR Electric, New York State Energy Research & Development Authority (NYSERDA), Public Service of New Hampshire, and Western Massachusetts Electric Company

³ Fitchburg Gas & Electric Light Company, National Grid, NSTAR Electric, and Western Massachusetts Electric Company

market penetration tracking system, as well as what would be ideal. In interviews, NEMA, AHAM, and the Air-Conditioning and Refrigeration Institute (ARI, with respect to commercial HVAC) all say it might be possible to provide numbers of efficient units compared to all units shipped. All three associations also indicate the possibility of providing the data disaggregated by geography. (See Tables 2 through 4.)

There are only two data elements that sponsors consider “minimally acceptable”⁴ for commercial HVAC that ARI clearly cannot report on: shipments of water-source heat pumps and field-installed controls (dual enthalpy economizers). Some “nice-to-know” data elements are also not available, such as the ability to net out shipments of motor running less than 2,000 hours per year, and to identify the sizes of appliances. It does appear, however, that these associations may be able to provide data of considerable interest and value to the energy efficiency community.

Table 2. Data Requirements for Motors Market Penetration Tracking System Compared to Capabilities of NEMA

<i>Data Element</i>	<i>Minimally Acceptable to Sponsors*</i>	<i>NEMA Currently Able to Provide**</i>	<i>Ideal for Sponsors*</i>	<i>NEMA Currently Able to Provide**</i>
Number of energy-efficient units traded	NEMA premium Netting out # of qualifying motors going to OEMs.	YES YES—90% ACCURATE	Also able to net out motors running < 2,000 hrs/yr.	NO
Number of all units traded	Ability to net out the number of qualifying motors going to OEMs.	YES—90% ACCURATE	Also able to net out motors running < 2,000 hrs/yr.	NO
Disaggregation by geography	By state	YES	Trading area (below state level)	POSSIBLY
Other disaggregation	Size	YES	Motor type: ODP vs. TEFC RPM	NO YES
Data type	Shipments	YES	Sales	NO
Reporting frequency	Calendar year, available in April of following year	YES	Semi-annually	YES

* Cape Light Compact, Efficiency Vermont, Fitchburg Gas and Electric Light, National Grid, NSTAR Electric, New York State Energy Research & Development Authority (NYSERDA), Public Service of New Hampshire, and Western Massachusetts Electric

** Based on interviews with NEMA

⁴ At the outset of the project, the sponsors and research team developed lists of “minimally acceptable” and “ideal” elements of a data tracking system. The sponsors need, at a minimum, to be able to track market penetration of energy-efficient equipment annually and attribute changes to their programs, mainly through geographic comparison. The “nice-to-have” or “ideal” data elements include greater geographic disaggregation, which would allow tracking penetration in individual sponsors’ territories rather than the region as a whole, and more frequent reporting which would allow tracking on a semi-annual or quarterly basis.

**Table 3. Data Requirements for Appliance Market Penetration Tracking System
Compared to Capabilities of AHAM**

<i>Data Element</i>	<i>Minimally Acceptable to Sponsors*</i>	<i>AHAM Currently Able to Provide**</i>	<i>Ideal for Sponsors*</i>	<i>AHAM Currently Able to Provide**</i>
Number of energy-efficient units traded	ENERGY STAR-qualified clothes washers (CW), refrigerators (RF), dishwashers (DW), and room air conditioners (RAC)	YES	ENERGY STAR-qualified CW, RF, dishwashers, RAC, and dehumidifiers (DH)	YES
Number of all units traded	All CW, RF, DW, and RAC units	YES	All CW, RF, DW, RAC, and DH units	YES
Disaggregation by geography	By state	POSSIBLY	Trading area (below state level)	NO
Other disaggregation	None		Size Further efficiency breakdowns	NO NO
Data type	Shipments	YES	Sales	NO
Reporting frequency	Calendar year, available in April of following year	YES	Quarterly	YES

* Fitchburg Gas & Electric Light, National Grid, NSTAR Electric, and Western Massachusetts Electric

** Based on interviews with AHAM

**Table 4. Data Requirements for Commercial HVAC Market Penetration Tracking System
Compared to Capabilities of ARI**

<i>Data Element</i>	<i>Minimally Acceptable to Sponsors*</i>	<i>ARI Currently Able to Provide**</i>	<i>Ideal for Sponsors*</i>	<i>ARI Currently Able to Provide**</i>
Number of energy-efficient units traded	CEE Tier 2 qualifying	YES	CEE Tier 2 qualifying	YES
Number of all units traded	All packaged units	YES, EXCEPT WATER-SOURCE HEAT PUMPS	All packaged units	YES, EXCEPT WATER-SOURCE HEAT PUMPS
Disaggregation by geography	NEEP program area	POSSIBLY	By state or trading area (below state level)	POSSIBLY
Other disaggregation	Size Unitary/split combo Air-to-air HPs Water source HPs Factory-installed controls	YES YES YES NO YES	Unitary Split Field-installed controls	YES YES NO
Data type	Shipments	YES	Sales	NO
Reporting frequency	Calendar year, available in April of following year	YES	Quarterly	YES

* Cape Light Compact, Efficiency Vermont, Fitchburg Gas and Electric Light, National Grid, NSTAR Electric, New York State Energy Research & Development Authority (NYSERDA), Public Service of New Hampshire, and Western Massachusetts Electric

** Based on interviews with ARI

Making It Work for Manufacturers and Their Associations

The above section makes it clear that manufacturers, through their associations, are capable of providing useful market penetration data on motors, appliances, and commercial HVAC. This leaves it to the energy efficiency community to persuade manufacturers and their associations that it is worth their while to provide the information. There are a number of barriers to such cooperation.

Trust, Confidentiality, and Communications

The greatest barrier to successfully tracking market penetration through manufacturer shipment data appears to be a *lack of trust* between the manufacturers and efficiency-oriented organizations, such as utilities, that need the information. It takes time to develop a working relationship and mutual trust in intentions and actions. NEMA has a history of working with energy efficiency groups, notably CEE, to develop specifications and to share (some) data (CEE 2004). Therefore, working through NEMA to obtain data not currently reported would build on an established relationship.

AHAM similarly has a history of working with efficiency organizations. For example, AHAM was a member of a group involved in research on the possible redesign of the EnergyGuide label. Manufacturers belonging to AHAM use the national ENERGY STAR designation on their qualifying products, and participate in national and regional ENERGY STAR promotions. Energy-efficiency organizations have relied on AHAM's regular publications as well as customized reports to assist in characterizing the appliance markets in their territories for many years. Building on this relationship seems feasible and productive.

The efficiency industry has less of a relationship with ARI to build on, however. The history of the energy efficiency industry's relationship with ARI, from ARI's perspective, includes efforts to push higher standards and more stringent program specifications without sufficient manufacturer input; manufacturers are therefore reluctant to share information that could be used against their interests. At this time, members would probably reject a simple request to gain access to their data.

To overcome members' concerns related to sharing information, ARI suggests that the energy efficiency community work on building trust first, with a longer-term goal of obtaining data. Utilities and other sponsors of energy-efficiency programs will need to convince ARI members that they are willing to work with them on resolving existing mistrust issues. ARI believes its current dialogue with CEE is going well and CEE's interest in getting input from ARI on issues such as residential equipment specifications, currently under revision, is a good start toward resolving the issues that concern ARI members⁵.

Related to the issue of trust is a *concern about confidentiality*. To assuage this concern, sponsors of energy-efficiency programs should demonstrate willingness to sign confidentiality agreements, and assure that all data supplied to the energy efficiency industry would be aggregated across all manufacturers, with no brand or manufacturer-specific information requested or provided to recipients.

Also related to lack of trust is a general *lack of communication and certainty about program sponsors' plans for the future*. One thing sponsors could do to overcome this barrier is

⁵ Based on an interview with ARI; see NMR, Conant, & SFMC 2003.

offering to include manufacturers in program design efforts. Manufacturers tend to believe that program sponsors have paid little attention to industry feedback on or input into programs, despite the fact that manufacturers know better about what can be designed and built than industry outsiders. As an example of this, ARI points out that for some product categories, there are no products available that meet packaged HVAC Tier 2 requirements; it seems illogical to ARI and its members to specify qualifying levels for which no products are available.⁶ While including manufacturers in the program design process is clearly a reasonable request, it poses challenges, especially if efficiency program sponsors all have different plans. It is easier for manufacturers to interact with a group of program sponsors than to interact with them one-by-one. The Consortium for Energy Efficiency is an example of a group that represents the needs of multiple program sponsors and can help meet manufacturers' needs by streamlining their communications with many sponsors.

Added Expenses and Hassles

Another barrier is the *expense to manufacturers associated with added reporting*. To overcome this barrier, sponsors of energy-efficiency programs could make it clear that they are willing to pay associations' costs for collecting more information and developing new reports. While it is not yet clear what these costs would be, because the new data elements would be added to the associations' existing reporting systems, the authors believe they are likely to be much lower for the energy efficiency community than the costs associated with alternative market penetration tracking approaches relying on primary data collection.

Related to added expenses is the *lack of incentive for manufacturers to provide market penetration* data to the sponsors of energy-efficiency programs. Paying for the data would be one way to help overcome this barrier, although such payment by itself may not overcome the "hassle factor." It is also worth reminding manufacturers that energy-efficient models often cost more than less efficient models, and therefore provide higher margins. Sponsors could also stress to manufacturers that being able to show evidence to regulators and legislators that energy efficiency programs are working is essential to their continuation, and that good market penetration data provide the best evidence available. The magnitude of energy efficiency programs could be underscored by aggregating the sum of dollars spent across programs.

A related barrier is the *proliferation of requests* that manufacturers receive from energy efficiency organizations for market penetration data in different formats and for different geographical areas. Working through associations reduces this hassle for manufacturers, and a coordinated effort on the part of program implementers and evaluators would reduce the hassle for associations.

Technical Difficulties in Data Tracking

Another potential barrier to acquiring market penetration data from manufacturers is the difficulty of gathering the data in a form that is useful to the energy efficiency community. This barrier is discussed in the previous section, "Ability of Industry Associations to Provide Market

⁶ According to CEE there is only one commercial air-cooled air-conditioning Tier 2 category where there is zero product availability: split systems over 240,000 btu/h. There are product availability issues for Tier 2 heat pumps, but CEE indicated they will be discussing a potential specification revision to make it conform with available products (Shwom 2003).

Penetration Data,” and is detailed in Tables 2, 3, and 4. As discussed, the data that manufacturers’ associations could provide are not perfect, but are probably serviceable; it would be up to the energy efficiency industry to analyze the data or triangulate with other sources to make the best use of the data that can be gathered.

Current State of Negotiations with Associations

As a result of several years of developing relationships with industry associations, working on behalf of other energy efficiency organizations, CEE is in a unique position to present manufacturers’ associations with requests for market penetration information that have a chance of being well received. In the last two years, representing the energy efficiency community, CEE has approached NEMA, AHAM, and ARI—among other associations—about providing shipment data. Some of the results have been encouraging.

CEE’s request to NEMA is closest to fruition. In the fall of 2003, NEMA’s Executive Board agreed to obtain motor shipment data from its members and supply them to CEE. To this end, NEMA has been in the process of renegotiating licensing agreements with the manufacturers of NEMA-Premium motors, and working on reaching consensus with these manufacturers on a data collection protocol. It appears that NEMA has been able to renegotiate these agreements successfully, and by the time this paper appears, CEE expects to have obtained shipment data from NEMA by efficiency (NEMA-Premium vs. standard efficiency), motor size (integral, from 1 to 200 hp, in increments of 50 hp), and state (Nevius 2004).

Prospects for obtaining data from AHAM are also very promising. During its annual meeting in September of 2003, AHAM’s Business Data Council addressed CEE’s requests for appliance shipment data. After much discussion among its members about logistics and the difficulties of coordinating data collection, the Business Data Council agreed to a trial run of appliance shipment data collection for 2003; AHAM’s Government Relations Council subsequently approved this plan. The data are to be collected for four categories of appliances: clothes washers, refrigerators, dishwashers, and room air conditioners. For each appliance category, members will report ENERGY STAR-qualified appliance shipments, as well as shipments of all other appliances, at the county level. The resulting county data could be aggregated to the state level. AHAM will be making a decision soon as to whether or not a large enough proportion of members is submitting data for AHAM to be comfortable releasing the results, and if so how much they would charge for the data (Nevius 2004).

ARI poses greater challenges, and prospects for obtaining market penetration data appear to be further in the future. It is encouraging that ARI attended the CEE program meeting in September of 2003, and in May of 2004 agreed to develop a national database of residential and small commercial HVAC systems that meet CEE specifications. These are not market penetration data, but they indicate the development of a relationship similar to those that emerged between the efficiency industry and NEMA and AHAM. This increasing trust is an encouraging sign that the eventual provision of market penetration data for commercial HVAC systems, and residential systems as well, may be possible.

Conclusions

There are indeed encouraging signs about the prospect of manufacturer shipment data becoming available to track the market penetration of various types of energy-efficient

equipment. For this approach to work, however, parties interested in obtaining the data will need to coordinate their efforts. Sponsors of energy-efficiency programs will have to work through associations rather than with individual manufacturers whenever possible. In some industries a sympathetic manufacturer might serve as mediator between program sponsors and other association members, but if the goal is participation by all manufacturers, communications would ultimately be channeled through their association.

Multiple program sponsors asking manufacturers for the same information can understandably be seen as an irritant, or worse. Utilities and regional market transformation organizations will be most effective in getting their market tracking needs met by working through a single designated party. Given its charter, its broad membership, and the success of its efforts to date, CEE appears to be the most appropriate candidate.

The energy efficiency industry is in the delicate position of advocating for higher efficiency standards and imposing specifications, on one hand, while on the other hand asking for data from manufacturers who might perceive the effort to be against their best interests. However, this conflict of interest may not always exist, or may not be so fundamental that it cannot be overcome. As demonstrated in the development of NEMA Premium Motor specifications and in the historic agreement between the energy efficiency community and manufacturers of clothes washers, progress is possible. What is necessary is willingness to compromise on non-core issues and recognition of manufacturers' needs for flexibility, opportunities for innovation and competition, and appropriate time frames when striving for efficiency goals (Feldman et al. 2001). A crucial first step is listening to and understanding those needs and how they are manifested in the product life cycle, rather than assuming a monolithic aversion to changes in the direction of energy efficiency. In other words, it is as necessary to learn about the underlying needs of others as it is to explain our own. As CEE's successful negotiations with NEMA, its promising negotiations with AHAM, and an improving relationship with ARI show, manufacturers and the energy efficiency industry can find areas of mutual benefit while acknowledging, respecting, and helping to support each other's objectives. The key is openness, communication, and trust.

References

- Consortium for Energy Efficiency (CEE). 2003. "Impact of CEE levels on January 2003 ARI Central Air Conditioner and Heat Pump Model Data." Available online: http://www.cee1.org/com/hecac/ac_tiers/impcttbl.htm#1. Boston, Mass.: Consortium for Energy Efficiency.
- Consortium for Energy Efficiency (CEE). 2004. "CEE Premium-Efficiency Motors Initiative: Efficiency Specifications." Available online: <http://www.cee1.org/ind/motrs/Cee-nema.pdf>. Boston, Mass.: Consortium for Energy Efficiency.
- D&R International. 2004. "Resources for Appliance Manufacturers and Retailers." Available online: http://estar7.energystar.gov/index.cfm?c=manuf_res.pt_appliances. Washington, DC: Department of Energy.
- Ellefson, J. (NYSERDA). 2003. Personal communication. September 3.

- Energy Center of Wisconsin (ECW). 1996. *Tracking the HVAC Market for Energy Efficiency Services*. Madison, Wisc.: Energy Center of Wisconsin.
- Fields, A., R. Harcharik, J. Holmes, S. Feldman, R. Winch, and R. Pulliam. 2003. "CFL Market Penetration Using Point-of-Sale Data—Regional Perspectives." In *International Energy Program Evaluation Conference Proceedings*, 571-580.
- Feldman, S., M. Hoffman, J.S. Peters, & M. Rosenberg. 2001. "Evaluating a Poster Child: Assessing Contributions of the Consortium for Energy Efficiency to the Residential Clothes Washer Initiative." In *International Energy Program Evaluation Conference Proceedings*.
- Hoefgen, L., S. Feldman, and L. Wilson-Wright. 2004. "Assessing the Effects of Utility Programs on the Market Penetration of ENERGY STAR Appliances." Available online: <http://www.aceee.org/conf/mt04/wbprsnt/Hoefgen-Concl1a.pdf>. Washington, D.C.: American Council for an Energy-Efficient Economy.
- Itron, Inc. March 2004. *Massachusetts Lamp Trends*. Project managed by NSTAR Electric.
- Mauldin, T., T Franks, and Margaret Cush-Grasso. 2003. "Assessing Residential Market Transformation Programs through Retail Sales Analysis." In *International Energy Program Evaluation Conference Proceedings*, 581-592.
- Nevius, M. (Consortium for Energy Efficiency). 2004. Personal Communication. February 3.
- Nexus Market Research (NMR), Dorothy Conant, and Shel Feldman Management Consulting. 2003. *Scoping Study on Market Penetration Tracking of Energy-Efficient Motors and Packaged HVAC Systems in New England and New York*. Northeast Energy Efficiency Partnerships, Inc., Cape Light Compact, Efficiency Vermont, Fitchburg Gas and Electric Light Company, National Grid, NSTAR Electric, New York State Energy Research & Development Authority (NYSERDA), Public Service of New Hampshire, and Western Massachusetts Electric Company.
- Nexus Market Research (NMR), Shel Feldman Management Consulting (SFMC), and Research Into Action (RIA). 2002. *Scoping Study for Appliance Market Share Tracking in Massachusetts*. Massachusetts Electric Company, Nantucket Electric Company, NSTAR Electric, Western Massachusetts Electric Company, and Fitchburg Gas and Electric Light Company.
- Nexus Market Research (NMR), Shel Feldman Management Consulting, RLW Analytics, and Research Into Action. 2003. *Market Progress and Evaluation Report (MPER) for the 2002 Massachusetts ENERGY STAR Appliances Program*. Massachusetts Electric Company, Nantucket Electric Company, NSTAR Electric, Western Massachusetts Electric Company, and Fitchburg Gas and Electric Light Company.

- RLW Analytics (RLW). 1999. *Market Assessment for ENERGY STAR Appliances in Massachusetts, Connecticut, and New Hampshire.* Lexington, Mass.: Northeast Energy Efficiency Partnerships, Inc.
- RLW Analytics (RLW). 2000. *Statewide Residential Lighting and Appliance Saturation Study.* Available online: <http://www.calmac.org/publications/20000602CAD0009ME.PDF>. Sacramento, Calif.: California Measurement Advisory Council.
- Rosenberg, M. 2003. "The Impact of Regional Incentive and Promotion Programs on the Market penetration of ENERGY STAR Appliances." In *International Energy Program Evaluation Conference Proceedings*, 455-466.
- Shwom, R. 2004. Personal Communication. June 25.
- Titus, E. and S. Feldman. 2003. "Tracking the effectiveness of energy-efficient appliance programs in the U.S." In *International Conference on Energy Efficiency in Domestic Appliances and Lighting Proceedings*. In press.
- Titus, E., M. Nevius, A. Fields, and B. Tannenbaum. 2002. "Market Share Tracking: How and Why." In *Teaming for Energy Efficiency, 2002 ACEEE Summer Study on Energy Efficiency in Buildings Proceedings*, 10.291-10.302.
- Wisconsin Center for Demand-Side Research (WCDSR). 1994. *Tracking Appliance Sales Through Customer Interviews: A Pilot Study.* Madison, Wisc.: Energy Center of Wisconsin.