

DSM Programs and the Residential Appliance Distribution Systems in Wisconsin

Kent D. Van Liere, HBRS, Inc.
Kay Vig, Northern States Power--Wisconsin
Shel Feldman, Wisconsin Center for Demand-Side Research

This paper summarizes results of a study of the appliance distribution system in Wisconsin for five residential appliances--central air conditioning, room air conditioning, forced-air furnaces, water heaters, and refrigerators. The research describes how the appliance distribution system works and how it conditions the effects of DSM programs. The results are based on 8 focus groups and 41 interviews with manufacturers, distributors, retailers, contractors, and developers, as well as a review of literature. Results show that DSM programs interact with the distribution system in many different ways and that the interactions vary by appliance. The paper summarizes the key findings and implications in terms of the structure of the distribution system, ordering and stocking procedures, and trade ally reactions to utility programs.

Introduction

This paper summarizes results from the Appliance Efficiency Marketing Study sponsored by the Wisconsin Center for Demand-Side Research and conducted by HBRS, Inc.¹ The project focused on the distribution of five residential appliances--central air conditioners, room air conditioners, forced-air furnaces, refrigerators and water heaters. The project had three major components: A review of literature, qualitative research on the appliance distribution process, and an evaluation of options for an ongoing sales tracking system for the state of Wisconsin. This paper summarizes the key results of the literature review and qualitative research.²

Objectives

The overall goal of the research was to help increase the penetration of high efficiency appliances in Wisconsin by improving knowledge of how the distribution system works and how utility incentive programs affect this system. The main objectives of the research were to:

- Review the appliance distribution process
- Examine the reported availability of high-efficiency equipment to trade allies
- Explore ordering, purchasing, and stocking procedures practiced by trade allies

- Investigate the dynamic decision-making relationships among trade allies at different levels of the distribution system
- Investigate the dynamic relationship between trade allies and consumers
- Examine the impact of utility incentive programs on both trade allies and consumers as perceived by trade allies

Methodology

The results presented in this report are based on eight focus groups and forty-one in-depth telephone interviews. The focus groups were conducted with trade allies whose businesses were located in the service territories of major electric and gas utilities in Wisconsin. The interviews were conducted with manufacturers and manufacturer representatives across the United States, as well as distributors, developers, and appliance chains located within Wisconsin. The focus groups were primarily aimed at retail-level trade allies (including appliance stores, HVAC and plumbing contractors, builders, and developers) and a few distributors. The interviews were conducted primarily with manufacturing and distribution-level trade allies.

Key Findings and Implications

The key conclusions from the research and possible implications for utility programs are summarized in three broad areas.

- Structure of the distribution system
- Ordering and stocking processes
- Reactions to programs

Structure of the Distribution System

Manufacturers. Most manufacturers are volume producers, and Wisconsin accounts for only three to eight percent of their residential sales. In general, they do not manufacture equipment for the Wisconsin market, although occasionally special models are produced. Manufacturing is a capital-intensive business requiring product research, design, and retooling. This capital-intensive business profile forces manufacturers to produce for a market large enough to supply the revenue needed for production. In the case of appliance or component manufacturers, this means a national and/or an international market. Manufacturers do take into account the historical demand from Wisconsin in planning their production runs.

Implication. Programs by individual utilities are likely to attract higher-efficiency appliances into their service territory, but these programs will not have much influence on the total number of high-efficiency models or units produced by manufacturers. Manufacturers will fill demand for high-efficiency units by shifting existing stock around the country to meet the needs of different areas. Thus, if the state's utilities combine their efforts, and especially if they standardize the efficiency levels to be targeted with efforts in other states (such as California), there is a greater likelihood that the utilities will influence the total number of high-efficiency models produced.

Availability of Components. Trade allies reported that availability of high-efficiency components is a problem in air conditioning, but not for other appliances. Wisconsin utilities can influence the availability of components in indirect ways, but probably cannot have much direct effect on the production of high-efficiency components.

Implication. Wisconsin utilities will have the most impact on the market for high-efficiency components by creating a market for units that use these components and by maintaining the market over a period of time. In addition,

providing advance notification of program efficiency guidelines will allow manufacturers to notify their suppliers of the need for high-efficiency components.

Manufacturer Cross-selling. Obviously, manufacturers make every effort to sell their products once they have been produced. If lower-efficiency models are not selling in a given area because a utility is providing incentives for the higher price model, the manufacturer will provide their own rebates on their equipment, or push the equipment in some other area.

Implications. Manufacturers need advance notice of program plans to ensure that qualifying models are available. Otherwise, they will encourage selling against energy efficiency, if needed, to reduce their appliance inventory.

Distribution. There are three basic types of distribution (Figure 1). It appears that most of the appliances that are shipped to Wisconsin are distributed through a two-step process or through regional or national retailers that buy directly from the manufacturers. In the two-step process, the wholesalers are generally independent from the retailers and the manufacturers. A fairly small number of wholesalers distribute the majority of appliances in Wisconsin. For some national retailers, appliances are ordered by corporate buying groups on a national basis. Individual stores in Wisconsin then order from this stock.

Implications. Utilities may need to use somewhat different approaches to working with trade allies in each of these two distribution processes. In the two-step process, the decision-makers tend to be independent and are able to respond to utilities in a more flexible manner. The national retailers may be constrained by broad-based policies that limit local ability to adapt quickly to changes in utility programs (e.g., they are only able to select from stock purchased by a central buying group).

Retail Markets. The appliance distribution system is generally segmented by appliance. Central heating and cooling equipment is generally handled by HVAC contractors, although a few other types of retailers handled this equipment as well (e.g., Sears). Water heaters are handled by plumbing contractors, but it is common to find businesses that combine plumbing, heating, and cooling equipment. Water heaters are also likely to be carried by home improvement and hardware stores. Refrigerators and room air conditioners are handled primarily by home appliance stores (both independent stores and regional and national chain stores), but some department stores and other types of retailers also carry refrigerators and room air conditioners.

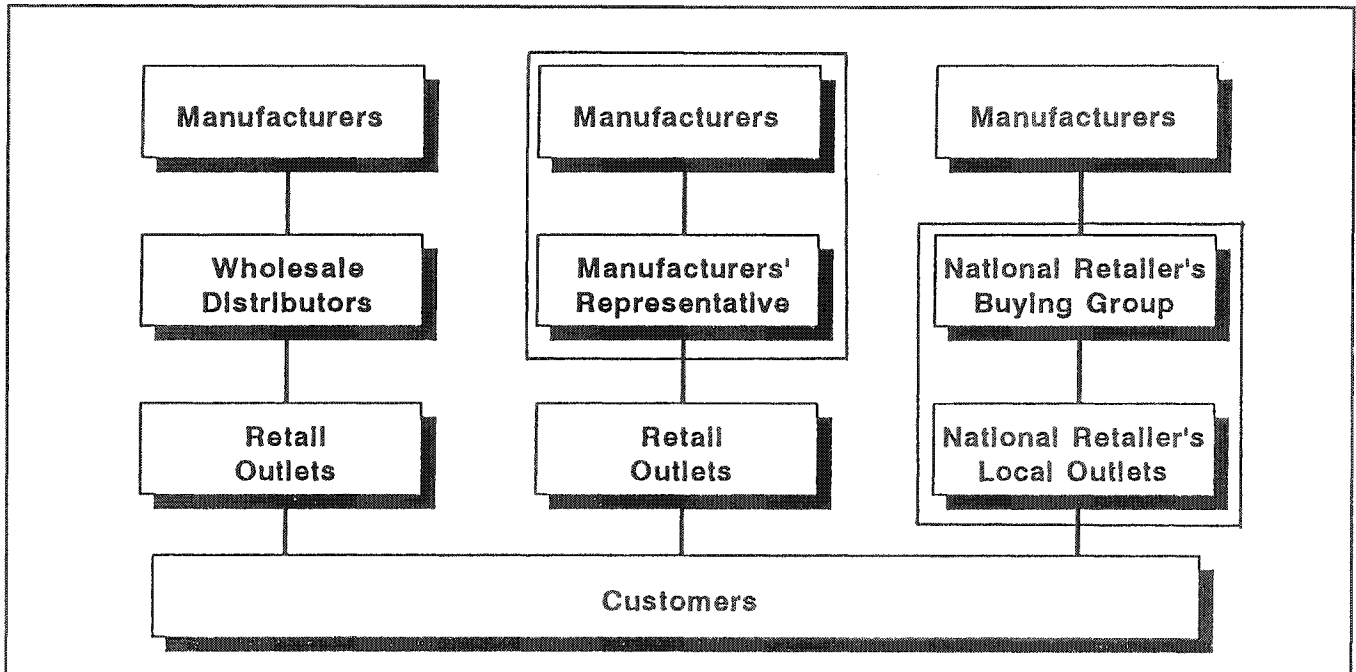


Figure 1. Three Primary Types of Distribution Processes

Implications. Separate utility programs should be developed for each appliance and market. Specifically, programs need to be adapted to the distribution process for each type of appliance, including adjustments for type of retailing (e.g., HVAC contractors versus appliance stores), timing of ordering decisions, and criteria used by pertinent decision-makers.

Within each appliance market, the factors influencing appliance distribution vary. The factors that differentiate these subsegments tend to be similar for all five appliances. The basic subsegments include the following:

- Rental versus owner-occupied housing
- Low-income versus moderate and high-income housing
- Custom-built single family versus "spec"-type single family and multi-family
- New construction versus retrofit/remodeling

The role of energy efficiency in the purchase decision process for each of these markets varies. For all five

appliances, it is generally believed by respondents that low-income housing, multi-family rental housing, and "spec"-type single family homes are more likely to receive lower-efficiency equipment.

Implications. In planning incentive programs for each appliance, different strategies are needed to effectively address each subsegment. Utilities' marketing plans should identify strategies for reaching each subsegment for which significant energy-savings potential has been identified.

Ordering and Stocking Processes

The distribution system in Wisconsin involves interactions among all levels of trade allies. As noted above, most of the appliances sold in Wisconsin come through a two-step distribution process or through national retailers who purchase directly from manufacturers. Each level of the distribution system depends on historic patterns of demand and interaction with other trade allies in planning their future production or sales. Utility incentive programs may disrupt the historic patterns because they significantly shift customer demand to higher-efficiency appliances. This has several consequences for trade allies.

Timing of Programs. If programs are not timed to coincide with ordering decisions by different levels of the distribution system, then the program creates unwanted problems for trade allies, such as lack of available models in stock, shortage of qualifying models from distributors and manufacturers, and additional work in "finding" qualifying models from some source. If trade allies are "stuck" with nonqualifying units, they are more likely to engage in selling against high efficiency. This includes claims that high efficiency is not worth the money, the payback is too long, there are technical problems with high-efficiency units, or that they are harder to service.

Implications. Units receiving incentives should be announced far enough in advance to facilitate production, ordering, and stocking. In addition, all levels of the distribution system need some notification of the program to effectively prepare for it. Based on the focus groups and interviews, the following guidelines are appropriate:

Central and Room Air Conditioners. Trade allies indicated that the majority of central and room air conditioners are ordered in the late fall or winter for the following summer. Therefore, utilities should provide air conditioner rebate program information, requirements, and qualifying models to appropriate trade allies during the summer or early fall for the following year, so trade allies will have ample time to review the material before ordering.

Refrigerators. In general, refrigerator ordering remains relatively constant throughout the year, with slight increases during the month of January. Therefore, utilities should provide rebate program information, requirements, and qualifying models during the fall for the following year.

Forced-Air Furnaces. Trade allies indicated that they order furnaces in the spring and summer for the following winter. Therefore, utilities should provide furnace rebate program information, requirements, and qualifying efficiency levels during the winter months for the following year.

Water Heaters. Trade allies indicated that they order water heaters throughout the year. There is no optimal time during the year that utilities can provide program information to trade allies. The ordering pattern varies in part because plumbing contractors tend to be small businesses and are less likely to stock large quantities of water heaters and more likely to order water heaters on a case-by-case basis. The exception to this rule is plumbing contractors who have contracted to provide multi-family housing. In the multi-family housing case, it makes sense to provide program information to the contractors in the winter or

spring so that they will be aware of qualifying efficiency levels before construction starts in the summer.

Length of Program. If programs are phased in and out every year, or if the programs change significantly from year to year, then trade allies do not have time to learn the impacts of the programs on their customers. As a result, they have a harder time guessing what demand will look like in the future. For local retailers and distributors this can be a significant problem; for manufacturers this is a minor problem because they do not build a large number of units specifically for the Wisconsin market.

Implications. Programs should be planned over several years, and guidelines for how the program will change over time should be provided to trade allies at all levels. For example, if the qualifying efficiency levels are going to be ratcheted up each year, then trade allies should be made aware of this fact, and guidelines for the probable changes should be circulated.

Distributors' Ordering and Stocking. Distributors order and stock what they think retailers will need and what manufacturers are pushing. Distributors determine what to order based on historical patterns, projections received from dealers, and incentives from manufacturers. Quite often the distributor provides advice to the dealer on their previous orders as a way to assist dealers in projecting sales. They also provide feedback to manufacturers on what is selling and what is not. As a result, they also pay close attention to qualifying criteria for utility programs because they know retailers and manufacturers will ultimately need these models.

Implications. Utilities should notify distributors about program guidelines and educate them about the programs because these distributors often will be educating the dealers and the manufacturers with whom they work. Distributors make their ordering decisions before retailers do, so advance notice of program guidelines is even more important for this group than for the retailers.

Incentives to distributors are not likely to be as effective as incentives to customers, because distributors are less willing than are dealers to push the market. Distributors order and stock based on what they believe the market (i.e., customers and retailers) will want in the future.

Customer Purchase Process. The flow of influence between retailers and customers is complex and varies to some extent by appliance. In general, customers have an idea of how much they want to spend, and many tend to shop around. In the process of shopping around, they learn different things about the price, reliability, features,

and reputation of various brands and models. Customers also rely on the information provided by the dealer in making their decisions. Dealers, in turn, decide what to tell customers based on what information they think customers already know, what they think other dealers are telling customers, and what equipment they are trying to sell. They want to offer customers a combination of price and features (including incentives) that will maximize the likelihood the customer will choose their units.

This flow of information between customers and dealers is what determines the different criteria customers will use in making their decisions. If customers believe energy efficiency is important or they learn that energy efficiency is a key difference between brands or models, then they will pay attention to efficiency levels in the decision process. Utility programs need to influence both what the customer knows and what the dealer knows to have the maximum effect of creating a market for higher efficiency.

Implications. At least some component of the program must be targeted at customers to increase customer awareness of the importance of energy efficiency. This affects what customers look for, but it also forces dealers to learn about energy efficiency so they appear knowledgeable to customers.

Program marketing should also include specific efforts to increase dealers' awareness of energy efficiency, which in turn leads them to inform customers about the benefits of higher-efficiency models.

Incentives are valuable because they clearly differentiate models along efficiency lines, so dealers or customers actively decide whether higher efficiency is important in the sales process.

Awareness of Energy Efficiency. All levels of the Wisconsin distribution system appear to recognize that energy efficiency is important, and, as a result, more high-efficiency units come to Wisconsin than to other states. It is not clear whether this has evolved as a result of the effectiveness of specific programs, or because of Wisconsin's position as a leader in promoting energy efficiency programs. In either case, there is strong evidence that manufacturers, distributors, and retailers are aware that energy efficiency is generally more important to Wisconsin residents than to residents of neighboring states and other parts of the country. There is a certain equity built up in this reputation that would be difficult to quantify, but it probably has a significant influence on decision-making at all levels of the distribution process.

Implication. To the extent practicable, the Wisconsin utilities should continue to emphasize their concern about energy efficiency and indicate a willingness to work with trade allies to find effective ways to market higher-efficiency units in the state. This might include the development of standardized programs, coordination of program announcements, state-wide workshops, and a state-wide liaison with the appliance industry.

Reactions to Programs

Program Awareness. Dealers--and especially distributors--in Wisconsin were aware of programs going on in the state and the criteria used for qualifying equipment. Manufacturers generally were not familiar with specific programs, but were aware that such programs were being offered.

Implications. Utilities in Wisconsin appear to be doing a good job of making dealers and distributors in Wisconsin aware of programs and program changes. Some additional effort may need to be directed to manufacturers and out-of-state distributors if long-term efforts to shift production to higher efficiencies are planned.

Satisfaction with Current Programs. Dealers and distributors are generally satisfied with existing programs. The major sources of dissatisfaction were:

- Lack of standardization in program guidelines across utilities
- Lack of advance notice of qualifying criteria (or of changes in qualifying criteria)
- The burden of additional paperwork
- Concerns on the part of some dealer and manufacturers about competition -- whether utilities should be offering appliance programs
- Concerns about whether qualifying standards are getting too high (not justified in terms of payback to the customer)

The last of these concerns may be the most difficult to address. Focus groups and interview results suggest that qualifying criteria for programs are felt to be too high for several appliances (mainly central air conditioning, furnaces, and water heaters). While some customers will purchase the higher-efficiency model even though the

payback is quite long, several trade allies expressed concern that they are being forced to encourage customers to make a poor investment choice. As a result, these trade allies may sell against higher efficiency. It was not completely clear whether this concern was motivated simply by concern about customers, or whether these trade allies were in a less advantageous position to compete for business (e.g., they didn't have the models available, their prices for the high-efficiency models were not as competitive, etc.). In either case, it is clear that some trade allies are often selling against the highest efficiency levels.

Implications. Utilities should consider the benefits of using more standardized qualifying criteria in the state. Utilities also need to plan programs far enough in advance of ordering and purchasing cycles to facilitate trade allies' involvement.

Few suggestions were made for how to reduce paperwork, but this remains an ongoing concern of trade allies. One suggestion was the use of instant rebates (the dealer rebates the customer, and then the utility reimburses the dealer).

Promotion to customers and trade allies needs to make clear the benefits of the program to each group, and--to defuse potential resentments--provide a rationale for utility involvement in the appliance business.

Customer-Based Incentives. Almost all trade allies indicated their belief that customer-based incentive programs have an impact on high-efficiency sales. In most cases, trade allies favored incentives directly to customers, rather than to retailers, distributors, or manufacturers. Customer incentives were viewed as most effective for several reasons, including:

- Customers are price-sensitive. Providing incentives for higher-efficiency models lowers the initial price and increases customer willingness to purchase.
- A large proportion of customers wish to actively assist in using energy efficiently and will choose the higher-efficiency unit, all other things equal. Customer incentives help legitimize that choice, even when the decision may not make sense in terms of payback.
- Units that have customer rebates from the utility may be perceived as better because the utility is willing to "endorse" the product.

- Customer rebate programs are generally offered for a limited time period. Consequently, they help customers decide to take action now, rather than waiting.
- In making a sale, salespeople like to list the benefits of a particular model to customers--the more benefits, the more likely the sale. Customer incentives provide salespeople with additional benefits that they can use in selling, including the cash rebate, savings on the customer's energy bill, protecting the environment, and helping the utility company or the community.

Implications. To maintain trade ally confidence, customer-based incentive programs should remain a key mechanism for promoting high-efficiency equipment to a utility's service area.

Incentives to dealers, distributors, or manufacturers. Most trade allies indicated that they did not favor incentives to dealers. A general theme in most of the focus groups and the interviews was that trade allies are trying to make and sell what customers want. As a result, trade allies like programs that create a demand from the customer, rather than programs that give them an incentive to push equipment the customer may not want.

Implications. As a general strategy, customer-based incentives are preferred by trade allies. While trade allies generally do not favor incentives to dealers, distributors, or manufacturers, there may be certain market subsegments where these types of incentives may be more effective. Specifically, these would include subsegments where the customer is not as directly involved in the purchase decision, or the decision is made with a minimum amount of customer search. For example:

- The custom-built home market (rebate the builder).
- The water heater replacement market (rebate the plumbing contractor).

These results appear to argue against programs like the "Golden Carrot," aimed at providing incentives directly to manufacturers. However, it is important to note that the fact that trade allies generally favor incentives to customers does not necessarily preclude giving incentives to trade allies. Rather it suggests that the program incentives need to be packaged to look like they include customer incentives. This might mean, for example, requiring a sticker on refrigerators that received manufacturer incentives, which shows that the customer is receiving a rebate of some amount off the retail price. Southern California Edison has used this approach with compact fluorescent bulbs.

Program Promotion. The preferred method to receive program information was through the mail. However, several trade allies said they thought breakfast meetings were also a very effective way of keeping trade allies informed of rebate programs. Utilities may also want to encourage trade allies to call when they have questions or need additional copies of program materials. Finally, results from the focus groups and the interviews indicate that most trade allies would encourage utilities to work with them on cooperative advertising.

Endnotes

1. This project was directed by a steering committee of representatives from Northern States Power -

Wisconsin, Wisconsin Public Service Corporation, Wisconsin Electric Power Corporation, Wisconsin Power and Light Company, Wisconsin Gas Company, Wisconsin Public Power Inc., Wisconsin Public Service Commission, and Madison Gas and Electric Company.

2. Two reports provide a more detailed discussion of the results. The review of literature is summarized in "Utility Programs and the Distribution of Residential Appliances: A Literature Review." The qualitative research is summarized in: "Utility Programs and the Distribution of Residential Appliances: A Summary of Qualitative Research (Both available from the Wisconsin Center for Demand-Side Research).