

## **TRANSFORMING TECHNICAL MARKETS: AGENTS OF INFLUENCE IN THE WISCONSIN MOTOR MARKET**

Karen L. Meadows, Hagler Bailly  
Linda R. Okstein, Hagler Bailly  
John H. Reed, Hagler Bailly

Market transformation occurs when a new product enters the market and receives widespread acceptance or when the efficiency of standard equipment is raised to a new level. Diverse market players help shape this change through technical, economic, and social forces that drive the market. The effect of specific player behavior can be limited by the overall market infrastructure, as well as individual player characteristics such as financial resources, technical skills, marketing prowess, and customer contact. An evaluation of a statewide utility high efficiency motors rebate program was conducted to understand the influences various market players have on technical market transformations. This study serves as a framework for the discussion.

The paper focuses on the role of the distributor as a key player in transforming the market for high efficiency motors. It examines the impact distributor practices (such as marketing, stocking, and pricing) can have on customer purchasing decisions. It also examines the reliance of industry on these key players to disseminate information, provide technical assistance, and give appropriate price signals. Other factors influencing motor sales are also considered for their impact on the market, including manufacturer profit margins, federal regulations, and utility rebates.

### **INTRODUCTION**

Motor distributors serving the Wisconsin market estimate that the sales of energy efficient three phase motors increased from 23% of total motor sales in 1992 to 34% in 1993, and to 42% in 1994. To keep up with these changes, distributors are changing their business practices stocking efficient motors in more sizes than ever before. These changes can be attributed to three major forces; aggressive utility motor rebate programs operating for the past three to seven years, a statewide motor rebate program launched in 1994, and Federal motor efficiency standards that will become effective in 1997.

This paper will describe market barriers to change, present and effective intervention tools and techniques, and assess the impact of industry changes on future efforts to transform equipment markets. We will focus on the role of utilities as instigators of market change and on the use of distributors as primary agents of influence.

### **BACKGROUND DESCRIPTION OF THE WISCONSIN MOTOR REBATE PROGRAM**

In 1993 and 1994, Wisconsin Demand Side Demonstrations (WDSD), a collaborative of eight Wisconsin utilities, 16 public groups, and 2 government entities, designed and initiated the Responsible Power Management (RPM<sup>®</sup>) Motors program. RPM is a statewide high efficiency motor rebate program whose goals are to accelerate the adoption of the 1997 Federal motor efficiency standards in Wisconsin, and to increase the penetration of motors with efficiencies that significantly exceed the 1997 standards. The RPM program was designed to send a clear and consistent message about desirable levels of motor efficiency to manufacturers, distributors, and customers. Ultimately, the program aims to transform the Wisconsin motor market.

In 1993, prior to the start of RPM, Wisconsin utilities adopted a statewide motor efficiency standard for all motors in the 1-200 HP range. The RPM program features a standardized two-tier rebate and eligibility structure, a unified trade ally marketing strategy, and a coordinated marketing development effort. The program offers educational materials and tools to calculate energy savings and promote the benefits of energy efficient motors. In the 1995 program, a standard statewide rebate application form was introduced. In recent years, some utilities have also added "instant" rebates, in which end-users receive incentives at the point of sale, and vendor incentives, in which distributors receive cash incentives for each energy efficient motor sold.

A key component of the RPM motor program is a statewide umbrella marketing effort that targets motor distributors. This effort complements individual utility marketing strategies that focus primarily on end-users. RPM tries to reach distributors through as many forums as possible including breakfast meetings for distributors, mailings, and presentations at trade shows and professional meetings.

The findings presented here are based on: 11 baseline and five follow-up interviews with regional and national representatives of motor manufacturers; 273 surveys with distributors in late 1993; 63 baseline distributor surveys conducted in mid-1994; 43 follow-up distributor surveys conducted in early 1995; three WDS and 11 utility staff interviews conducted in late 1994 and early 1995; and 109 participant and 109 non-participant surveys conducted in early 1995. Other important sources included data from industries on the Wisconsin Manufacturers and Commerce Data, 1995 InfoSort Manufacturers Data, a database of participant rebate data, and Dun and Bradstreet data.

#### **PARTIES TO MARKET TRANSFORMATION**

Many parties are involved in efforts to transform equipment markets including, federal and state government agencies, state public utility commissions, utilities, environmental organizations, and public interest groups. The effectiveness of these parties intervening in the market is a function of their financial resources, technical skills, marketing prowess, customer access, and by the overall market infrastructure. Market changes may occur most quickly when these groups collaborate to influence their respective parts of the market.

These organizations focus on different parts of the market. Utilities may design and implement programs for customers in their own service territories. These programs typically focus on the "bottom" of the market. The federal government may attempt to influence manufacturers at the "top" of the market through legislation or efficiency standards. Each influences the market in its own way. Utility programs can induce significant market changes at a local or regional level but may not cause manufacturers to shift production because local and regional sales are but a small part of a larger picture. Utility programs may cause interregional shifts in the mix of products but not an overall shift in manufacturers production plans. Manufacturers may simply send a smaller number of the efficient product to other regions. Federal intervention on the other hand can have a significant impact on manufacturers production patterns, but may take years to enact.

Organizations use different strategies to raise the efficiency of equipment in the market. Some try to raise "ceiling" efficiency by encouraging manufacturers to produce new equipment with efficiencies that exceed that of most existing equipment. Strategies of other organizations are aimed at trying to increase the penetration of available high efficiency equipment (without necessarily causing production of new equipment).

The RPM program sought to increase penetration of energy efficient motors by unifying the Wisconsin motor market in order to increase the significance of the program impact on the Motor Market. RPM targeted the "middle" and "bottom" of the market by marketing to both distributors and end-users. By and large it sought to raise the motor efficiency ceiling and floor.

#### **FACTORS THAT INFLUENCE MARKET CHANGE**

Efforts to transform a market may be helped or hindered by market structures or behaviors. Examples of these include customer decision-making criteria that undervalue efficiency gains by stressing short-term benefits, customer sensitivity to first cost of equipment, limited equipment availability, inadequate understanding of the benefits of energy efficient motors, and inefficient market price signals. Others work in favor of market change, such as technological advances and competitive economic pressures. Organizations trying to influence the market must learn to address and correct these market barriers, while capitalizing on positive market forces.

**Customer demand.** Customer demand is a key factor influencing distributor behavior. Eighty-three percent of distributors interviewed mentioned customer demand as the most important factor in determining which motors to stock. Customer demand is determined by end user decision making criteria, an understanding of which is key to influencing customer purchases. To influence demand, firms must be able to change these criteria or at least alter their importance. In the Wisconsin motor market: first cost is an important criteria in customer decision making, 18% of the customers (11% of participants, and 26% of non-participants) identified first cost of motor equipment as the most important factor in

purchasing decisions. More generally, first cost was identified as a barrier to purchase of energy efficient motors by 33 % of customers (39% of participants, and 30% of non-participants).

**Time-sensitive availability needs of customers.** Eight percent of customers surveyed in the RPM program reported that timely availability of equipment was important to decision making. This may be more of a perceived rather than real problem. Distributors reported that availability was not a problem for energy efficient motor purchases in general but that it may be for specialty motors.

**Technical limitations.** Nine percent of customers surveyed in the RPM evaluation reported that availability of a technically compatible motor was a barrier to purchase of an efficient model.

**Limitations in distributor capabilities.** On average, distributors reported that approximately 70% of their total sales are from stock. This average reflects larger distributors who stock 90% of their motors they sell and smaller distributors who stock as little as 40% of the motors they sell.

Distributors stocking practices may be influenced by warehousing capabilities, the availability of capital and customer demand. The carrying costs associated with larger inventories and limitations on physical space may limit inventory and force a choice between more and less efficient motors. Computerized inventory systems linking distributors directly with their suppliers are allowing closer regulation of warehouse stock and reduction of inventories.

**Technical knowledge.** A lack of technical knowledge and awareness on the part of both end-users and distributors of the benefits of energy efficient equipment can slow adoption of efficient equipment. Distributors distinguish themselves by the services they offer. Volume-oriented catalog distributors may sell to customers who simply want a replacement and are more interested in first cost than in energy efficiency. Such distributors have little incentive to increase the technical understanding of energy efficiency of their counter staff. On the other hand, there are distributors who use technical understanding as a tool. Customers are quite aware of these distinctions.

**Industry competition.** Competition among trade allies can work to help and hinder market transformation. Distributors who solely are interested in meeting current customer demand may be reluctant to promote new equipment or change their stock for fear of losing business. On the other hand, competition may cause distributors to seek new products such as efficient equipment to differentiate themselves from the rest of their competitors.

**Market Forces.** Market forces also influence the structure and composition of the motor market. Technological advances in motor systems and increasing penetration of adjustable speed drives are making manufacturers, distributors and end-users more aware of the technical issues associated with motor systems and more cognizant of the benefits of energy efficient motors. Competition is forcing efficiencies above the levels prescribed in government regulation as manufacturers seek to distinguish themselves from their competitors. At the same time, the competitive economic climate is forcing end-users to closely examine their energy expenditures to reduce their overall production expenses.

#### TOOLS/MECHANISMS TO CHANGE THE MARKET

A number of approaches are being used to address these barriers and market structure characteristics that can affect the penetration of energy efficient equipment in the motor market. Some mechanisms effect change from the "top down" by changing manufacturer's production practices, such as the proposed Federal minimum efficiency standards or in the case of refrigerators, the "Golden Carrot" effort. Often these approaches are prescriptive or regulatory in nature, such as the proposed Federal minimum efficiency standards, or building codes adopted by states. These approaches have the advantage of universality and the perception of creating a level playing field. However, attempts to establish standards and codes are time consuming, costly, and require a great deal of political skill and knowledge.

Others attempt to effect change from the "bottom up" by changing end-user purchase habits. These approaches often involve influencing potential target audiences through economic incentives, moral suasion or education. In the motors market, these approaches may also have to address related values such as brand loyalty and reliability. The RPM program and associated Wisconsin utility efforts focused primarily on education, moral suasion and economic incentives, as the stimulus. A unique feature of the RPM program was its focus on the distributor. By directly affecting distributors, a "middle-out" approach breaks a customer demand-driven cycle and encourages distributors to proactively market and stock

efficient equipment. Distributors, with their influential customer contact, can also be used to leverage utilities' customer educational campaigns.

## ECONOMIC MECHANISMS

**Customer Incentives.** Distributor stocking patterns in Wisconsin have been affected by the increased customer demand caused by utility incentives. A clear increase in the percent of energy efficient motors stocked was seen across all horsepower categories from 1993 to 1994. In the 1-5 HP range, distributor reported an 81% increase in the percent of stock that is energy efficient (from 21% to 38%). In the 7.5 to 25 HP range, energy efficient stock increased 47%. Similar increases were seen in the 30 - 75 HP range (45% increase), and the 100 - 200 range (35% increase).

Different rebate mechanisms were offered by Wisconsin utilities in the RPM program, for example, standard and instant rebates. It is difficult to isolate the effect of the various types of rebates but there was a 73% increase in the number of instant rebates provided compared to a 27% increase occurred in the number of traditional rebates. While all rebates reduce the first cost of the energy efficient product, instant rebates allow a user to subtract the rebate amount from the cost at the time of purchase. The end-user does not have to "finance" the purchase up front and wait for the rebate. Instant rebates also reduce the customers' "hassles" associated with filling rebate paperwork. However, some of the burden is shifted to the distributors.

Overall, distributors in Wisconsin liked the instant rebates. Customers were more likely to fill out the rebate application form when instant rebates were available and instant rebates streamline the application process. However, there are drawbacks. For example, a distributor can be left short if ineligible customers take advantage of the rebates. The accounting systems used by some distributors were not able to easily accommodate instant rebates and this meant the distributor had to modify accounting software, set-up an auxiliary system, or forgo providing rebates to customers.

**Distributor Incentives.** The majority of direct distributor incentives are structured in one of two ways, direct payments from the utility to the trade ally, usually on a flat fee per equipment or service, or on a percentage of total cost basis. These payments are made based on equipment sold and/or installed, services rendered, or marketing costs incurred (i.e., cooperative advertising). In the RPM program, three utilities offered vendor incentives to overcome a perceived barrier in shifting paperwork from end-users to dealers and to encourage them to actively market energy efficient motors. Two utilities offered either \$5 per motor, or 3% of the rebate (maximum possible of \$54), whichever was greater; a third utility offered \$3 per horsepower (minimum \$3) up to a maximum of \$100 per motor or \$2,000 per project. The vendor rebate was used in one of several different ways by distributors. Some used it to offset general business costs (or to add to revenues), others used it to reduce the first cost of the motors they sold in efforts to become more competitive. Still others gave the rebate to the salesperson as a bonus.

When motor distributors in the RPM program were asked what was the best way to increase dealer participation in the program, almost half of them (21 of 54) mentioned financial incentives. Of distributors who were already getting a incentive, some complained that the amount was too low to cover administrative costs associated with their participation.

Utilities must be aware of several important issues when deciding whether or not to provide trade ally incentives. Such incentives may increase the level of free-ridership associated with a program, as vendors may encourage customers to apply for rebates even when they were planning to purchase the equipment without incentive. Appropriate efficiency and eligibility criteria are essential to reducing program free-ridership.

Even without vendor incentives, promotion of the program through trade allies may result in increased free-ridership as vendors use the program to increase customer loyalty, improve customer satisfaction, or sell equipment. There is a fine line between effectively using trade allies to market efficient equipment with utility incentives, and inducing higher levels of free-ridership. Free-ridership may also be difficult to control when trade allies disagree with the utility efforts to minimize free-riders. Trade allies may feel that all customers should have equal access to the incentives, regardless of their original purchase intentions. This may be particularly troublesome if the distributor has to explain the criteria to the customer.

**"Indirect" Trade Ally Incentives.** In many cases, utilities may feel that the increased business that trade allies gain due to participating in a program is sufficient incentive for trade allies to take part in that program. These programs ultimately benefit trade allies by increasing customer demand for products and services. They can:

- ▶ Increase trade allies' exposure to customers
- ▶ Increase total customer demand for a product
- ▶ Reduce trade allies' marketing costs.

The opportunity to increase business can be more or less successful as a motivator, depending on the level of trade ally profit associated with participation in the project, and the required amount of program paperwork, utility oversight, and program requirements. In RPM, some trade allies were motivated to participate by the "carrot" of increased business or profits. One distributor felt that by promoting energy efficient motors and motor rebates, he was providing better service to his customers. With the rebate, the customer can purchase a higher quality motor for the same cost as a standard efficiency motor. Whether a distributor perceived the business benefits of the program may depend on the fit between the program and the distributor's patterns of doing business.

Increased business can come from shifts in market share or from a reduction in the rewind business. In the case of the latter, the result can be a loss of profit if the distributor has a higher profit margin on his rewind business.

It is important to involve trade allies in the program design stages. Their input will reduce the chances that program features will make it hard for them to participate. It will also reduce the chances of creating a situation where trade allies cannot keep up with customer demand. One manufacturer reported a push from his Wisconsin distributors to supply more energy efficient motors in order to satisfy their customer demand.

#### **SOCIAL (MORAL SUASION/EDUCATION)**

Educational programs and moral suasion can be used to influence potential target audiences. Moral suasion is a basic appeal to fundamental values. A motors campaign may appeal to values such as competitive advantage or the environment. Appeals to values can be used directly or they can be linked with other forms of social influence such as peer pressure.

**Peer Marketing.** For example, the RPM program offered a Corporate Partners program in which firms agreeing to purchase efficient motors where they make economic sense, received benefits including public recognition in peer journals and trade publications. The Motor Partner component was designed to enlist highly visible backers in order to take advantage of existing corporate relationships, apply peer pressure, and add credibility to the entire energy efficient motor initiative. This program is similar to the Federal government's Motor Challenge program which had signed some 350 firms nationwide by March, 1995. Both of these programs appeal to firms' competitive instincts as well as to end-users' sense of duty to society for reducing greenhouse gasses and dependency on foreign fuel. In exchange for their support, backers received broad public recognition.

The RPM Corporate Partners program has so far met with limited success in part because it was not extensively promoted by utilities. Further, it is not clear how effective such programs are at influencing other companies. There have been many instances where key employees of Corporate Partners did not know of their participation in the program. One Wisconsin industry signed up to be a Partner but did not want the publicity because they felt it would trigger unwanted marketing calls from other firms and organizations as well as calls from environmental organizations asking what else they were doing for the environment.

**Trade Ally Educational Campaigns.** Distributors were identified as the primary source of motor rebate program information by 43% of the 1994 RPM program participants. Both participants and non-participants noticed an increase in distributor promotion of energy efficient motors (52% of participants, 33% of non-participants; 43% overall) after the initiation of the RPM program. Distributors were also found to be important in influencing end user behavior: 82% of end-users reported that they rely on their motor distributors to recommend a motor some or all of the time.

Trade allies who do not understand the technical benefits of energy efficient equipment are not likely to recommend them to their customers. The technical capabilities of a distributor can greatly affect the amount of energy efficient equipment that is promoted and sold. Further, if the trade ally does not have the capabilities and resources to market efficient motors they will probably not do so. Without a solid understanding of both the economic and engineering benefits and costs of energy efficiency and appropriate sales skills and tools, dealers cannot effectively promote them.

RPM had a significant trade ally educational component, where motor distributors were given educational handouts and computer software to help them understand the technical and economic benefits of energy efficient motors. Over 10,000 copies of MotoRater, a circular slide rule used to calculate annual energy savings from installation of energy efficient motors, were distributed. Five hundred copies of MotorMaster, computer software with extensive motor performance data that allows users to compare the life cycle cost of different motors, were also distributed. Case studies of energy efficient motor installations were also published and distributed. The response of the distributors to the materials have been very positive although the direct influence of these activities on sales is very difficult to establish. Distributors do offer dramatic examples of where these tools have made a difference.

There are sometimes down sides to tools. Both manufacturers and distributors expressed some distrust in some rating information contained in MotorMaster because the data are supplied by manufacturers and do not necessarily represent verified values.

The effectiveness of educational campaigns focused on distributors will likely vary with the type of distributor. A volume

oriented distributor may not be interested in taking the extra time necessary to educate or convince a customer that an energy efficient motor is a better motor for their application. Customers often shop a volume or catalogue distributor for low price and quick turnaround. On the other hand, more technically oriented distributors can be very effective at selling their customers on the benefits of energy efficient motors.

**Customer Educational Campaigns.** Educational campaigns are a commonly used means of generating awareness of the benefits of energy efficiency. Educational campaigns assume that an important barrier to energy efficiency action is awareness and understanding of efficiency options. By educating customers to understand these benefits, it is assumed that they will modify their behavior to more efficiently use their personal and societal resources. Customer education was primarily the responsibility of utilities as part of their motor rebate programs.

## REGULATION

**Government Intervention.** Government regulation is another form of intervention in markets. Through regulation, the government can control the minimum efficiency of equipment on the market, and induce a "transformation" to a higher standard efficiency level. In many ways, codes and standards are the "ultimate" force to transform a market since they require widespread adoption of a technology or behavior within a specified time frame. However, because standards are often a compromise on achievable efficiency levels, they serve to raise the floor for efficiency rather than to move the market to higher achievable levels of efficiency.

Standards are also an economic compromise. They impose a level of efficiency and a set of costs for achieving that efficiency regardless of the use of the motor. It may not be cost effective to replace a standard efficiency motor that operators only a few hours per year with a more costly energy efficient motor.

Codes and standards can be very influential even before they take effect. Changes have already been seen in the Wisconsin motor market in response to federal motor efficiency standards that will take effect in 1997. These regulations will establish minimum efficiency standards for motor efficiency and testing for integral horsepower polyphase induction motors in the 1-200 horsepower range. At this point in time, influence has been largely concentrated on manufacturers, who report that they have taken significant steps to ensure that they will be able to comply with the 1997 regulations. Changes in manufacturer behavior is starting to raise the efficiency of motors available on the market, and is affecting the strategy used by manufacturers to market their motors. Further down the distribution chain, distributors interviewed in mid 1994 were generally aware of the standards (only 16% had not heard of them), but had not yet seen any changes in their businesses as a result. The 220 end-users interviewed in early 1995 were largely unaware of the standards (only 14% had heard of them).

Two additional "regulatory" efforts in Wisconsin may add to the success of market transformation efforts. The proposed 1997 federal standards have been recently adopted as the standard for State of Wisconsin purchases. This means that any motor purchased by the state must conform now to the proposed standards. Further, any agency, public or private, who follow state guidelines will comply with the standards. Second, an effort is now underway to incorporate motor efficiency standards into the state's commercial building codes.

In the current motor market, there is essentially a two-tiered market: standard and energy efficient motors. In a future market, it is possible that this bi-level market will cease to exist, and all motors will be "energy efficient." However, based on the majority opinion of manufacturers surveyed, it appears that a multi-level efficiency market will continue to exist. Manufacturers predict two tiers: "energy efficient" motors that just meet the minimum standards, and "super" efficient motors that maximize efficiency within certain cost-effectiveness criteria. Clearly, the results of these standards will be to raise the "ceiling" of motor efficiency. Some manufacturers will market a "super" efficient line of motors as a way to distance and distinguish themselves from their competition and to maintain their reputation of serving the high-end of the market. It is interesting to note that two manufacturers reported that they are using the RPM program Tier 2 qualifying efficiencies as their internal targets for efficiency levels.

There are opposing viewpoints on the impact the federal regulations will have on motor prices. Some manufacturers believed that regulations will force motor prices up as producers are forced to incur new development and production costs; others believe that increased competition in the energy efficiency market will ultimately decrease the price of those motors with little resulting cost impact.

**Regulatory Commissions.** State public utility commissions often have an indirect role in market transformation through regulatory requirements for utility DSM programs. For example, participation by the major Wisconsin utilities in the RPM program was more or less assumed by the Public Service Commission of Wisconsin.

The establishment of efficiency standards through utility run motors programs have the potential advantages of being accomplished quickly, of potentially providing monetary incentives as well as the perception that the utility is an interested but objective party. A major difficulty with utility established standards is that unless utilities agree to cooperate, the

efficiency levels are unlikely to be universal. The market share of most utilities is insufficiently large to have much impact on the international motors market. Thus, utility set standards may have little impact. Manufacturers indicated that even the RPM program which covers the service territory of eight Wisconsin utilities (the majority of the state of Wisconsin) was too small a market to impact their manufacturing practices. Further, if the trends toward competitiveness continue among utilities, motor efficiency is just one of many services that might be offered to attract or retain customers. Utilities may become much less interested in providing universally targeted efficiency programs.

**Technological.** The motor market provides a good example of how technological advances can change the market. Over the last several decades there has been a gradual increase in the energy efficiency of "standard" motors, due to improvements in motor design, advances in material science, and pressure from utility incentive programs that promote purchase of energy efficient motors. There has also been a concurrent increase in the technical skills of distributors, as they respond to the increasingly technical nature of motor systems, and the growth of the adjustable speed drive market, which is more technically demanding than the "regular" motor market.

#### FUTURE EFFECTIVENESS OF THESE STRATEGIES

**Competitive Utility Climate.** A competitive utility climate could have two distinctly different impacts on market transformation. It may turn out to be a potential barrier to designing and implementing utility programs with persistent and far-reaching impacts, or, it may be the strongest catalyst of market transformation seen to date.

Market transformation requires widespread changes in behavior, beyond which could typically be achieved by one utility's efforts in their own service territory. As a result, utility programs designed to achieve market transformation invite collaboration by a number of utilities spread over a large customer or geographical base. A collaborative effort usually involves a "team" approach to program design, planning, and implementation. Program design efforts are usually most successful when they are built on past utility research, program experience and evaluation results. However, a competitive climate makes utilities extremely wary of sharing this information, lest the beneficiary of their advice take their customer base away. Utilities are also extremely sensitive to the nature of customer contact, and are unwilling to cede important customer contact opportunities to third party "coordinators." Unregulated collaboration is at best unusual, and at worst unheard of (although a frequently-cited example of competitive collaboration to gain market share is the Japanese model, which has been extremely powerful in capturing a dominant share of the automobile and electronic equipment industry through cooperative actions). Mandated efforts, such as those in WDS's charter, are useful in forging cooperative efforts, but not perfect, as participating utilities are still reluctant to share important customer information.

Competition may push utilities to establish closer relationships with trade allies and develop more comprehensive efficiency programs to provide better customer services and foster even more cost-effective program designs. Assuming these programs have similar goals, they may collectively be able to affect the market with the same force as a national collaborative. Competition may be the strongest driver of transformation to date.

**Utility Implementation Barriers.** Utility-driven market transformation requires long-term utility commitment. These commitments can be difficult for utilities because of the uncertainty of the impact of two important market forces, regulatory policies and industry competition. From a utility standpoint, the risk of commitment seems even more onerous in the short term as program expenditures in early years of program implementation are often large while energy savings are small. Further, the risk of other utilities being "free riders" on the program may discourage some utilities from supporting such collaborations. These utilities would see the benefits of transformation programs without incurring any of the costs. Until regulatory commissions encourage and reward utilities for long-term market transformation efforts, many utilities may be reluctant to participate in such efforts.

A final challenge related to the design and delivery of transformation programs is the short planning window often required in utility market research efforts. Extensive market research is often beneficial in planning transformation programs. However, this research requires time and resources that utilities can not often commit. More than ever, utilities must carefully prioritize their program goals and needs, and leverage their knowledge of the market by working with experienced parties.

**Measurement Approach.** Utilities need to establish approaches to measuring the market transformation effects of their programs. These include mechanisms for collecting and tracking trade ally (both distributor and manufacturer) behavior and sales patterns. In addition to assessing permanent changes, utilities should conduct follow-up surveys of target markets after programs are discontinued. A number of challenges were identified during attempts to establish a sales tracking system for the Wisconsin motors market.

Manufacturers were extremely reluctant to release detailed sales data. In addition, manufacturers do not track sales by state boundaries nor do they track efficiency of sales in such a way that allow easy sorting of motor sales by efficiency level (beyond those defined by NEMA). Manufacturers often track sales only to the first point of invoice, for example, to a regional distribution center. These motors may then be sold again to a distributor who in turn sales the motor to an end-user. There are several points at which the motor may be sold across state boundaries.

Tracking sales to end-users through distributor reported sales data also presents challenges. Actual sales data is extremely difficult to obtain from distributors. For the most part, they do not track sales of motors separate from sales of other products (e.g. bearings, belts, etc.), nor do they track them by efficiency. Sales are often tracked by part number rather than model number. Separating part numbers of motor sales from part numbers of other products would be very time consuming and would require access to a distributor entire sales records - access that most are not readily willing to provide. Distributors on the other hand, are willing to provide estimates of sales and the breakdown of sales by motor size and efficiency. Clearly, though this type of self reported data has its limitations.

## CONCLUSION

The market for efficient motors is changing and clearly has been changing from some time. There are a variety of factors driving these changes. Technological advances have occurred resulting in an increase in the efficiency of motors on the market. Competitive pressures are causing end-users to reduce operating costs. Regulatory actions are forcing manufacturers to change production patterns. Finally, utility and government education and incentive programs are influencing end-user motor purchases as well as motor distributor stock.

One of the messages that comes through strongly in the evaluation of the Wisconsin motors program was that market transformation programs have to be multifaceted. Market transformation efforts are most effective when focused on all stakeholders - including the end-user, distributor and manufacturer. While traditional utility rebate programs have helped "seed" the market by providing demand for energy efficient motors, the RPM program's marketing focus on motor distributors provided both the tools and incentive needed for distributors to market and stock energy efficient motors. Concurrent Wisconsin utility rebate program features such as instant and vendor rebates allowed utilities to leverage the marketing resources of motor distributors. Finally, Federal standards will raise the ceiling efficiency of motors on the market. All of these factors played an important role in the increased penetration of energy efficient motors in Wisconsin.