

# Asking the Tough Questions: Assessing the Transformation of Appliance Markets

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## ABSTRACT

As the market shares of ENERGY STAR<sup>®</sup>-qualified appliances have grown, program managers and funding agencies have begun to ask when resources might be shifted to other energy efficiency programs. In the 2000 Summer Study, David Hewitt (2000) posited several questions to help assess the extent to which a market has been transformed, including:

- Is someone making money by offering it?
- Has a private market developed to continue the facilitation?
- Has the profession or trade adopted it as a standard practice?
- Would it be difficult or costly to revert to earlier equipment or practices?

This paper attempts to answer these questions with respect to the U.S. markets for selected appliances. The paper assesses the context in which decisions about appliance programs must be made, including evidence of past program effectiveness, current market shares, competition among programs for limited budgets, recent and upcoming revisions to federal appliance standards and ENERGY STAR specifications, remaining technical potential, and federal tax credits available to manufacturers in 2006 and 2007. Finally, the paper examines remaining barriers to and opportunities for increased efficiency in selected appliance markets, as well as approaches being considered by various program sponsors.

Sources include interviews with program administrators in several states, market share data, evaluation results, and review of federal standards, ENERGY STAR specifications, and the recently enacted federal energy bill.

The evidence discussed in this paper provides a basis for decision-makers to review and refine their appliance programs in light of relevant, previously specified criteria.

## Introduction

This document summarizes research conducted by the Nexus Market Research (NMR) team to assess remaining opportunities for increasing efficiency in selected appliances markets and possible responses by the Massachusetts ENERGY STAR Appliances Program, sponsored by Cape Light Compact, National Grid, NSTAR Electric, Unitil, and Western Massachusetts Electric (the sponsors). This research is based on the following:

- A group interview conducted with the sponsors' program staff
- Interviews with representatives of the following organizations:
  - Connecticut Light & Power (CL&P)

- Consortium for Energy Efficiency (CEE)
- Energy Trust of Oregon (ETO)
- Northeast Energy Efficiency Partnerships, Inc. (NEEP)
- Northwest Energy Efficiency Alliance (NEEA)
- NYSERDA
- Sacramento Municipal Utility District (SMUD)
- San Diego Gas & Electric (SDG&E)
- Wisconsin Focus on Energy
- Review of documents related to the above programs as well as analyses by other relevant organizations (ACEEE)
- Review of federal standards, ENERGY STAR specifications, and the recently enacted federal energy bill
- Reporting on key discussions at the ENERGY STAR Appliances Partner meeting held on September 29 and 30 in Saratoga Springs, New York (Reed 2005)

In this paper, we first outline the context in which decisions about the future of the Massachusetts ENERGY STAR Appliances Program will be made. We follow this with a summary of the energy efficiency community's views on the progress toward market transformation, an assessment of remaining barriers and opportunities, and an overview of tacks being taken by other appliance programs. We then offer our conclusions and recommendations.<sup>1</sup>

## **Context**

A number of current and changing conditions provide the context for assessing selected appliance markets and possible responses by the sponsors of the Massachusetts ENERGY STAR Appliance Program (the sponsors). On one hand, some conditions suggest that the demand for ENERGY STAR-labeled appliances would not change appreciably if regional appliance programs were scaled back, or even eliminated. On the other hand, some conditions suggest that maintaining involvement of the sponsors is necessary to sustain and promote the development and production of increasingly energy-efficient products—and, in turn, to produce higher energy savings. Some of these conditions are discussed below.

## **Evidence of Past Program Effectiveness**

Evaluations conducted for the sponsors conclusively show that past program efforts have helped increase the market shares of ENERGY STAR-labeled appliances in Massachusetts and thus have saved energy, and that these program effects carry over from year to year, although the cost-effectiveness of these efforts may be limited. In addition, there has been a spillover effect from promotion of ENERGY STAR-labeled clothes washers—that is, these promotional efforts have not only increased the market share of ENERGY STAR-labeled clothes washers, but of other ENERGY STAR appliances as well. Although the existence of this effect beyond appliances remains purely speculative at this time, it may be that the spillover effect from clothes washers carries over to non-appliance product types (e.g., lighting products) carrying the ENERGY STAR label as well. The effectiveness of the program to date in increasing the market

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<sup>1</sup> These conclusions and recommendations do not necessarily represent the views of program sponsors.

shares of ENERGY STAR-labeled appliances suggests that continuing the program could produce higher ENERGY STAR-labeled appliance market shares than would occur if sponsor involvement were reduced or eliminated. This judgment is supported by the results of Delphi group projections, which show high levels of market shares without a continuing program, but even higher levels if programs were to continue (included in Nexus Market Research 2004).

### **Remaining Technical Potential**

The savings of an ENERGY STAR-labeled clothes washer compared to a non-ENERGY STAR-labeled clothes washer under current standards and specifications are about 38%, or 290 kWh/year; after the new federal standard and the new ENERGY STAR specification are introduced in 2007, the savings will be about 30%, or 250 kWh/year—still fairly substantial. Savings of CEE Tier 3 over the current federal standard, which will be in effect until 2007, are about 70%, or 471 kWh/year. Currently, 124 clothes washer models meet CEE Tier 3, with at least one model made by each of 22 manufacturers.

In contrast, for a typical 21 cubic-foot top-mounted freezer refrigerator, the annual savings from an ENERGY STAR-labeled model compared to one that is not ENERGY STAR-labeled under current standards and specifications are only 78 kWh, or 15% of energy use by a non-qualifying refrigerator. ENERGY STAR refrigerators use at least 15% less energy than required by the current federal standard and only six models of 14 cubic feet or more are at least 25% better than the *current* federal standard. ACEEE says that, barring a shift in technologies (such as the introduction of thermo-acoustic refrigeration), the technical potential for increased efficiency in refrigeration is approaching zero (Nadel 2002). Even with improvements in technology, the potential savings are small, given that achieving 25% better than the current federal standard would mean that an average refrigerator would consume only one kWh per day. This makes it unlikely that an effort to stimulate the introduction of technology improvements, such as the Super Efficient Refrigerator Project (SERP) of the 1990s, would be cost effective, or that sponsors will be able to rely on refrigerator incentive programs for substantial energy savings in the future.

### **Competition among Programs for Limited Resources**

Because of limited budgets and its relatively low cost-effectiveness, the merits of the Massachusetts ENERGY STAR Appliances Program must be weighed against those of other programs with higher savings (e.g., lighting) and those with legislative mandates (e.g., MassSAVE, a program designed to improve efficiency in existing homes). The relatively small differences in energy use between ENERGY STAR and non-ENERGY STAR models for some appliances also argue for reviewing and possibly modifying program designs. Options to be considered include:

- Concentrating program efforts on those ENERGY STAR appliance types producing enough savings to make the program competitive with other residential programs,
- Being more selective as to the timing and duration of incentive offerings, and
- Calling for more manufacturer and retailer contributions to marketing.

## **Current Market Shares**

According to DOE data gathered by D&R, the market shares for ENERGY STAR-labeled appliances sold by national retailers in 2004 in Massachusetts were 55% for room air conditioners, 80% for dishwashers, 39% for refrigerators, and 39% for clothes washers; nationally, the figures were 35% for room air conditioners, 78% for dishwashers, 33% for refrigerators, and 27% for clothes washers. Hence the potential for higher market share for dishwashers, at least, is limited.

## **Upcoming Revisions to Federal Standards and ENERGY STAR Specifications**

The difference between federal standards and ENERGY STAR specifications represents the potential savings resulting from the sale of a new ENERGY STAR unit rather than the sale of a new non-ENERGY STAR unit. In the case of dishwashers, 92.5% of dishwasher models currently qualify for the ENERGY STAR label, and many regional sponsors have not been promoting them. When the new specification goes into effect in January of 2007, only 15% of currently available models will qualify (Karney 2005), and regional sponsors may reconsider. Even so, the protracted process for setting new standards and specifications limits opportunities for savings from programs that are tied strictly to ENERGY STAR.

## **Early Retirement and Recycling**

Because federal standards have become more stringent over time, savings from a new ENERGY STAR appliance compared to an older appliance are much greater than the savings from a new ENERGY STAR unit compared to a new non-ENERGY STAR unit. Hence getting consumers to retire an appliance earlier than they would have otherwise—if the used appliance is recycled and kept out of the market—can potentially increase savings substantially, depending on assumptions about how many years early the appliance is retired.

## **Federal Tax Credits**

The recently passed federal energy bill provides tax credits for manufacturers (see the summary and analysis in Nadel 2005). These incentives are only for increases in sales relative to average sales over the last three years (2002, 2003, and 2004) of domestically manufactured appliances; for refrigerators, the three-year average is multiplied by 110% before the incentives apply. The incentives are capped at \$75 million per manufacturer over two years (2006 and 2007), which could be a limitation for Whirlpool, especially after its takeover of Maytag. An unknown is what proportion of these incentives will actually be passed on to consumers. The federal incentives are as follows:

- Clothes washers: \$100 per unit meeting the 2007 ENERGY STAR level—payable in both 2006 and 2007
- Refrigerators:
  - \$75 per unit that is 15% to 19.9% better than the current federal standard—payable only in 2006

- \$120 per unit that is 20% to 24.9% better than the current federal standard—payable in both 2006 and 2007
- \$175 per unit that is at least 25% better than the current federal standard (currently applying only to six models of 14 cubic feet or more, as noted above)—payable in both 2006 and 2007
- Dishwashers: \$3 for each percentage point of energy savings relative to the previous ENERGY STAR specification of 0.58 EF—payable in both 2006 and 2007. Given that the new ENERGY STAR specification is set at an Energy Factor of 0.65, this is 10.8% savings relative to the previous specification, and the credit per unit will be \$32.31 (\$3 x 10.8).

## **CEE Tiers**

To help support the promotion of appliances that go beyond ENERGY STAR levels of efficiency, CEE has developed tiers for clothes washers, dishwashers, refrigerators, and room air conditioners. Some utilities and energy efficiency organizations provide higher incentives for appliances meeting these higher criteria, or no incentives for the lower levels. (This topic is discussed in greater detail later in this paper.)

## **Summary of Context**

Some factors suggest that reducing or eliminating at least some components of ENERGY STAR appliance programs, such as that of the Massachusetts sponsors, would not severely impair the achievement of the long-term market transformation goal of increasing the market shares of ENERGY STAR-labeled appliances. Specifically, these factors include the current level of market share, evidence of multiyear program effects, the diminishing levels of technical potential for several appliances, upcoming revisions to federal standards, and projections from Delphi analyses. Overall, these factors suggest that the program should be heading toward elimination. However, other factors suggest that maintaining regional ENERGY STAR appliance programs, even if somewhat modified in scope or in size, could result in ENERGY STAR appliance market shares and associated energy savings measurably higher than under a no-program scenario. These factors include the development of CEE tiers, the short-term opportunity represented by the federal tax credits, and a renewed appreciation of early retirement and recycling. Additional discussion of relevant findings follows.

## **Assessing Progress toward Market Transformation**

Hewitt (2004) has posited questions to help assess the extent to which a market has been transformed:

- Is someone making money by offering it?
- Has a private market developed to continue the facilitation?
- Has the profession or trade adopted it as a standard practice?
- Would it be difficult or costly to revert to earlier equipment or practices?
- Are end-users requesting or demanding it?
- Have the risks to private market actors been reduced or removed?
- Are purchasers satisfied with it?

In interviews with program representatives, we asked them to assess selected appliance markets according to these criteria. Their responses, as summarized in Table 1, were largely consistent across organizations. The collective view of those in the energy efficiency industry appears to be that the various markets for energy-efficient appliances would continue in the absence of regional programs, but that they would not grow as fast and would not develop toward higher levels of efficiency. What seems to be missing is a feedback loop between consumers and suppliers, signaling the demand for increasingly energy-efficient appliances. Consumers might buy relatively efficient models, but on the whole they do not demand ever higher levels of efficiency on their own; pushing that envelope is the role of the regional programs in conjunction with the national ENERGY STAR program.

**Table 1. Interviewees' Assessment of Extent of Transformation of Appliances Markets**

Question	Consensus Response
<i>Can/would manufacturers and retailers make money by offering ENERGY STAR appliances without individual regional program support—only that of EPA/DOE? (Original: Is someone making money by offering it?)</i>	Yes, but not as much. There is consumer demand, but regional programs help stimulate it and also provide education for retail staff.
<i>Will manufacturers continue to develop more efficient models and will retailers continue to market them without individual regional program support? (Original: Has a private market developed to continue the facilitation?)</i>	They would continue to promote the models they already have, but not push the envelope of efficiency.
<i>Are high efficiency models now a mainstream option? (Original: Has the profession or trade adopted it as a standard practice?)</i>	Yes, efficient models are on the sales floor and do not need to be specially ordered. Features other than energy efficiency remain as important as energy efficiency, or more so, to many consumers; however, high-end models with extra features are also likely to be ENERGY STAR.
<i>Would it be difficult or costly to revert to earlier equipment—that is, dropping ENERGY STAR models? (Original: Would it be difficult or costly to revert to earlier equipment or practices?)</i>	Yes, because it can be costly to change manufacturers' production lines. But new models have to be introduced anyway, which means changing production lines, so ENERGY STAR models could be dropped in the future or their share of total production could be reduced. It's also possible that models more efficient than those currently available could come from manufacturers outside the U.S., such as Europe, Japan, China, and Australia.
<i>Are end-users requesting or demanding ENERGY STAR products? Would there be sufficient consumer demand without regional program support? (Original: Are end-users requesting or demanding it?)</i>	High energy prices would continue to drive consumer demand. Many consumers are now looking for the ENERGY STAR label, but demand would not increase as much without regional program support. There is a need for brand maintenance at the local level, evidenced by the higher awareness of ENERGY STAR and demand for ENERGY STAR products in areas with active programs than in areas without such programs.
<i>Have the risks to private market actors for manufacturing or marketing ENERGY STAR appliances been reduced or removed? (Original: Have the risks to private market actors been reduced or removed?)</i>	Yes, they have been reduced, though not entirely removed. Market actors have seen that they can be successful in the market for these appliances with the sponsors' support. For current levels of efficiency, risks may be removed; but for developing increasing levels of efficiency, risks continue to exist, and manufacturers may not be willing to lay out development costs without program support.
<i>Are purchasers satisfied with ENERGY STAR products? (Original: Are purchasers satisfied with it)</i>	Yes. Interviewees say there are no major negative attributes except costs—unlike with certain CFLs, for example.

## Remaining Barriers and Opportunities

We also asked respondents about the remaining opportunities and barriers for each appliance type. Their responses are summarized in Table 2. Across all appliance types, the lack of knowledge among consumers and retailer sales staff is a major barrier, presenting an opportunity for continued education and training.

Nearly all respondents agree that there are few current opportunities with dishwashers, although many plan to revisit the dishwasher market when the new ENERGY STAR specifications, based on the new test procedure,<sup>2</sup> go into effect in January of 2007.

Refrigerators, as mentioned earlier, appear to be reaching the point at which further efficiency gains cannot be attained using current technology, and the minimum ENERGY STAR specifications are not appreciably higher than minimum federal standards. However, the highest tiers of efficiency do represent considerably more savings. For this reason, some of the interview respondents believe that the market share for the most efficient models could be increased by structuring rebates to match up with the highest tier receiving federal tax credits. Since few models at the highest efficiency tier now exist, manufacturers may otherwise be more likely to promote refrigerators at a slightly lower tier, for which they will still receive federal tax credits. By encouraging the sales and further development of the most efficient models, these respondents argue, energy efficiency advocates could justify setting the next (and probably final, given current technology) revision of federal standards at a higher efficiency level.

Room air conditioners represent modest, but important, opportunities for summer peak load reduction, especially in the Northeast, where they are more common, and for early retirement and recycling of older models. The number of low-cost models is proliferating, which to some extent has made them a commodity, but the low prices carry over to ENERGY STAR models as well.

Clothes washers provide the greatest savings per unit, especially at the higher tiers of efficiency. However, some respondents believe that promoting higher-tier clothes washers at the expense of lower-tier but still ENERGY STAR-qualified models could create consumer confusion and dilute the value of the ENERGY STAR brand. Those who have tried promoting the higher tiers say this is not the case, and that in fact the majority of their rebates are for higher-tiered models, leading to substantially greater savings. To avoid confusion, for example, the Energy Trust of Oregon website lists qualifying clothes washers as "ENERGY STAR Premium Efficiency Clothes Washers" and carries the ENERGY STAR logo. The website also says "Energy efficiency levels of ENERGY STAR qualified clothes washers vary. To get the very highest level of efficiency, saving you the most on your energy consumption, look for premium efficiency washers. These clothes washers have a Modified Energy Factor (MEF) of 1.8 or higher." In sales training for retailers and some point-of-purchase (POP) materials, ENERGY STAR is referred to as "the best" and Premium Efficiency as "the best of the best." POP material for this program also notes the percentage savings over standard models.

Other appliances might also be considered. For example, there are heat pump dryers on the market, which offer some additional savings potential. In contrast, dehumidifiers, because of high ENERGY STAR market share and relatively low savings, appear to present few opportunities except early retirement of older models.

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<sup>2</sup> As pointed out in *Consumer Reports* 2001, the old testing procedure involved washing clean dishes; Consumer Reports found that some non-ENERGY STAR models used less energy than some ENERGY STAR models when tested with dirty dishes.

**Table 2. Opportunities and Barriers in Selected Appliances Markets, based on Interviews with Energy Efficiency Program Experts**

<b>Appliance</b>	<b>Barriers</b>	<b>Opportunities</b>
<b>General</b>	Lack of consumer knowledge Consumer inertia—tendency to buy whatever appliance they had before Retailer staff turnover/lack of knowledge Manufacturers don't fully embrace ENERGY STAR—e.g., they don't pick up advertising costs—not part of their core business model Rebates tend to go to better-off customers	New construction and renovation as bulk purchasing opportunity Consumer education—convince consumers they can recoup extra costs over time Retailer training
<b>Clothes washers</b>	Higher first cost “Coolness” of products could be fleeting—consumers need to understand value Efficiency tiers may create problem of consumer confusion and devalued ENERGY STAR brand	Higher savings than other appliance types Promoting higher efficiency tiers Tying in with water savings (especially in Western U.S.) Other non-energy benefits
<b>Dish-washers</b>	ENERGY STAR specifications have not been high enough to differentiate Test procedures have been weak and allowed far more models to qualify as ENERGY STAR than is truly appropriate	Not much savings previously, but many programs will revisit with new ENERGY STAR specifications
<b>Refrigerators</b>	Higher first cost ENERGY STAR specifications not high enough to differentiate; low savings Not a lot of non-energy benefits May be approaching limits of technical feasibility with regard to achieving more savings	Relatively low market share, could go higher Tiered rebates to match and leverage tax credits Kick-start the 2007 specification—more substantial savings at higher tiers Turn-ins/recycling of older units
<b>Room air conditioners</b>	Not a high profit margin for retailers or manufacturers; therefore hard to persuade them to match (and thereby leverage) sponsor incentives Cheap products coming in from overseas—almost becoming commodity	Mobile homes, apartments, and older homes Load reduction, especially in Northeast where these products are more common Low prices also carry over to ENERGY STAR models, which are now carried by more types of stores, such as supermarkets Turn-ins/recycling of older units
<b>Dehumidifiers</b>	ENERGY STAR specifications not high enough to differentiate	Turn-ins/recycling of older units

## Other Approaches to Appliance Programs

We relied on interviews with other groups offering appliance programs, as well as review of their program documentation, to determine the current and likely future configuration of these programs. Many programs offer rebates for the higher CEE tiers of clothes washers, and many exclude or will exclude lower tiers from rebates. Of the programs represented, only Wisconsin Focus on Energy, some of the smaller NEEA utilities, and CL&P are offering rebates in 2006 for clothes washers meeting minimum ENERGY STAR criteria, and only the first is rebating all CEE tiers equally.<sup>3</sup> Oregon is unique in that the state offers sizable consumer tax credits for purchasing energy-efficient appliances, including clothes washers in any tier.

<sup>3</sup> It should be noted that the Wisconsin program involves matching funding from manufacturers.



NYSERDA is offering incentives to retailers for reaching targeted market share levels for ENERGY STAR-labeled clothes washers. Given this incentive structure, retailers are obliged to provide sales data to support monitoring and evaluation of NYSERDA's program.

Many programs offer rebates for room air conditioners, and others offer limited recycling programs such as turn-in events. CL&P currently has an extensive recycling program, although it is uncertain whether this will continue; SDG&E started offering incentives for recycling room air conditioners in 2006. Again, NYSERDA offers incentives to retailers for reaching targeted market share levels for ENERGY STAR-labeled room air conditioners, which are linked to the provision of sales data.

Many programs offer relatively modest rebates (i.e., \$50 at the most) for full-sized ENERGY STAR refrigerators. Others also offer recycling rebates. Uniquely, the state of Oregon offers a tax credit.

Of the programs reviewed, only those of SDG&E and Wisconsin Focus on Energy offer rebates for dishwashers (\$30 and \$15, respectively). Many respondents, however, say they will reconsider their treatment of dishwashers now that the ENERGY STAR test procedure has been revised and the qualifying specifications are clarified. Again, the state of Oregon is unique in offering a tax credit.

The most consistent theme running through all of these programs is the need to provide retailer support, including salesperson training, point-of-purchase (POP) materials, and—sometimes—advertising support. Several programs also emphasize promoting higher tiers, especially for clothes washers, both to achieve greater immediate savings and to help establish the viability of more efficient models, and thus influence later standards. In California, at least, utility sponsors can receive credit from regulators for influencing state standards, thus validating this outcome as an important program goal and ensuring that it receives appropriate attention.

## Conclusions and Recommendations

Based on the above findings, the research team drew the following conclusions and made the following recommendations for the Massachusetts Program. The recommendations addressed the sponsors' interest in promoting increased appliance efficiency through the Massachusetts ENERGY STAR Appliance Program in ways that would produce measurable savings and result in a program that can justify funding from the competitive residential budget.

### Refrigerators

Opportunities for further increases in efficiency using current refrigerator technology appear to be nearing an end—and end is probably about 25% to 30% better than the current federal standard. There will likely be only one more federal standard issued, probably effective in 2011, in the absence of any technological breakthroughs. Meanwhile, the sizable federal tax credits payable to manufacturers in 2006 and 2007 match CEE tiers.

The end of the technology improvement curve, coupled with the tax credits, represents a one-time opportunity for achieving market transformation. *We recommend offering fairly substantial consumer incentives for CEE Tier 3 to help push manufacturers to offer more such models, and thus make it more likely that the final federal standard will be 25% higher than the current standard.* The number of incentives that would have to be paid, at least initially, would likely be fairly small, since there are currently only six models available meeting these criteria.

Assuming that other regional programs also take the same tack, this represents an opportunity to achieve transformation of the market and walk away.

## **Dishwashers**

Given the high market share of ENERGY STAR dishwashers, it has made little sense to offer any incentives until the new ENERGY STAR specification, based on improved testing procedures, goes into effect in January of 2007. Savings from ENERGY STAR dishwashers meeting the new specification will be at least 25%, or about 300 kWh over minimum federal standards—comparable to the savings from ENERGY STAR clothes washers. *We recommend reexamining dishwasher incentives now that the new ENERGY STAR test procedures and related specifications have been established.*

## **Room Air Conditioners**

ENERGY STAR room air conditioners are estimated to save only a moderate amount of energy per unit, although the estimates are based on assumptions rather than actual data. Demand savings are also largely undocumented. *We recommend a review of existing studies documenting coincident demand impacts at a minimum and, if feasible, a study of actual hours of use and associated energy and peak demand savings, which will either verify current impact estimates or produce more defensible energy and demand impact estimates.*

Given prices that are frequently well below \$100, a \$25 incentive for a room air conditioner can be fairly substantial, although for larger models it may not be as compelling. However, consumers' purchase decisions for room air conditioners appear to be driven by availability—what is in stock, especially on hot days. Therefore, it may be more important to influence retailers than consumers. *In lieu of rebates for consumers, we recommend considering retailer incentives based on stocking, or on exceeding sales quotas using an approach similar to that of NYSERDA.*

## **Clothes Washers**

Clothes washers remain the linchpin of most appliance programs, including that of the sponsors—and arguably of the entire ENERGY STAR line—both because of substantial energy savings and, from consumers' perspectives, even more because of significant non-energy benefits. As mentioned earlier, there has been a spillover effect from promotion of ENERGY STAR-labeled clothes washers—that is, these promotional efforts have not only increased the market share of ENERGY STAR-labeled clothes washers, but also that of other ENERGY STAR appliances as well. Insofar as the sponsors rely on ENERGY STAR as a brand, this argues for continuing to provide some clothes washer incentives, although perhaps with different timing or with the assistance of greater contributions by other market actors.

Whether these incentives should cover all ENERGY STAR clothes washer models or only those at higher CEE tiers is a separate question. Some experts have expressed concern that offering incentives for some but not all ENERGY STAR models will dilute the value of the brand. The success of other programs with a tiered approach, however, argues against this interpretation. Also, the current relatively high market share of ENERGY STAR clothes washers makes paying incentives for all minimally qualifying units less and less affordable. The

federal tax incentives available to manufacturers offer an opportunity for leverage by the sponsors. The tax credit will be \$100 for every unit sold in both 2006 and 2007 that meets the 2007 ENERGY STAR specification, which will have an MEF of 1.72, compared to the MEF of 1.80 provided by CEE Tier 3. In 2006, the savings of CEE Tier 3 over the federal standard are 471 kWh/year. *In order to influence the ongoing DOE rulemaking and “kick-start” the 2007 specification, maximize the savings per rebated unit, and push manufacturers toward more efficient models by leveraging the federal tax credits, we recommend offering incentives only for CEE Tier 3 in 2006. We also recommend attempting to persuade other programs that do not already do so to take the same approach, in order to maximize leverage with manufacturers.*

## **Incentives**

Should the sponsors decide to continue offering rebates it will be important to explore options that will maximize savings per rebate dollar. *We recommend considering the Wisconsin Focus on Energy approach in which the sponsors set the maximum rebate level they will pay for each appliance and negotiate specific rebate levels with each manufacturer, so that each party (sponsor and manufacturer) pays 50% of the total rebate to consumers. As stated earlier, we also recommend that the sponsors provide incentives only for the most efficient tiers of appliances.*

## **Overall**

Given the proven effect of the sponsors’ program on increased market shares for ENERGY STAR appliances, and given the central role of clothes washers in promoting a positive view of the label, it is important to maintain an ENERGY STAR appliance program. This should include the provision of sales training and marketing support to retailers, as well as consumer incentives for one or two product types in order to maintain the visibility of ENERGY STAR and to help push manufacturers toward higher levels of efficiency. The sponsors can cut back on program spending considerably by reducing rebate expenditures. However, the strategies of major national consumer advertisers (e.g., McDonald’s, Procter & Gamble, General Motors, *et al.*) strongly suggest the need for active and frequent efforts to maintain customer exposure and interest in the recognition that consumer awareness is otherwise likely to fade over time. It therefore seems likely that program sponsors will need to keep other support mechanisms in place to avoid major backsliding—perhaps not in one or two years, but certainly over a three- to five-year period and beyond.

It is also important for regulators to recognize that the cycle of market transformation leads to changes in minimum standards. Accordingly, they should be encouraged to credit the sponsors, where warranted, for facilitating the technical and market changes that allow for increases in these standards. *We recommend approaching regulators about receiving some credit for changes in federal standards, going beyond the lead established by California, which credits utilities with changes in state, not federal standards, provided the utilities can show a direct link between their own actions and the standards outcomes.*

The meaning of the label is eroded when a large proportion of models qualify, as has been the case with dishwashers. *We recommend that the sponsors encourage DOE to speed up the process of setting new specifications to maintain the proportion of qualifying models at or below 25%.*

*We also recommend that the sponsors consider requiring retailers participating in their program to provide sales data; while this is already done for regional and independent retailers in New York and Massachusetts, such a requirement should be expanded to include the national chains—a requirement that would have to be instituted at the federal level.*

As pointed out earlier, complete withdrawal from appliance markets would probably be accompanied by the short-term maintenance of but not a substantial increase in the market share of ENERGY STAR appliances, and without other regional programs, would probably mean considerable slowing of further advances in the efficiency of available models. The leverage of DOE and EPA with manufacturers in the absence of support from regional partners would be considerably diminished. Indeed, continuing efforts by the federal agencies may be themselves reduced without support by regional partners. At a minimum, therefore, we recommend:

- *Maintaining liaison with CEE and with DOE/EPA,*
- *Lobbying for higher federal standards and ENERGY STAR specifications,*
- *Lobbying for mandatory market share reporting by national retail partners,*
- *Continuing to support retailers with sales training, POP, etc.,*
- *Continuing to support awareness advertising,*
- *Working to entice manufacturers to continue technology research and development regarding appliance efficiency, and*
- *Continuing to monitor and report progress.*

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