

International Comparison of Appliance Efficiency Awards for Manufacturers and Retailers

*John Romankiewicz, Nan Zhou, Nina Zheng, and David Fridley
Lawrence Berkeley National Lab*

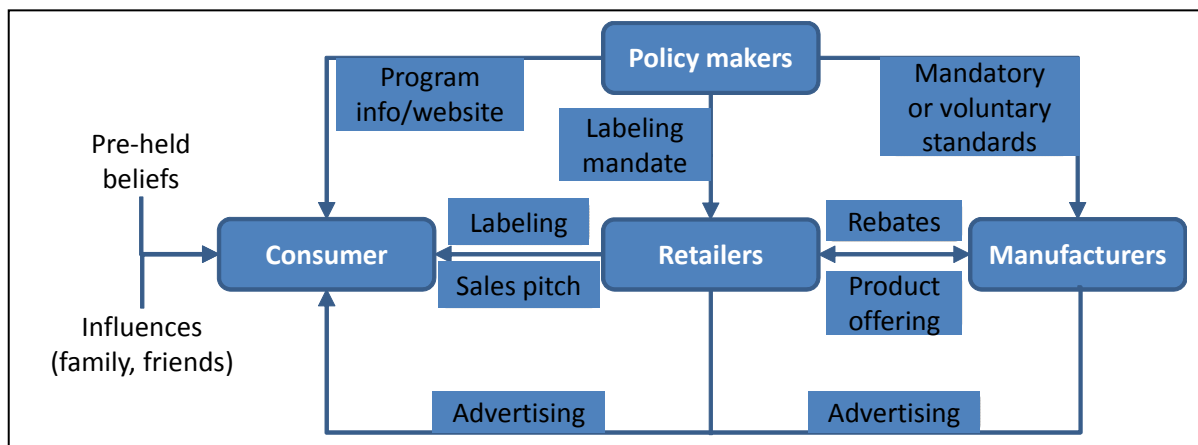
ABSTRACT

An important aspect in mandatory and voluntary labeling programs is awards and special recognitions for manufacturers who have gone above and beyond standard requirements in producing energy efficient appliances. Such programs have a long history in Japan and in the U.S. EPA's ENERGY STAR program. However, many consumers are often undereducated on energy efficient appliances before they go shopping, so the retailers' qualifications are also significant. For this reason, the ENERGY STAR program and Japan also award retailers based on their sales, employee knowledge and training, as well as marketing and consumer education. In this paper, the methodologies and processes for awarding manufacturers and retailers will be examined and compared for Japan, the U.S., and China. The paper will conclude with recommendations for how retailer award programs might be introduced to China.

Introduction

There are many factors that influence a consumer's choice when buying a new appliance. Figure 1 outlines the main direct and indirect avenues of influence. The main direct factors impacting consumers before they go to a store are pre-held beliefs, close influences (such as family and friends), advertising from retailers and manufacturers, and program information from the government. At the store, the consumer can also be impacted directly by information found on labels as well as any pitch or information provided by sales associates.

Figure 1. Patterns of Influence on Consumer in Appliance Purchases



Source: Adapted from Banks 2002

Policymakers indirectly influence the consumer's decision by setting standards and labeling requirements for manufacturers and retailers to abide by. Manufacturers (and also

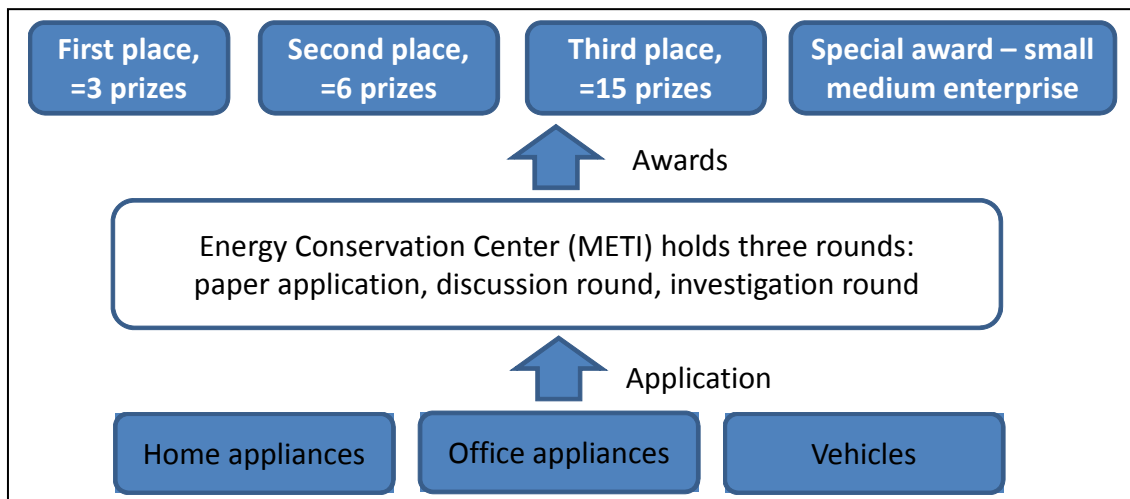
energy efficiency program sponsors) can influence consumer decisions by offering rebates. Retailers can increase the percentage of energy efficient appliances in their product offering.

Appliance efficiency awards reward manufacturers and retailers for their efforts in getting more efficient appliances into the marketplace. In Japan, the awards go to specific products that go beyond the level of mandatory standards and have increased market appeal to the consumer. In the U.S., awards are given to manufacturers for their efforts in advertising and product offering (number of ENERGY STAR appliances offered) and to retailers for their efforts in labeling, advertising, sales training, and product offering. Essentially, the awards programs are targeting how much the manufacturers and retailers have increased their power of influence over the consumer in purchasing a more energy efficient appliance. This paper will explore how the awards do that in Japan, the U.S., and China and will compare award methodologies. While standards and labeling programs bring generous savings to the consumer, energy efficiency awards programs can help countries, especially many developing economies like China, achieve greater levels of savings.

Japan Manufacturer and Retailer Awards Overview

Japan has a long history of giving awards to energy efficient enterprises, going back as early as 1948. This section will focus on Japan’s Energy Conservation Grand Prize, an award program that started in 1990 to award exceptionally efficient end-use products in the residential, commercial, and vehicle sectors. The award program complements Japan’s Top Runner standards programs. As opposed to the U.S. ENERGY STAR awards which are given out to companies, these awards are mostly given out to products (appliances such as refrigerators or televisions, systems such as HVAC, or vehicles). The contest is run by the Energy Conservation Center of Japan, under the Japan Ministry of Economy, Trade, and Industry (METI). There is a selection committee comprised of 28 people, of which 40% are from research institutions or universities and 60% are from industry or industry associations.

Figure 2. Japan’s Process for Awarding Energy Conservation Grand Prize



Source: Adapted from CNIS 2011a

The award categories are displayed in Figure 2. The highest amount of prizes to be rewarded in any given year is 25, although there is no requirement to give this many prizes every

year. For instance, if the committee feels that there are no exceptional commercial product applications, then there simply will not be a prize for that category that year. The evaluation criteria for each appliance or system receiving are energy efficiency (1/3 weighting), recyclability (1/6), technological innovation (1/6), market appeal (1/6), and environmental improvement properties (1/6). Every year, the committee will review applications in three rounds of review for the Energy Conservation Prizes. First, they review the applications on paper in August, then in a committee discussion round in September, and finally through on-site investigations in November. Final decisions are made in December with an awards ceremony in February of the following year.

Japan also has a program and award for retailer promotion of energy efficient appliances. In 2003, METI began the e-Shop Commendation System, a program to recognize retail stores that excelled in promotion of energy-efficient appliances. When the program started, METI initially targeted stores with over 1,000 square meters of sales space, since larger stores accounted for more than half of all household appliance sales. Stores were asked to submit a paper application, which was judged on a 100 point scale (Table 1). Stores with scores in the top 30% moved on to the second round, where they were judged a second time with a site visit; a survey researcher checked the original submitted material and decided on a final point score. The top 25% of those in the second round received the eShop commendation, and are allowed to use the official eShop logo. In 2003 and 2004, 475 stores and 452 stores applied, respectively, with 43 stores receiving eShop commendations in both years. Additionally in 2004, the 43 stores were visited a third time (unannounced) for a final evaluation, and six were selected to received special awards including: the METI Minister's Prize (1 award), Environment Minister's Prize (1 award), Energy and Resource Agency Director's Prize (2 awards), and the Energy Conservation Centre Japan President's Prize (2 awards).

Table 1. Japan's eShop Retailer Award Evaluation Criteria

Evaluation Category	Example of criteria	Points
Management policies	Sales goals for energy efficient products, principles for selling energy efficient products	10
Sales staff knowledge	Training, whether staff is recommending energy efficient products to consumers	10
Display and explanation of eMark	Displays explaining eMark label, eMark logo used in ads, proper placement of eMark on products	38
Sales of high efficiency equipment	Percentage of products sold that meet Top Runner standards; more points given for products going above standard; total points divided by total products sold, then evaluation based on range seen across applicants	40
Energy efficiency of the store	Efforts to decrease electricity consumption at store	2
Other	Store's original initiatives	N/A
Total points		100

Source: Murakoshi et al. 2005

While some management policies are evaluated, such as how employees are trained and the existence of sales goals for energy efficient products, the bulk of the score comes from advertisement and explanation of the eMark product label and actual sales of energy efficient

products. The evaluation scores for all stores are publicly released to all applicants. Workshops are held on the eShop system, with an eye to introduce best practices to those stores that did not receive commendation or that are aiming to receive an award.

A METI press release from March 2010 indicated that 796 stores applied and of those 695 were certified as “Excellent Retail Stores of Energy Efficient Products.” The press release also indicated that this certification lasts for three years, at which point the store has to reapply. Of all the applicants, the same amount of awards (six) was given out to the top applicants.

U.S. EPA ENERGY STAR Awards Overview

Every year, the U.S. Environmental Protection Agency (EPA) holds an ENERGY STAR awards ceremony to honor the partner organizations (manufacturers, retailers, utilities, etc.) that have made outstanding contributions to energy efficiency improvements and promotion of ENERGY STAR products. The ceremony has an associated application process which typically starts 3-4 months ahead of the ceremony. There are three award categories: Partner of the Year, Award for Excellence, and Award for Sustained Excellence.

Additionally, the ENERGY STAR program launched two new pilot programs in 2011: the Most Efficient product designation and the Emerging Technology Award. While the ENERGY STAR awards program seeks to recognize retailers’ and manufacturers’ best practice in selling ENERGY STAR products, the Most Efficient designation and Emerging Technology Award seek to recognize manufacturers who are pushing the next stage of innovation in energy efficiency for products that may not be commercially available yet. The following section will focus on the ENERGY STAR awards program and give details from the experiences of retailers’ and manufacturers’ participation in the program.

Partner of the Year and Awards for Excellence

The awards program started in 1993, not long after the ENERGY STAR program itself. Initially, it was designed for manufacturers, but in 1996, the first awards for retailers were given. The Partner of the Year and Award for Excellence have associated categories for which the awards are given, shown in Table 2. The italicized programs will be discussed in this section.

Table 2. Categories for ENERGY STAR Awards

Partner of the Year	Award for Excellence
Energy management	Affordable housing
New home builder	<i>ENERGY STAR promotion</i>
Home energy rater	Lighting retailer or showroom
<i>Product manufacturer</i>	
Program deliver (e.g. utility)	
<i>Retailer</i>	
Service and product provider	

Source: Tomlinson 2011

For each award category, applicants are asked by the EPA to submit an application of no more than five pages outlining the efforts they have taken in the past year in the ENERGY

STAR program. In general, the Partner of the Year award is more prestigious and harder to receive than the Award for Excellence. The Award for Sustained Excellence is not applied for, but rather selected by the EPA. It is specifically for partners who have received the Partner of the Year award for at least three years in a row. There must also be clear year on year improvements in the majority of criteria.

As for the criteria, they differ between categories, but in general the EPA is looking to measure – both quantitatively and qualitatively – how the applicant has increased awareness (“influence” as referred to in the introduction) of and penetration of ENERGY STAR products in the marketplace. The application forms and other information on the awards can be found at the [EPA website](#). Specifically, the Award for Excellence for ENERGY STAR promotion asks that the applicant describe the following criteria:

- Increase consumer understanding of ENERGY STAR – visual recognition of blue label, what it stands for, who’s behind it, individual and collective benefits of choosing ENERGY STAR
- Increase consumer participation in “Change the World, Start with ENERGY STAR” national campaign activity
- Increase sales of ENERGY STAR qualified products in a sustainable manner
- Affect sustained behavior change around energy efficiency – move consumers from ‘knowing’ to ‘doing’
- Increase presence of ENERGY STAR in media (TV, newspapers, consumer publications, Web content, trade publications, radio, etc.)

The EPA asks the applicants to quantify promotions where possible. For instance, if the applicant has data on the number of media impressions (from various ad campaigns) or year on year percentage increase in sales of ENERGY STAR products, they should provide this data. In some cases, the EPA is working to get useful tools for media promotion into the hands of retailers, manufacturers, and other partners. Over the past year, the EPA has focused on its campaign “Change the World, Start with ENERGY STAR”, which keeps leaderboards for various ENERGY STAR partners who encourage customers to take pledges to save energy

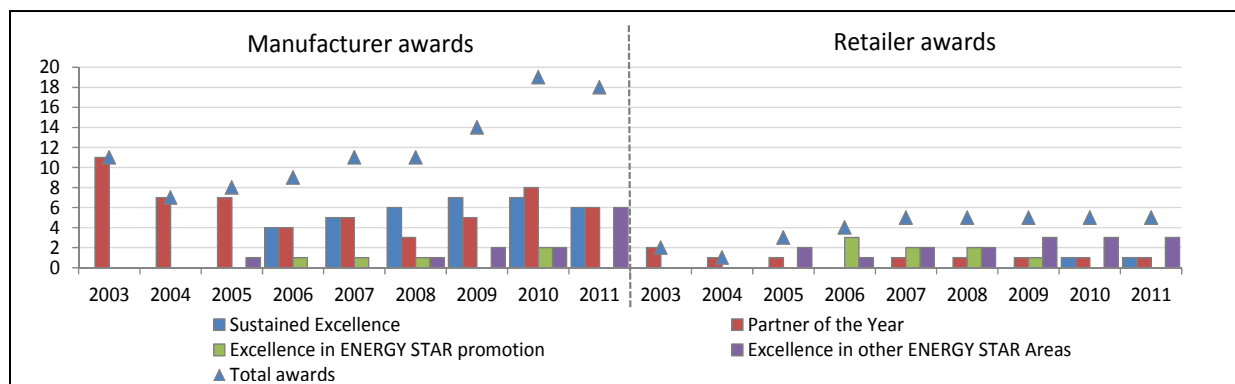
For product manufacturers and retailers applying for a Partner of the Year award, the application criteria can be broken up into four general categories: sales, training, marketing, and consumer education. These categories and representative measures are summarized below:

- Sales of ENERGY STAR products (all of these should be measured both in absolute terms as well as with a percentage increase/decrease from the previous year)
 - Number of ENERGY STAR product models manufactured/offered
 - Percentage of sales that were for ENERGY STAR products
 - Percentage of qualified ENERGY STAR products that also carry proper label
- Training efforts for sales associates
 - Existing and new employees
 - Number of distributor or retailer locations trained
- Marketing using ENERGY STAR branding
 - Tradeshows, participation in DOE/EPA campaigns, community outreach
 - Web-based marketing
 - Advertising via print, radio, TV, mail

- Consumer education
 - Focusing on educating the consumer about the important of ENERGY STAR and energy efficiency in general, such as via the “Change the world, start with ENERGY STAR” program
 - Website and in-store materials, YouTube and other social media

EPA does not release the system it uses to weight these different criteria, but they do emphasize completeness in the application and trying to address most, if not all, of the criteria. The EPA also keeps a small measure of flexibility in evaluating different applications, such that they can continue to recognize key partners in the program (which are often very large companies) as well as outstanding newcomers (which are often smaller companies). In general though, the application process has become increasingly competitive over the years, as the bar is consistently raised in terms of both the percentage of ENERGY STAR products manufactured and sold as well as increasingly creative ways to promote the program.

Figure 3. Number of EPA ENERGY STAR Awards for Manufacturers and Retailers



Source: Lawrence Berkeley National Laboratory, adapted from Tomlinson 2011

Retailer and Manufacturer Experiences in the U.S.

The amounts of awards given over the past eight years to retailers and manufacturers are shown in Figure 3. The Award for Sustained Excellence was only recently given to a retailer in 2010, after that partner had maintained a Partner of the Year award for a few consecutive years. The first four manufacturers to receive the Award for Sustained Excellence in 2006 – GE Consumer & Industrial, Gorell Enterprises, OSRAM SYLVANIA, and Whirlpool Corporation – had held the Partner of the Year award in both 2004 and 2005. The number of awards for retailers is typically much less than the number for manufacturers, with about five retailer awards every year for the past couple of years but 18 or 19 manufacturer awards in each of the past two years. This is in part because the retail sector is relatively consolidated while manufacturing is more dispersed. Profiles for all award winners are officially published online every year after the awards ceremony, which usually takes place in early spring. The following sections will give examples of what specific actions retailers and manufacturers took to receive Sustained Excellence or Partner of the Year awards.

Retailer Awards and Case Studies

The profile for Lowe's 2011 Award for Sustained Excellence award meets all of the major application criteria required by the EPA: sales, training, marketing, and consumer education. It expanded its selection of ENERGY STAR qualified products, while integrating ENERGY STAR into their national corporate marketing strategy through the "Build Your Savings" program. Additionally, it engaged its sales associate in nationwide ENERGY STAR training programs, resulting in more than 238,000 impressions. Lowe's also worked closely with utilities in offering customers rebates on ENERGY STAR products. Each of their efforts either directly led to increased sales of ENERGY STAR products or increase influence on consumers to buy energy efficient appliances.

Training is receiving an increasing focus among all major retailers, and EPA now offers materials on its website for training associates. Sears runs a specific "roadshow" once a year that visits 70% of its stores, whereby a specific set of staff hold specific training in conjunction with vendors and utility partners on new ENERGY STAR products and new rebate programs being offered. Retailers prefer to involve utilities and manufacturing partners in the training process since the programs and products are constantly changing. In addition to this roadshow, Sears does have a specific sales training (online and computer based) that new associates must complete and then pass certification quizzes; questions on ENERGY STAR occupy a portion of this mandatory training. Lowe's and Home Depot have similar requirements.

Over the years, in-store displays have been using the ENERGY STAR brand with increasing prominence. Typical signage prominently features the ENERGY STAR logo, with an emphasis on use of the word "savings". Despite the fact that ENERGY STAR appliances do save consumers money after a few years, retailers report that the higher initial upfront cost is still a deterrent, especially during the current economic times. Retailers say the customer is constantly seeking in-store mark downs or rebates (online or mail-in) offered by utilities or energy efficiency program sponsors. Meanwhile, online sales strategies are becoming increasingly important as many consumers are shopping exclusively online now, doing online "pre-shopping" research, or even browsing products on their smart phones while in store.

Manufacturer Awards and Case Studies

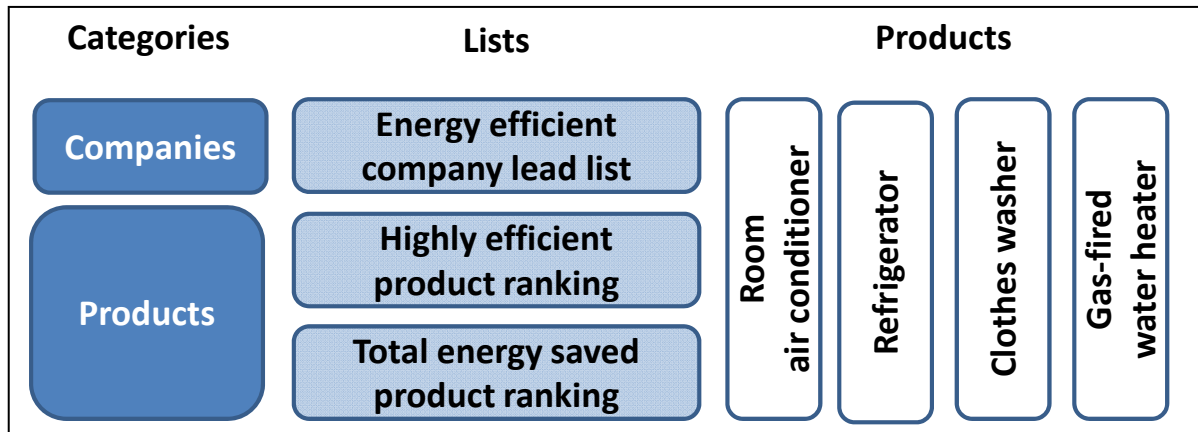
For manufacturers, sales, training, marketing, and consumer education remain key assessment criteria with an additional emphasis on number of ENERGY STAR product offerings. The award profile for GE Appliances and Lighting highlighted that they had expanded the number of ENERGY STAR lighting models by 57 product models in 2010 for a total of 350, a 19% increase over 2009 and the number of ENERGY STAR qualified appliances by 131 products, increasing the number of base models by 6%. GE also trained 36,000 retail sales associates about ENERGY STAR and promoted the program through national television programs such as PBS This Old House, CBS Sunday Morning, and CBS News.

China – Manufacturer Awards Program

In 2007, China decided to implement an awards program to assist in promoting energy efficient appliances. The program was called the National Lead List of Excellent Enterprises and Energy-saving Products (here, referred to as "National Lead List"). When the program launched

in 2008-2009, it was devised of two categories, three lists, and four products as shown in Figure 4. First, the program was divided up into awards for companies and awards for products. The three award lists that China decided to create were: 1) energy efficient company lead list, 2) highly efficient product ranking, and 3) total energy saved product rank. Finally, the awards were given across all three lists for four products: room air conditioners, refrigerators, clothes washers, and gas-fired water heaters.

Figure 4. Design of China’s Initial Awards Program in 2009



Source: CNIS 2009b

The National Lead List awards program gives awards out based on rank. Distinct measurements for each award list and each given product type were outlined by the China National Institute of Standardization and the China Energy Label Center. For example, room air conditioners would be ranked according to a specific measurement of efficiency or energy saved:

- **Energy efficient company lead list:** average energy efficiency ratio of all products sold, and total energy saved from all products sold
- **Highly efficient product ranking:** energy efficiency level of individual products¹
- **Total energy saved product ranking:** energy efficiency ratio (of a particular product) X total sales amount X annual hours of use

¹ The efficiency level is measured differently based on the product. For air conditioners, the measure is cooling capacity divided by the energy efficiency ratio (or coefficient of performance). For refrigerators, the measure is energy efficiency index. For clothes washers and hot water heaters, it is unit energy consumption.

Table 3. Number of Awardees for China’s National Lead List in 2009 and 2010

Award and product category	2009	2010
Energy efficient company lead list	60	29
Room air conditioner	10	6
Refrigerator and freezer	23	6
Clothes washer	17	3
Gas-fired water heater	10	3
Electric water heater	--	3
Computer monitor	--	3
Self-ballasted compact fluorescent light bulb	--	3
Induction stove	--	2
Highly efficient product rank	162	211
Room air conditioner	40	83
Refrigerator and freezer	70	24
Clothes washer	40	11
Gas-fired water heater	12	21
Electric water heater	--	41
Computer monitor	--	10
Self-ballasted compact fluorescent light bulb	--	13
Induction stove	--	8
Total energy saved product rank	--	66
Room air conditioner	--	66

Source: CNIS 2009b, 2010

The data for determining these rankings came from the China Energy Label Center’s database, market research companies, as well as self-reported data from the companies applying for the awards. For the first trial run of China’s National Lead List awards program in 2009, a total of 222 awards were given (Table 3). Sixty companies made the energy efficient company lead list, while 162 products were given awards in the highly efficient product rank. Those same 162 products were also given a different rank according to total energy saved. In 2010, the total energy saved product rank was made a unique award classification for 66 products (which did not necessarily overlap with the highly efficient product rank) within in the room air conditioner product category. The product categories expanded in 2010 to include electric water heaters, computer monitors, self-ballasted compact fluorescent light bulbs, and induction stoves, and so the total number of product awards increased to 211, although some product categories saw a decrease in awards. The competitiveness of the company lead list increased significantly as the number of awards fell from 60 to 29, even as more product categories were added.

Comparison of Awards Programs in Japan, U.S., and China

The award programs discussed in this paper have important differences. Each awards program is trying to fundamentally impact at least one of the avenues for consumer influence in appliance purchases discussed in the first section in Figure 1. For instance, the awards for manufacturers in Japan, the U.S., and China are all based (at least in part) on the manufacturers’ product offering. While Japan focuses on particularly innovative and outstanding products, the U.S. judges the whole catalog of ENERGY STAR products a particular manufacturer offers.

China has an award for the most efficient products offered as well as an award for weighted efficiency of all products a manufacturer sold in a particular year. If a Chinese manufacturer has high sales of relatively high efficiency products, then they are clearly having a large influence on the consumer.

The retailer awards programs in both Japan and the U.S. are judging the principal avenues for consumer influence: proper use of labeling, training of sales associates, and advertising (in-store, TV/radio, print, and online). Another common characteristic of the retailer awards programs is that the applicants are given resources by the program administrators. ENERGY STAR provides marketing, education, and training resources to all of its retailer partners through online means and their annual partners' workshop. In Japan, feedback is given to retailers on their applications, and an annual workshop is held to discuss avenues to improve their score. Indeed, the program administrators (EPA, METI) understand that most consumers are convinced to purchase energy efficient products at the retailer level, thus it is work expending some program resources to ensure that the retailers excel in both product offering and messaging.

Table 4. Comparison of Retailer and Manufacturer Awards in Japan, U.S., and China

Country	Amount of awards per year	Req. of sales data?	Other quantitative metrics	How application is judged
Japan	Manufacturer: ≤ 15 Retailer: ≤6	Yes, for retailers	Manufacturers: five different criteria including technical, environmental, etc.; retailers: training, sales goals	Multiple rounds and on-site investigations used; applications scored with weighting publicly released
U.S. – ENERGY STAR	Manufacturer: ~20 Retailer: ~5	Yes, for manufacturers	Advertising and marketing impressions, training efforts, product offering	Multiple reviewers used, looking at both quantitative and qualitative metrics; weighting of metrics is not publicly released
China	Manufacturer: >300 Retailer: none	Yes, for manufacturers	Weighted/individual energy efficiency of products sold	Review and rank strictly based on quantitative metrics

Table 4 compares the basic attributes of the different awards programs for manufacturers and retailers. Japan and the ENERGY STAR program give out similar amounts of awards to manufacturers and retailers, while China's National Lead List more resembles a product ranking and therefore the number of awards is much greater. In terms of quantitative versus qualitative application judgment, China is on the purely quantitative side, looking at the data for weighted efficiency or individual efficiency of products sold. Japan has a mixture of qualitative and quantitative judgment. The application criteria and grading scales are rigorous, but multiple rounds of evaluation and on-site investigations are used to help the judges narrow down the pool of applicants. While the EPA requires applicants to quantify metrics where possible, they place emphasis on the overall quality of the application, including the quality of marketing and education campaigns the retailers ran that year. The EPA believes that the retailer is not

ultimately responsible for which product a consumer buys (ENERGY STAR or not), so they do not use sales data at the retailer level as an application criterion. Rather, they measure the amount of effort that retailers are expending in trying to convince the consumer to purchase ENERGY STAR. This is markedly different from Japan, where the judgment committee looks at effort as well as retail sales figures and energy efficiency-related sales goals for sales associates.

Recommendations for Retailer Awards in China

Having recognized its top manufacturers of energy efficient appliances with the National Lead Lists for a number of years now, China is now exploring options for retailer awards. Having reviewed the international experiences in retailer awards in Japan and China, the authors offer the following recommendations:

- 1. Promote label integrity.** Underlying consumer trust in the label's integrity is what drives retailers' interest in selling energy efficient products. Consumer awareness of the ENERGY STAR label has grown to over 80% in recent years, but this has been the result of nearly two decades of effort by the EPA. Now, the consumer actively seeks products with this label and thus retailers are interested in offering a wide selection of these products. The EPA introduced certification and verification testing for ENERGY STAR products in 2010 to ensure continuing consumer trust in the label. If the consumer does not trust the information in categorical or certification labels, then the retailer will not be able to sell the products and will be less interested in actively promoting them.
- 2. Give retailers tools to assist in their marketing and education.** Programs in both the U.S. and Japan offer some feedback or resources to retailers to improve their efforts in educating the consumer and marketing energy efficiency products. An annual workshop held by the program administrator can help retailers to learn about best practices in marketing and education. The ENERGY STAR program also offers streamlined resources for national marketing campaigns, a database of rebates offered on ENERGY STAR products, and online training materials for sales associates.
- 3. Focus on the evaluation of sales effort instead of, or in addition to, sales.** There are many factors influencing a consumer's decision to purchase an energy efficient product. Some of these factors are out of the realm of the retailer's influence, such as the overall condition of the economy and consumer spending, so there is reason to evaluate sales effort as opposed to sales. The EPA looks at ENERGY STAR product offering as opposed to total sales, and evaluates the retailer's training, marketing, and consumer education efforts. All of these tools increase the retailer's avenues to influence the consumer to purchase an energy efficient product.
- 4. Differentiate categories of retailers by size.** Small and medium retailers do not have the same resources to compete with large retailers, and therefore two categories should be set. The EPA deals with this by allowing large retailers as well as the main buying group that represents many small retailers to both apply for awards. An awards program for many small retailers could be administratively burdensome. Japan has split their energy efficient retailer certification and awards program into large and small/medium categories, allowing them to have nuance in application criteria and judgment.

Conclusions

We have found that key methodological differences exist between the three countries' programs. While China's awards for manufacturers are judged purely on quantitative metrics (the weighted efficiency of appliances they shipped to retail stores), Japan and the U.S.'s ENERGY STAR program incorporate qualitative judgments in addition to quantitative metrics. Japan and ENERGY STAR also award retailers, since they also have a considerable amount of influence over the consumer's final purchase. While ENERGY STAR does not focus on final sales numbers for retailers (as they believe certain purchase factors are out of the retailers' hands), they judge the retailers based on their effort to sell energy efficient appliances, as measured by product offerings, employee knowledge and training, as well as marketing and consumer education. Japan's award for retailers considers these effort factors, but the judgment committee also looks at retail sales figures. As China expands its appliance awards program to include retailers as well as manufacturers, it should also consider label integrity and marketing tools to ensure that retailers can succeed in the sales of energy efficiency products. These components are equally important as quantifying retailer metrics on sales and effort in pushing more energy efficient products into the marketplace.

Acknowledgments

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