

# **Market transformation at a national level: lessons learned from the ENERGY STAR Retail Products Platform (ESRPP)**

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## **ABSTRACT**

Since 2015 the ENERGY STAR Retail Products Platform (ESRPP) has been leveraging the power of the ENERGY STAR brand to influence market adoption of high efficiency consumer products in National retail markets. ESRPP is a nationally coordinated effort designed to transform consumer products markets by streamlining and harmonizing energy efficiency programs to align with retailers' business practices. ESRPP ultimately seeks to influence manufacturers and increase efficiency levels in the products they sell through retailers. ESRPP currently has 16 national sponsors representing 11 states and approximately 18% of the national consumer products market. ESRPP has partnered with four retailers representing nearly 75% of the US market for products currently targeted by ESRPP. Over the course of the last four years of ESRPP operation, ENERGY STAR, sponsors and retailers have learned much about the challenges and rewards of implementing a market transformation effort at this scale across a national landscape. The program has successfully demonstrated the feasibility of the implementation components of ESRPP, the potential to influence market actors and to measure energy savings outcomes. ESRPP faces challenges to increase its market leverage beyond the current sponsors and to influence product development pipelines of manufacturers who supply participating retailers. This paper will discuss keys to initial ESRPP success, early evaluation results, and plans for future program expansion. It will include observations from key participants of the program, including retailers, program sponsors, and EPA staff.

## **INTRODUCTION AND BACKGROUND**

### **Roots of the ESRPP program.**

The ENERGY STAR Retail Products Platform (ESRPP) was born out of experiences in implementing the Business and Consumer Electronics (BCE) program, a mid-stream energy efficiency program launched in 2008 by Pacific Gas and Electric (PG&E) (Chase, Ramos and Pope, 2006). The program was built around the idea of directly rewarding retailers for increasing market share of ENERGY STAR qualifying products. Electronics products targeted by the BCE program included computers, monitors, TVs, audio equipment and printers.

A fundamental problem in energy efficiency program design for the consumer electronics market is the fact that energy savings per unit is generally relatively small; small enough that a traditional rebate program would not likely motivate a change to an individual consumer's decision making. A key innovation in the BCE program was recognition that the same incentives that would seem unmotivating to an end consumer were large, perhaps 50-100%, of the net-profit margins for retailers of these products. Targeting these incentives to retailers at the corporate level presented the opportunity to influence assortment decisions and stocking practices across the country for national retailers.

The BCE program demonstrated that pay for performance, i.e., incentives tied to actual change in sales or market share, could be implemented by BCE participant. Keys to success were a secure data exchange with the retailers and ENERGY STAR criteria that were benchmarks for what models would receive incentive payments. Retailers provided sales data, which was matched to ENERGY STAR qualifying models, in order to measure increased sales and receive payment.

The BCE program also illustrated retailer's impact on the supply of energy efficient products and on manufacturers' product development efforts. The retailers' centralized operations, buying power and close connection to consumers enabled significant influence on the future assortment of products.

In 2009, the Northwest Energy Efficiency Alliance (NEEA) and the Sacramento Municipal Utility District joined PG&E in the BCE program. This collaboration created an aggregated market totaling almost 10% of the US market. From 2009-2014, the program focused on TVs and NEEA's program evaluation credited BCE with having influenced the overall market for efficient TVs (Frank, et al. 2013).

In 2015, a discussion began among leading energy efficiency program sponsors to determine how to more broadly apply the lessons learned from the BCE program. The resulting, national-level concept targeted multiple products including major appliances such as refrigerators, freezers, and laundry equipment. The ENERGY STAR organization was the unifying force to bring national retailers, utilities and others together to launch a nationally coordinated effort and the ENERGY STAR Retail Products Platform was born.

## **ESRPP TODAY.**

ESRPP is a collaborative mid-stream initiative of the ENERGY STAR program. It is comprised of four major components that are reflected in the name: 1) the **E**NERGY **S**TAR program and brand, 2) the **r**etail businesses and partners that distribute and sell the products to consumers, 3) the ecosystem that manufactures the **p**roducts, and 4) the **p**latform that is comprised of program sponsors and associated infrastructure to facilitate the transaction of incentives for increased market adoption (EPA, 2019).

Today, ESRPP has 16 program sponsors representing 18% of the US consumer market. The program includes five different ENERGY STAR product categories – washers, dryers, refrigerators, freezers, and room air conditioners. Retailers in ESRPP represent almost 75% of the appliance market with almost 1,100 stores across the country as shown in Figure 1 below.

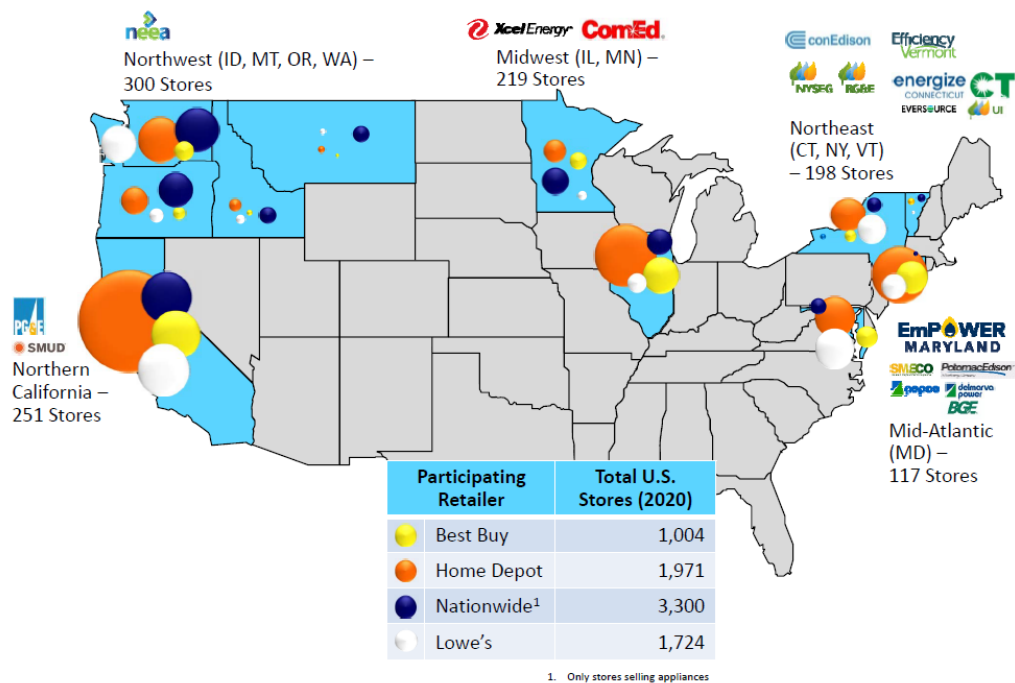


Figure 1. Energy Star Retail Product Platform Sponsor and Retailer Participation. *Source:* USEPA 2020.

ESRPP is structured to incorporate input from all participants, including retailers, program sponsors, and manufacturers. The program has developed task forces for each major component of the program, for example: Products, Data and Marketing, among others. The task forces have documented processes and guidance by which they operate, and they meet regularly to review updates and resolve issues or questions. The task forces include members from the program sponsors, EPA, and stakeholders. ESRPP members convene regularly to review progress made within the task forces and discuss how best to move the program forward. The ESRPP is a collaborative effort, so all decisions are made at the task force level once a consensus is reached among participants. This ensures that all participants have a voice in program developments. Once an issue is resolved at the task force level, it is discussed among the full group during the regular status meetings.

The ESRPP retailer incentive agreements require measured changes in market share for ENERGY STAR qualified products. This unique structure produces total category sales data for participating retailers. This data has provided new insights into product development and marketing opportunities with manufacturers and retailers. It also supports ENERGY STAR’s development for product specifications.

ESRPP has been evaluated by multiple jurisdictions and is credited with influencing markets and producing energy savings (ConEdison, 2018) (PG&E 2019) (Lieb and Van Clock, 2019 for NEEA) (Close, 2018 for Excel).

## LESSONS LEARNED FROM FOUR YEARS OF ESRPP

### 1. ESRPP can drive energy savings.

Several evaluations of ESRPP activities have documented energy savings resulting from the program (ConEd 2018), (Lieb and Van Clock, 2019). Retailers have consistently reported that as a result of the program they have changed their product stocking behavior by increasing their orders for products that are incentivized (EPA 2016). These actions by retailers resulted in increased sales and market share of ENERGY STAR products. The increased market adoption of ENERGY STAR products over baseline forecasts as illustrated in Figure 2 can be translated directly into measurable energy savings.

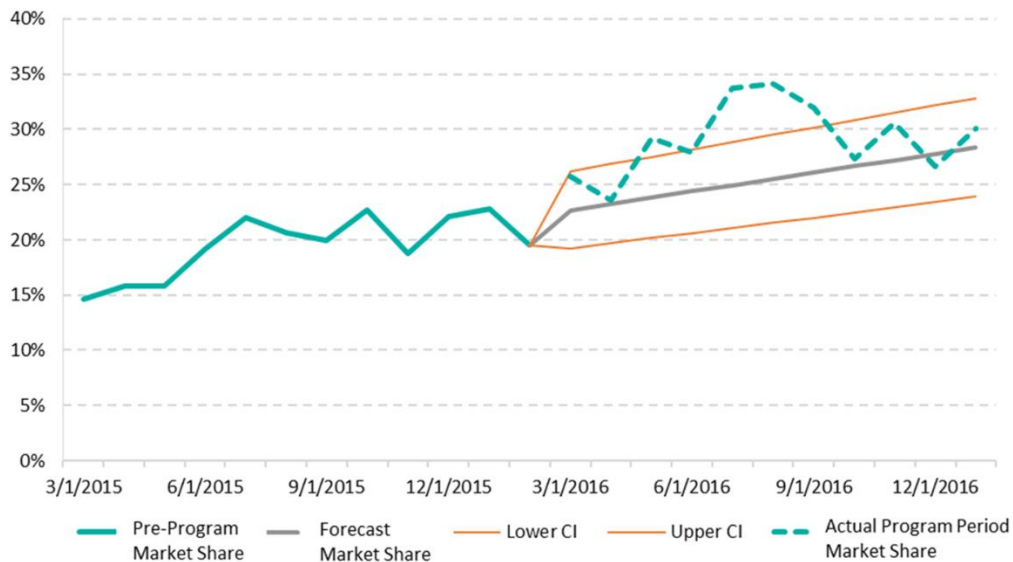


Figure 2. Measuring savings from ESRPP increased sales over baseline market share forecasts. Market share above the forecast baseline can be counted as program effects and translated into energy savings using per-unit energy savings. *Source: USEPA 2019.*

For some products, the ESRPP program provides the impetus for faster development of new technologies, which can utilize ESRPP’s retail sales platform when they are introduced; creating new energy savings opportunities. In the long-term, additional and potentially much larger energy savings result from changes in ENERGY STAR specifications and federal equipment standards.

### 2. Data is King.

A key element of the “Platform” is the delivery of total category sales data, which encompasses all qualified and non-qualified ESRPP sales, from retailers into a secure data vault. This data has proved to be valuable well beyond being the basis for incentive payments. For the first time, visibility into market shares of efficient products with specific feature sets can be compared to inefficient products. This capability has provided new insights that have directly informed product and market strategy. It has also created new possibilities to target very specific changes to specific model types within a category and measure results at a very granular level. The data also provide powerful support for changes to specifications and standards. Figure 3

below provides a powerful example from sales data for clothes washers. While consolidated clothes washer category data indicated increasing market share for ENERGY STAR, the detail available from ESRPP sales data tells a much more nuanced and important story. The ESRPP data in Figure Y shows that virtually all of the increase in ENERGY STAR market share occurred in front-load washers while ENERGY STAR market share in top load washers has remained virtually unchanged; creating a clear target for increased efforts in efficiency.

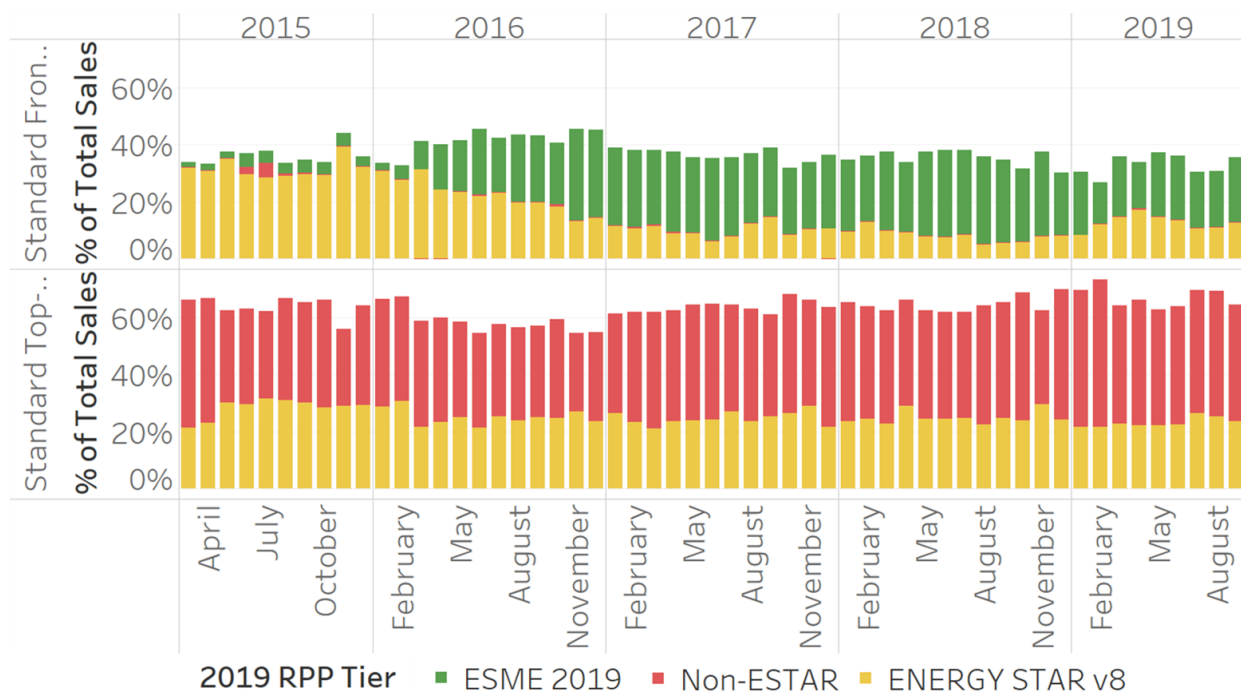


Figure 3. Whole category sales data for clothes washers and market share of ENERGY STAR and ENERGY STAR Most Efficient units for the Northwest US. The top graph represents front-loading washers and the bottom represents top-loading washers; combining the two adds to 100% of all clothes washers sold in a given time period. Source: NEEA 2019<sup>1</sup>

### 3. Support continuing specification improvement at ENERGY STAR.

ENERGY STAR remains one of the strongest, well recognized brands in consumer products. The ENERGY STAR label and associated materials are important marketing tools for retailers. ENERGY STAR specifications to certify products to carry the label, however, need to be updated to ensure that there is clear differentiation between efficient and inefficient products. Data collected through ESRPP has been one important way to measure and observe the different market preferences and energy use characteristics of qualified and non-qualified models. ESRPP data has provided visibility into actual sales of ENERGY STAR product that was not previously available. In some product categories (air purifiers, front load clothes washers), this data has revealed high levels of ENERGY STAR market share that precipitate a specification change. As a result, EPA program managers have reported that use of high quality and current data has sped up the specification revision process (Kaplan, 2020).

<sup>1</sup> Analysis completed for NEEA by Energy Solutions using ESRPP data from the four Northwest states; Idaho, Montana, Oregon and Washington.

For some products the data has also revealed that there is a need for revisions to test procedures to better reflect the true differentiation of product categories within the ENERGY STAR specification.

#### **4. Let retailers be retailers.**

For years utility programs have been operating on the simple principal of lowering the price of energy efficiency in order to increase sales of that product. During the days of large rebates, that approach worked, but in today's environment of shrinking rebates, that approach is no longer an effective motivator of consumer sales. Retailers, on the other hand, make their business selling products, and use many different approaches other than simple discounts to increase consumer demand. The overall design of ESRPP has demonstrated the benefits of a program design that works within the retail business model. Retailers have a keen awareness of their customers' needs and their business is to satisfy these needs while optimizing profits in a product category. The program has shown that an incentive structure that aligns with retailers' business goals impacts changes in sales or market shares of ENERGY STAR products, which is measured with total category sales data.

#### **5. National collaboration to aggregate a large-scale market is possible; and challenging.**

ESRPP Sponsors have successfully collaborated on product portfolios, common marketing materials, legal documents, and a data platform. Today, ESRPP has 16 sponsors from 11 states representing 18% of the US consumer market. However, the aggregated scale achieved to date has been challenging to achieve and maintain. Participation is voluntary and the turnover of program sponsors has made it difficult to maintain the supporting infrastructure. Sponsors run their ESRPP programs according to a wide range of local regulatory guidance, which limit the products and platform activities they can support. The ESRPP goal to achieve an aggregated market share of 30%, which is participating retailers stated long-term need for ongoing engagement, will be challenging because of these limitations. At the same time Retailers have reported that they have less time to engage with individual utility programs in today's competitive environment and they see increasing need for and great value in the harmonization of program elements among multiple programs (Christianson, 2020).

#### **6. ESRPP requires supportive policy and regulatory frameworks.**

Some inaugural ESRPP sponsors have had to defer participation in the program because of the lack of supportive policy. At its core, ESRPP is a market transformation program. Appropriate policy recognizes and allows for the inclusion of market transformation benefits in evaluation and measurement of ESRPP. ESRPP has a long-term focus that leverages relationships between program sponsors, retailers, manufacturers and the ENERGY STAR program to create lasting changes in the market (Conzemius and Dunn, 2018). Resulting changes in ordering, assortment, specifications and manufacturing occur over a period of time and ultimately increase market share and energy savings. This time period is greater than a one-year view of energy savings typically observed in a resource acquisition evaluation. The policy and regulatory framework for sponsoring utilities need to recognize benefits of market transformation programs and support appropriate evaluation methods tailored to market

transformation. It is encouraging that sponsors who have recently joined ESRPP are from states where changes in energy efficiency policies accommodate MT programs.

### **7. Focus on Products and Strategy.**

At the end of the day, the objective of ESRPP is to increase the efficiency of consumer products. All ESRPP platform processes and activities target changes in the market to increase efficiency of products sold through retail. To meet this objective, there has to be strategy acknowledging the unique market and technical characteristics of a product category. Four years of experience in ESRPP and the rich information in total category sales data have illuminated some common strategies including: 1) increasing market share through aggregated large-scale incentives to retailers for increased market share of efficient products; 2) improving or modifying test standards that do not realistically measure or differentiate energy efficiency; and 3) seeking and supporting introduction of products with new technologies, for products at the end of their lifecycle, to enable efficiency improvements. ESRPP program sponsors have been working to develop a set of “product strategies” for individual product categories. Product Strategies form a roadmap for future product development and serve as a market transformation logic model to direct program evaluation. Strategic outcomes are ultimately embodied in an ESRPP program.

## **CHALLENGES FOR THE FUTURE OF ESRPP.**

While ESRPP has achieved significant success to date, there are several challenges to be overcome if the program is to continue successfully into the future.

- 1. Growing sponsorship requires regulatory and policy change.** In order to add utility sponsors, energy efficiency policy that supports market transformation programs will need to be adopted by more states. While there is increasing interest across the country in market transformation, regulatory change is hard and slow. For example, in Illinois, it has taken several years after passage of legislation supportive of market transformation to implement changes enabling ESRPP participation.
- 2. Adapting evaluation practices.** Evaluating ESRPP using traditional utility program evaluation techniques does not account for market transformation effects, which severely underestimates long-term energy savings. NEEA and a few other sponsors have demonstrated that it is possible to conduct effective market transformation evaluations. These evaluations include multi-year assessments and product-specific evaluations based on product strategies being pursued during that time. Broader adoption of these practices will be important for continued and expanded support for ESRPP across the country.
- 3. Effectively including on-line retail sales and marketing.** Most ESRPP sales data are currently collected for in-store sales. On-line sales are significant for electronics and small appliances and are growing even for major appliances. There are limits to the existing ESRPP program design, however, that constrain an accounting of on-line sales. It is feasible with the platform, sponsor collaboration and retailer support to develop an effective solution.

**4. Increasing Program Flexibility.** In order to make the ESRPP program model more applicable to a larger universe of program sponsors, changes to the program structure might be necessary. Given that the success of the program to date has been based on a rather rigid set of program operating procedures and single offering to retailers, determining the areas of flexibility that will not threaten this core will be difficult. For example, some potential program sponsors have declined to participate because there is not a way to directly attribute incentives from sponsors to purchasing end-customers. These limitations have translated into a mix of support and enthusiasm even among current sponsors; e.g., there are now some program sponsors that are using a reduced set of the products in the portfolio, and others who are not claiming market transformation results and associated energy savings. In areas with few participating retailers, some program sponsors have taken the program model in house and taken it to smaller retailers on their own (Russom, 2017). Other sponsors have leveraged the ESRPP relationship with retailers to create new, coordinated marketing opportunities for specific products during retailer promotional events and have garnered additional customer recognition accordingly. These types of iterations on the program design provide clues to future program design changes that may lead to more widespread adoption – if done with care and recognition of the limitations and needs of both retailers and sponsors.

## CONCLUSION

ESRPP has successfully demonstrated a new approach to energy efficiency program design that aligns with mid-stream market actor interests to influence the manufacturers of products sold through these channels. In order to continue forward, ESRPP faces a number of challenges including adding sponsors and aggregated market share, changing regulatory and policy frameworks to support appropriate evaluation methodologies, and increasing flexibility in design in order to address a continually evolving mix of products and on-line retailers.

Despite the challenges, the future for ESRPP looks bright. Data from the program has identified new efficiency opportunities in existing product categories. Retailers have strongly endorsed the streamlined approach to engagement with utilities. Utilities benefit from the low transactional cost of ESRPP that allows them to continue to provide efficient products to their customers where conventional rebate programs are too expensive or ineffective. Manufacturers are engaged directly through their largest customers, the retailers, and can see an accelerated path to market for new, efficient products into the future. The ENERGY STAR program itself benefits from better visibility into actual sales of qualified products that provides a firm foundation for future specification changes.

As regulatory and policy frameworks evolve to recognize these values, ESRPP sponsorship is likely to grow and become a highly productive vehicle for both energy efficiency and retailers. In the end, a fully successful ESRPP will have transformed the market to achieve an entirely new level of efficiency for consumers with the benefits of greatly reduced carbon emissions for the planet.

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