Paradigm Shift Needed! Without it, Midstream Lift Yields NTG Woes for Plug Load Programs

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ABSTRACT

Plug load is forecasted to be one of the fastest growing energy end uses over the next 20 years. However, for many products the per-unit energy savings are insufficient to justify incentives large enough to influence an end-user's purchase decision. New midstream program approaches, like the Retail Products Platform (RPP), seek to overcome these challenges by taking a fundamentally different approach to the plug load markets. Instead of motivating an end-user to select an efficient unit, these programs seek to change the behavior of retailers to favor energy efficient products in their merchandising decisions. Because these programs represent a shift in focus from influencing consumer decisions to one of influencing retailer decisions, traditional approaches to assessing program attribution run the risk of generating net-to-gross (NTG) ratios that may mislead some observers as to the programs' true value.

This paper examines the shift in mindset necessary to assess the influence of midstream programs like RPP on their target markets. We examine how the meaning of an NTG ratio changes when a program is able to reach nearly all of the target market, as emerging midstream programs do. We also explore the impact of NTG ratios on overall cost effectiveness, given that these midstream programs provide much smaller incentives on a per-unit basis than traditional, downstream programs have. Program administrators who focus on the NTG ratios of emerging mid-stream programs without considering these broader issues run the risk of overlooking a potentially powerful strategy to reduce plug load energy use.

Introduction

As the number of electronic devices in US homes increases, plug load energy use is forecasted to be one of the fastest growing energy end uses over the next 20 years. However, for many of these products, the per-unit energy savings of efficient models over non-efficient models are too small to justify incentives sufficient to influence an end-user's purchase decision. At the same time, technological changes and new product standards have increased the baseline energy efficiency of appliances like refrigerators and clothes washers, lowering the energy savings programs can claim from efficient models. As a result, it has become more difficult for programs to offer the types of downstream rebates on these products that have been a common part of energy efficiency programs. In response to these challenges, program administrators have sought new approaches to promote the uptake of energy efficient products.

The Retail Products Portfolio (RPP) is one such approach. RPP offers participating retailers, who are primarily national, big box chains that control a large share of the market for the targeted products, an incentive for each unit sold within targeted product categories that meet program-defined efficiency criteria. While the product categories RPP currently targets include

sound bars, room air cleaners, clothes dryers, room air conditioners, and freezers, the program is designed to allow administrators to easily add and drop product categories as markets change and new opportunities arise.

RPP is an adaptation and expansion of business and consumer electronics (BCE) programs implemented in California and the Northwest between 2008 and 2014, which primarily focused on promoting energy efficient televisions. The program administrators that offered those BCE programs, notably Pacific Gas & Electric and the Northwest Energy Efficiency Alliance, were early adopters of the RPP approach. The U.S. Environmental Protection Agency's ENERGY STAR ® Program has also become involved in RPP, taking on a coordinating role. EPA and others are encouraging program administrators around the country to launch RPP programs so that program administrators can approach retailers in a coordinated way and increase the program's influence by offering incentives in a larger proportion of each retailer's market.

Instead of motivating an end-user to select an efficient unit, RPP seeks to change the behavior of retailers to favor energy efficient products in their merchandising decisions. Advocates see two advantages of this approach over a more traditional, downstream or midstream buy-down program design. First, they anticipate that RPP will be able to influence uptake of efficient products while offering a lower per-unit incentive than would be necessary to influence an end-user's purchase decision. For example, while a $15 incentive may not be sufficient to influence an end-user's purchase decision on a product retailing for $1,000, that incentive may make a much larger impact on the relative profitability of that product to the retailer.

The second advantage advocates see to RPP relative to a traditional buy-down or downstream rebate is that RPP provides retailers an opportunity to draw on a wider range of strategies to increase uptake of efficient products. While a buy-down's influence is limited to reducing the price of a qualified product, retailers may respond to RPP incentives by altering their assortments to carry a larger number of efficient products, by favoring those products in their promotions, or by lowering their prices. In addition to simply providing a wider range of possible avenues of influence, RPP advocates see the retailer's role in selecting which strategies they will use as a further advantage of the program. In this view, retailers are closer to the market than program administrators and thus likely to be more knowledgeable about which strategies will be most effective.

Figure 1 shows a schematic of behaviors, both direct and indirect, that RPP can influence according to program logic. Under the program theory, RPP incentives will motivate retailers to take three types of actions that will influence both the demand for, and the supply of, efficient products, thus increasing their uptake. Retailers influence demand for efficient products by assorting more energy efficient models, thus leaving consumers with fewer non-efficient options from which to choose. Retailers also influence the choice architecture in which consumers make decisions by modifying factors like promotion, defined broadly to include product placement and sales associate training, and pricing. Retailers influence the supply of efficient products by favoring the efficient products manufacturers offer and by specifically requesting that manufacturers increase the efficiency of their offerings.

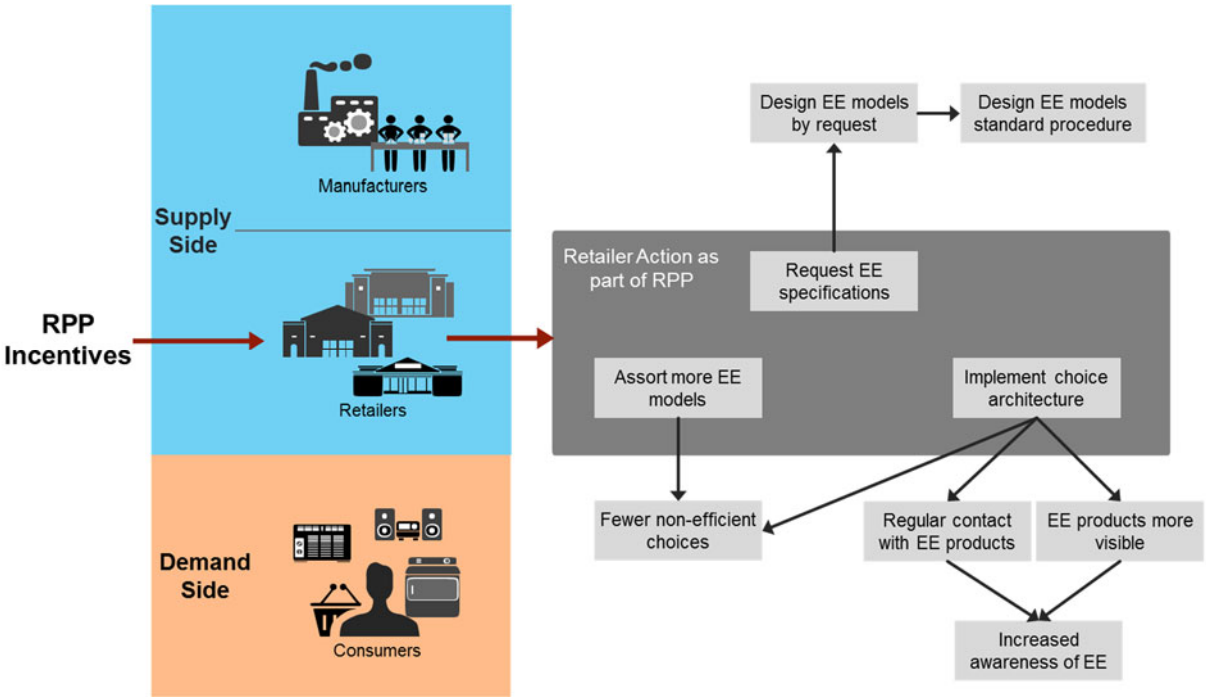

Figure 1. Schematic of the Direct and Indirect Behaviors of RPP Based on Program Logic[1]

This paper draws on the authors' experience evaluating and supporting the development of RPP pilots in the Northwest and California, conducting multiple evaluations of RPP's predecessor BCE programs, and product focused market characterization research as shown in Figure 2. In this experience, we have encountered a variety of misconceptions about how RPP and BCE programs influence the market and the metrics by which program administrators, regulators, and others should measure the program's value. This paper synthesizes our prior research in order to clarify these issues by examining differences between the program logic of RPP and that of more traditional program approaches and the implications of those differences for assessment of the program's value and evaluation of the program's outcomes.

[1] Schematic derived from Research Into Action 2016; PG&E 2014; 2015a; 2015b; 2015c.

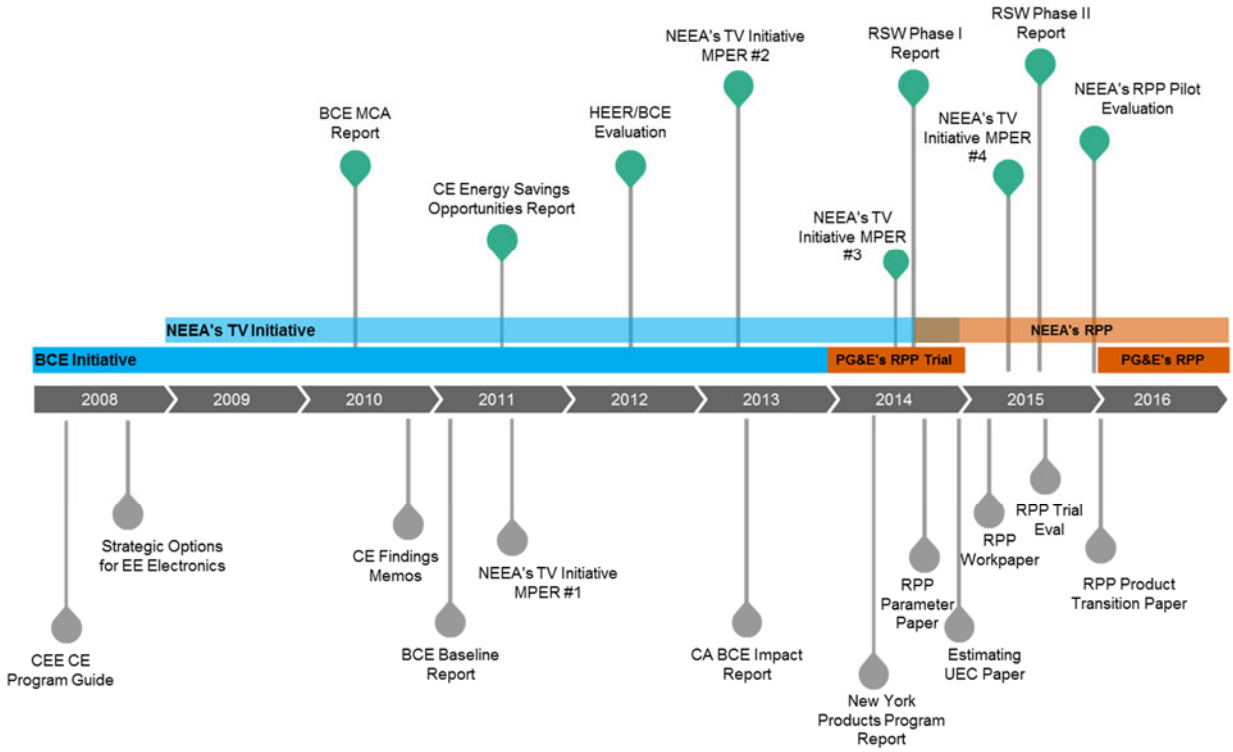

Figure 2. BCE and RPP Market Characterization and Evaluations*

* All reports depicted in green are evaluations conducted by current paper authors and are cited in the references section

RPP Is Fundamentally Different from Traditional Midstream Buy-Down Programs

Like a mid-stream buy-down program, RPP provides retailers incentives for each unit of a qualified product that they sell. However, the logic of RPP is fundamentally different from the logic of a midstream buy-down. Ultimately, a midstream buy-down program seeks to increase sales of qualified products by influencing the end-user's purchase decision. By reducing or removing the incremental cost of the efficient option, a buy-down program seeks to influence end-users to select and purchase the efficient product over a less efficient option.

Thus, in a midstream buy-down, the retailer becomes a medium through which the program influences the end-user. Buy-down program designs seek to minimize the impact of participation on the retailer; they do not seek to alter the retailer's practices and are likely to have a relatively minor impact on the retailer's business performance.

RPP's incentives, in contrast, are designed to influence the retailer's behavior and decision-making, rather than that of the end-user. RPP's incentives seek to make sales of energy efficient products more beneficial to the retailer's business than sales of less efficient options. As a result, under RPP's program logic, retailers will take action to increase their sales of efficient products. Thus, unlike in a buy-down program, RPP's influence on end-user purchase decisions is indirect. The immediate outcome of RPP's program activities is a change in *retailer* behavior, which, in turn, influences end-user behavior. In contrast, the activities of a buy-down program, like downstream program models, influence *end-user* behavior directly.

Table 1. Contrasts between Midstream Buy-Down Programs and RPP

	Buy Down	RPP
Goals	• Reduce up-front cost • Reduce burden on retailers	• Change retailer assortment selection behavior • Change manufacturer designs • Motivating retailer-led promotion
Product Pricing	• Incentive directly used to lower price • Customer unaware of "true cost" • Product cost low enough to "feel the effect of a buy down"	• Customer price does not change • Incentive too small to affect purchase decisions
Target Product Categories	• Few models available • Few "features" bundled with EE	• Many models • Model selection is complex
Measuring Effects	• Can observe results quickly • Effect of intervention likely to remain constant over time • Can observe long-term trends	• Time required for intervention to achieve full effect • Qualitative results short-term • Market data vital to assess short and mid-term progress

Retailers may benefit from a buy-down to the extent that the incentivized products provide them with higher profit margins than the products customers otherwise would have chosen, although the program itself does not influence profit margins. While retailers typically cannot claim program incentives as revenues, under some conditions, a buy-down may also help increase a retailer's revenue. In contrast, a mid-stream program like RPP, directly influences a retailer's bottom line. Since incentives are not meant to "make the retailer whole" as they are in buy-down programs, the incentives provide additional funds the retailer would not otherwise have. When evaluating RPP and the BCE Initiatives, retailers consistently mentioned the incentive counted toward store-level profit margins as well buying group profit margins (Research Into Action 2013; 2015; 2016).

RPP also differs from a midstream buy-down program in the pace at which it affects the market. The effects of a buy-down are nearly immediate; as soon as the discount is in place, sales increase. Further, in the absence of some change in the market and accounting for seasonal variations in purchasing, the effects of a buy-down are likely to remain relatively constant as long as the discount remains in place. In contrast, RPP's incentives may not have a strong effect on sales of qualified products in the very short-term. The frequency with which retailers renew their assortment varies by product, but for many products it may take at least a year for a significant portion of the assortment to be replaced. As a result, RPP's influence on retailers' assortment decisions is unlikely to result in an immediate boost in sales of qualified products. Retailers may be able to implement some promotions or pricing changes more quickly, but these efforts are also subject to long-term planning processes within the retail organization.

While its initial effects may take longer to appear than those of a midstream buy-down, RPP's effects are likely to increase over time. This is consistent with RPP's status as a market transformation program (Prahl and Keating 2014). As retailers gain experience with RPP incentives, they may incorporate consideration of a product's energy efficiency into a wider range of their business decisions. As a result, manufacturers may recognize increased retailer demand and prioritize energy efficiency in their product design decisions. All of this further has the potential to lead to more stringent ENERGY STAR standards, and potentially energy codes.

Using Behavior Change to Redefine RPP's Interventions

Our industry typically views traditional program interventions (incentives and information) and behavior interventions as distinct program designs. Traditional programs are typically thought to provide incentives as a way to alleviate incremental costs, while behavior change programs provide social norming and feedback framing to change small, hard-to-measure, behaviors. In reality, when applied correctly, incentives and information are behavior change interventions. However, to be an effective behavior change intervention, incentives need to be large enough to garner a person's attention. Historically, downstream consumer incentives for white goods, such as refrigerators, served as a behavior change intervention that refocused attention on qualified, energy efficient models, and alleviated incremental costs. But now that white goods and consumer electronics are more energy efficient, the amount of incentive needed for a customer to take notice is much larger than the savings garnered by the incentive – leading to low cost-effectiveness ratios.

When an incentive is applied to retailers directly however, incentives become an effective behavior intervention. These incentives provide a sufficiently-large pointing mechanism to qualified product models and help increase a retailer merchant's interest in these models. Since merchants are interested in increasing profit for their company and buying group, this type of incentive is an ideal behavior intervention for them. Secondarily, by purchasing and assorting an energy-efficient model instead of a standard-efficiency model, the merchant is reducing choice for the consumer – thereby indirectly lessening consumer choice overload. Consumers may never be consciously aware of the changes RPP could potentially create, but these changes should influence their purchase decisions eventually.

These Differences Have Implications for Consideration of Program Value

If one views RPP as a midstream behavior change program, measurement of program effects and attribution changes with respect to three key areas: 1) use and allocation of incentive funds, 2) calculation of attribution, and 3) traditional interpretation of program attribution scores.

Use of Funds

As with traditional programs, regulators, program administrators, and evaluators frequently ask how retailers will use RPP incentive funds to promote qualified products. These questions stem from a legitimate interest in ensuring that RPP is an effective use of ratepayer funds, but they also reflect a perspective based in downstream program models that is not consistent with RPP's program logic. The assertion that retailers would devote specific portions of their incentive funds to discrete activities to promote efficient products assumes that, as in a buy-down, the retailer is a medium through which the program reaches end-users.

As a program designed to influence the decisions and activities that make up a retailer's day-to-day business operations, the connection between RPP incentives and retailers' actions to increase uptake of efficient products is not direct. RPP incentives seek to make sales of efficient products more profitable than less efficient alternatives, and thereby motivate retailers to consider efficiency in key business decisions. Thus, efforts to promote and assort more efficient products become part of the retailer's overall strategy. These efforts are not discreet initiatives added on to the retailer's existing efforts, and are thus more difficult to isolate and identify a level of spending.

Asking how a retailer used their RPP incentives to promote specific products is, in some ways, analogous to asking a participant in a peak time rebate program how they used their incentives to reduce their energy use during demand response events. While the peak time rebate participant may have incurred a cost to take action, it is unlikely they consider the program incentive as a direct reimbursement for that cost. Likewise, RPP incentives may convince retailers to take actions that will increase uptake of efficient products, but the retailers are likely to consider those actions part of their broader business practices rather than a separate item to be reimbursed with incentive funds.

Market Lift Rather than Net-to-Gross

The conversion factor from the total number of units on which RPP pays incentives to the number of units sold attributable to the program is best described as market lift, a concept that is not precisely equivalent to a net-to-gross ratio used in a downstream program. Market lift is the proportion of units sold due to the program's influence relative to *all qualified units sold in the market*. Since lift is defined relative to a baseline level of sales, it is, in essence, a net measure of program impacts. A net-to-gross ratio is the proportion of units sold due to the program's influence relative to *all units that received program incentives.*

By focusing on major retailers, RPP is designed to pay incentives on the majority of qualified products sold in the market, so its net-to-gross ratio is roughly equivalent to the market lift it generates over the long-term. However, this is not necessarily the case for a downstream rebate program. In a downstream program, some number of qualified products may be sold without the program's influence or support. The downstream program's net-to-gross ratio would not account for these products, while market lift, expressed as a proportion of total sales, would. Thus, a comparison of RPP's market lift to a downstream program's net-to-gross ratio may not provide an accurate view of the programs' relative impacts on the larger market.

For example, hypothetically, RPP may increase sales of qualified units within a given product category from 100,000 units to 110,000 units in a given year, achieving a market lift of 10% attributable to the program. A downstream program targeting the same category could achieve a net-to-gross ratio of 85% by providing incentives on 5,000 units, with 4,250 of those units influenced by the program. Within this hypothetical example, to accurately compare the impacts of the two programs, we would need to consider the market lift the RPP program generated (10% hypothetically) in relation to the market lift the downstream program generated (4.25% hypothetically), rather than the downstream program's net-to-gross ratio.

Low Net-to-Gross Ratios Do Not Necessarily Imply a Lack of Cost Effectiveness

In buy-downs and downstream-focused approaches, incentives influence an individual, end-user purchase decision. Thus, it is consistent with the program logic to assert that the incentive a program pays on a particular unit sold in effect purchases the energy savings that unit will generate. The expectation of receiving the incentive for that unit motivated the end user to select it over a less efficient option.

RPP pays incentives on a per-unit basis, but its primary focus is on influencing retailer, rather than end-user, decision-making. As a result, RPP incentives, in aggregate, influence retailer decisions, which, in turn, influence sales of a large number of efficient products. Thus, it is not consistent with program logic to assert that the incentive paid on any individual unit sold generated the energy savings associated with that particular unit. Instead, the hundreds of

thousands of dollars RPP pays a retailer to incentivize sales of efficient products in a given category – as a block – bring about the energy savings resulting from a sales lift of tens of thousands of units in that category.

This distinction has profound implications and challenges for assessment of whether RPP represents an effective use of ratepayer funds. If one begins with the premise that each per-unit incentive should purchase a set amount of energy savings, it can appear that RPP wastes a large proportion of its funding by paying incentives on units that would have sold in the absence of the program and thus provide no energy savings. An assessment that is more consistent with the program's logic would consider the overall energy savings associated with the net lift in sales of efficient products RPP achieved relative to the full cost of the program. Most cost effectiveness tests are consistent with this approach, comparing aggregate net energy savings to aggregate costs. Nonetheless, the idea that RPP incentivizes thousands of units that would have sold in the absence of the program is sufficient to give some program administrators and regulators pause.

Market lift program models seek to address these concerns by paying incentives only on efficient units sold above a pre-determined baseline savings level. These approaches face certain logistical challenges in that factors outside a program's control, like broader economic conditions or a more targeted supply chain disruption, can invalidate the established baseline. Lift approaches also increase the risk of participation to retailers, who may not see returns on their investments to promote efficient products if sales do not reach a sufficient level.

Ultimately, however, on an aggregate basis, a lift model may not be more cost effective than RPP's per-unit incentive approach. Like RPP, a lift approach seeks to influence retailer decisions on a large scale. Since retailers consider the aggregate business outcome in these decisions, a lift approach would likely need to offer retailers an opportunity to earn a comparable amount of money from incentives to RPP in order to have a similar influence on their decision making. Thus, while a lift model would pay incentives on fewer units, its per-unit incentive would need to be larger.

While It Must Recognize Differences from Traditional Approaches, Evaluation of RPP Programs Remains Critical

These two considerations – the need to compare RPP's costs and net benefits in aggregate, rather than on a per-unit basis, and the distinction between net market lift and net-to-gross ratios – do not imply that an RPP program will necessarily be cost effective. It remains critical for regulators, program administrators, and evaluators to weigh the program's net benefits against its costs over the long-term. In doing so, however, it is important that stakeholders not become distracted by metrics more appropriate for programs targeting downstream market actors.

Understanding Program Influence

RPP incentives seek to influence retailer decisions and behaviors in three primary areas with implications for uptake of energy efficient products:

- Assortment: A retailer's product assortment is the set of models that retailer offers within a given product category. RPP could increase uptake of efficient products if its incentives motivate retailers to include efficient products, rather than less efficient options, in their

assortment. In this case, an end-user's likelihood of selecting an efficient product would increase simply because fewer inefficient options would be available.

- Promotion: Retailers promote certain products over others in a variety of ways, including placing them on aisle end-caps or other special displays, featuring them in weekly fliers or other advertisements, and training sales staff to tout specific features. Promotions that favor efficient products have the potential to increase uptake of those models over others.
- Pricing: Retailers determine the prices at which they will sell products and may choose to discount certain products. Offering energy efficient products at a lower price could increase uptake of those products.

It is notable that retailers could take any of these actions to increase uptake of energy efficient products without explicitly promoting energy efficiency to end-users. For example, a retailer could give an efficient product special placement in the store or feature it in an advertisement that focused entirely on other product attributes the retailer judged to be more important to end-users than energy efficiency. In this way, the RPP program overcomes end-user barriers to adoption of efficient products, like a lack of consideration of energy efficiency in the purchase decision, without addressing them directly.

Retailers primarily make the decisions RPP seeks to influence on a national level. From one perspective, this is an advantage of the program; the number of individuals the program must influence is relatively small. Nonetheless, the concentrated nature of these decisions has important implications for understanding, and evaluating RPP's influence on retailer behavior. In particular, the decisions RPP seeks to influence are extremely complex, and involve very large amounts of money.

In making all of the decisions that RPP seeks to influence, retailers consider a wide range of factors and competing motivations. For example, retail merchants have stated that their primary consideration in assortment decisions is selecting products their customers will want to buy. This involves reviewing existing sales data, as well as market research and projected sales trends as new technologies and feature sets enter the market. In addition to customer demand, retailers consider product availability and potential supply-chain disruptions in their assortment decisions.

On top of these considerations, retailers weigh the potential profitability of the models they consider. This is the primary area in which RPP incentives, as a behavior change intervention, influence the assortment decision, but they are not the only factor influencing profit margins. Manufacturers may offer discounts to retailers who assort certain combinations of models, or offer market development funds as an incentive for retailers to assort certain models, or a certain number of models.

Decisions around product promotion are also complex. As with assortment, RPP is not the only external actor seeking to influence retailers' promotional decisions. Manufacturers also offer trade promotions that provide incentives to retailers to promote the manufacturers' products. The extent to which these trade promotions determine a retailer's promotional activities depends on both the retailer and the promotion. According to one retailer, "Every square inch of an ad or a web page is paid for by someone [i.e., manufacturers]." Other retailers may play a more active role in selecting products to promote, and some manufacturer-funded promotions may leave retailers with a certain amount of autonomy. For example, a manufacturer may provide funding for a certain number of their models to appear in a retailer's ad, but leave

the decision of which, specific, models to feature to the retailer. In these cases, there could be an opportunity for the retailer to select models qualified for RPP.

In addition to their complexity, retailers make the decisions RPP seeks to influence on a very large scale. As one retailer explained, "An average merchant deals with literally hundreds of millions – some merchants buy over a billion – dollars' worth of product in a year." Relative to these sums, an individual program's incentive offerings within a single state or region are unlikely to capture significant attention on the part of a merchant. This is part of the motivation underlying the EPA ENERGY STAR program's efforts to coordinate a nationwide RPP program that brings together program administrators covering a large portion of the U.S.

Assessing Program Influence

Given the complexity and scale of the retailer decisions RPP seeks to influence, it is unlikely that RPP incentives will be the only factor that motivates a retailer to assort, promote, or reduce the price of a particular product. In assortment decisions in particular, retailers have described RPP incentives as a "tie-breaker," a factor likely to motivate them to select the qualified option when deciding between two models that are similar in other ways. Similarly, retailers may choose to feature qualified models in manufacturer-funded promotions that give the retailer autonomy to select the specific models promoted, or mark down prices of qualified models during pre-planned sales, anticipating that the incentive will reduce the cost of the markdown to the retailer.

It is important for evaluators to consider the nature of RPP incentives as a tie-breaker in retailer decisions when assessing program influence. Due to the complexity of the decision-making process, it may be difficult for retailers to point to specific models they assorted or promoted as a result of RPP incentives. Compounding these challenges, retailers' decisions around assortment, promotion, and pricing are central to their business strategies, and their negotiations with manufacturers are highly confidential. As a result, retailers may be reluctant to discuss their decision-making in sufficient detail to provide accurate, quantitative estimates of RPP's role in their decisions.

In the face of these challenges, direct questions to retailers about the influence of, and lift in sales of qualified products attributable to, RPP are unlikely to yield accurate data to support quantifying program influence. Instead, it may be more productive for evaluators to first seek to verify that the conditions necessary for program influence exist and to look for qualitative indicators of program influence.

Conditions necessary for program influence include key retail staff members' awareness of RPP product qualification criteria and incentive levels in time to inform their decisions, and internal allocation of incentive funds in a way that directly benefits key decision-makers. Past evaluations of RPP have found these conditions to be in place. Indicators that program influence have occurred could include any examples retailers could cite of specific decisions influenced by RPP incentives, accounts of conversations with manufacturers discussing whether particular products qualify, and any internal discussions regarding RPP qualified products or incentives. Once they have established qualitative evidence of program influence, evaluators can seek to confirm and quantify that influence using program and other market data.

Challenges in Measuring Influence

RPP is relatively unique among energy efficiency programs in the depth of data it collects about the market. Most participating retailers provide full category sales data at the unit level, giving program administrators insight into sales of both qualified and non-qualified products. Nonetheless, the scale and complexity of the decisions RPP seeks to influence can limit the potential for traditional evaluation approaches to measure RPP's impact on uptake of energy efficient products.

As with other mid- and upstream programs, end-users may not be aware they purchased products that received RPP incentives, and no list of end-users who purchased incentivized products exists. Thus, self-reported data about end-user decision-making is difficult to obtain and of limited use in determining program influence. Evaluators have historically taken two approaches to determine the influence of mid- and upstream programs that pose similar challenges: establishing baseline sales of efficient products through either historical or geographic comparisons. Both of these approaches can be problematic for RPP.

Historical comparisons evaluate sales of efficient products under the program relative to a defined time period prior to the program's launch to determine changes in sales attributable to the program. This approach has the potential to capture the effects of all of the actions a retailer takes to increase sales of energy efficient products, but it also runs the risk that changes in the market independent of the program will limit the relevance of the baseline period as a comparison. While changes to widespread economic conditions or more targeted supply chain disruptions could affect the applicability of a historical baseline to any product, this risk is particularly acute for product categories with short product refresh cycles and those undergoing rapid technological change.

For example, televisions have rapid product refresh cycles, with manufacturers replacing their entire range of product offerings each year. In addition, over the past fifteen years, televisions have undergone a period of rapid technological change, with flat screen technologies replacing cathode ray tubes, LCD displays overtaking plasma, and LEDs replacing CCFLs as a backlighting technology. Given this rapid change, sales of products meeting a particular efficiency level in one year would be of limited benefit in estimating a program's influence on sales of efficient products in subsequent years. In contrast, some models of pool pumps may remain on the market relatively unchanged for 20 years, making a historical comparison of sales much more relevant (Research Into Action 2012). In any case, however, program administrators using a historical comparison approach need to closely track market and technology changes that might limit the relevance of their baseline period.

Geographic comparisons evaluate sales of efficient products under the program relative to a comparison area without program activity, with the comparison area selected to be similar to the program area based on demographics or other key variables. This type of analysis accounts for technological or market changes because those changes are likely to impact the comparison area as well as the program area. However, given the centralized nature of many of the retailer decisions RPP seeks to influence, a geographic comparison may not capture the full extent of RPP's influence in the market.

Retailers make a large majority of their assortment decisions, and many promotional decisions at a national level. As a result, to the extent that RPP is able to influence these decisions, RPP's impact on product assortment and promotion would not be limited to the program area; assortments and promotions in any comparison area would also favor efficient products. Analyses using comparison area approaches have identified sales lift attributable to

RPP, but these findings likely reflect only program administrator-led in-store activities and other marketing efforts limited to the program area (Research Into Action 2015).

Given these challenges, evaluators are building on more traditional historical baseline and comparison area approaches to assess the influence of RPP. As with other market transformation programs, a theory-based evaluation, which seeks to verify the program's progress toward achieving specific indicators of change in the market that are consistent with the program's theory, may be appropriate for RPP. These evaluations often rely on a "preponderance of evidence" approach, seeking to triangulate data from multiple sources, like in-depth interviews and modeling of program data, to identify and estimate market progress (Prahl and Keating 2014). This is the approach that program administrators in California and the Northwest plan to use to evaluate their RPP programs.

In order to obtain quantitative estimates of the increase in sales of qualified products attributable to RPP, evaluators have created mathematical models predicting the diffusion of efficient technologies over time. Other evaluations have successfully identified impacts from specific activities to promote efficient products by using targeted analyses comparing periods immediately before and after limited time promotions, or comparing stores that received promotions with those that did not (Research Into Action 2013; 2015). In one case, these promotions implemented an experimental design to facilitate this analysis (Ibid). Finally, one additional approach in development seeks to use past sales data to create a sales forecast in the way that retailers do for their own planning, in order to identify differences between predicted outcomes and those observed under the program.

Conclusions

RPP represents a potential approach to addressing the challenge that growing plug load energy use poses to the energy efficiency industry. RPP's program logic differs substantially from that of more traditional program approaches that target end-users, including midstream buy-downs. Two aspects of RPP's program logic require a shift in the mindset of program administrators, regulators, and evaluators as they evaluate RPP and assess its costs and benefits. First, as a market transformation program, stakeholders need to consider RPP's effects over a longer timeframe and using somewhat different metrics than are appropriate for a resource acquisition program. Second, RPP's focus on changing retailer behavior requires a shift away from traditional evaluation criteria, which are often heavily focused on assessing a program's influence on end-users. Too strong a focus on metrics that are more applicable to programs targeting end-users could lead some to dismiss RPP without fully understanding its true costs and benefits.

Given the differences between RPP and more traditional programs, RPP could benefit from new evaluation approaches to determine the program's influence. These approaches are still under development, and to date, none have gained widespread acceptance. The development of these approaches will help to provide a better understanding of the influence RPP-type programs can have on the market, and whether these programs can deliver cost-effective energy savings.

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