

Influencing Smaller Markets: Can Residential Midstream and Upstream Incentive Models Succeed?

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ABSTRACT

Across the United States and in some parts of Canada, residential energy efficiency programs that offer efficient product rebates for decision makers or influencers upstream in the value chain (i.e., beyond point-of-sale discounts to the consumer) have been successful at driving increased participation and generating greater energy savings at lower cost than traditional downstream programs. However, can these upstream or midstream programs succeed in smaller markets where there is not enough uptake to significantly impact manufacturers' or retailers' overall sales?

This paper highlights the work that Dunsky Energy Consulting completed on behalf of Efficiency Nova Scotia, in which we analyzed residential upstream and midstream incentive programs across North America. Based on the results of a market study and a jurisdictional scan, we determined that program administrators in smaller markets do not likely have enough influence to implement an effective upstream program. However, market size is less of an issue when implementing midstream programs, making them an effective option to pursue for smaller jurisdictions. When doing so, however, the following points should be kept in mind:

- Midstream models are most beneficial when customer education or staff recommendations play a key role in purchasing decisions.
- Attribution (how much of the sales are attributed to the program) can be a challenge of midstream and upstream incentive models.
- Cost savings resulting from a change in incentive model are not guaranteed and should not be the driving decision to change models.

Introduction

Designed to encourage consumers to purchase and install energy-efficient measures in their homes and businesses, retail incentive programs are an integral inclusion in energy efficiency initiatives across North America. A critical element of these programs has been lighting products, with appliances and consumer electronics also included. However, with the rapid penetration of LEDs and saturation of the lighting market, as well as greater general awareness of energy-efficient benefits and options, program administrators are beginning to look for innovative ways to achieve savings (York et al. 2013).

To address this issue, some jurisdictions are examining whether or not the downstream retail sales model is cost-efficient and effective. Others, such as National Grid, the Northwest Energy Efficiency Alliance, Pacific Gas and Electric (PG&E) and Sacramento Municipal Utility District (SMUD) in California, and several others, have already implemented midstream and upstream programs.

However, with a population of just under 900,000, does Nova Scotia have the market influence to impact pricing or sales levels for national or North-American manufacturers and

distributors? Is it a large enough market that it could interest manufacturers and/or distributors in a partnered incentive program? These were two key questions we had to answer when EfficiencyOne, operating as Efficiency Nova Scotia,¹ commissioned Dunsky Energy Consulting to conduct a research study to determine the feasibility of developing midstream and/or upstream incentive programs in this market. In other words, our research attempted to answer the question “Can midstream or upstream programs succeed in a smaller market that has fewer customers than many cities?” Others have suggested the answer is “no.” For example, a region’s size is likely to have an impact on a manufacturer’s response to requests for energy efficiency design changes (Barla and Proost 2012, 25). However, our results indicate the answer could be “yes”, but not, perhaps, in the ways in which we may have thought.

Project Context

Efficiency Nova Scotia (ENS) offers a full portfolio of programs, including a point-of-sale, downstream retail incentives program, marketed as Residential Instant Savings. The program has been offered since the organization’s inception in 2011² and has seen success, accounting for 12% of the organization’s Residential programs energy savings in 2014 (Econoler 2015).

However, while program evaluations indicated the program was successfully administered (Econoler 2015), ENS was interested in decreasing barriers to effective delivery, including the level of engagement on the part of retailers. Specifically, ENS wanted to know which program models could offer the potential to realize a high level of energy savings at a low cost, while maintaining a high level of partner and customer satisfaction. In addition, it was important that our team analyze the programs within the context of a smaller jurisdiction, as program administrators operating in smaller markets may not have the same options as larger ones that have correspondingly greater market influence.

Value Chain Models

Different market actors can use terminology in different ways. For example, some respondents used the term “upstream incentives” to represent product specifications-development only, and others to represent any incentive provided to a manufacturer. To avoid confusion, Figure 1 provides an overview of the terminology used in the study. Specifically, upstream incentives are those provided to manufacturers, midstream to retailers, and downstream to consumers.

¹ EfficiencyOne is an independent organization that holds the Efficiency Nova Scotia franchise in Nova Scotia. Because this research study was conducted for the sole applicability to DSM programs rather than other activities conducted by the organization, we will reference the organization as Efficiency Nova Scotia for the remainder of this paper.

² Prior to 2011, DSM programs, including Efficient Products rebates, were offered by the province’s electric utility.

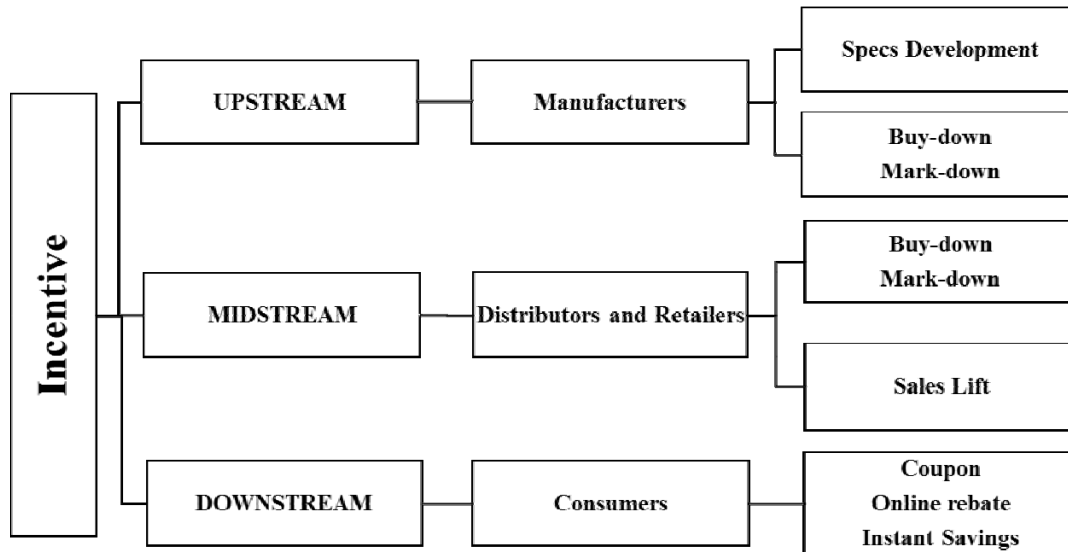


Figure 1. Incentive options by value-chain placement.

Downstream

Downstream incentives provide rebates directly to consumers with the intention of encouraging them to purchase energy-efficient products. Programs generally involve one of two models:

- The first is coupon rebates. These are often administered as mail-in or online programs, for which customers must send in a proof of purchase to obtain their rebate.
- The second model is point-of-sale discounts, in which the customer receives a discount at the cash register and the retailer recovers the rebate from the program administrator.

Midstream

Midstream programs provide incentives to retailers, rather than to consumers. The intent is to encourage retailers to stock and sell a greater number of energy-efficient products than they otherwise would. Midstream programs will often take two forms:

- The first involves the retailer receiving a product rebate, on a per-product basis (sometimes to an upper limit). Depending on the specific model, the retailer may have flexibility in determining the optimal way to achieve a high number of sales, for example by developing their own marketing material, placing product in an optimal position, or increasing staff commissions to push the product. While some programs require retailers to pass the rebate on to the consumer, this is not a requirement of the model *per se*.
- The second form of midstream incentive is a market lift model, in which incentives are provided to retailers for achieving pre-determined sales targets (calculated to be above baseline sales).

Within each of these models, a buydown or markdown could be planned, with a buydown involving a reduction in the cost of the product for the purchaser, and a markdown involving a discount on the selling price.

Upstream

Upstream incentives, which are provided to manufacturers, can also take one of two different formats:

- The first consists of buydowns or markdowns that reduce the cost of providing products to retailers and distributors.
- The second involves providing incentives to manufacturers for the purposes of developing or enhancing products by improving specifications or energy efficiency features. For example, this can take the form of research and development funds.

Methodology

To determine the feasibility of upstream or midstream retail programs for smaller markets, our team applied a two-step approach. First, we conducted a qualitative market study with seven retailers and a manufacturer operating in Nova Scotia and one operating outside of the province. Participants were selected based on two criteria:

- Involvement with Efficiency Nova Scotia's Instant Savings program, so they would understand the opportunities and challenges of the existing program as well as potential changes; and
- Familiarity with business strategies for achieving sales of energy efficiency products. In other words, we recruited retailers and manufacturers who were involved with either the Nova Scotia-based program only (such as an independent hardware store) or with a variety of instant savings programs across jurisdictions (such as larger retail chains) to understand key success factors, including level of market influence, for instant savings programs.

By conducting a market study, we wanted to understand Efficiency Nova Scotia's influence in the energy-efficient products market by identifying how important its Instant Savings program was for retailers and manufacturers in terms of sales and level of effort. We also explored their initial perspectives on alternative program models.

Second, we conducted an initial scan of energy efficiency administrators across North America based on ACEEE, CEE, and ENERGY STAR[®] program listings in order to identify jurisdictions offering upstream and midstream programs. Of these, 11 jurisdictions administering a total of 12 midstream or upstream programs were selected based on meeting a set of pre-determined "best-in-class" criteria (refer to Table 1). To determine whether or not the programs met most or all of the criteria, we reviewed evaluation reports, program materials, and program manuals. We also followed up with one-on-one interviews with program managers.

Table 1. Best-in-class criteria used to determine inclusion in study

Category	Criterion
Program Design	Clearly articulated program theory
	Feedback loops and mechanisms to solicit feedback
	Program design that addresses market barriers
	A streamlined administration process designed to reduce transaction costs (monetary and otherwise) for delivery agents, manufacturers, or distributors
	Mechanisms to capture data for tracking and evaluation, including mechanisms to monitor participation levels
Partner Collaboration	Supports for sustained stakeholder engagement as well as training opportunities for stakeholders
	Supports for innovative, customized participation strategies
	Leveraged and maximized partnerships
Participation Considerations	Educational component(s)
Results	Strong results (for existing/mature programs): demonstrated energy savings

To ensure a cross-section of experiences, the programs were broken out into three categories: lighting, products and appliances, and consumer electronics. They also included a mix of longer-running programs (three years or more) as well as more recently developed ones. Programs were surveyed to determine the following:

- Reasons for implementing the midstream or upstream program model,
- Benefits and barriers the program was designed to address,
- Implementation details, and
- Lessons learned.

In addition to secondary research on each jurisdiction, we interviewed program managers and other relevant individuals to understand the barriers and benefits they found in the implementation of their programs.

This combination of market study and jurisdictional scan provided insights into the influence and other factors required to successfully implement midstream and upstream programs in a smaller market. Once we analyzed the results, we determined the feasibility of implementing such programs in Nova Scotia and developed recommendations for next steps in Nova Scotia.

Key Findings

Some key lessons have been learned by the administrators who have implemented these types of programs. These lessons, combined with the market study that focused on the small market in Nova Scotia, highlight the opportunities and constraints in implementing these programs in smaller markets.

Program Trends

Our research found the following trends for incentive programs based on product category.

Lighting programs. Lighting programs are moving towards upstream and midstream models. Half of the programs surveyed offered midstream or upstream incentives for lighting products. When discussing reasons for the change, program administrators indicated it was because of falling participation and savings from downstream lighting programs resulting from market penetration. New regulations were also a noted reason, as the new standards or regulations drove a need to involve manufacturers and retailers in determining how to achieve energy savings, including consumer education. Other reasons included the introduction of new products such as LED lighting that allowed for the promotion of ENERGY STAR top tier lighting options.

The rationale, as corroborated in the market study, was that retailers and manufacturers know how to sell products. If they are provided an incentive to sell more of a certain kind of product, they will do what it takes to do so. Some will develop a flow-through incentive to customers, when a rebate will cause sales to rise; others will use it for marketing purposes or training for sales reps to ensure they understand how to sell the benefits of the products. Because they only receive the incentive for actual sales, they are encouraged to use the most effective means possible.

Appliances. Appliances are still offered in predominantly downstream programs. Very few (two) of the jurisdictions surveyed offer midstream or upstream programs for appliances. It is not that downstream appliance programs perform better than ones in which incentives are provided higher in the value chain; it is simply that these programs have not faced the same “crisis” of reduced participation and energy savings. In other words, jurisdictions have taken the perspective that there is no need to fix something that is not yet broken.

Consumer electronics. Consumer electronics programs are offered in downstream, midstream, and upstream models. Consumer electronics programs are offered through a variety of models, but they generally focus on two products: televisions and advanced power strips. The range in incentive models may be because consumer electronics is a relatively new and specialized area for incentive programs, so the products are offered more as pilots or add-ons to existing programs rather than programs on their own.

Upstream Program Applicability to Smaller Markets

While jurisdictions are increasingly offering upstream programs, particularly for lighting, smaller markets may not lend themselves to an upstream model. Some manufacturers’ policies, as identified in the market study, do not allow for province- or state-specific discounts, and smaller markets are not able to provide the sales to justify exceptions. In addition, Canada itself can be considered a smaller market, and feedback from respondents indicated that, because many products are not manufactured in Canada, focusing on buydown or markdown upstream relationships for these products is more difficult than it may be for some American jurisdictions.

Regarding a specification-based upstream model, smaller jurisdictions are not large enough (and do not likely have enough incentive dollars) to influence manufacturer product changes, so this type of upstream model is generally unfeasible for smaller markets. The

exception is if several jurisdictions coordinate efforts, similar to the ENERGY STAR Retail Products Platform, which combined the efforts of the Northwest Energy Efficiency Alliance (NEEA), Northeastern Energy Efficiency Partnerships (NEEP), Natural Resources Defense Council, PG&E, SMUD, Southern California Edison, and Vermont Energy Investment Corporation (VEIC) (ENERGY STAR 2014).

Midstream Program Applicability to Smaller Markets

While upstream models do not generally seem feasible for implementation by smaller markets, these jurisdictions were shown in our study to have enough influence within their own territories to administer midstream incentive programs. The reason for this is twofold: retailers will participate because it allows them to remain competitive within that market. They are not willing to let other competitors gain an edge and will therefore participate in a program that will increase their sales. In addition, retailers do not have the same geographic restrictions on province- or state-specific sales that manufacturers do if they choose to invest their incentives in customer rebates. These benefits, however, are also applicable to downstream programs and not unique to midstream: most retailers will participate because it is a competitive disadvantage not to do so.

More specific to midstream programs, therefore, is that the delivery model is customizable by the retailer (or should be, to have maximum impact). A challenge that smaller jurisdictions can have is that their sales volumes are not always high enough to encourage retailers, particularly larger chains, to adopt program requirements. For example, even though several retailers noted that Efficiency Nova Scotia was known in their companies for having one of the most streamlined processes of any utility, it has specific marketing requirements for evaluation and cost purposes. For these reasons, some larger chains have stopped (or never started) participating because they are unwilling or unable to follow the requirements due to corporate policies for marketing, and Nova Scotia's sales do not justify adjustments. However, a midstream model, in which retailers are given an incentive for selling products, regardless of how they do so, allows them to deliver the program in a way that fits their business model, including marketing requirements.

Education is Key

Our most important finding for these types of programs, however, is that while consumers are willing to purchase energy efficient products, energy efficiency will not necessarily drive their decisions. This finding is supported by behavioral research, including Frederiks and Hobman, 2015; Gromet, Kunreuther, and Larrick 2013; Allcott and Mullainathan 2010; and Wilson 2008. This suggests that successful sales staff will understand what drives consumers' decisions for particular products. This is why, when selling energy efficiency, retail staff are key. Several respondents highlighted this point, but it was perhaps most clearly stated by one respondent that, outside of the ENERGY STAR specification process, manufacturers and retailers have no interest in increasing energy efficiency for the consumer unless directly incented for it.

This consideration makes the education of consumers by external program partners and delivery agents extremely important in a downstream model. However, delivery agents are not in stores at all hours, reducing the potential program opportunities. If a retailer or manufacturer is provided an incentive to sell more of a certain product, they will do so, regardless of whether it is

energy efficient or not. Providing incentives for selling energy efficient products, as the midstream model does, ensures that customers are presented with a choice, regardless of the reasons that retailers sell those products. In fact, in several cases in the programs we reviewed, consumers' choices became more restricted to ENERGY STAR models because of the focus retailers put on them.

Considerations for Implementing Midstream Programs

When thinking about piloting or implementing a midstream program, the following points are useful considerations.

Consumer Education and Staff Recommendations

Midstream models are most beneficial when customer education or staff recommendations play a key role in purchasing decisions. When customers can easily make a purchasing decision on their own, or know what they are looking for, a midstream model will not necessarily provide greater benefit than a downstream model. However, when customers seek or accept guidance from sales staff, a midstream model is likely to produce results. This is because the retailer is incented to push the program's products above others, and the salesperson can guide them toward an efficient product selection.

The caveat to this point is that the incentive has to be large enough to incent retailers to promote the product. If it is not enough to impact their efforts, then the promotion is not likely to occur. However, the exact same incentive level provided by a program administrator to a retailer as would normally be provided to a consumer may have a much greater impact. For example, a \$20 discount on a television set or clothes dryer is not likely to cause a customer to purchase a particular model. However, the same \$20 may double the retailer's or manufacturer's profit margin, incenting them to promote that particular model. Some incentives may also be able to be reduced for this reason.

Product sales that benefit from consumer education and staff recommendations include appliances and consumer electronics. Program administrators reported mixed responses regarding lighting: some jurisdictions indicate that with the switch from CFLs to LEDs and the drastic and fast reductions in LED prices, the lighting market is close to being transformed and therefore does not require consumer education. However, other respondents indicated that consumers still require education in order to understand lumens versus watts and/or the benefits of an ENERGY STAR label. Almost all respondents indicated that the window is closing on the need for consumer education for lighting, so the benefits of midstream incentive models for lighting will not be as high in the next few years.³

Product Selection

We discovered some counter-intuitive findings in our research. Specifically, the products most conducive to upstream or midstream incentive models are the ones least administered under

³ This response is in the context of the current market. Inexpensive, non-ENERGY-STAR LED bulbs are expected to enter the North American market in the near future, which may fundamentally change the context for administering lighting-based incentive programs.

these program formats. The current trend is for lighting programs to be administered using an upstream or midstream model; appliances and consumer electronics are generally administered using a downstream model. However, this trend has developed in response to changing participation and energy-savings rates, not necessarily best practices or an assessment of which products are particularly conducive to upstream or midstream incentive models. While some jurisdictions have conducted the research and piloted a midstream approach for appliances and consumer electronics, many have not.

Contrary to general trends, products that are most conducive to upstream or midstream incentive models are ones that require/encourage consumer education. These include appliances and consumer electronics. The success of this type of model is expected to vary by product; however, products for which manufacturers' or retailers' profit margins are slim will generally benefit from an upstream/midstream model, as even a minimal rebate will increase their profit margin substantially, even if the same incentive level would not impact a consumer's decision to purchase the product.

While this finding is applicable to all markets, it can be particularly relevant for smaller jurisdictions that may not have enough influence, incentive dollars, or research funds to try different models to determine what works. Therefore, if they have downstream lighting programs that are working, there may be no need to revise the program, especially considering the potential that there may be a time limit on retail lighting sales. Limited funds may be better spent piloting an area of new savings opportunities.

Cost Savings and Cost-Effectiveness

Cost savings are one reason jurisdictions have looked to shift from downstream to midstream or upstream models. With new codes and standards coming into effect, baselines are being raised and reducing energy savings for products such as CFLs and LEDs. In addition, prices for energy efficient products are going down (sometimes dramatically, in the case of LEDs). For these reasons, jurisdictions that distribute incentives on a per-unit basis are reducing incentives in an effort to keep their efficient products programs cost-effective.

However, with the lowering of incentives comes the risk of increased free-ridership: if incentives are reduced to the point at which they no longer impact a consumer's decision to purchase a product, the overall program will be less cost-effective because fewer energy savings can be attributed to the incentive. Similarly, if the incentive is not enough to reduce the purchase price to a point at which uptake is increased, sales may not reach levels that cause the program to be cost-efficient (for example, if marketing costs remain the same, regardless of the number of products sold, fewer sales result in a more expensive program). This has also been the catalyst for some jurisdictions' switch to a midstream or upstream model: while a minimal incentive may not be enough to influence a customer's decision, the same incentive level can drastically change the profit margin to a retailer or manufacturer.

However, cost savings resulting from a change to the incentive model depend on the particular model selected and are not guaranteed. Rather, they depend on the model and parameters selected. For example, there may be savings on marketing and point-of-purchase (POP) advertising costs, if incentives are given to the manufacturer or retailer and they determine how to market the product. However, if program administrators are still involved and responsible for those costs, then related savings will not occur.

Overall, our research indicates that a midstream model *can* result in some savings; however, it is not likely to be enough to be cause for a switch. Other reasons such as reduced

energy savings and the need to achieve energy savings with new or different products appear to be a better consideration than cost savings alone.

Flexibility is important

One of the biggest benefits of administering a midstream incentive model is that it allows retailers the opportunity to do what they do best: sell products. If consumers need to be educated to be encouraged to purchase a particular product, incentive dollars can be spent in that manner. If a price reduction will encourage the purchase, retailers will often provide a flow-through discount. If product location will influence the sale, the incentive can be used for product placement. The key, however, is for the program administrator to allow the retailer to make these decisions and not be prescriptive on how the dollars are used. Doing so provides the greatest flexibility and the greatest opportunity for increased sales of energy efficient products (Quaid and Geller 2014).

This finding means that simply moving to a midstream model is not enough to see benefits in a smaller market: if a program administrator is still prescriptive in how the retailer's incentive is to be used (i.e., as a pass-through to the customer, or for marketing purposes, etc.), then the benefits of the midstream model are lost. To some extent, this would apply to all jurisdictions, regardless of size. However, for smaller jurisdictions, larger retailers may not participate in a prescriptive model, similar to what can happen with downstream models, while in larger jurisdictions the sales levels may warrant adapting policies to the requirements.

Challenges in Implementing a Midstream Model

Attribution is a challenge of midstream and upstream incentive models. Because program dollars are not necessarily used for direct, per-unit incentives, or because consumers may not be aware an energy efficiency program is influencing the way a product is sold, it may be difficult for a program administrator to receive credit for the energy savings achieved through the program's sales. Sales data is required from manufacturers or retailers, and standard evaluation techniques may be insufficient to assess energy savings directly resulting from the program (or difficult to get). Therefore, program administrators and evaluators may need to consider a market transformation evaluation approach in a midstream model.

Some jurisdictions have attempted to address this issue by running midstream or upstream programs that assess the market lift of a program. However, these programs have been resisted by retailers and manufacturers to date, and uptake on their part has been low (Strom et al. 2014; Curtis and Montgomery 2012). Nevertheless, as attribution and energy savings for efficient products become more difficult to achieve in the future, this may be a trend to expect in the future.

Potential Next Steps

Program administrators operating in smaller jurisdictions have some unique challenges in offering retail efficient products programs. Namely, their ability to design and administer programs that are robust enough to pass cost-effectiveness screening, evaluation processes, and regulatory filings *plus* be supported by retailers or manufacturers, given their limited markets, can be impeded. This problem can be compounded when attempting to incorporate market-transformation initiatives such as midstream and upstream programs.

Nevertheless, our research indicates that smaller jurisdictions have an opportunity to modify their programs if their downstream models are no longer sufficient. They may just need to plan out their process for doing so more carefully. Upstream incentives are not likely to work in these markets absent regional coordination. However, midstream incentives have some value and are applicable in these markets. They may even have increased benefit in smaller markets, since if designed well, with extensive retailer input upfront, efficiencies in operations and costs such as marketing may result.

In the longer term, smaller markets are likely to benefit from regional or national coordination in working with retailers on midstream or upstream program development. By creating these larger markets, the barriers discussed in this paper may be addressed, and opportunities for greater savings or efficiencies, or with upstream programs, can be pursued.

Conclusion

Many program administrators in smaller markets run downstream efficient products retail programs. However, over time, energy savings are beginning to erode, and changes may be warranted. To get ahead of any potential “crisis” point, these jurisdictions are not likely to benefit from developing upstream programs unless they enter a regional or even national program. However, program administrators in smaller markets have influence within those markets, leading to opportunities to develop midstream programs that can increase sales and therefore energy savings. While attribution may be an issue, a properly designed program can mitigate that risk. Nevertheless, for smaller jurisdictions looking to do so, we recommend piloting a small-scale program first, ideally with appliances or consumer electronics. Smaller markets may not have the resources to invest in as many pilots or research initiatives, and if so, the effort in these smaller markets might be better spent in areas that will yield benefits for a longer time to come.

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