Effective Practices for the Evaluation
of Market Transformation Efforts

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ABSTRACT

This paper describes evaluation-related findings from a 2013 study to examine planning and evaluation practices that are recommended in the market transformation (MT) literature and have been used to support five types of "strategic" market transformation initiatives or programs for the residential sector: lighting, products including appliances and consumer electronics, whole house, HVAC, and new construction. The study reviewed the literature on market transformation to identify approaches to planning, implementing, and evaluating MT programs that are necessary or preferred. It identified 14 strategic market transformation programs or initiatives from among four sets of program administrators in the Pacific Northwest, New England, and New York; reviewed the program documents for evidence of practices that the program administrators had followed; and interviewed program staff from eight of the programs to gain a more detailed understanding of the approaches taken to the planning, implementation, and evaluation of these programs. This paper describes 10 effective evaluation practices identified in the study. The interviews and review of program reports suggest that the sampled program administrators undertake most of the planning, design, implementation, and evaluation practices discussed. This paper also describes additional planning and evaluation resources available to program administrators.

Introduction

In 2013, the California investor-owned utilities[1] undertook a study to examine planning and evaluation practices that have been used to support five types of "strategic" market transformation (MT) initiatives or programs for the residential sector: lighting, products including appliances and consumer electronics, whole house, HVAC, and new construction. The goals of that study were to provide actionable information to help evaluation staff and program planners prepare for an expected emphasis on market transformation in California's residential energy efficiency programs, and to identify lessons that could help in developing market transformation programs and related evaluation plans.[2]

The study distilled effective program planning, design, implementation, and evaluation practices from the market transformation literature. It also examined practices that have been used to support MT for qualifying residential programs in selected jurisdictions to shed light on the real-world implementation of practices identified in the literature. This paper discusses the key findings of the study as they relate to evaluation.

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[1] Pacific Gas & Electric, Southern California Edison, San Diego Gas & Electric, and Southern California Gas.
[2] The full study, *A Review of Effective Practices for the Planning, Design, Implementation, and Evaluation of Market Transformation Efforts*, is available at www.calmac.org.

What is Strategic Market Transformation?

It is possible for energy efficiency programs to lead to market effects, and even to transform markets, without being strategic market transformation programs. This paper focuses specifically on strategic market transformation, which refers to a subset of programs and activities explicitly designed and implemented to bring about market transformation. Prahl and Keating describe strategic market transformation as:

> . . . *a program approach that uses "the tools of market transformation to make a deliberate and rigorous effort to intervene in [targeted], clearly defined markets." Strategic MT programs are expected to have market-transforming effects. Strategic MT acknowledges that not all markets are transformable, and allows for the tactical incorporation of other programs in the effort to change the target market.* (Prahl & Keating 2011)

Methodology

The study team undertook a literature review to identify necessary or preferred approaches to planning, implementing, and evaluating MT programs. To identify programs for examination in the study, the authors developed a snowball sample through speaking with knowledgeable industry contacts about relevant programs in the Pacific Northwest, New England, and New York. This selection of jurisdictions was based on the work of Prahl and Keating (2011) and Rosenberg and Hoefgen (2009), as well as the authors' prior experience with MT program evaluation. The study team reviewed evaluation reports and plans for the programs to evaluate the extent to which each identified program appeared to fit the working definition of a strategic MT program. The team ultimately identified 14 such programs. These programs are run by four program administrators or teams of administrators: Efficiency Vermont, the New York Energy Research and Development Authority (NYSERDA), the Northwest Energy Efficiency Alliance (NEEA), and the Massachusetts Program Administrators (Berkshire Gas, Columbia Gas, National Grid, New England Gas, NSTAR/Western Massachusetts Electric, and Cape Light Compact). Table 1 shows the names of the 14 programs, and the abbreviations for these names in the tables that follow.

Table 1. Programs and Abbreviations

Program Area and Abbreviated Name		Full Program Name
Lighting	Efficiency VT	Efficiency Vermont Retail Efficient Products Program (Lighting)
	MA Program Administrators	Massachusetts ENERGY STAR Lighting (2002-2007)[3]
	NEEA	NEEA ENERGY STAR Residential Lighting Program
Products	Efficiency VT (Appliances)	Efficiency Vermont Retail Efficient Products Program (Appliances)
	NYSERDA (Products)	NYSERDA New York Energy $mart Products Program (Appliances and Consumer Electronics)
	NEEA (TV)	NEEA Consumer Electronics TV Initiative
	NEEA (Clothes Washers)	NEEA ENERGY STAR Resource-Efficient Clothes Washer Program
Whole House	Efficiency VT	Efficiency Vermont Home Performance with ENERGY STAR
	NYSERDA	NYSERDA New York Home Performance with ENERGY STAR (HPwES)

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[3] From its inception in 2002 through 2007, the Massachusetts ENERGY STAR Lighting Program was "both a resource acquisition and a market transformation program," according to its sponsors. After 2007, it no longer qualified as strategic MT.

Program Area and Abbreviated Name		Full Program Name
New Construction	Efficiency VT	Efficiency Vermont Residential New Construction
	NYSERDA	NYSERDA New York ENERGY STAR Certified Homes Program
	NEEA	NEEA Northwest ENERGY STAR Homes Program
HVAC	NYSERDA	NYSERDA ENERGY STAR Products Upstream HVAC Partners Program
	NEEA (DHP)	NEEA Northwest Ductless Heat Pump Project

Not all of the programs identified fit the definition of strategic market transformation during the time of the study. For example, Massachusetts' ENERGY STAR Lighting Program is included, but only from its inception in 2002 through 2007, when it fit the definition and was described by its sponsors as "both a resource acquisition and a market transformation program." The set of programs examined is not a comprehensive listing of strategic MT programs in the jurisdictions, both because of budget limitations and because key documents were not available for some programs that the team believed would qualify. For each program, the study team reviewed the program documents in depth for evidence of practices that the program administrators had followed. The team then interviewed program staff from eight of the programs across the four program administrators in order to gain a more detailed understanding of the approaches they took to the planning, implementation, and evaluation of these programs. The research was performed from July through September of 2013.

Evaluation Practices

As the full report documents, the nature of strategic market transformation efforts makes them challenging to evaluate. Successful evaluation of MT requires that program planners, designers, and implementers work hand-in-hand with evaluators to ensure the groundwork is laid early for evaluation. This section summarizes evaluation practices identified in the literature as key to the successful evaluation of strategic market transformation, and compares them to the practices followed by the programs examined.

Develop a Program Theory and Logic Model, and Match the Evaluation Strategy to the Logic

The literature on planning market transformation programs unequivocally advocates for a coherent program theory to be developed as part of any effort to transform markets. The program theory should describe a causal relationship between the expected actions and the desired outcomes, and should be clearly linked to a model of the market developed in a market characterization study.

According to Sebold et al. (2001), the following actions should be taken to develop a coherent program theory:
1. Describe the market
2. Lay out the rationale for the intervention
3. Lay out the expected effects of the intervention
4. Describe the strategies to be implemented and the logic of their theory
5. Describe the resources to be applied
6. Note places where there might need to be program transitions (e.g., modifications, where there would be success or failure)

Rosenberg & Hoefgen describe a *logic model* as a graphic illustration of the program theory, or "the causal links between program activities, short-term responses to those activities among market actors, and longer-term market effects." A logic model serves as an invaluable tool for understanding not only the causal relationships but also the feedback loops and interconnections among various program components, such as

resources, activities, and outcomes. An important reason to develop a logic model is to make sure that "the activities, resource investments, and evaluation efforts fit with and focus on the core assumptions and causal hypotheses of the planners and policymakers" (Rosenberg & Hoefgen 2009).

A critical best practice for MT program evaluation is to match the evaluation strategy to the program logic. The logic model should serve as a clear "roadmap" to the program evaluation activities. "Evaluation and measurement activities should test the logic of the intervention to determine whether the logic makes sense and whether the results of the intervention are consistent with the intervention logic" (Sebold et al. 2001, 5-1). This matching ideally occurs during the program planning phase to ensure that program managers and implementers track information necessary for evaluation throughout the implementation period.

Better logic models both set forth the connections between program elements and desired market outcomes and provide detail on the need for the program and the indicators that will be used to measure market effects. As Sebold et al. state, "Intervention objectives must fit specific needs." Each element must also be linked to desired outcomes—including short- and long-term ones.

As Table 2 shows, when the study team examined reports related to the programs in the study, they found a logic model flowchart, logic model table, or narrative of the program theory for all but two of the 14 programs. (One of the programs lacking this information, NEEA Clothes Washers, was among the earliest MT programs, and the primary formative research for this program was conducted under EPRI project management and is proprietary.) All of the logic models or program theories of the twelve programs clearly show how the program is supposed to affect the market by linking program activities with anticipated outcomes. Of the seven programs that have both program theories/models and market models/descriptions of the market, all explicitly or implicitly describe how they are linked.

Table 2. Use of and Linkages between Logic Models/Program Theory and Market Models

		Have a logic model flowchart (F), table (T) or narrative (N) of program theory?	Program theory, logic model, or program model clearly show how the program is supposed to affect the market (links between activities & outcomes)	Outputs appropriately differentiated from outcomes	Outcomes are organized by time frame (short-term to long-term)	Program theory, logic model, or program model is linked with market progress indicators
Lighting	Efficiency VT	N	✓	*	**	*
	MA Program Administrators	T	✓	--	--	✓
	NEEA	F	✓	✓	✓	✓
Products	Efficiency VT (Appliances)	N	✓	*	**	*
	NYSERDA	F	✓	✓	✓	✓
	NEEA (TV)	F	✓	✓	✓	✓
	NEEA (Clothes Washers)	--	Not available	Not available	Not available	Not available
Whole House	Efficiency VT	N	✓	*	**	*
	NYSERDA	F	✓	✓	✓	✓
New Construction	Efficiency VT	N	✓	*	**	*
	NYSERDA	F	✓	✓	✓	✓
	NEEA	F	✓	✓	✓	✓
HVAC	NYSERDA	--	Not available	Not available	Not available	Not available
	NEEA (DHP)	F, N	✓	✓	✓	✓

* We did not find a market description or model for this program, but since the program was established in the 1990s and little information is available online from this period, this does not mean that one does not exist.
** Only the template for Efficiency Vermont's "Market/Initiative Brief" was available for review. Efficiency Vermont uses the "Market/Initiative Brief" in lieu of market models or logic models. It does not differentiate Outputs and Outcomes.

Establish and Track Indicators Tied to Expected Outcomes

Market transformation is a long-term business. It can take years for market effects to manifest and even longer for them to become sustainable without continued program intervention. Establishing both

nearer-term as well as longer-term indicators that will be tracked over time through regular market assessments can help to maintain MT programs while the market is changing slowly. Ideally, indicators should be selected during the program planning phase, with input from the evaluation team. Identifying indicators before or during initial program planning also allows initial baseline conditions to be established. This increases the evaluability of the program. It is best to establish the initial baseline prior to program launch or very early in the implementation phase. An early baseline increases the likelihood that later evaluation activities will provide an accurate estimation of market effects because any confounding effects of the program on the market have not yet occurred and will be easier to identify when and if they occur.

The study team found market progress indicators listed in reports for 12 of the 13 programs examined. (The exception was a program for which only process evaluations were available.) The team identified a total of 325 market progress indicators across the 13 programs.[4] However, many of the indicators are minor variations on the same few themes, so the total number of truly unique indicators is much smaller than this. As Table 2 shows, the team also found that the three program administrators with logic models available track indicators that are tied to expected outcomes. The most common indicator types were found to be market actor or supply chain adoption or acceptance (15%) and ultimate indicators of market share or sales (14%).

Nearly three-quarters of the individual indicators identified by the study team were explicitly linked to the program theory or logic model.

Perform Regular, Ongoing Research into the Status of the Market

Although market transformation generally takes a sustained effort over time, market conditions can change rapidly for reasons both related and unrelated to program efforts. In addition, market effects can sometimes "sneak up" on programs if they are not paying regular attention to market indicators. For these reasons, programs should engage in regular, ongoing research into the status of the market, typically resulting in what analysts sometimes refer to as Market Progress Evaluation Reports (MPERs). Regular research into the status of the market plays numerous roles in program implementation and evaluation. For example, thorough and accurate market studies improve planners' understanding of the market and market actors, increasing the likelihood that the program strategies will lead to desired market responses even as the market changes over time. Programs may not have to perform each activity described below in every MPER, but they should outline a plan for regular updates for each topic and build flexibility into the evaluation process to address unexpected issues that arise over time. MPERs should include updates of the market characterization and baseline estimates.

The initial market characterization study should be updated once the key indicators are identified. The frequency with which it should be updated depends on how fast the market is changing. For example, the residential lighting market has been changing so fast in recent years that annual market characterization may be advisable, as it was in Massachusetts. For new construction, a characterization of building practices should ideally be done at the beginning and end of each code cycle.

The study team categorized the publicly available reports for these programs by whether or not part or all of the MPER/report qualified as market characterization, market assessment, market segmentation, or other market research. We used this information to develop a rough estimate of the frequency with which market research had been performed for the programs. The team believes these estimates are low, as in some cases all the studies conducted for each program could not be obtained, and in other cases it is suspected that some studies are missing. It was possible to calculate the length of time between studies with market research content from program inception to 2013 (or to end of the program) for 11 of the programs. For these

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[4] A complete listing of the market progress indicators is available at
http://www.calmac.org/publications/Indicators_Listing_for_CALMAC_Study_ID_PGE0330_01.xlsx.

programs, the median length of time was two years. The minimum (as well as the mode) was 0.4 years, and the maximum was 6.5 years.

These findings provide evidence that the program administrators whose programs are examined here are performing regular, ongoing research into the status of the market.

Assess Market Effects Periodically

The MPER offers the opportunity to quantify changes in indicators of market conditions and demonstrate causal links between program activities and observed changes in market conditions. If done regularly, the MPER serves as a "check-in" on how the program is operating and on what is and is not working. The most effective assessments start with a clearly defined set of the market effects to be considered in the evaluation. Evaluators should work closely with program administrators to develop an evaluation plan that focuses on a limited set of market effects in order to keep the scope of the study manageable and cost-efficient. Some program administrators have found it useful to address a subset of market effects in each MPER and target assessment of others at specific times in the program cycle.

As explained in more detail in the "Assess Attribution" section below, the study team found multiple assessments of attribution, including market effects, for several of the programs across the four administrators.

Refine the Program Theory and Logic Model

Sometimes efforts to re-characterize the market and revise the baseline reveal the need for an update of the program theory or logic model. NYSERDA, for example, updates some of its logic models every few years. The market may have changed in fundamental ways such that the original theory and logic do not match current conditions. Some of the market changes—for example, increased federal efficiency standards or the introduction of new products—could actually reflect market effects resulting from transformation efforts. Still, if the market is not yet fully transformed, program administrators may need to work closely with planners, implementers, and evaluators to revise the theory and logic. Of course, they may also need to revise the program efforts as well match the new conditions.

In its review of program documents, the team found evidence that two of the three program administrators with publicly available logic models or program theories have refined the programs' logic models as the programs have changed over time.

Assess Attribution

The baseline can include both the initial conditions in a market as well as the counterfactual conditions expected after the program has been running—in other words, what the market would have looked like if the program had not existed. The counterfactual does not assume that the market would have been static without the program. Comparing the baseline or counterfactual to the actual state of the market at the time of the MPER provides a measure of market change. Rosenberg and Hoefgen identify four general methods for assessing attribution—that is, linking program activities to identified market change in order to establish causality (Rosenberg & Hoefgen 2009). In addition, the team identifies a fifth method, the last one listed below. The methods are:

1. Self-reported counterfactual analysis: Data are usually gathered for this method through surveys or in-depth interviews asking about free ridership and spillover, which provides one approach to assessing attribution to the program. However, only upstream market actors, not end-users, can be expected to answer questions about nonparticipant spillover in a meaningful way.

2. Cross-sectional comparison: This involves identifying one or more comparison groups that will be tracked along with the program area. The comparison group serves as the baseline in studies that rely on this method. Importantly, the comparison group may be a randomly assigned control group or a quasi-experimental group in which individuals are not randomly identified but have collective characteristics that are similar to those of the program group. The analysis can be performed using sales data and/or survey data. A special type of cross-sectional comparison involves using statistical modeling to describe pre-program conditions or what conditions would be like in the absence of a program. There can also be time series cross-sectional analysis of changes over time among different groups; this can be a simple comparison or could involve statistical modeling.

3. Historical tracing: Sometimes referred to as theory-based evaluation, historical tracing is primarily a qualitative approach to establishing attribution that involves a narrative description of the linkages between program actions and market changes. Ideally, this approach would rely on a range of information, including tracking of market indicators beginning before the advent of the program.

4. Structured expert judgment, typically through the Delphi process: This is a group communication process that relies on panels of experts to arrive at a consensus estimate or group judgment. In practice, a Delphi approach may be used in conjunction with other methods. Recent examples include codes and standards programs, residential lighting, and residential new construction.

5. Estimating the non-intervention baseline: In this approach, evaluators estimate how the market would behave without intervention, which is then compared to what happened with the program to develop net savings estimates. One version of this is NEEA's "current practice baseline," which assumes that the average efficiency that results from customer decisions about equipment purchases, design features, or operational practices constitutes an estimate of the counterfactual. The difference between the efficient equipment that NEEA promotes through its initiatives and the counterfactual constitutes the savings that NEEA has caused (Ridge et al. 2013). Another version is to use prior market trends to estimate a natural adoption curve (as described by Rogers 2003) that describes how the market would behave without intervention (Sebold et al. 2001, Cohan 2013, Tiedemann 2013).

Calculate Net Savings at the Market Level

Of these five methods, self-reported counterfactual analysis, with its focus on free ridership and spillover, is the only one that necessarily calculates a net-to-gross (NTG) ratio at the *program* level. However, it continues to be the most common approach by far. The traditional formula[5] for calculating a NTG ratio at the program level is as follows:

NTG = 1 – FR + SO

Some practitioners have argued that this traditional equation—and the ways in which free ridership (FR) and spillover (SO) are typically measured—underestimate market effects (Mahone & Hall 2010). An increasing number of market effects studies calculate the net-to-gross ratio at the *market* level, using the following formula:

NTG = (total savings – naturally occurring savings) / within-program savings

This conceptualization, as represented in Figure 1, attempts to estimate only two components: naturally occurring savings and program-induced savings (assuming that within-program savings are known). Free-ridership is not measured, nor are market effects calculated separately from spillover, which avoids the double-counting problem inherent in adding a market effects savings estimate to a traditional net savings estimate.

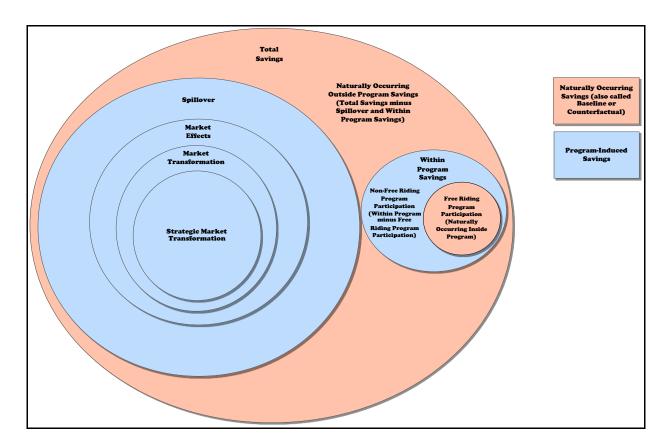
[5] FR=Free-ridership. SO=Spillover.

Figure 1. Market-level Conceptualization of Net Savings

Table 3 shows the attribution approaches used for the programs reviewed. Most programs with more than one study measuring attribution repeated the same basic approach. Where this was not the case, the attribution approaches for other year(s) are indicated with the symbol Ɔ.

- The team found program evaluation reports addressing attribution for 12 of the 14 programs. Attribution was assessed as part of the NTG calculation for six of these 12 programs. Of the six programs for which NTG was measured, three supplemented this with an assessment of attribution through market progress indicator tracking.[6]
- One Efficiency Vermont program assessed attribution through market progress indicator tracking without measuring NTG. One of the programs that measured NTG in a later year, NYSERDA New York ENERGY STAR Certified Homes, measured attribution through indicator tracking alone in 2008.
- For all five NEEA initiatives, NEEA both tracked indicators and used them to estimate the non-intervention baseline, and thus market-level net savings, as expected from NEEA interviews.
- The NTG and net savings assessments were at the program level[7] for only two of the 12 programs; the rest were at either the market level[8] or both the program and market levels.
- Four of the programs included a quantitative cross-comparison across geographic areas using either self-reported quantitative data and program tracking data or quantitative indicator data. None of the

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[6] That is, using the market progress indicators to tell a story that establishes a linkage between the program and changes in structure/functioning of the market.

[7] That is, spillover was measured as a separate component of NTG.

[8] That is, spillover was not separated out in the NTG measurement.

programs relied on qualitative methods of assessing attribution alone. Eight programs supplemented the quantitative assessments with qualitative methods of some kind.

- After 2008, the Massachusetts lighting program used structured expert judgments as part of supplemental qualitative data and cross-comparison data as part of a quantitative analysis modeling several states' lighting markets.[9]

Taken together, the information in Table 3 demonstrates that the three program administrators who confirmed that they claim savings from the programs' market effects either for themselves or for their sponsors take different approaches to measuring attribution for the market effects, and that in some cases the specifics of these approaches have varied over time.

Assess Sustainability and Prepare for Exit or Transition

Evaluators should review the indicators of market sustainability in the absence of the program to determine whether the program should be eliminated or scaled back, or should change its focus. Only one of the program administrators, NEEA, formally identified a transition or exit strategy for the initiatives examined. According to one NEEA interviewee, all NEEA initiatives include either a transition strategy, such as shifting support to a more efficient technology—for example, LEDs in place of CFLs—or an exit strategy, such as an orderly removal from the market once codes or standards are in place.

Tell the Market Transformation Story

Calculating net savings at a market level can be done quantitatively, albeit with many caveats, given the need to estimate something that did not happen—namely, naturally occurring baseline savings.[10] An important part of evaluation of strategic market transformation efforts, though, is qualitative, which goes back to the market transformation story and tracking of indicators. A useful tool in this process is historical tracing or theory-based evaluation. As described above, historical tracing uses information from a wide range of sources and reconstructs events leading to an outcome of interest to develop a "weight of evidence" conclusion regarding the influence of the program. If the market transformation story told at program inception is borne out by events—if, based on a preponderance of evidence, key indicators change in the way the theory had predicted with confirmation that they are linked to program actions, and if the program-induced changes in the market appear to be sustainable—then it seems reasonable to say the market has been transformed due, at least in part, to program activity. In the meantime, before substantial changes are achieved, qualitative confirmation that the market transformation story is playing out according to script should provide confidence to program administrators and regulators that continued program activity and funding are justified.

Not all logic models or program theories distinguish clearly between program outputs (i.e., the activities performed by the program) and outcomes (i.e., what is expected to result from the program activities). Of the seven programs with logic model flowcharts or tables that differentiated outcomes, all organized the outcomes by chronology from short-term to long-term. All eight programs for which logic model flowcharts or tables were available had market progress indicators that were clearly linked with the logic model. (Results by program are listed in Table 2.) This suggests that at least the three program administrators with logic models available have developed market transformation stories articulating linkages between program efforts and the future state of the market.

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[9] This approach was used after the period examined for the program.

[10] Also called the counterfactual because it is counter to fact.

Table 3. Attribution Assessment Type and Method

Program Area	Program	Attribution Assessment Type			Attribution Assessment Method (Quantitative)			Attribution Assessment Method (Qualitative)		Source
		Program Level NTG	Market Level NTG or NS[11]	Indicator Tracking	Self-Reporting	Cross-sectional Comparisons	Non-intervention Baseline	Historical Tracing/Theory-based	Structured Expert Judgment	
Lighting	Efficiency VT		NTG		√	√		√		(Nexus Market Research 2009; KEMA 2005)
	MA Program Administrators		NTG	√	√	Э	Э	√	Э	√ (Nexus Market Research et al. 2008) Э (NMR Group et al. 2011; NMR Group, KEMA & Cadmus Group 2011a; NMR Group, KEMA & Cadmus Group 2011b)
	NEEA		NS	√	√		√	√		(KEMA 2008)
Products	Efficiency VT (Appliances)		NTG	√	√	√		√		(KEMA 2005)
	NYSERDA	√	NTG	√		√				(Cadmus 2012)
	NEEA (TV)		NS	√	√		√	√		(Frank et al. 2013)
	NEEA (Clothes Washers)		NS	√	√	√	√	√		(Pacific Energy Associates 2001a, b)
Whole House	Efficiency VT			√	√			√		(West Hill & GDS 2013)
	NYSERDA	√			√			√		(Megdal & Associates 2012; Quantec & Summit Blue Consulting 2006)
New Construction	Efficiency VT*									
	NYSERDA	√		Э	√			√		√ (Megdal & Associates 2012) Э-(Summit Blue Consulting 2009)
	NEEA		NS	√			√	√		(Evergreen Economics 2012a)
HVAC	NYSERDA*									
	NEEA (DHP)		NS	√	√		Э	√		√ (Research Into Action 2011) Э (Evergreen Economics 2012b)

* No study with attribution assessment found for this program.

[11] NTG refers to market-level net-to-gross; NS refers to market-level net savings.

Continue Tracking Market Effects after the Program Has Ended

Program administrators should allocate resources to continuing to track the market after the program has ended. Such tracking allows the administrator to assess the sustainability of the market effects in the absence of program intervention. Although the market may initially show some symptoms of the removal of support, overall, a transformed market should quickly recover from these short-term difficulties without the aid of intervention. Of course, if market indicators persist in showing declines after a program ends, transformation may not have been complete, thus suggesting the need for some program re-entry into the market.

Of the programs examined, at the time of the study only NEEA had exited the market for any of the programs and continued to measure and monitor key market indicators after transformation.

Conclusions

The study team's review of the market transformation literature identified the following 10 effective evaluation practices in support of MT program approaches:
1. Develop a program logic model, and match the evaluation strategy to the program logic
2. Establish and track indicators tied to expected outcomes
3. Perform regular, ongoing research into the status of the market
4. Assess market effects periodically
5. Refine the program theory and logic model
6. Assess attribution
7. Calculate net savings at the market level
8. Assess sustainability and prepare for exit or transition
9. Tell the market transformation story
10. Continue tracking market effects after the program has ended

The interviews and review of program reports suggest that the program administrators with programs examined here implement most of the planning, design, implementation, and evaluation practices that are identified in the literature as being effective for MT programs. There are a few exceptions, mostly practices that the team was not able to examine, or practices carried out by NEEA alone. Among the evaluation practices, those associated with planning for market transition or exit and tracking market effects after the program has ended are only routinely carried out by NEEA.

The team also identified 14 effective planning, design, implementation, and evaluation practices for MT program approaches. The full report, *A Review of Effective Practices for the Planning, Design, Implementation, and Evaluation of Market Transformation Efforts* (available at www.calmac.org) describes these practices and includes more detail on planning, design, and implementation as well as evaluation practices. It also includes an appendix with materials on which program administrator staff can build, such as program logic models, tables of strategies used by each program, market barriers identified by the programs at various stages, and, as a separate download, listings of market progress indicators for each program.

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