

Evolving Existing Programs

How Illinois is Looking at Programs Through Market Transformation

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August 2020



Abstract

Market transformation programs leverage a deep understanding of market actors, which can allow utilities to claim long-term energy savings, often at a lower cost than traditional resource acquisition programs, making them an attractive component of a utility energy efficiency portfolio. While resource acquisition and market transformation programs have historically been separated into distinct categories, there can be an opportunity to build upon an existing resource acquisition program and evolve it to run more like a market transformation initiative. Many market transformation programs focus on new technologies; however, if adoption of an existing technology, service or product has been slow under a resource acquisition program design, there may still be an opportunity for a well-documented market intervention to take place and speed up adoption, allowing utilities to claim long-term energy savings.

Through the Midwest Market Transformation Collaborative and with funding and support from investor-owned utilities, two existing Illinois programs were assessed from a market transformation perspective. Ultimately only one of the programs passed the assessment and with input from market transformation experts, a business plan was developed to overlay market transformation principles on the existing program framework. Although only one of the programs was found to show high potential for a market transformation approach, both can serve as examples for other program administrators looking to evolve existing programs.

This paper will focus on best practices to move a resource acquisition program toward a market transformation program framework. The evolution of the existing Illinois program will serve as an example of how to evaluate program readiness for a market transformation approach, the process for developing a market transformation hypothesis, logic model and business plan, and how to engage program evaluators and other external stakeholders and document their feedback.

Market Transformation Opportunity for Utility Energy Efficiency Portfolios

Energy efficiency mandates have existed in Illinois for more than a decade and annual savings targets have increased over time. Much of the low-hanging fruit has already been picked, making it increasingly difficult for utilities to come up with new cost-effective solutions to achieve energy savings. Utilities in the Northwest have been successfully transforming energy efficiency markets for decades through the Northwest Energy Efficiency Alliance (NEEA), but the Midwest has not focused on market transformation. With the diminishing cost-effective opportunities to pursue new savings, utilities in Illinois became interested in creating market transformation programs and savings opportunities during their last energy efficiency plan filing. Market transformation has the potential to bring new opportunities to utility-run energy efficiency programs, through both increasing adoption of new technologies and redesigning existing programs to increase market share. This paper will focus on the latter option: looking at improving existing programs through the lens of market transformation.

In Illinois, market transformation (MT) is defined as “the strategic process of intervening in a market to create lasting change that results in the accelerated adoption of energy efficient

products, services and practices (IL TRM 2019).” MT requires a deep understanding of markets and market actors in order to design activities that capitalize on leverage points in the market to increase market share and create lasting change.

Without any outside forces, consumers typically buy products and services following the Diffusion of Innovations S-curve, represented by the blue line in Figure 1 below. The Diffusion of Innovations Theory, published by Everett Rodgers, explains why and how new ideas or technologies get adopted to better understand how decision-making behavior can be influenced. MT initiatives often focus on either moving adoption earlier in the curve or increasing the magnitude of the peak of adoption. Both goals can result in a market shift and claimable energy savings because of that shift; MT programs typically focus on both of these goals. The chart below illustrates this concept graphically. The blue line represents the natural market baseline, which is the forecasted market adoption of a product or service over time without market interventions. Total market units, represented by the orange line, reflect the total market adoption of efficient products or services and account for the impacts from market interventions. The measurement of MT savings is the difference at one point in time between the total market units and the natural market baseline. This represents MT savings from increased market adoption that can be claimed.

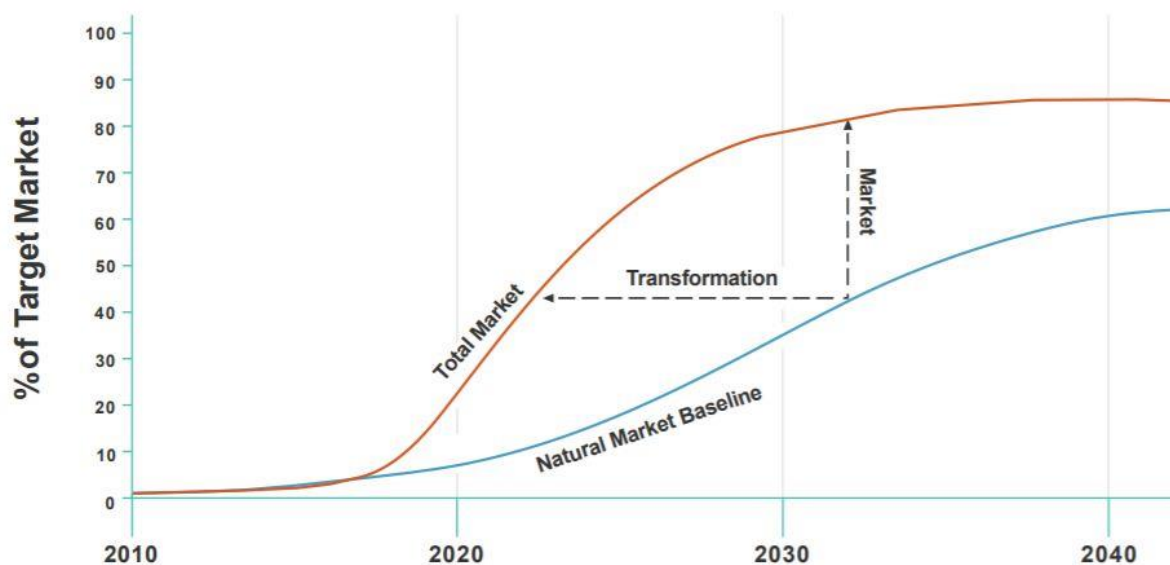


Figure 1. Accounting for RA and MT Program Savings. Source: IL TRM Attachment C 2019

Traditionally in Illinois, energy efficiency programs have been designed around resource acquisition (RA) program models, which have delivered reliable energy savings at a relatively low cost. RA has been an effective way to achieve savings, but much of the low-cost savings opportunities have been claimed and ongoing savings are becoming harder to find. The savings impacts from RA programs can be stunted by the size of the rebate budget, limiting the overall savings potential. MT typically also has budget limitations, but if utilities pool resources together to influence a market, the investment may be able to stretch further and result in increased energy savings. MT initiatives can include activities and market interventions that can affect

long-term market changes and deliver greater and longer-term energy savings than typical RA programs deliver, many times at a lower cost. Although, the cost and resulting energy savings with MT initiatives do not typically occur in lockstep; costs are often higher in the beginning of the implementation while savings may be low. Savings can ramp up over time, which may be when the costs are declining¹. Due to this potential disparity in costs and associated savings, the MT approach has to have outcomes established ahead of time with regulatory agreement, before savings can be claimed. Due to the uncertainty in developing natural market baselines within MT programs, it is critical to engage program evaluators early and often (IL TRM 2019). This will help avoid surprises once a formal evaluation is underway and mitigate some of the risk with planning for long-term savings. The differences between RA and MT can be seen in Figure 2 below.

	Resource Acquisition	Market Transformation
Scale	Program Administrator's service territory	Entire defined market
Target	Whoever can be induced to participate	All consumers of a particular product or service
Goal	Near-term savings	Structural changes in the market leading to long term savings
Approach	Save energy through customer participation	Save energy through mobilizing the market
Scope of Effort	Results from a single program	May result from effects of multiple programs or interventions
Level of Program Administrator Control	PAs can control the pace, scale, geographic location, and can usually identify participants	Markets are very dynamic, and the PAs are only one set of actors. If, how, where, and when the impacts occur are usually beyond the direct control of the program administrators
Evaluation and Measurement	Energy use and savings, participants, free-ridership, and sometimes spillover	Interim and long-term indicators of market progress and structural changes, attribution to the program, and cumulative energy impacts
Timeframe for planning, savings measurement, and cost-effectiveness	Typically based on annual or multi-year planning and reporting cycle savings	Typically planned and implemented over a 10-20 year timeframe

Figure 2. Comparing Resource Acquisition Programs and Market Transformation Initiatives. Source: IL TRM Attachment C 2019, which is adapted from Prah & Keating 2014

As demonstrated by Figure 2, there are synergies between RA and MT programs, and they have the potential to be packaged together to change a market. The differences, however, provide a distinction in how program planning, savings achievement and attribution, implementation

¹ Program costs and participant costs can decline over time as the market starts to drive customer demand of the product, reducing the need for utility rebates to drive the market. Manufacturing costs for the product may also decline as demand ramps up and additional manufacturers offer competing products. The scale and scope of utility interventions may decline over time. For example, as installers and contractors become aware of the product and familiar with installation practices, less funding is needed to support those stakeholders.

and evaluation should be considered, as the scale and target of MT can be larger and more diffuse than with an RA program model.

Midwest Market Transformation Collaborative

Utilities in Illinois became interested in introducing MT to fill portfolio gaps after the passage of the Future Energy Jobs Act (FEJA) in 2016, which also changed the utility energy efficiency targets. It was through this MT exploration in Illinois that the Midwest Market Transformation Collaborative (MTC) was formed, to not only help utilities in Illinois understand how to effectively implement MT programs, but also spread the MT knowledge to utilities in other Midwest states and potentially beyond to create a larger impact. MT can be most successful when many organizations band together to work toward a common goal, rather than each entity undertaking an initiative individually. This regional effort creates stronger leverage, represents a significant population and allows for the pooling of resources, including time and money, which can enact a larger change.

The MTC officially formed in 2018 with startup funding from Nicor Gas and ComEd and is led by a group of market transformation leaders from Resource Innovations, Midwest Energy Efficiency Alliance (MEEA), Northwest Energy Efficiency Alliance (NEEA) and the Gas Technology Institute (GTI) to bring established MT principles to Illinois and the Midwest. The Midwest Collaborative has the following goals:

- Recruit electric and gas utilities around the Midwest to join the collaborative
- Share MT foundations and best practices
- Develop the MT infrastructure and model for the Midwest, including working with additional EE stakeholders, such as public utility commissions, advocacy organizations, policymakers and other decision-makers, to understand and allow claimed savings from MT
- Identify technologies, practices or programs ripe for MT in the Midwest and create a pathway for MTC members to implement MT activities

In developing the infrastructure to implement MT initiatives in Illinois, Resource Innovations and MEEA began working with the Illinois Energy Efficiency Stakeholder Advisory Group (SAG) to ensure utility investment could result in claimed savings from market interventions. The SAG includes important energy efficiency stakeholders who give input on utility plans to facilitate adoption of those plans by the Illinois Commerce Commission. A team of MT experts—including Resource Innovations, NEEA and Prah & Associates—worked with the SAG to write a framework for counting market transformation savings, which was included in version 8 of the Illinois statewide technical reference manual (TRM), effective January 1, 2020 (IL TRM 2019). This framework created a pathway for utilities to design MT programs that could result in claimed savings from their strategic market interventions. The framework, as well as the process for developing and vetting the framework, can be replicated in other Midwest states looking to begin implementing MT initiatives.

While the SAG came to a consensus on the framework for counting market transformation savings, each individual MT initiative will be looked at separately based on the specifics of that particular initiative. The SAG has not reviewed a MT initiative yet, as no MT initiatives are currently

ready to launch, but will likely require reaching consensus on the natural market baseline, cost-effectiveness calculations, and magnitude of energy savings credited to the market interventions. The subsequent sections of this paper will focus on the process by which the MW MTC evaluated existing programs for an MT overlay framework, how business plans are being developed, and the process for soliciting feedback from stakeholders before implementation. The two programs evaluated and referenced throughout the rest of the paper are the statewide Illinois Building Operator Certification program (BOC®), and the Illinois Home Performance program (IHP):

- The BOC program is a training and certification initiative targeting facilities personnel of large commercial and institutional buildings. BOC focuses on teaching participants to understand and identify low-cost or no-cost operational or preventative maintenance measures that result in energy savings. BOC is a national initiative but has been offered in Illinois through MEEA since 2003 and has trained more than 1,500 people across 98 trainings. BOC has been evaluated numerous times across the US and has been found to provide claimable energy savings.
- The IHP program, which came to a close, was Illinois' version of the national Home Performance with ENERGY STAR® program. IHP was a statewide platform allowing single family homes that participated in a utility-sponsored energy efficiency program to earn a certificate showcasing the home's new efficient features, creating consistency across utility territories. Over 11,000 homes across the state earned IHP certificates in the past 10 years. The program also offered building science training to contractors, energy efficiency training to real estate agents and appraisers, an equipment loan program and education and outreach initiatives to drive homeowners to participate in local utility residential energy efficiency programs.

MT Assessment of Existing Resource Acquisition Programs

While the long-term savings from MT programs can be alluring to utilities, not all products or services have the characteristics consistent with an ideal MT program approach. In overlaying an MT approach, it is important to assess whether the products or services in the RA program are suitable for an MT approach.

For the two programs reviewed in this paper, MT screening criteria were used as laid out in the following section². The first two items in the screening criteria are essentially go/no-go criteria: if the MT initiative were successful, large and cost-effective savings need to be anticipated. If total savings were projected to be small or not able to be achieved cost-effectively, it probably would not make sense to launch an MT overlay analysis.

MT Screening Criteria:

1. Savings Potential – significant savings must be available. This can be achieved through a large target market or a product or service that has high unit energy savings.

² This MT Screening Criteria was developed as a tool for members of the Midwest Market Transformation Collaborative and is currently unpublished.

2. Long-term cost-effectiveness - The large savings potential must outweigh the costs of the investment over the lifetime of the program.
3. Strong MT Logic - There must be a thoughtful logic model that clearly defines the market and defensibly links the present state of the market to the desired future state. There must be identified market barriers and opportunities that the intervention strategies can overcome to effectuate market change, as well as market progress indicators/outcomes to evaluate success.
4. Lastingness - Products or services likely to lead to lasting market changes through updates to codes, standards, manufacturer changes and/or equipment specifications are preferred over those that rely on softer mechanisms to assure long-term market change. MT is most effective when changes in the market cannot be easily undone and will allow the program administrator to phase out incentives over time.
5. Leverage - Products or services with markets that have strong leverage points in the targeted market are preferred. Examples of strong leverage points could include market leaders who control >25% of the market (or actors who influence them), players who significantly influence the market—such as large real estate developers or strong trade associations—or even smaller disruptive market actors who are willing to take a chance to provide something new or innovative, thus spurring the larger actors to follow suit.
6. Clear specification of target market and product - Products or services that have a defined target market and are subject to federal standards, or specifications such as ENERGY STAR, are preferred.
7. Strong non-energy benefits for end-use decision makers - Products or services that offer additional non-energy benefits for the end user enhance the value of the MT potential. Products or services with multiple value streams are preferred.

There are other considerations in ultimately selecting which technologies/services to pursue with an MT approach; these include criteria specific to the funding entity, like balancing out a portfolio among sectors, for example. The MT screening criteria focuses on discerning which products or services would be best suited for the MT approach; other considerations can be added based on the specific needs of the program administrator. Table 1 below shows how the two initiatives were assessed through the MT screening criteria.

Table 1. BOC and IHP Screening Criteria

MT Screening Criteria	BOC	IHP
1. Savings Potential	Savings per participant has potential to drive significant savings if majority of buildings have a BOC-trained operator.	No direct energy savings tied to the program.
2. Long-term Cost-Effectiveness	Potential for increased cost effectiveness with program redesign toward market shifts.	Not cost effective in long term due to lack of claimable savings.
3. Strong MT Logic	Identified logic model with clear set of intervention activities identified to address the specific barriers. Long term market impact identified, and outputs and outcomes defined	Weak MT logic, due to lack of strong leverage points and lastingness.

	to measure progress to desired impact.	
4. Lastingness	Identified potential lastingness with training requirement for major IL labor union, integrating hiring requirements for large city (Chicago).	Absent of incentives or other regulatory or code requirements, no aspect of lastingness was identified. Significant investment at local code level needed.
5. Leverage	International Union of Operating Engineers, BOMA, large real estate management companies, the City of Chicago.	No viable strong leverage points identified.
6. Clear specification of target market and product	Owners and operators of commercial buildings; Building Operator Certification and training.	Single family existing homes; ENERGY STAR Certification.
7. Strong non-energy benefits for end-use decision makers	Strong non-energy impacts: tenant satisfaction, lower vacancy rates, higher uptake of new technologies, workforce development.	Increased occupant comfort
Good Candidate for MT Overlay?	Yes	No

While BOC is not the most straightforward MT initiative because it is a behavior-based training and not a new technology or widget, there was a compelling enough case to develop an MT overlay for the BOC program. The next step after passing the screening criteria is to start the documentation process through the development of a business plan.

Business Plan: Documentation Process for Applying Market Transformation Principles to an Initiative

As defined in the Illinois TRM, a business plan intends to document the strategy, data, and assumptions about an MT initiative at the time of launch. It is a document that can evolve as knowledge of the market and the initiative evolves and is essential to prepare to guide the launch of the initiative into the market (IL TRM 2019).

The following section describes the process and components of a generic business plan for an MT initiative, along with some examples experienced through the MT assessment of the existing BOC and IHP programs³. Existing program information and market data can be used to verify established market barriers and opportunities, and using the MT screening process, the plan can propose enhanced intervention strategies layered on top of existing activities to overcome the identified barriers. Pulling in results from recommendations or lessons learned from annual

³ The general business plan outline is derived from the business plan template that was created as a tool for members of the Midwest Market Transformation Collaborative and is currently unpublished.

program evaluations related to the specific technology or service can be the first step in developing the MT overlay business plan. MT intervention strategies can encompass a wider range of strategies than would typically be considered for RA, allowing the program to design activities that will enhance market uptake on top of the traditional customer acquisition, awareness and incentive offerings. Figure 3 below shows the variety of activities that could be incorporated into an implementation plan to drive market change per the developed logic model.

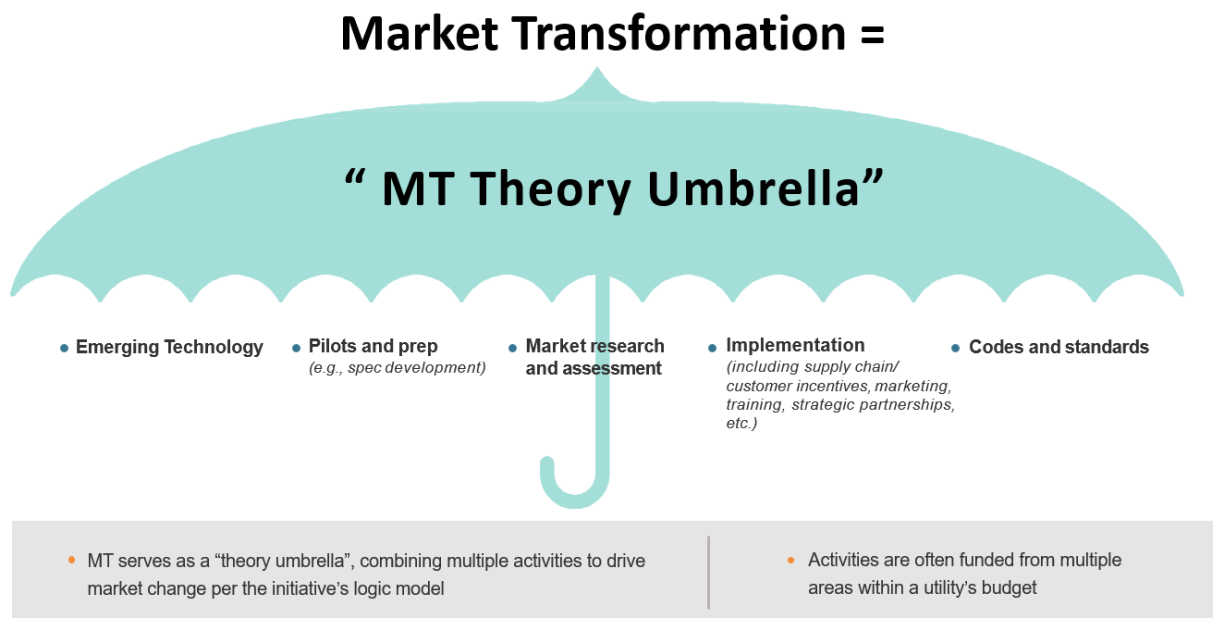


Figure 3. Market Transformation Theory Umbrella Source: Gardner, M.

As outlined in the MT screening criteria above, an MT initiative needs to have a clear target market identified and outlined in the business plan. This can also include initial sub-markets to target in early years as steppingstones to reach the larger target market. While a resource acquisition program may provide an initial definition of the market, often the end-use customer or purchaser, an MT program will evaluate the entire supply chain to identify key leverage points and decision-makers where interventions can affect market adoption of the product or service.

The assessment of the IL BOC program identified building operators, building owners and maintenance staff who would attend the BOC training as the target market. Because this target market is so large, the business plan identified three initial sub-markets to target first, understanding that success in these sub-markets would likely lead to further success with the entire target market. The initial three sub-markets included The City of Chicago, K-12 school districts, and commercial property management companies. They were selected because the number of buildings and building operators within these sub-markets and the hierarchy of known decision-makers make it easier to identify potential leverage points.

As outlined in the IL TRM, an MT business plan is also expected to include a logic model, which documents the MT theory and links specific activities to barriers and anticipated outcomes. The logic model clearly articulates how interventions in the market will affect change and can be

used to understand progress towards short and long-term goals. Logic models are a helpful tool when developing an MT business plan and should include the following components⁴:

- Barriers preventing market adoption
- Activities or intervention strategies expected to catalyze change
- Outputs that will result from the activities
- Market outcomes (short, medium and long-term) that are measurable and indicate progress
- Ultimate desired impact, which can be 10+ years in the future, representing the desired market state after transformation. Many times, this will include adoption of the MT initiative into a building energy code or appliance standard.

A logic model is best represented in a visual format, to help understand how all the components are linked together and support the MT hypothesis. A logic model for one of the three BOC sub-markets can be seen in Figure 4 below.

⁴ A logic model template has been developed as tool for members of the Midwest Market Transformation Collaborative, using best practices from NEEA, and is currently unpublished.

Logic Model – Schools

Logic Model for BOC in the Schools Sub-Sector

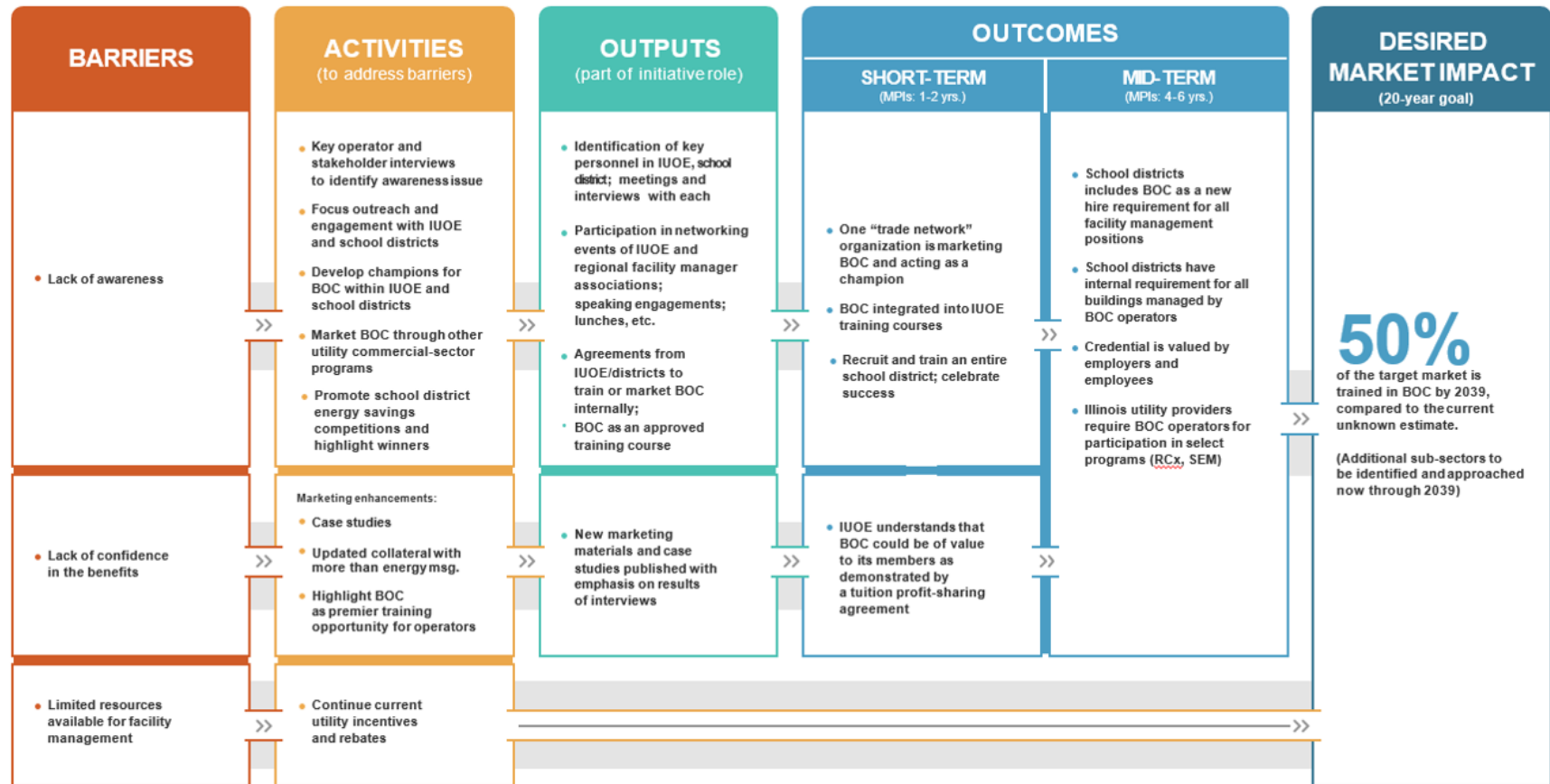


Figure 4. Logic Model for BOC in the K-12 Schools Subsector⁵

⁵ This logic model is sourced from the unpublished BOC business plan.

One of the most challenging components of the business plan is developing a natural market baseline to forecast what would happen if no market interventions occurred. This is challenging to estimate because it is a prediction of a future that will not actually happen and therefore cannot be measured retroactively (IL TRM 2019). It is important to include program evaluation and planning professionals in the process of estimating the natural market baseline to ensure alignment on assumptions and avoid challenges to savings estimates in the future. Since the savings claimed from MT are based on the difference in actual adoption rates versus the natural market baseline, it is crucial that stakeholders agree on the natural market baseline and have a process for reviewing the baseline over time as the program progresses.

When looking at an RA program to transition it to an MT program, ideally some of the data collection has already begun and this may make it easier to estimate a natural market baseline. More likely, market research and characterization of the target market will be necessary to get a more complete understanding of the market. If needed, this can be done during the development of the business plan. Historical participation data and percentage of market saturation for the service territory of the funding utilities are two data points necessary for a baseline; RA programs may have some of this data although they more often do not collect data on the entire market. The extrapolation of that data is the basis of the natural market baseline. The BOC program had data on past participation rates, but was lacking data on the entire market, making percentage of market saturation difficult to quantify until additional market research could be done to better understand the entire target market. Because of this lack of data, the historical participation rates by year were averaged and forecasted out 10 years. The business plan included a recommendation for additional in-depth market research to gather data to accurately estimate a market saturation percentage, and further refine the natural market baseline in future program years.

In order to determine progress toward the long-term goal, market progress indicators (MPIs) or outcomes need to be identified in the business plan. MPIs are milestones that can be measured using market data, demonstrating market changes expected to occur from activities or interventions (IL TRM 2019). These can serve as checkpoints across a multi-year business plan to ensure course correction is not needed. The process of developing MPIs may also illuminate the need to collect additional data through market research before the initiative launches. Market research can take time, so identifying additional needs during the business plan development stage is important. The BOC MT overlay proposed multiple MPIs based on the planned intervention strategies and targeted markets. The MPIs were broken into short term, medium term and long-term indicators to separate near term success from the long-term market transformation success. The BOC MT Overlay proposed 4 short term MPIs, 2 medium term MPIs and 2 long term MPIs. All the MPIs and associated data collection strategies were reviewed by the funding utilities' evaluators and adjustments were made based on the received feedback. Each business plan needs to identify a multi-year budget and associated anticipated energy savings. MT activities are inherently more uncertain than many RA programs because of the volatility of markets and multiple intervening influences on the observed change. Multiple

intervening influences can make it challenging to tie market changes to specific market interventions. For that reason, energy savings are harder to predict, and business plans need to be revisited on a regular basis to ensure activities are still aligned with the current market. Per unit energy savings from the existing RA program can be incorporated with forecasted accelerated market adoption to develop a range of savings based on anticipated uptake in the program over the proposed timeline. The BOC business plan proposed a savings value to act as a proxy until a new formal program evaluation could take place to give updated Illinois energy savings. The BOC MT Overlay proposed a more rigorous evaluation to refine and confirm per participant savings because previous evaluations were based on different methodologies and estimated different energy savings. BOC program evaluations from other states were also at odds with previous IL evaluations. Without certainty in the per participant energy savings in IL, the funding utilities decided to wait to pursue an MT program framework until the savings and cost-effectiveness could be established.

After completion of the draft business plan, the document was shared with the funding utilities' program evaluators for comment. The evaluators reviewing the business plan inquired why the market was limited to just participants in the BOC program, as opposed to targeting the entire building operator market through additional activities beyond just the BOC training. The BOC training is a nationally recognized program with claimable energy savings, tied to the specific instruction provided by the program. The near-term goal of the funding utilities was enhancing claimable energy savings. The inability to confirm with confidence that savings can be derived from behavioral and operational changes from other existing training programs, coupled with differing leverage points, were the deciding factors to limit the market scope of this business plan to only activities around increasing the near-term number of BOC participants. The evaluators agreed with the proposed forecasted natural market baseline which extrapolated participant numbers based on historical data. When additional data to capture the entire market is collected, the forecast will be refined. The engagement of program evaluators during the development stage of the business plan allowed for potential concerns to be addressed and built into the business plan, while also mitigating some of the risk with planning for long-term energy savings.

Along with evaluators, other important stakeholders will need to agree with how savings will be claimed from market interventions and how long savings will be allowed to be claimed over the long term. In Illinois, this is done through the SAG, which has a working group dedicated to resolving the minutiae while the larger SAG will approve the overall methodology. Since so much feedback and approval is warranted when launching a new MT initiative, stakeholders should be brought in once the business plan is complete but likely before an implementation plan is developed. The ongoing feedback from evaluators or additional stakeholders should be documented in the business plan. Getting to a point of consensus with stakeholders can ease some of the hesitancy funding utilities may have and can add another layer of certainty before large investments are made. Some of the first MT initiatives will need more time to gain stakeholder consensus, as MT will not follow some of the traditional savings methodologies, like accounting for net to gross.

Key Lessons Learned

Utility annual portfolio efficiency savings goals have increased over past filing cycles as regulatory bodies adopt more aggressive energy savings targets. Low-cost savings opportunities are dwindling as efficient technologies have propagated in the market, advancing baselines across multiple end use categories. Federal and state building energy codes and appliance baseline efficiencies have become more stringent as highly efficient equipment has become commonplace in certain markets, such as lighting and HVAC. Market transformation has the potential to bring new opportunities to utility-run energy efficiency programs, through both increasing adoption of new technologies and redesigning existing programs with an eye toward maximizing market change. Both opportunities can provide significant cost-effective energy savings to utility portfolios over the long term by leveraging the market to accelerate the adoption of the efficient technology or service. The key to success will be ensuring this move towards MT program delivery is done transparently and brings stakeholders along for the journey, to make certain everyone is in alignment before significant investments are made and savings are at risk.

To realize these potential MT savings, the development of the business plan is paramount to establish the MT hypothesis and lay out the proposed activities and intervention strategies to transform the market. The documentation, vetted with additional stakeholders and program evaluators, will lay out the metrics—the market progress indicators—by which the utility will document progress against the natural market baseline. The market will be assessed on a predetermined interval to measure the progress of the market adoption, and savings will be attributed to the portfolio based on the results.

Not all technologies, programs and practices are appropriate for an MT pivot, as demonstrated by the screening process that removed the IHP program from an MT framework in Illinois. The use of the screening criteria and development of business plans will vet the appropriateness of an MT program framework for an existing product or service. Only products or services with a defensible MT hypothesis should be implemented, or the cost-effective promise of MT will not be realized. Not every promising MT program will succeed; however, the large potential reward in savings can outweigh the risks of failure. The screening process developed for the existing Illinois programs and new initiatives pursued by the MTC can be a useful tool for other utilities looking to understand whether their existing programs could benefit from an MT overlay.

The review and tracking of the determined MPIs or outcomes will provide an indication of the success of the intervention strategies and provide an ongoing assessment of the MT hypothesis. If progress is not realized, it may be that the MT hypothesis is incorrect, the barriers are too high to overcome or the product is not a viable solution. As time progresses, more information becomes available and the constant evolution and continuous improvement loop based on additional market data contributes to a revised set of intervention strategies for the MT program. Initial business plan content will likely need to change or be adjusted after launching the initiative and as market actors are understood on a deeper level, but that change should be viewed as adaptive management rather than failure.

References

Rodgers, E. 2003: *The Diffusion of Innovations*. Fifth Edition. The Free Press, New York.

Gardner, M. 2019. *Opening Comments of Resource Innovations on Administrative Law Judge's Ruling Seeking Comment on Market Transformation Working Group Report*, Rulemaking 13-11-005, Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation and Related Issues.

Illinois Technical Reference Manual (IL TRM) version 8. 2019. *Attachment C: Framework for Counting Market Transformation Savings in Illinois*
https://s3.amazonaws.com/ilsag/MT_Savings_Paper_Final_08-23-2019.pdf

Prahl, R., Keating, K. 2014. *Building a Policy Framework to Support Energy Efficiency Market Transformation in California*. Written for the California Public Utilities Commission, San Francisco.