**Guidance on Estimating Savings for a Market Transformation Initiative (MTI): A Working Explanation of Option 1 (Forecast and Evaluate)**

**Option 1. Forecast Incremental Savings and Evaluate**: For each MT initiative, forecast incremental savings and cost effectiveness associated with the initiative’s budget and implementation plan. This forecast should be incremental to any relevant pre-existing RA and C&S activity. At key MT milestones, collect data (or evaluate) to refine future savings forecast and update the program budget.

To forecast accurate incremental savings, the MT, RA, and C&S initiatives all need to apply rigorous and consistent baseline assumptions. This means that when multiple intervention types are active at the same time, they should use the same baseline assumptions and when one intervention type follows another (e.g., an MT or an RA sunset and a C&S takes over) then the baseline assumptions should be coordinated. A future working group should develop guidance on what constitutes an acceptable baseline forecast.

Conduct a final MT evaluation at the end of the MT program lifecycle to determine evaluated savings. When overlapping with C&S, add a task to the current C&S evaluation so that the split between C&S and MTI would also be assessed. This would likely be done through the “attribution” and NOMAD methodologies already adopted in the C&S evaluation, which works with experts to account for the C&S program’s effect on adoption.  Split of evaluated savings between MT and C&S would be unknown until the evaluation is final.

Explanation

MTI accomplishments should be determined as the difference between a market’s characteristics with an active MTI and a pre-determined baseline that represents what the market would’ve been in the absence of the MTI. When forecasting an MTI’s accomplishments, a forecast of what the market would look like the in the presence of the MTI needs to be developed. The forecast for the MTI’s accomplishments is the difference between the baseline forecast and the expected real-world market forecast.

Developing forecasts for the baseline and the market is challenging. Guidance on what considerations need to be taken to develop these forecasts is required so that MTI proposals are commensurate with the level of rigor necessary to develop acceptable forecasts of the market and to develop an acceptable baseline. Without this guidance, evaluating program accomplishments forecasts and evaluating MTI achievements over a baseline would become a subjective and fraught exercise. MT, RA, and C&S initiatives all need to apply consistent baseline assumptions. This means that when multiple intervention types are active at the same time, they should use the same baseline assumptions and when one intervention type follows another (e.g., an MT or an RA sunset and a C&S takes over) then the baseline assumptions should be coordinated. A future working group should develop guidance on what constitutes an acceptable baseline forecast.

Once these forecasts are established, MTI energy savings can be estimated. The easiest scenario to estimate savings attributable to an MTI is when the MTI is the only utility funded energy efficiency initiative in the market. Estimating savings becomes complex when MTI for a specific measure coexists with resource acquisition (RA) and codes and standards (C&S) initiatives that offer the same measure. There isn’t a simple one size fits all solution to figuring out savings attribution among these separate interventions because the savings that each intervention type attains depends on the incremental impact each intervention has.

When multiple intervention types are expected to co-exist, an explanation of how these multiple intervention types, which focus on the same measure, need to work together to achieve the objective of completely transforming the market should be developed. This theory of change or logic model will then be the basis for estimating how total market savings should be attributed between these different intervention types.

Over the course of a measure’s progress through the market, there will be phases during which either the RA, C&S, or MTI are the dominant intervention type. So, the theory of change or logic model should explain how these three intervention types will work together by explaining how each intervention type is incremental to and/or supports other interventions types.

Specifically, the logic model will describe market adoption barriers not adequately addressed by existing and expected C&S and RA program activities. The logic model and program performance indicators should be developed in collaboration with C&S and RA statewide leads to ensure effectiveness and to avoid overlap. Each MT accord should be evaluated according the logic model shortly after achieving each major milestone. Adjustments to the logic model should be made according to evaluation results, market condition changes, and changes to C&S and RA programs. The logic model and evaluation results will then be used to support future attribution analysis and/or evaluations after a related code and standard is adopted.

For example, the logic model for a measure could be to apply an MTI to bring an emerging technology to market maturity by working with manufacturers. On accomplishing this the MTI could then plan to focus on upstream channels of market transformation (such as working with major retailers) while an RA initiative could offer a complementary downstream program targeted at specific customer types that wouldn’t be reached through the upstream program. When this measure reaches high levels of market adoption, the theory of change could then be to focus on a codes initiative while offering a smaller MTI effort that focuses on accelerating code adoption.

In this example, during the first phase of the measure’s progress all savings will be attributed to the MTI. When the measure reaches market maturity and a specific RA initiative is established, the RA initiative’s savings would be calculated by rules governing the RA program. The MTI savings during this phase would be the market progress incremental to both the baseline and the RA accomplishments. In the final stage, when the C&S initiative takes over as the predominant intervention then first the C&S savings would be determined based on the C&S initiative’s intervention strategy and that strategy’s forecasted (and later evaluated) uptake. The MTI savings in this final phase would be the market progress incremental to the baseline and the C&S savings. Market research and or evaluations could inform how MTI savings are forecast and accomplishments are measured at these critical milestones; i.e., when measure gets to market maturity, when measure reaches high levels of adoption, and when the MTI and C&S initiative conclude.

Therefore, the relative contribution of each intervention type to total market uptake of the measure is the basis of both savings forecasts and savings attributed to each intervention type. The program design of RA and C&S programs will thus be constructed in accordance with an already existing MTI. Conversely if an MTI is being proposed where an RA and C&S already exist, then the MTI would have to demonstrate through this theory of change how it results in incremental measure adoption in excess to that already planned by RA and C&S programs.

This theory of change will be informative when designing MTI, RA, and C&S programs and submitting program budgets for approval for all three intervention types. This will avoid duplication of effort among the three initiative types and avoid both leaving savings on the table or conflicts over claiming the same tranche of energy savings.

Formulae to calculate savings

Savings attributable to MTI over a set time period is the difference between total consumption in the marketplace with and without the MTI. Total energy consumption without the MTI is determined using the counterfactual baseline which will be developed by the MTI at Stage 3 of the MTI Stage Gate Process outlined in the CPUC proposal.

Savings accrued by an MTI over time *t* years in a hypothetical market with two efficiency levels (efficient and inefficient):

Savingst = (UECi \* Nib + UECe \* Neb) - (UECi \* Nia + UECe \* Nea)

Where,

Savingst = Total annual savings attributable to the MTI through for a time period of t years

UECi = Unit annual energy consumption of the inefficient appliance

UECe = Unit annual energy consumption of the efficient appliance

Nib = Number of inefficient units that would’ve been moved through the market through t years in the baseline (where no MTI would’ve been present)

Neb = Number of efficient units that would’ve been moved through the market through t years in the baseline

Nia = Number of inefficient units that move through the real-world market through t years

Nea = Number of efficient units that move through the real-world market through t years

Estimating savings when RA programs and C&S programs are also present:

Savingst = (UECi \* Nib + UECe \* Neb) - (UECi \* Nia + UECe \* Nea) – ESRA - ESC&S

Where,

ESRA = Total Net energy savings claimed by resource acquisition programs through a time period of t years.

ESC&S = Net energy savings claimed by codes and standards programs.

This formula represents savings attributable to an MTI over a given time period. This is the same formula that Margie presented, in more detail to avoid confusion between the unit energy savings (UES) of a measure offered through the RA program which changes over time and that of the MTI which stays constant.