

Memorandum

To: Massachusetts Program Administrators

From: Cadeo, part of the Navigant Residential Evaluation Team

Date: March 17, 2020

Re: Residential Coordinated Delivery: Logic Model

This memo provides a logic model diagram for the statewide Residential Coordinated Delivery (RCD) program, serving existing residential buildings throughout Massachusetts under the Mass Save brand. The logic model diagram provides a graphical representation of the activities, outputs, and outcomes expected from successful execution of RCD. The accompanying tables and explanatory text provide additional detail for reviewers and provide examples for how the Program Administrators (PAs) could potentially measure RCD's progress toward these outputs and outcomes over time. The memo also includes a supplementary participation path diagram that depicts, at a high-level, how participants move through RCD delivery process.

Background

The 2019-2021 planning process resulted in a proposal to expand access and streamline participation for existing residential buildings in Massachusetts by combining the long-running Home Energy Services (HES) program and the Multifamily Retrofit program under a single umbrella program that would provide coordinated delivery. The resulting shift toward a Residential Coordinated Delivery (RCD) program began in 2019. In interviews conducted to support this project, program stakeholders (i.e., PA implementation managers, Lead Vendor staff, and consultants working on behalf of the Energy Efficiency Advisory Council) described navigating the complex process of adjusting contracts, processes, and responsibilities to support execution of RCD. Coordinating processes associated with two large-scale residential retrofit programs has proven challenging. Those involved point to steady progress while acknowledging full integration will take time.

By expanding access and simplifying the participation process, the shift to RCD is expected to achieve several long-term objectives, including:

- Helping establish the PAs as trusted energy advisors for their customers
- Integrating and expanding the previous suite of residential programs by developing an optimized customer experience designed to customize and calibrate services through enhanced intake processes, expanded access to online assessments, and single point of contact intake mechanism
- Identifying and deploying marketing strategies that effectively reach all Massachusetts households, including hard to reach populations including renters, non-English speakers, and moderate-income households

- An opportunity to encourage energy optimization by helping residential customers understand the benefits of selecting new HVAC equipment irrespective of their current heating fuel type

A major focus of the program planning and execution efforts to-date has been on improving the process through which customers are screened and triaged for RCD services. Program Administrators report working to operationalize a coordinated delivery approach capable of accepting all residential customers and effectively serving them, **regardless of the type of building they live in or if they are the owner/decision-maker.**

Enhanced RCD entry points and tools are expected to eventually result in:

- Expanded online assessments and program enrollment options.
- Marketing and participation designed for non-English speakers.
- Enhanced support at customer intake, capturing and connecting additional detail to triage customers to targeted program offerings.
- Leveraging the in-home assessment to provide deeper customer education and more facilitated options to support customer adoption of major measure savings opportunities (for example, weatherization and HVAC).
- Enhanced relationships with allied trades (HVAC, electrical and insulation contractors) and facilitated services that help resolve pre-weatherization barriers related to knob & tube wiring and combustion safety.
- Tailored energy savings packages designed for direct delivery to consumers.

Recent evaluations of the previous whole-home residential assessment program, HES, found that the number of items required during a home energy assessment (HEA) often limited the time available for the Energy Specialist (assessor) to educate homeowners about options that would lead to deeper retrofits (addressing pre-weatherization repairs, completing weatherization upgrades, and/or upgrading heating or cooling equipment). This was particularly true for the PAs employing a single Energy Specialist model. While addressing this constraint was also discussed in the planning RCD framework, interviewed program stakeholders reported limited progress on identifying elements that could be removed from the assessment protocol to free up auditor time. Realizing this objective will require reducing the number of items and/or level of detail collected during an HEA, or an increased reliance on assessor judgement to prioritize during the HEA. As of the end of 2019 there is not stakeholder consensus on how to address assessment time constraints.

This Project

This project is designed to support the work of the Program Administrators by documenting progress toward the transition to RCD and developing an agreed-upon vision for the program through graphical representations of both process and objectives. To achieve these objectives the team sought to:

- Obtain information on progress to-date implementing changes towards achieving the goals of RCD
- Develop a **logic model diagram** that reviewers and program stakeholders agree represents the aspirational objectives of RCD

- Identify a set of outputs and near-term outcomes that could potentially signal progress on achieving the overarching RCD objectives
- Develop a **participation path diagram** that reflects the expected intake, screening, and triage steps expected to funnel customers into the most appropriate service path

The logic and participation path diagrams provide different types of information and perspectives regarding a program. A logic model provides a map of a program's hypothesis: if the program does x, y will happen. A participation path diagram maps the steps a customer follows to access and benefit from a program's services. Together, these two complementary diagrams are expected to document the changes underway for RCD and enable internal and external assessments of RCD's progress as measured by progress indicators. In the tables below, the team provides a set of suggested indicators as part of this document. These are preliminary indicators that should be reviewed and tested prior to adopting them. An evaluability assessment or other early progress evaluation could include a review of key indicators, the data available to support measurement of progress, and a recommended approach to on-going assessment.

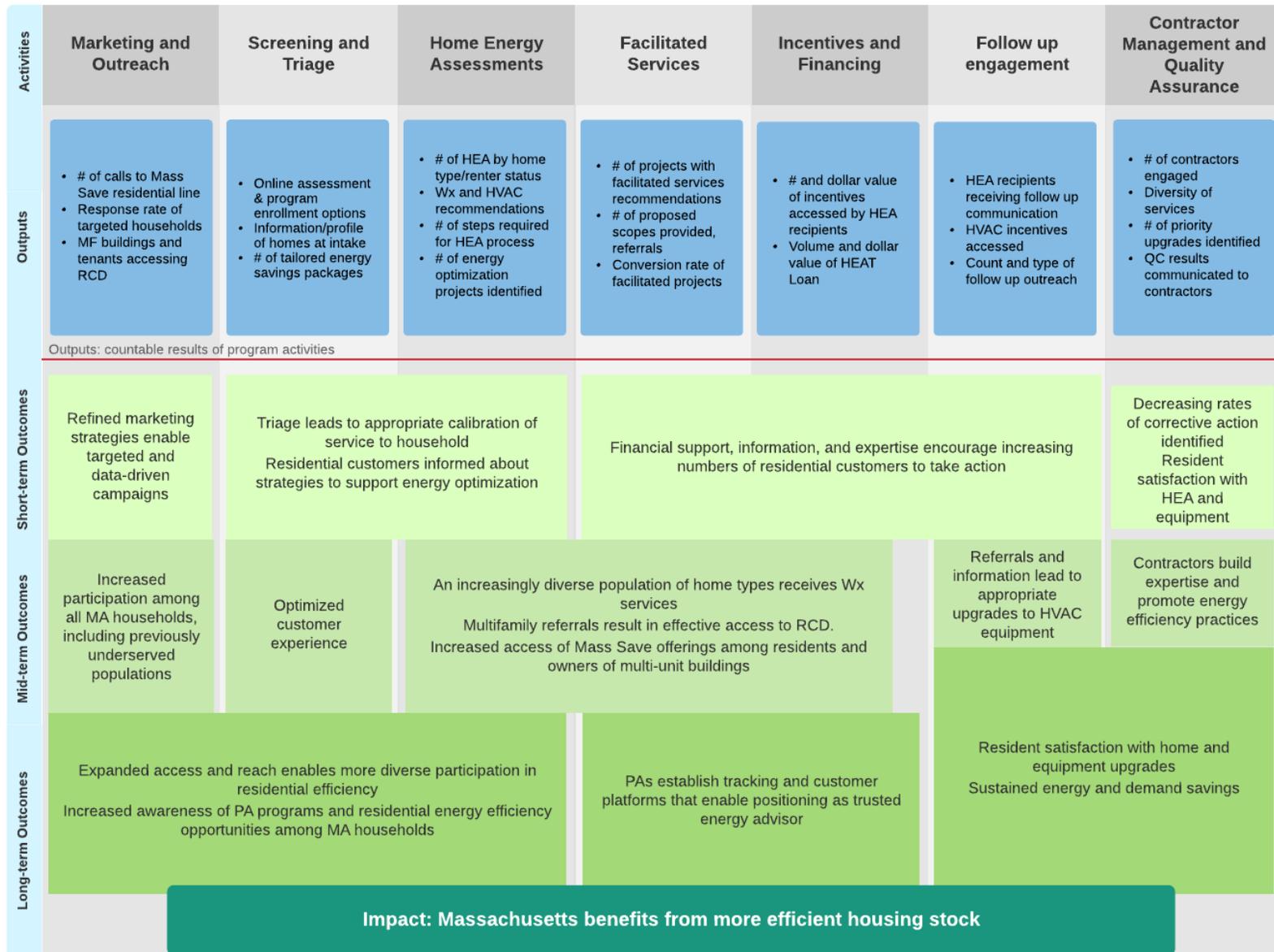
Transition Status

As the planning and implementation of RCD is underway, interviewed program stakeholder reported different levels of progress on internal infrastructure and adjustment. Given the difference in size, complexity, and contracting mechanisms among stakeholders, it is perhaps unsurprising that the PAs have not moved in lockstep on RCD execution. Regardless of their current progress, the PAs all expressed a clear commitment to effective execution of the RCD vision. The diagrams and tables below reflect adjustments in wording or framing that the PAs requested given the status of the transition.

RCD Logic

A logic model is a graphical representation of a program's hypothesis for change. It typically includes high level activities, the outputs expected to flow from those activities, and the short-, medium-, and longer-term outcomes that program implementers expect to see if the program is successful and the hypothesis of change is valid. Logic models can be very helpful to focus evaluation and research resources on indicators that are tied to stated objectives.

Figure 1: RCD Logic Model



Detailed Tables

The following tables, while not technically part of the logic model diagram, are directly connected to the model as they provide the medium for communicating the supporting details provided on the diagram itself.

Activities

RCD activities center on generating a high level of interest in residential upgrades that improve the energy efficiency and performance of homes in Massachusetts. The program is intended to encourage weatherization projects, and includes facilitated services that help residents address pre-weatherization requirements (such as asbestos, knob & tube wiring, or home repair) as well as mechanical system improvements that will improve the energy consumption profile of the overall housing stock.

The tables and details provided below reflect expanded information and comments received in a more expansive round of in-depth interviews with program staff and stakeholders at the PAs and the EEAC. Informed by these interviews, the team provides updated activities and associated sub-activities in Table 1.

Table 1: Major Activities: Detailed List

Marketing and Outreach
Provide RCD access through single-point-of-contact Mass Save phone and website portals
Leverage trade allies for program referral
Deploy and test direct mail and targeted marketing strategies to reach all types of residential customers
Outreach efforts target multifamily building owners referred by renter residents and internal "warm leads" ensure multifamily buildings are handled effectively
Screening and Triage
Collect information about home and potential for upgrades
Provide access to tailored energy packages for very efficient homes or where renter cannot authorize upgrades
Assign customer to appropriate RCD participation path
Home Energy Assessments
Install energy savings measures

Energy Specialists/HPC inspect homes and complete assessment
ES/HPC review results and discuss opportunities with residents; providing a personalized energy efficiency plan for their home
Identify and encourage customers to act upon recommended cost-effective upgrade opportunities
Support planning and execution of projects over time
Facilitated Services
Develop a recommended scope of work to address existing home conditions that might prevent weatherization
Provide an executable contract for a weatherization guided by set pricing model
Provide information on HVAC efficiency opportunities, eligible HVAC contractors, and opportunities for energy optimization
Incentives and Financing
Provide information on incentives to offset weatherization costs
Provide information on HEAT loan
Provide information on incentives for other measures incentivized outside RCD
Follow-up Engagement
Monitor participant progress relative to recommendations
Encourage participants to take the next step to improve their home's energy profile
Develop a plan for energy efficiency upgrades that reflects customer priorities
Contractor Management and Quality Assurance
Recruit a sufficient number of qualified contractors, including those with expertise to support pre-weatherization repairs
Perform quality control inspections on sample of homes receiving HEA
Communicate results to energy specialists to support continuous improvement

Outputs

It is important to distinguish between outputs and outcomes. Outputs should be easily countable in program records, as they are the byproduct of activity execution. Outcomes are the expected effects or change in the market one would observe if the program is successful. Outcomes are often analogous to overall goals for a program. For example, if a program provides training to trade allies the number of training attendees would be an output, while the behavior change resulting from the training (e.g., changes in installation practice or promotion of high efficiency equipment) would be an outcome.

This section describes the anticipated immediate results from program activities (outputs), presented in a table with their associated activities and potential data sources.

Please note that the outputs and data sources contained in these tables are illustrative and preliminary. Our team is aware that the PAs are already tracking other RCD performance metrics and acknowledge that any additional indicators would need to be carefully considered and approved through a collaborative process. As such, the outputs and potential data sources should be viewed as strawman for a discussion about tracking RCD's progress toward the PAs' stated goals and not as formal tracking recommendations offered by the evaluation team.

Table 2: Outputs and Potential Data Sources

Output	Potential Data Sources
Marketing and Outreach Activities	
# of in-bound calls to Mass Save RCD phone line or program web portal	Program records (web analytics, call center records, and online referrals)
# of trade allies signed up to provide services	Program records
Response rate, volume and geographic reach of direct mail and targeted marketing messages	Marketing scope and records
# of multifamily building representatives and/or renters accessing the program	Call center and intra-program referral records
Screening and Triage	
# of participants entering the program, their status and assignment to the most appropriate next step for their reported circumstance and/or interest	Program information; intake mapping
Information and profile of homes at intake, including of referrals to each path (RCD single family, lo-rise and high-rise MF, retail/tailored energy package)	Program records
Ratio of referrals flagged for HEA vs. those referred for tailored energy savings package, count of tailored energy savings packages delivered	Program records

Home Energy Assessments	
# of completed HEAs by home type and renter status	Program records
# of total recommendations/upgrade opportunities identified (portion including Wx and HVAC recommendations)	Program records Conversion rate
# of steps required for HEA process	HEA records; measured and reported time required on-site
# of energy optimization projects identified	Tools available to inform energy optimization, projects on which they are deployed use of tools in HEAs
Facilitated Services	
# of homes requiring pre-weatherization scopes of work	HEA records
# of proposed scopes of work provided, referrals to qualified contractors	Program records
Conversion rate of facilitated projects	Program records
Incentives and Financing	
Number of projects and dollar value of incentives accessed by participants	Program records
# of homes screened into HEAT loan program, number and dollar value of loans executed	Program records
Follow-up Engagement	
Count of HEA recipients receiving follow up communication	Program records
# and dollar value of HVAC incentives accessed after HEA referral	HVAC program records, mapped to HEA recommendations
Count and type of follow up outreach	Program records, participant tracking
Contractor Management and Quality Assurance	
# of contractors qualified and engaged	Program records
Diversity of services offered by contractors (to support facilitated services)	Program records
# of priority upgrades identified	Program records
QC results communicated to contractors	QC records Resolution rate, call backs, recurrence

Outcomes

This section contains a table of outcomes and a proposed set of indicators (Table 3). Outcomes are hypothesized impacts, expected to flow from program activities and outputs. They can occur immediately or take several years to emerge. The primary difference between an output and an outcome is that outcomes almost always require some sort of research and analysis to estimate, as they are not countable outputs from program activities and tend to indicate that others are taking action consistent with the program's objectives.

Table 3: Outcomes and Proposed Indicators

Outcome	Indicators	Potential Data Sources
Short-term Outcomes		
Refined marketing strategies enable targeted and data-driven campaigns ¹	Marketing strategies or campaigns designed and piloted, evidence of success or real-time adjustments to achieve success Refined strategies, adjusted through pilot testing	Assessments of piloted marketing campaigns Mapping of recruited homes relative to targeted geographic and demographic groups
Triage leads to appropriate calibration of service to household	Greater portion of HEA recipients have major measure opportunity Conversion rate of HEA to major measure installation	Energy Specialist survey, program records, participant survey
Residential customers informed about strategies to support energy optimization	Portion of homes found to have optimization opportunities Customer understanding and follow through on optimization recommendations	Analysis of program data Survey of Energy Specialists Participant survey
Financial support, information, and expertise encourage increasing numbers of residential customers to take action	Portion of homes with pre-Wx barriers identified Portion of HEA recipients accessing program incentives or financing Conversion rate among homes with pre-Wx barriers	Longitudinal program data Participant survey

¹ In interviews, PA contacts noted that the previous, relatively simple approach to marketing “get your free home energy assessment” would likely need to shift to reach a broader and more diverse population. PAs will need to pilot test and monitor new messages for indications of success. Learning that a specific approach did not work is very valuable and thus we expect the PAs will require rapid, focused analysis of marketing success to rapidly evolve their efforts

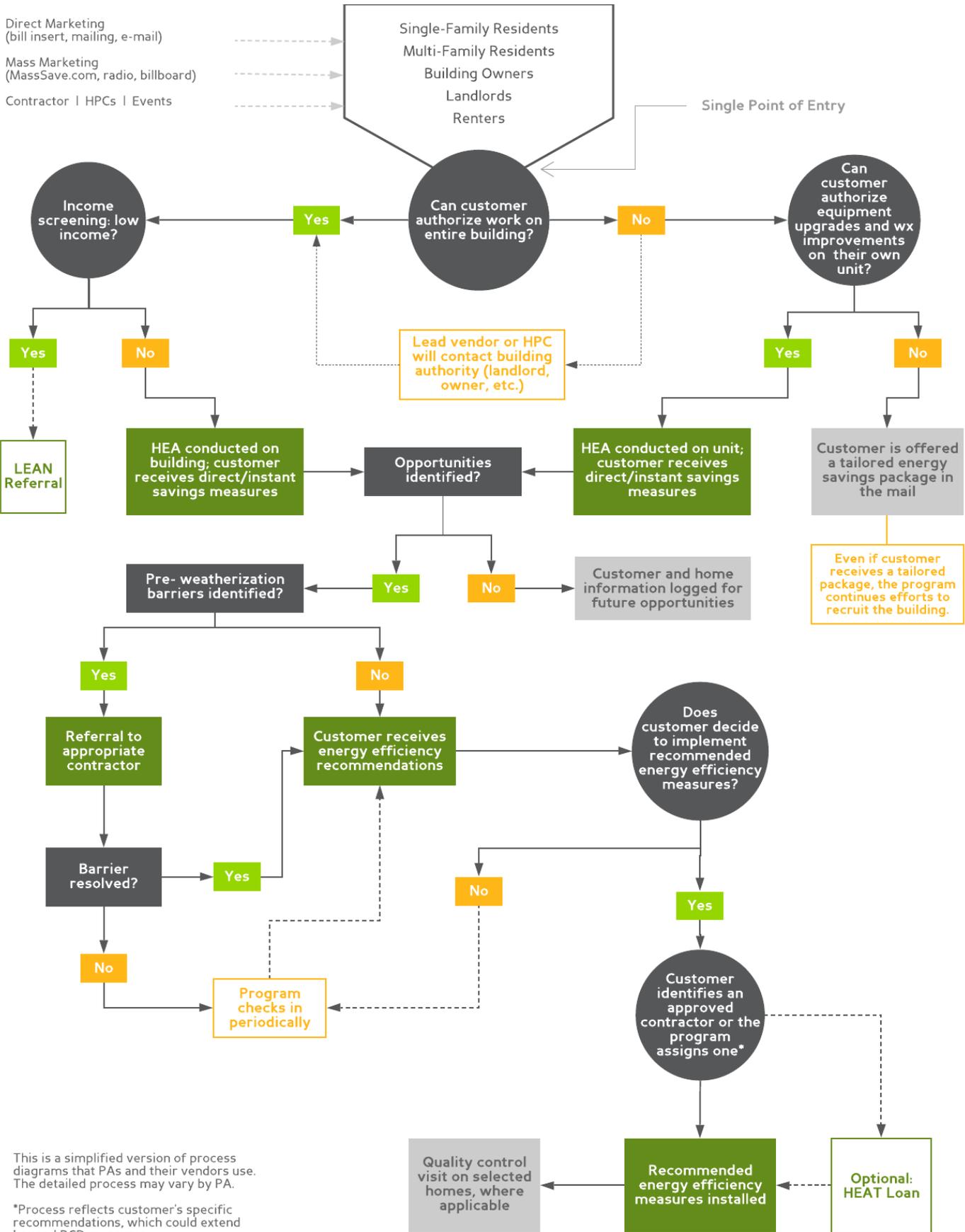
Decreasing rates of corrective actions identified	Rate of QC flags	QC records Interviews with QC staff
Resident satisfaction with HEA and RCD incentivized equipment.	Satisfaction rates	Participant survey
Mid-term Outcomes		
Increased access to Mass Save offerings among all MA households, including hard-to reach populations.	Steady volume of participants with increasing portions of renters, non-English speakers, and limited income households	Longitudinal analysis of program records Census
Optimized customer experience	Customer rating of program navigation and information Portion of customers that move to the next step after their HEA	Survey of customers that access RCD
An increasingly diverse population of home types receives Wx services	Portion of participant homes by type Energy or demand savings per home	Longitudinal program data Normalized savings via impact evaluation
Multifamily referrals result in effective access to RCD for customers in multifamily buildings	Multifamily residents' rating of program navigation and service	Survey of multifamily residents that access RCD
Increased access of Mass Save offerings by residents and owners of multi-unit buildings	Portion of multifamily buildings and units receiving services Portion of program savings coming from multifamily upgrades	Program and longitudinal (historical) analysis
Referrals and information lead to appropriate upgrades of HVAC equipment	Cross-program participation Reported HVAC upgrades	HVAC program records mapped to HEA recommendations Participant survey
Contractors build expertise and promote energy efficiency practices	Contractor awareness, knowledge, and commitment	Contractor survey
Long-term Outcomes		
Increased awareness of PA programs and residential energy efficiency opportunities among MA households.	Level of awareness generally and residential program opportunities specifically. Portion of households self-reporting intention to take action	Participant and general population surveys

Refined marketing strategies expand reach and enable access among diverse participants	Participation rates Promoter score among specific populations	Longitudinal program data Participant survey oversampling
PAs establish tracking and customer platforms that enable positioning as trusted energy advisor	Existence of and access to PA portals and services through which residential customers can manage energy consumption and plan upgrades Repeat participants indicate steady progress on efficiency	Reported progress on technical platform development Web analytics, customer access and retention, level of engagement with PA provided access points over time
Resident satisfaction with home and equipment upgrades	Reported satisfaction by project type	Participant survey
Sustained energy and demand savings	kWh, kW, therm and GHG impacts resulting from program	Program impact evaluations

Participation Path Diagram

Below is a participation path diagram depicting the path through RCD taken by different types of participants.

It is important to note that this is a simplified version of process diagrams that exist at each PA, which typically display the more specific processing nuance behind application receipt, processing, project execution. Our purpose is to provide greater program delivery context around the elements listed in the logic model above and to capture, at a high-enough level, the path that *most* participants will follow. Again, this diagram does not supersede any of the more detailed documentation diagrams that the PAs and their LVs use to manage their workflow.



This is a simplified version of process diagrams that PAs and their vendors use. The detailed process may vary by PA.

*Process reflects customer's specific recommendations, which could extend beyond RCD measures