When Success Becomes Invisible: Reframing New Homes Programs as Building Codes Advance

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ABSTRACT

As residential building codes increasingly shift toward efficient, performance-based codes, and market conditions gravitate toward higher efficiency homes, new homes efficiency programs are facing existential challenges. How should these programs pivot to support high performance construction practices, given the decreasing margin between code, market conditions, and efficiency? The authors will discuss how programs across multiple states are navigating this transition, with particular focus on the Pacific Northwest's two-decade experience transforming residential new construction markets.

Market assessments and impact evaluations indicate some programs are showing low direct realization rates alongside evidence that non-participating builders and non-program affiliated homes are exceeding code requirements. These findings suggest that program performance tiers should be updated regularly and that evaluation frameworks focused on direct program impacts alone may obscure market effects.

Informed by program pivots in four states and existing ACEEE literature, the authors describe three pathways for programs facing this challenge, which can be layered into a single program effort: (1) adopting market transformation frameworks with explicit mechanisms for identifying spillover, (2) targeting specific technologies for accelerated adoption, and/or (3) establishing high-performance tiers that restore meaningful savings achievements compared to code and market conditions.

Introduction

Residential new construction energy efficiency programs occupy a unique position in the efficiency program portfolio. Unlike retrofit programs that address an existing (often inefficient) stock, new homes programs reflect current construction practice and often attempt to push builders to embrace practices that will result in homes performing above code expectations. Over time, many of these programs have succeeded in changing building standard practice, often by promoting labeled home programs like ENERGY STAR®, LEED® for Homes, Earth Advantage®, BuiltGreen®, or Passive House® (PHIUS). Reflecting this progress, states have advanced energy code requirements and the construction workforce increasingly delivers efficient building practices and technologies. Over time, this progress can reduce the gap between a "non-program" and "program" home.

To the extent that new homes programs successfully influence market practice, traditional evaluation metrics, particularly savings realization rates relative to code homes, lose their ability to identify the full effect of program efforts in net savings calculations. Evaluation frameworks and program strategies must adapt accordingly. The market transformation objectives that justify continued program investment may also erode the metrics used to measure impact. This paper

discusses options for how long-running new homes programs adapt in the face of this success. Using Energy Trust of Oregon's Energy Performance Score (EPS) New Homes program as a primary case study, supported by comparative analysis of programs in Wisconsin, Massachusetts, and Connecticut, we document these challenges and offer a framework for program administrators and policymakers facing similar strategic choices.

Background: The New Homes Program Context

The Structural Challenge of Advancing Codes

New homes efficiency programs encourage builders to construct homes above the minimum energy code, usually through builder incentives that overcome additional costs associated with efficient practice. The savings calculation is straightforward: program homes are compared to a baseline home built to code, and the difference between the two equals gross program savings. Net savings are often determined through interviewing program-affiliated and non-program affiliated builders and developing a self-reported net-to-gross score or conducting a billing analysis that compares the performance of program and non-program homes. This evaluation model works well when code represents typical practice and program affiliation produces clearly differentiated homes.

However, this approach becomes strained when the difference between code and standard market practice shrinks. As code expectations increase, the incremental savings achievable above code shrink. The effect on costs can be unpredictable in this scenario. When efficient technologies become more available or baked into consumer expectations the costs associated with incremental improvements may decline. However, program requirements may continue to keep costs higher than non-program homes, particularly as efficiency tiers ratchet up. Where programs have not innovated for many years, savings may stagnate as the program becomes increasingly similar to the progression of the natural market baseline. In each scenario programs can be caught in a tightening vice: raising code requirements from below, and improvement in market practices (some of which might be attributable to the program).

Energy Trust EPS New Homes Program

Energy Trust has operated its EPS New Homes program for nearly two decades, providing performance-based incentives to home builders who construct homes meeting whole-home energy performance thresholds. The program has engaged consistently with Oregon's building code development process and has helped build a robust verifier and builder network across the state.

A 2025 New Homes Market Assessment conducted by Evergreen Economics, Apex Analytics, and Uplevel Energy found evidence of broad market influence. Nearly half of new program homes now include heat pump water heaters, consistent with a 2025 Oregon code study estimating that just over 40% of new homes statewide use this technology (Industrial Economics 2025). Production builders reported standardizing efficient practices across entire portfolios, extending program-associated practices to non-program homes and developments outside the Energy Trust service territory (Evergreen Economics 2025).

A program theory review documented the program's investment in verifier networks, its role as proving ground for code-ready measures, and its influence on builder capacity to respond to successive code cycles (Moran et al. 2025). Together, these findings document a program steadily transforming market practice over its operational life.

Interpreting Narrowing Savings Gaps

Observed Trends in Program and Non-Program Home Performance

As the EPS program matured, Energy Trust observed a narrowing gap between the energy performance of program and non-program homes. Program homes used more energy than simulations predicted, while non-program homes used less energy than code-compliant baseline assumptions suggested. Impact evaluations covering the 2012–2019 period found low realization rates for both electric and gas savings, prompting Energy Trust to commission a comprehensive market assessment to understand the program's broader influence on the residential construction market.

The 2025 market assessment explored why the gap between program and non-program homes proved narrower than energy models implied. A prior impact evaluation identified multiple contributing factors for this, including building simulation modeling calibration issues, uncertainty around occupancy and behavioral characteristics, and the possibility that non-program homes reflect program-driven market effects. The market assessment team's interviews with 56 market actors, including builders, verifiers, subcontractors, and program collaborators, confirmed that program influence extended beyond enrolled homes (Evergreen Economics 2025).

National Program Context

This pattern extends beyond Oregon. Across multiple regional new homes programs, evaluators have documented similar patterns of low realization rates combined with evidence that non-program home performance improves in markets where programs operate. Table 1 summarizes these similar patterns observed across the EPS program and three other regional new homes programs and includes both evaluation findings and the associated program response/adaptation.

Table 1. Evaluation Findings and Program Responses Across New Homes Programs

State / Program	Evaluation Findings	Program Response / Adaptation
Wisconsin – Focus on Energy RNC (~20 years)	2019 impact evaluation: gas realization rate of 5%; negative electric realization rate. 2020 baseline study: non-program homes built above code statewide; small differences between program and non-program homes. Delphi panel confirmed program	Adjusting REM/Rate baseline model to reflect actual market practice. Applying market effects to non-program homes statewide.

	influence on non-program construction practices (Cadmus 2022).	
Connecticut – Energize CT RNC	2018 NTG evaluation: non-participant spillover ratio of 1.3; overall NTG of 1.6 after incorporating market effects. Pre-spillover NTG of 0.3, indicating high free-ridership offset by broad market influence.	NTG framework incorporates non-participant spillover, crediting the program for market-wide effects beyond direct participants.
Massachusetts – RNC + Passive House	2014 NTG study: non-participant spillover ratio of 1.4; overall NTG of 1.9. 2020 baseline study: narrowing gap between program and non-program homes (avg. HERS index 51.9 vs. 55.7). Program penetration ~70% of new construction market (NMR 2020).	Launched Passive House multifamily offering (2019); 119+ buildings and 6,700+ units on track for certification by 2024. Evaluators recommended increasing minimum savings requirements (Mass Save 2024; NMR 2020).
Oregon – Energy Trust EPS New Homes (~20 years)	Evaluation of 2012–2019 program years found low realization rates for electric and gas savings. 2025 market assessment: non-program homes exceeding code; HPWH saturation ~50% in program homes, ~40% statewide. Production builders standardizing practices across all homes (Apex 2023, Evergreen Economics 2025).	Commissioned market assessment and program theory review. Documented three strategic pathways: market transformation framework, technology-specific transformation, or high-performance tiers (Moran et al. 2025).

Wisconsin's Focus on Energy Residential New Construction offering, in operation for over 20 years, showed realization rates of 5% for gas savings and negative values for electric savings in a 2019 impact evaluation. That evaluation's billing analysis found evidence of program spillover: non-program homes in zip codes with little or no program activity used about 8% more energy than non-program homes in zip codes with concentrated program activity (Cadmus 2022). Because contractors tend to cluster their work, this consumption gap suggests that homes built farther from program activity may not pick up the practices that program-trained builders and subcontractors carry into the wider market.

A 2020 baseline study tested that geographic pattern directly. Cadmus visited 68 non-program homes built between 2018 and 2020, stratified by proximity to program activity, and compared their construction to program homes and a 2017 baseline. The proximity hypothesis did not hold. In-proximity and out-of-proximity homes differed little in the characteristics that drive efficiency, and non-program homes statewide were built above code (Cadmus 2022). The evaluators concluded that the program's reach likely extended beyond the footprint of direct participation, affecting building performance consultants and subcontractors who serve program and non-program builders alike, and recommended crediting market effects to non-program homes statewide rather than only those near program activity. A Delphi panel of builders, contractors, code officials, and efficiency experts reached a consistent judgment: absent the

offering, non-program homes would be less airtight, less efficiently heated and cooled, and less likely to carry high-performance insulation and lighting.

Connecticut's Energize CT program and Massachusetts' residential new construction program both documented non-participant spillover ratios in the range of 1.3 to 1.4, indicating that spillover savings were 130-140% as large as direct program savings. In other words, non-program homes built in the program market reflect substantial above-code performance attributable in part to program influence. These spillover values produced overall net-to-gross ratios well above 1.0, suggesting that traditional direct savings metrics may undercount total program impact in at least these two instances.

Understanding the Pattern

The pattern across these programs—low direct realization rates accompanied by elevated non-program home performance—can point to market transformation rather than declining savings. When a program operates for long enough at sufficient scale, it influences the broader construction market. Builder norms shift, supplier offerings change, consumer expectations evolve, and code locks in these changes. The result is a market that is more efficient than it would have been for all homes, including those built outside of the program.

This creates an evaluation challenge for programs that use a current practice baseline. The success of a market transformation effort erodes the measurable gap between program and non-program homes, producing low realization rates. Programs that have failed to influence the market could show larger savings in program homes under billing analysis or site audit methods that compare program homes with non-program to estimate impact.

Three Pathways Forward

New homes programs facing this challenge have several pathways. Drawing on our analysis of the Energy Trust EPS New Homes program and similar programs operating elsewhere, we identify three primary approaches. These are not mutually exclusive and may be implemented in combination.

Pathway A: Market Transformation Framework

The first path formally embraces a market transformation framework, supplementing the code baseline with a current-practice market baseline fixed at a point in time and developing explicit mechanisms to track and claim market effects. Three levers operate here: the baseline that defines gross savings, the net adjustment that attributes those savings to the program, and the accounting policy that enables credit. A program could keep the code baseline and instead pull the attribution lever, crediting non-program homes through non-participant spillover or a deemed market-effects adder. For residential new construction, a matched-comparison billing analysis measures program homes against the current market and so already absorbs at least part of free ridership and participant spillover into the realization rate. Once non-program homes meet or exceed code, a low realization rate and a low net-to-gross ratio reflect the counterfactual market the program helped move. Breaking this loop requires fixing the counterfactual in time: a snapshot of market practice holds the reference point steady so that cumulative shifts in program and non-program homes register as savings rather than eroding the realization rate.

Maintaining this approach requires ongoing research infrastructure, including regular market prevalence studies, non-participant surveys, code influence documentation, and clearly defined key market indicators. It also requires a strategic commitment from program administrators, evaluators, and regulators to estimate and report market-wide outcomes alongside direct participant savings.

A market baseline alone, without mechanisms to credit market effects, could be punitive; as the program successfully raises market practice, the baseline rises and claimed savings shrink, penalizing the program for success and shrinking savings available in conservation potential assessments. Committing to a market transformation framework requires pairing market baseline measurement with crediting mechanisms that allow the program to demonstrate and claim the value of non-participant spillover and sustained changes in standard practice (Moran et al. 2025).

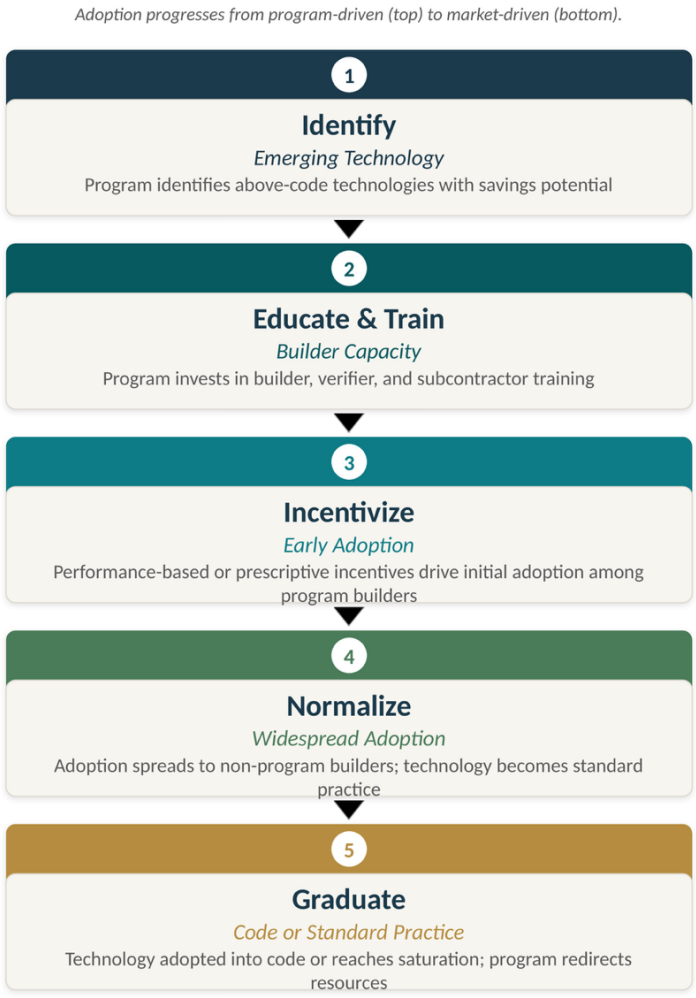

Figure 1. Stages of Technology Transformation in New Homes Programs

Pathway B: Technology-Specific Transformation

The second pathway involves pivoting from a whole-home performance approach to targeted, technology-specific transformation efforts. Rather than incentivizing overall home performance scores, the program would identify a limited set of three to five technologies or practices for focused transformation—technologies where there remains a meaningful gap between current market saturation and program goals. Figure 1 presents a typical approach to technology specific intervention.

This approach offers several advantages: technology-specific baselines are easier to define and validate, spillover is easier to measure (e.g., tracking heat pump water heater (HPWH) saturation rates among non-program builders), and clear "graduation" criteria can be established when market saturation is achieved. The EPS program's experience with heat pump water heaters illustrates the model: HPWH saturation among program homes is now nearly 50% and code-wide saturation is approaching 40% (Figure 2), suggesting the transformation of the market for this technology and that the program should redirect resources to the next target.

The Northwest Energy Efficiency Alliance's (NEEA) two-decade residential new homes initiative illustrates how this transformation cycle works in practice. Beginning in 2004 with the Northwest ENERGY STAR Homes certification, NEEA promoted specific above-code practices (such as advanced wall assemblies, tight building envelopes, HPWHs, and heat recovery ventilators) through labeled programs, verified them through rater inspections and field data collection, tracked adoption through market research and compliance studies, and fed findings directly into regional code advancement proposals. When measures reached sufficient market acceptance (or were fully integrated into code), the program shifted its focus to the next set of target practices (NEEA 2020). This *promote–verify–monitor–codify* process involves identifying specific practices, confirming those practices are present, and tracking adoption among non-program builders to gauge market progress toward graduation.

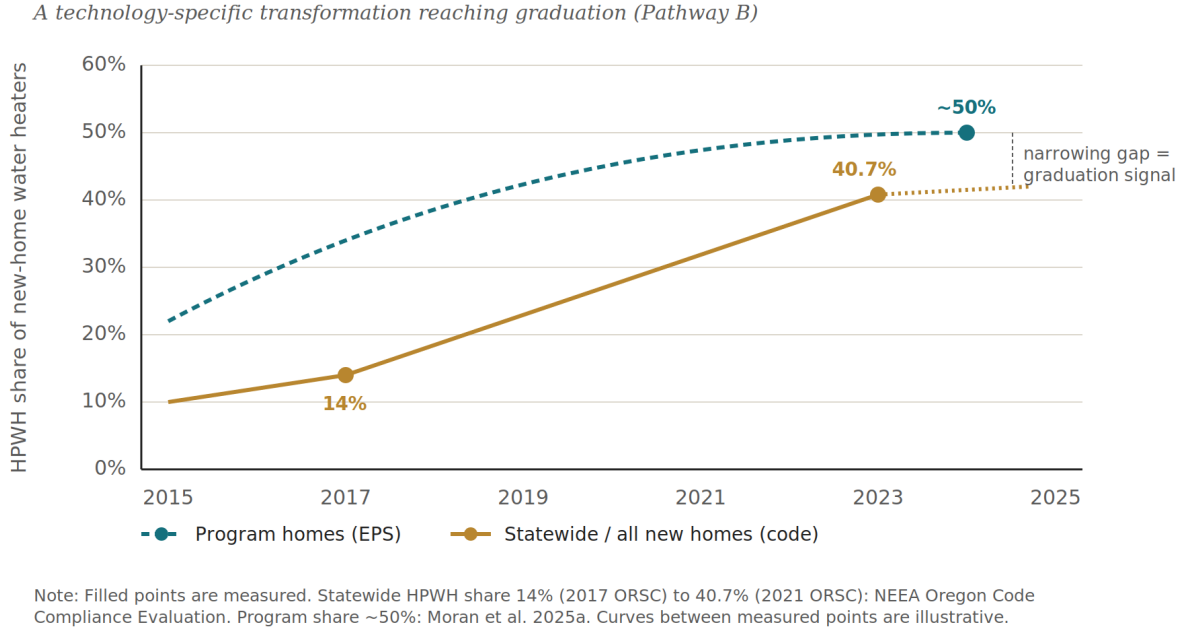

Figure 2. Heat Pump Water Heater Saturation in Oregon New Homes

This approach can address a limitation of whole-home performance scores. Programs structured around aggregate home scoring mechanisms give builders flexibility in how they achieve a performance threshold, which can be attractive to builders and encourage market engagement, but can undermine technology-specific adoption. NEEA's own review of its Standard Protocol/Performance Path found that builders relied heavily on simple equipment measures and incremental product upgrades to meet program thresholds rather than implementing advanced practices with longer measure lives, such as advanced wall construction or locating ducts in conditioned space (NEEA 2020). A 2017 NEEA study of Energy Rating Index variability found that energy consumption estimates from five raters assessing the same home varied by as much as 51%, with only an 11% corresponding change in the HERS Index Score. This suggests the scores can mask differences in underlying construction practice and potentially misrepresent savings (NEEA 2017).

Pathway C: High-Performance Tiers

The third pathway involves establishing a high-performance tier that sits well above current market practice, restoring a meaningful savings gap even as market baselines improve. This approach, exemplified by Massachusetts' Passive House offering and both Massachusetts' and Connecticut's HERS tier structure, essentially redefines the program target to stay ahead of the market.

Massachusetts launched its Passive House multifamily offering in 2019, providing feasibility study support, energy modeling subsidies, and per-unit incentives for projects meeting Passive House certification standards. By 2024, more than 119 buildings with over 6,700 units were on track for certification (Mass Save 2024).[1] States embracing this approach could accept reduced program volume (at least in early years) in exchange for deep per-unit savings and a clear, durable performance target.

For single-family new home programs like EPS, a similar pivot might involve establishing a Net Zero Energy Ready or high-performance tier, potentially aligned with national standards like Department of Energy (DOE) Zero Energy Ready Homes (ZERH) or ENERGY STAR NextGen. This pivot raises a screening question for the option: prudent use of ratepayer funds. Setting a high target preserves measurable savings against the code baseline, but may not preserve cost-effectiveness. The marginal cost of efficiency rises as the cheapest measures are exhausted and marginal savings fall, so a higher tier may not pass a standard per-home benefit-cost test. Oregon's own experience shows the squeeze: builder interviews found that program incentives once exceeded the incremental cost of above-code measures but the market caught up (Apex 2023).

Two responses keep the option defensible. First, the value that justifies an above-market tier lies largely outside the per-home incremental test: the proving-ground effect on technologies and practices that later become code-adoptable, the workforce and supply-chain capacity the tier sustains, non-energy benefits, and/or avoided carbon. The field has no accepted method for crediting the proving-ground effect (Nadel 2024 endorses the direction without resolving it). Second, the distributional objection reflects building type. A single-family above-market tier tends to reach buyers who can afford a premium home. Massachusetts largely avoided this by placing its tier in multifamily, where much of the pipeline is built by affordable-housing developers for whom lower operating costs preserve long-term affordability (ACEEE 2020). A single-family ZERH or NextGen tier for EPS would introduce equity concerns unless paired with an income-qualified or affordable pathway.

A Decision Framework for Program Administrators

Choosing among these pathways or designing hybrid approaches requires clarity on several initial questions. We propose the following decision framework for program administrators, evaluators, and regulators, as shown in Figure 3.

[1] Reviewers note that updated reporting from Phius indicates that there are over 18,000 units in development or built since 2019 and that a large portion of these are likely enrolled in the Mass Save program.

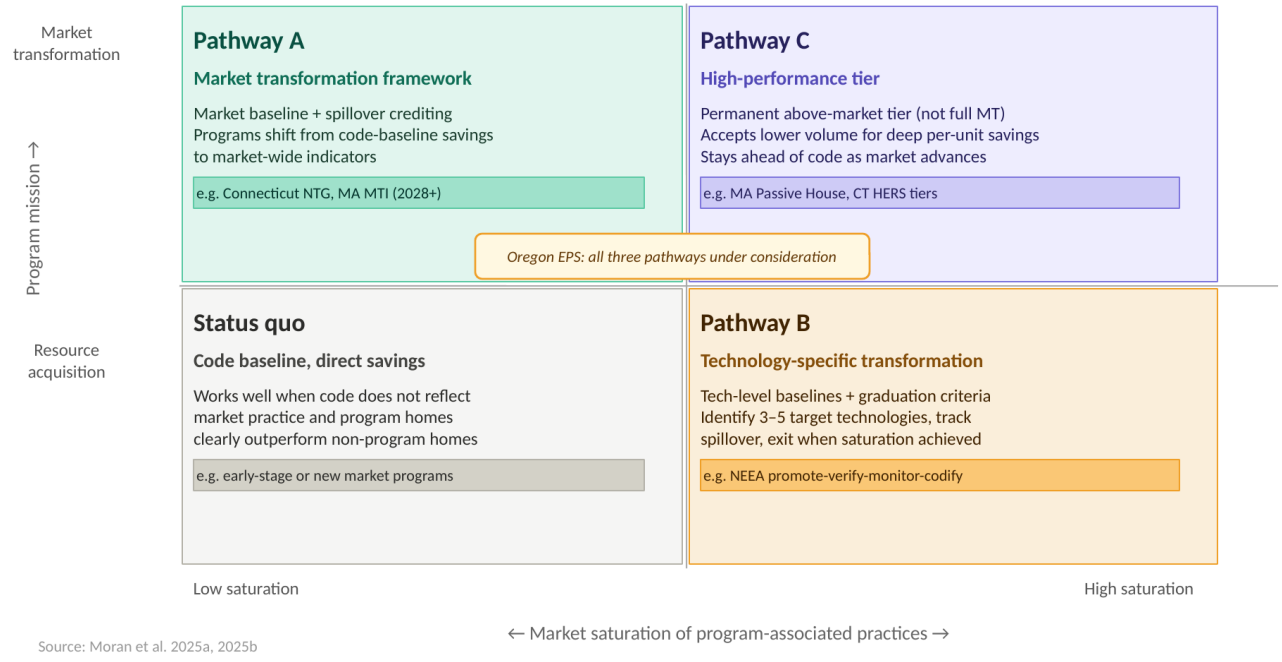

Figure 3. Decision Framework for Pathway Selection

Step 1: Clarify Program Mission

The baseline question and the choice of pathway depend on whether the program's mission is primarily resource acquisition,[2] market transformation, or some combination. A resource acquisition framing prioritizes direct, claimed, cost-effective savings attributable to program participants. A market transformation framing prioritizes long-term, market-wide influence, including effects on non-participants, codes, and standard practice.

These missions require different baseline estimation and potential study parameters, different evaluation approaches, and different program designs. Attempting to pursue market transformation while measuring only resource acquisition is a category error that will produce misleading results and undervalue program contributions. We recommend that program administrators, evaluators, and regulators reach consensus on answers to the following questions before proceeding to step 2:

1. Is the program's primary objective to capture near-term, attributable savings from program participants, or to accelerate long-term changes in market practice, or do both?
2. Should program success be evaluated primarily through participant-level savings, or through market-wide indicators? Are we able to collect the data to support this analysis?
3. Do utility commission guidelines allow for market impacts to be quantified and used for goal setting?

[2] Resource acquisition refers to energy efficiency programs that seek to "acquire," usually through rebate payments, energy efficiency. This acquired energy efficiency is documented or "claimed" in the program year of the rebate. Market transformation refers to programs designed to create sustained change in market functioning or standard practice, often through training or supply chain engagement that extends beyond rebated projects.

Step 2: Assess Market Position

Before selecting a pathway, programs should characterize their current market position and seek to answer questions such as:

1. What is the actual gap between program home performance and non-program home performance?
2. What is the saturation of key measures among non-program builders?
3. What do market actors report about the program's influence on their general practice?

The 2025 Energy Trust New Homes Market Assessment provides a model for this kind of characterization. Fifty-six market actor interviews, combined with program data analysis and literature review, documented market position and program influence that would not be visible from program records alone (Evergreen Economics 2025).The Focus on Energy program conducted several activities, such as builder and contractor interviews, impact studies, baseline studies, and meticulous review of program tracking data before making a determination of if it wanted to include market effects.

Step 3: Evaluate Pathway Feasibility

Each pathway has distinct feasibility requirements. A market transformation framework requires regulatory acceptance of market effects crediting and sustained investment in market tracking infrastructure. A technology-specific approach requires identifying technologies with sufficient savings potential and measurable spillover pathways. An ultra-high-performance tier approach requires a builder market willing and able to pursue deep performance targets and sufficient market volume to sustain program operations. All three pathways require sustained research efforts and implementation and evaluation to work together in non-traditional ways. To make this work, evaluation approaches should be part of the program design decisions, whether that is when a program officially begins or is poised for major redesign. Questions that can help answer these questions include:

1. What are the financial and resource trade-offs for each pathway?
2. Will cost-effectiveness guidelines and tools work for each pathway or will updates be required?

Step 4: Design for Accountability

Whatever pathway or combination of pathways is chosen, programs should establish explicit accountability mechanisms, including defined key market indicators, baseline measurements, and regular market tracking. Without these, programs operating under a market transformation framing risk losing credibility by claiming broad influence without the evidence to support it.

Case Applications

The following three case applications are examples of programs that have recently contended with existential design and market transformation questions due to years of program success. These include Energy Trust of Oregon's EPS New Homes program, Wisconsin's Focus on Energy program, and Massachusetts' Passive House offering. While the programs do not

reflect our explicit pathway terminology, they have naturally decided or are actively deciding which pathway(s) to select.

Energy Trust of Oregon: A Program at the Crossroads

The EPS New Homes program exemplifies the market transformation paradox. Nearly two decades of sustained operation have built a robust builder and verifier network, supported multiple code advancement cycles, and influenced standard practice beyond the program boundary (Evergreen Economics 2025). Yet the narrowing performance gap between program and non-program homes documented in the 2025 market assessment raises questions about how traditional measurement frameworks capture broad market influence.

Our analysis suggests the program has substantially influenced several elements of the new homes market in Oregon, including the adoption of high-efficiency technologies (e.g., heat pump water heaters and balanced ventilation), standardized above-code construction practices, and stronger builder-verifier relationships (Evergreen Economics 2025). Energy Trust will likely need to consider updating program strategy for the future. The 2025 program theory memo outlines a phased transition in which current offerings are maintained while explicit market effects measurement infrastructure is developed, then a pathway is selected based on what the market data reveal (Moran et al. 2025). For example, if the program and evaluation teams develop measurable market effects indicators and data sources to track market progress, and market data reveal over time that there are major gaps in adoption of key energy-efficient technologies in program versus non-program homes, the program may then choose to actively pursue the technology-specific transformation pathway.

Wisconsin Focus on Energy: Spillover as Signal

Wisconsin's Focus on Energy program offers an instructive parallel. After a 2019 impact evaluation found gas realization rates of 5% and negative electric realization rates, the state commissioned a baseline study to investigate. Cadmus collected field data on 68 non-program homes stratified by proximity to program activity and compared their characteristics to both program homes and a 2017 baseline. The results confirmed that non-program homes statewide exceeded code requirements across multiple building metrics, with differences between program and non-program homes relatively small. A Delphi panel of market experts (including builders, contractors, code officials, and efficiency specialists) reviewed the evidence and concluded that without the offering, non-program homes would have lower insulation levels, higher air infiltration, less efficient heating and cooling systems, and lower saturation of efficient lighting (Cadmus 2022). Wisconsin has since adjusted its REM/Rate baseline model to better reflect actual market practice. A step that could further reduce apparent direct savings unless paired with mechanisms to credit the program for market-wide influence.

As of the 2025 program year evaluation report, program participation continues to be dominated by less efficient certification tiers (30% above code) that do not meet current ENERGY STAR requirements. The program has made advances toward Zero Energy Ready Homes with two homes certified in 2025 compared to none in 2024. The program administrator reported that limited participation in the higher certification levels is due to the added cost of achieving those certifications (Cadmus 2026).

The program's overall savings and cost-effectiveness include market effect savings for gas measures. The high participation in the lowest efficiency tier may indicate that it should be

removed and replaced with higher incentives for the higher efficiency tiers or potentially consider this paper's Pathway B: Technology-Specific Transformation.

Massachusetts: Staying Ahead of the Market

Massachusetts has pursued the higher-performance tier pathway most explicitly through the Mass Save Passive House multifamily offering, launched in 2019 with a structured logic model defining short-, medium-, and long-term outcomes (NMR 2020a). The program layered financial support across project development stages: feasibility study subsidies of up to $5,000, energy modeling support covering 75% of costs up to $20,000, a per-unit design incentive of $500, and a construction incentive of $2,500 per unit upon completion and final inspection, including a blower door test. Performance bonuses for actual first-year energy savings encourage developers to optimize beyond the certification threshold (York and Molina 2020). By 2024, more than 70 feasibility studies had been completed and 119 buildings with over 6,700 units were on track for Passive House certification (Mass Save 2024; Nadel 2024).

The Massachusetts policy environment has continued to shift alongside the program. As of early 2026, municipalities representing approximately one-third of the state's population had adopted the Specialized Code, a higher-performance stretch code tier associated with the state's Climate Leader Communities designation (DOER 2026). In 2024, the Massachusetts Program Administrators also formally redesigned their broader residential new construction program as a Market Transformation Initiative, requiring fossil fuel-free construction and establishing a long-term goal of market-wide transformation toward efficient electric and grid-responsive new construction (NMR 2025).

What these developments mean for the trajectory of Passive House in the Massachusetts multifamily market is not yet clear from available evaluation evidence. Program participation data suggest a healthy pipeline, and the policy environment is advancing in ways that could reduce the incremental cost of meeting Passive House standards relative to code. Whether this trajectory represents a program on the path toward market transformation is a question that future market characterization research will need to address.

For programs considering this option, the Massachusetts experience suggests that a higher-performance tier requires substantial technical support infrastructure paired with meaningful financial incentives. The feasibility studies, training, and energy modeling subsidies were essential to making that tradeoff viable for developers. Programs should enter this option with a realistic market characterization: if the performance gap between the program tier and prevailing practice is narrowing faster than anticipated, whether due to code advancement, program influence, or both, the case for continued investment at that tier may change.

Theory versus Reality

This paper presents a holistic view of the challenges facing residential new construction programs and outlines several potential pathways for addressing those challenges. In theory, any of the options presented could be implemented within a state or utility-sponsored energy efficiency program. In practice, however, the feasibility of each option varies considerably based on factors such as state legislation, regulatory priorities, commission support for market transformation activities, available funding, market readiness, stakeholder acceptance, and other

external conditions that influence what can realistically be implemented without substantial policy or programmatic changes.

Given these considerations, the authors believe that Pathway B: Technology-Specific Transformation is likely the most practical and broadly applicable pathway for the majority of states. This approach can be integrated within existing demand-side management program structures while continuing to deliver whole-home energy savings and advancing the adoption of targeted technologies. The primary distinction lies in how technologies are introduced, supported, and evaluated. By establishing and tracking key performance indicators from the outset, program administrators and evaluators can measure technology adoption over time and compare adoption trends among participating homes to broader market trends. If sufficient evidence demonstrates that the program accelerated adoption beyond direct participants, the program may be able to quantify and claim market effects associated with non-participating homes. As a result, this approach remains firmly within the traditional demand-side management framework while creating opportunities to recognize and capture broader market impacts.

This is not to suggest that Pathway A and Pathway C are not viable approaches. Rather, their applicability may be limited to specific policy, regulatory, and market conditions. Pathway A may require significant changes to existing policies, regulatory frameworks, or even legislation to support market transformation objectives and associated attribution methodologies. Such changes often require substantial time and stakeholder engagement. For example, the Focus on Energy program has proposed market transformation initiatives to the Public Service Commission of Wisconsin on multiple occasions, but those proposals were ultimately not approved.

Pathway C presents a different set of challenges. High-performance homes currently represent a relatively small share of the new construction market, which can limit participation potential and increase program costs on a per-home basis. As a result, programs focused on this segment may face challenges demonstrating cost-effectiveness under traditional energy efficiency screening tests. Nevertheless, this pathway may be appropriate in jurisdictions with aggressive decarbonization goals, advanced building energy codes, or strong market demand for high-performance homes.

Conclusions and Recommendations

The pathways described here offer options for maintaining program relevance, but they require strategic clarity, evaluation infrastructure investment, and regulatory acceptance of market-wide program value. Several overarching recommendations emerge for new homes programs facing these dynamics:

- **Commission regular market characterization studies to augment impact evaluations.** Understanding what non-program builders are doing and why is essential to demonstrating market influence and identifying where intervention remains valuable.
- **Engage regulators and program administrators on ultimate program objectives before defaulting to baseline adjustments.** Shifting to a market baseline without a market effects crediting mechanism is punitive. Crediting mechanisms require regulatory acceptance that should be negotiated proactively.

- **Define explicit market transformation targets for each technology or practice targeted.** Clear graduation criteria, such as defined market saturation levels that trigger program exit, allow resources to be redirected to the next market challenge.
- **Monitor the extent to which their measurement approach is driving the construction practice changes they seek.** Whole-home performance scores are effective for market differentiation and consumer engagement, but they might encourage equipment upgrades over durable construction practice changes. Pursuing a technology-specific transformation pathway can supplement performance scores with practice-specific verification tied to prescriptive-type incentives.

As building codes continue to advance toward net-zero targets nationally, the dynamic described here will become increasingly common. The evaluation and policy infrastructure needed to recognize and reward market transformation must be developed before programs are penalized for their success.

References

Apex Analytics. 2023. Energy Trust of Oregon New Homes Program Impact Evaluation, 2012–2019. Portland, OR: Energy Trust of Oregon.

Cadmus. 2022. 2020 Residential New Construction Baseline Study. Madison, WI: Public Service Commission of Wisconsin.

Cadmus. 2026. Focus on Energy Calendar Year 2025 Evaluation Report. Madison, WI: Public Service Commission of Wisconsin.

Evergreen Economics. 2025. New Homes Market Assessment Final Report. Portland, OR: Energy Trust of Oregon.

Industrial Economics, Inc. (IEc) and Resource Refocus LLC. 2025. Oregon Residential Code Compliance Evaluation. Portland, OR: Northwest Energy Efficiency Alliance.

Mass Save. 2024. Passive House Incentives. masssave.com/saving/residential-rebates/passive-house-incentives.

Moran, D. 2025. New Homes Market Assessment: Program Theory and Logic for Market Effects. Memorandum to Leila Shokat, Energy Trust of Oregon, December 1, 2025. Portland, OR: Evergreen Economics.

Nadel, Steve. 2024. Programs to Promote Zero-Energy and Zero-Carbon New Homes and Buildings. Washington, DC: ACEEE. https://www.aceee.org/white-paper/2024/05/programs-promote-zero-energyand-zero-carbon-new-homes-and-buildings.

NEEA (Northwest Energy Efficiency Alliance). 2017. Energy Rating Index Variability Study. Portland, OR: NEEA.

NEEA (Northwest Energy Efficiency Alliance). 2020. Next Step Homes Pilot Phases 2 and 3 Summary. Portland, OR: NEEA.

TRC. 2024. Home Energy Rater Market Research. Portland, OR: Northwest Energy Efficiency Alliance.

NMR Group. 2020. Massachusetts Passive House Offering Program Theory and Logic Model. Lexington, MA: NMR Group.

NMR Group. 2020 Massachusetts Residential New Construction Baseline Study. Lexington, MA: NMR Group.

York, D., and M. Molina. 2020. Programs to Promote Zero-Energy and -Carbon New Homes and Buildings. Washington, DC: ACEEE. aceee.org/research-report/a2001.