

1. Cover Letter

Michelle Turner, Administrative Secretary (via Email: comments@efficiencymaine.com)
Efficiency Maine Trust
168 Capitol Street, Suite 1
Augusta, ME 04330-6856

Dear Ms. Turner:

Enervee is pleased to provide the following responses to the Efficiency Maine Trust (the Trust) as part of the RFI process in response to the questions asked of interested parties regarding implementation strategies, budgets, and metrics for the Trust to consider as it develops its next three year plan (Triennial Plan V) for the period spanning fiscal years 2023, 2024, and 2025.

About Enervee

Enervee is a venture-backed, 60-person cleantech company, founded in 2010. Our mission is to eliminate barriers and empower shoppers to choose the most efficient products that meet their needs and budget. We believe that influencing retail purchases is the most cost-effective way to rapidly scale energy savings and greenhouse gas emissions reductions in the residential sector.

The effectiveness and impact of Enervee's decision-based Choice Engine have been demonstrated across the country, independently evaluated, and recognized by industry peers as a best-in-class residential energy efficiency program. Enervee currently partners with 21 leading utilities serving over 27% of all US electric customers and 5.7 million gas only customers across 19 states.

2. Responses

1. We are currently planning to organize our programs into the following categories: Commercial and Industrial (C&I) Custom; C&I Prescriptive; Small Business Initiative; Distributor Initiatives; Retail Initiatives; Grid Support and Load Management; Home Energy Savings Program; Low Income Initiatives; Electric Vehicle Initiatives; Renewable Resource Fund (Demonstration Program); and Innovation Program. What discrete initiatives might we be missing? What alternative approaches to organizing these programs should we consider? What are the most important program aspects that the Plan should maintain and what are Program elements we should consider changing?

Q1 RESPONSE:

The most effective program designs start with the end user in mind, so it's important to take a customer centric approach when designing and implementing programs, and structure and organize programs accordingly. Additionally, innovative program structures that can layer different types of incentives (i.e. traditional rebates, low-income incentive funding, and financing options) can maximize participation while lowering costs, making it easy for customers to understand and interact with Maine efficiency programs and maximize their benefits. Moving from traditional program design and delivery approaches and employing a customer centric philosophy when thinking about program design and program categories is key. Additional program design recommendations for considerations:

1. Strive to create a level playing field for all behind-the-meter DERs to contribute fully to achieving the State's ambitious climate goals and break down program silos, so customers and channel partners can benefit from multiple value streams.
2. Shift from rebate focus to a market transformation focus, employing new approaches to eliminate barriers to efficient purchases and encourage more private investment.

3. Develop online residential financing offerings to support efficient online retail product purchases with low minimum loan amounts and instant credit approval for most purchases.
4. Go beyond ENERGY STAR levels of efficiency and incentivize only the most highly efficient products.

These program considerations are discussed further in subsequent responses.

2. (A) The Innovation Program is designed to analyze and demonstrate cost-effectiveness of emerging measures that have reached (or are about to reach) commercialization, and to gain a better understanding of what strategies should be employed to promote a measure if it were to be added to the list of eligible measures through the Trust's regularly offered programs. What emerging technologies, operational or behavioral conservation measures, or grid support/load management strategies should we consider for future Innovation Program pilot projects? (B) Historically, the Trust has set the budget for the Innovation Program at either 0.5% or 1% of program budgets. Please comment on the appropriate budget level for the Innovation Program and, where possible, share examples of budget levels used for equivalent initiatives in other jurisdictions to support your recommendation.

Q2 RESPONSE:

The first step is for the Efficiency Trust to accurately define 'emerging' technologies, which can be very challenging given the rapidly accelerating innovation and commercialization of new technologies in the utility sector, especially around digital technology. Maine should have a bias toward action in deploying innovative measures that are low cost and low risk and make adjustments as required in real time. Many State jurisdictions focus on funding lengthy research projects that may not have market impacts for years which can make it difficult to achieve ambitious savings and climate goals. The Efficiency Trust should continue to carefully examine and learn from innovative market programs that have already been piloted and market tested in other jurisdictions for consideration and deployment in Maine.

3. As part of its Public Information and Outreach initiative, the Trust maintains an extensive website at efficiencymaine.com offering a variety of program descriptions and online tools and videos to help customers select efficient products, locate a vendor, request a rebate, and understand how to operate their efficient products to achieve maximum savings. The Trust hosts training workshops for various trade professionals and occasionally hosts seminars or symposia on topics related to energy conservation and alternative energy. The Trust also provides educational resources and information about efficient equipment directly to Mainers and recent rebate recipients. In what specific ways could we improve these resources and services? What examples from other entities should we consider?

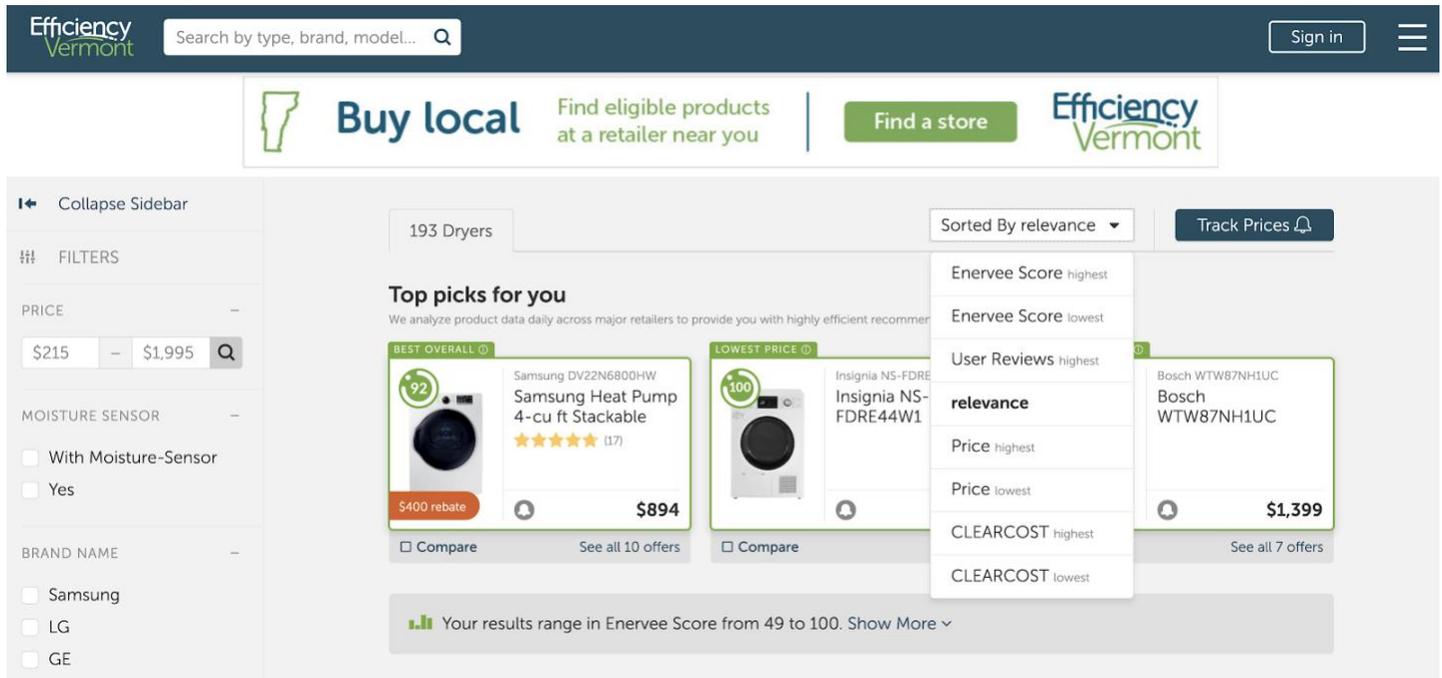
Q3 RESPONSE:

A statewide website can be a very powerful tool for providing education and enhancing and delivering efficiency savings, especially in the residential sector. A comprehensive web platform can provide education, savings transparency, and actionable information on efficiency programs, products, and incentives. When deployed with an effective digital marketing strategy, a Maine website featuring an efficient product decision support choice engine can be the lynchpin for a comprehensive statewide efficiency strategy.

One of the program gaps mentioned above is retail purchase decision support, a turnkey online SaaS choice engine actively engages consumers in purchase decisions across a vast array of retail products, allowing the consumer to engage and easily choose the most efficient and cost-effective products that meet their unique needs with or without

additional incentives. The energy savings achieved through this behavioral change facilitated by the choice engine (market-based savings,) can be measured and applied toward the achievement of the state’s energy efficiency goals.

Removing barriers and making markets work better for consumers yields significant, highly cost-effective savings and could be factored into targets and be required as a foundation for other energy efficiency programs. Maine has an unprecedented opportunity to narrow the gap between economic and market potential just by making it easier for consumers to choose efficient products. A retail products choice engine that communicates all products available for rebates and enables consumers to directly access downstream rebates after product purchase from local retailers, could be integrated into the Efficiency Maine website. Below is a screenshot from the Efficiency Vermont choice engine. Customers can sort, filter, and compare from the 193 electric dryers available for sale (retail pricing updated daily) when shopping for clothes dryers, and identify and access rebates available for heat pump clothes dryers.



The dilemma is that energy efficiency is typically invisible in the consumer marketplace, preventing people from choosing the efficient products they aspire to. The choice engine for efficient products developed and supported by Enervee has been deployed for 21 major utilities across the US and provides a 0 to 100 energy efficiency index on every product model, (aka the Enervee Score), that is intuitively understood and nudges shoppers towards more efficient purchases. With personalized estimates of energy bill impacts and total cost of ownership, the platform also helps consumers understand that efficient products do not necessarily cost more, or that all ENERGY STAR-labeled products are super-efficient (they are not), because it’s simple to compare the efficiency and best retail prices for all products that meet their needs.

Further, a website that includes an efficient retail product choice engine can help drive deep energy efficient product penetration in the residential segment, including the hard-to-reach low-income segment. The choice engine platform also presents an opportunity to modernize low-income programming, by introducing a retail product channel to complement traditional direct-install approaches. (see response to Q7). The choice engine drives deep customer engagement and measurable energy savings across a broad array of product segments, especially the challenging residential plug load segment. The choice engine provides transparency and nudges customers toward the purchase of the most energy efficient products - with or without financial incentives. Maine can have a proven, innovative, dynamic web-based platform that includes a choice engine that can deliver real, measurable and cost-effective savings across a broad array of energy products.

4. In prior Plans, the Trust allocated 2.5% of the program budgets to “EM&V” (Evaluation, Measurement and Verification). EM&V activities encompass systematic data collection and analysis related to the Trust’s programs. For more information, please refer to Chapter 6 of Triennial Plan IV. One type of EM&V activity is third-party evaluations, which are required for every program costing more than \$500,000. Whereas Maine statute requires the Trust to evaluate major programs at least once every five years, the Trust’s practice is to initiate these evaluations at least once every three years. Measurement and verification are largely managed by the Trust Staff with assistance from subcontractors. The Trust seeks recommendations on the appropriate amount to budget for this strategic initiative in Triennial Plan V and the basis for such recommendations.

Q4 RESPONSE:

No response.

5. To prepare the Plan, the Trust will analyze the economic benefits and costs of electric (and natural gas) efficiency and conservation measures in order to determine the maximum amount of cost-effective savings potential that could be promoted through the Trust’s programs. As prescribed in Chapter 3 and Chapter 4 of the Trust’s rules, and further memorialized in the Trust’s Technical Reference Manuals (TRMs) and past Triennial Plan filings at the Maine Public Utilities Commission (PUC), the Trust sums the avoided energy costs, marginal avoided transmission and distribution costs, and reduced water/sewer costs to determine the economic benefits of a measure. Please comment on any changes the Trust should make in how it accounts for benefits and costs in its analysis of cost-effectiveness.

Q5 RESPONSE:

We recommend that the Trust remove participant impacts from the primary benefit-cost screen. This could be accomplished by modifying the primary cost test, or by relying on the UCT as the primary cost test. Either approach would deliver better value for ratepayers, as programs that focus on eliminating barriers and leveraging private investment would no longer be penalized. Our recommendation is based on the following considerations:

- It is common that participant costs and benefits, when included in cost-effectiveness tests, are asymmetric, as participant costs are readily estimated, while participant benefits (e.g., comfort, asset value, satisfaction & pride) can be more challenging to understand and quantify and are therefore not accounted for. This screens out a great deal of economic potential that customers would benefit from investing in, which is one of the reasons for the persistent gap between economic and achievable potential.
- Inclusion of participant impacts in benefit-cost tests discourages energy efficiency implementers from focusing on barrier elimination and market transformation, with a view to leveraging as much private investment as possible to make every ratepayer dollar go further.
- There are two basic approaches to address this: 1) account for a wider array of participant benefits, or 2) remove participant impacts altogether (both costs and benefits).
- New Hampshire recently revamped their primary benefit-cost test to remove consideration of participant impacts. As stated in NH PUC Order 26,322 (December 30, 2019): “We find that this emphasis on utility system impacts, which accrue to program participants and non-participants equally, will more appropriately target those measures and programs that lower utility system costs, minimizing disparate treatment of program participants and non-participants”.
- Another advantage of screening energy efficiency programs by UCT is that it allows for direct “apples-to-apples” comparisons with other distributed energy resources.

It may make sense to undertake a stakeholder process to reconsider cost-effectiveness screening following the methods laid out in the National Standard Practice Manual.

6. In order to support the increased demand for heat pumps and to promote quality installations, Efficiency Maine developed a training module on “heat pump basics” that is required for all heat pump installers working with Efficiency Maine’s residential programs. Efficiency Maine provides other trainings and workshops to contractors working in its commercial programs and is planning to provide building code training to contractors. Please comment on Efficiency Maine’s efforts to support workforce development in energy efficiency, and include suggestions for additional areas we should consider addressing. What observations can you offer about the capacity or needs of Maine’s trade professionals (e.g., electricians, plumbers, weatherization installers, heat pump installers, heating technicians, distributors, retailers, architects and engineers) to accommodate growing demand from Maine customers for heat pumps, weatherization, high-efficiency heating systems, and other conservation measures offered through the Trust’s programs? Please also share any recommendations about the approach the Trust’s Plan should take to support workforce training.

Q6 RESPONSE:

No response.

7. The Trust places a priority on advancing equity in delivery of its programs. For example, recent results of the Trust’s programs promoting LED lights, heat pumps, and heat pump water heaters have shown strong distribution among low-income communities and in rural communities. Also, the Trust’s programs have met the statutory requirements setting minimum budgets to benefit low-income Mainers. For some low-income initiatives, the Trust requires no financial contribution from the customer; for other low-income initiatives the Trust offers “enhanced rebates” for eligible customers while requiring some customers to have some “skin in the game.” Please comment on how the Trust can improve on its goal of equitably delivering benefits to low-income communities while also advancing goals of maximizing energy savings, carbon reductions, and market transformation.

Q7 RESPONSE:

There is opportunity (particularly in the low-income segment) to tap into natural replacement cycles for consumer products, where low-income private investment can be leveraged. In addition, there is an opportunity to reach far more people by supporting 1-off purchases, particularly plug-in devices that don't require professional installation. ACEEE research reports that driving high levels of participation has proven to be a more effective way to deliver higher overall savings levels to the low-income sector than providing deep savings for a limited number of households. A Statewide LMI Choice Engine can put low-income Mainers in the driver's seat and scale savings cost-effectively.

There are significant barriers to accelerated, large-scale energy efficiency deployment to low-income customers. Scaling low-income energy efficiency cost-effectively is hampered both by classical barriers to the uptake of energy efficiency, as well as by top-down program designs that rely on subsidizing bills and efficiency improvements, rather than on eliminating barriers and empowering low-income consumers to invest in efficiency themselves.

Energy efficiency barriers:

Low-income households are at least as interested in buying energy efficient products for their homes and taking climate action as their wealthier counterparts. But they face insurmountable barriers, creating an "attitude-behavior gap". The market, financial and cognitive/psychological barriers that generally prevent private investment into energy efficient

consumer products have been well documented⁸, and financial, structural and other barriers can be accentuated for low-income consumers¹. A Statewide low-income Choice Engine can tackle some of the most pervasive and persistent barriers:

- Market barriers: Lack of market transparency with respect to the energy efficiency of consumer products prevents consumers from choosing the most efficient products to meet their needs;
- Financial barriers: low-income consumers tend to be cash-strapped and lack access to affordable credit, making it difficult to replace or repair major appliances, even with the lowest cost new models (and repairing or buying an older or used appliance can end up costing more than buying a new one);
- Cognitive/psychological barriers: The fact that emergency replacement purchases are impulsive and tend to be less efficient² is just one example. Another is rational inattention, which occurs when expected per unit savings are deemed too small to warrant the considerable effort of comparing products based on their energy efficiency.

low-income program design barriers:

Traditionally, the bulk of funds intended to address energy poverty have been invested in targeted low-income programs, predominantly direct-install programs that are delivered through periodic in-home visits, during which a limited set of energy efficiency measures is installed for free. Some of the major shortcomings of existing low-income direct-install efficiency programs include³:

- Limited reach and scale. Only a small share of income-eligible customers are typically served by existing direct-install programs and those programs have limited measure coverage. Despite the fact that some jurisdictions have adopted a strategy of focusing on deep retrofits for a small number of low-income households, driving participation has proven to be the more effective way to deliver higher overall savings levels to the low-income sector overall.
- High cost per kWh saved (>\$1/kWh) and limited economies of scale, due to 100% of measure cost being subsidized. ACEEE found that an average of \$1,525 was spent per low-income program participant to save 1,371 kWh¹³. ACEEE also found a strong, linear correlation between low-income program spend and savings⁴.
- Top-down, subsidized approaches fail to meet low-income consumer needs for buying support, address barriers and tap into natural replacement cycles. Far more low-income customers enjoy subsidized energy bills than receive energy efficiency support in any given year, with on-site visits often many years apart. Virtually no support is provided, for example, when equipment fails and needs to be replaced.

Implementation of a statewide low-income, choice engine that can layer all available incentives can respond to identified low-income consumer needs and deliver scalable, cost-effective energy savings and greenhouse gas emissions reductions. A comprehensive, statewide web platform could tackle both sets of barriers in parallel, by relying on choice engine technology⁵ and employing a consumer-centric approach that taps into natural replacement cycles.

According to the New York [Statewide LMI Portfolio 2020 Stakeholder Input Companion Document](#) filed by NYSEDA and NY utilities, stakeholders called for assistance with purchase decision-making in the context of emergency replacements, as well as support so that they can purchase and install plug-in appliances themselves. This stakeholder ask is consistent

¹ [Gilleo, Nowak & Drehobl \(2017\)](#), p. 2.

² [Champanis & Arquit Niederberger \(2017\)](#)

³ [Arquit Niederberger \(2018\)](#)

⁴ [Gilleo, Nowak & Drehobl \(2017\)](#), p. 2.

⁵ For a primer on Choice Engines, see [The Rise of the Choice Engine](#) | *Enverve Blog*.

with recent market research⁶, which revealed that over 97% of LMI consumers in NY State typically research energy-using products online before buying, 70% "almost always."

8. The Trust has spent the last two years testing various load management strategies through its Innovation Program and intends to offer a new program to deploy demand response, load shifting, and load management in the next plan. Examples of these pilot projects include load shifting in commercial freezers using phase-change material; a residential "Bring-Your-Own-Device" pilot; and incentives for off-peak EV charging. Please share examples of successful load management initiatives from other jurisdictions that the Plan could draw from, as well as any reports, studies or evaluations that would aid the Trust in designing or prioritizing these strategies.

Q8 RESPONSE:

Residential "Bring-Your-Own-Device" programs try to entice people to sign up for load management programs after they have purchased a thermostat. This approach is less efficient than the best practice of providing customers with the opportunity to buy a thermostat and enroll in a load management program at the same time. Such programs, including their integrated digital marketing campaigns and stacked EE and DR incentives, have moved large numbers of thermostats with demand-response pre-enrollment rates in the upper 90%. This strategy can be delivered via Enervee's Choice Engine platform, for example, in cooperation with thermostat manufacturers and retail partners (see screenshot below from Enervee's Arizona Public Service deployment).

The screenshot displays the APS Marketplace interface for a Google Nest thermostat. The product is the "Nest Thermostat - Snow Smart Programmable Wi-Fi Thermostat" (GA01334-US). The current price is \$24, with a crossed-out MSRP of \$129. The product features include being programmable, having a touch screen, and being snow-colored. Three rebates are listed: a \$75 Cool Rewards rebate, a \$30 APS instant rebate, and a Google Nest Compatibility Checker. The right sidebar shows a summary of the rebates, resulting in a final price of \$24. Below this, there are third-party offers from Best Buy, Home Depot, and Lowe's, each priced at \$130. The footer includes copyright information for 2021 APS Marketplace powered by Enervee and links to privacy information, support, and about pages.

9. Please comment on ways that the Trust's electric vehicle (EV) initiatives could be improved in the next Triennial Plan and any suggestions about how the Plan should address funding of these initiatives. The Trust currently invests limited, one-time funding (e.g., from the Volkswagen Settlement) in EV initiatives, including developing EV travel corridors with fast and Level-2 chargers; supporting EV charging infrastructure development across

⁶ The results are based on an online survey conducted in NY State in September 2020, which captured 209 survey responses from people with household incomes less than \$100,000, which encompasses all LMI income segments.

the state; providing incentives for electric vehicle purchases; and developing and distributing educational materials about EVs and EV charging. Additional funding for these initiatives will be available over the next three years from the settlement of the New England Clean Energy Connect (NECEC) project proposal. Please comment on what priorities or strategies the Trust should put in the Plan for (A) expanding EV charging infrastructure and (B) transforming the market for EVs? Please also comment on whether and how the Plan should propose to fund incremental electric vehicle initiatives beyond the funding available from the VW and NECEC settlement funds.

Q9 RESPONSE:

In regard to transforming the market for EVs, customer education and purchase decision support is a critical component. Electric Vehicles and related products (e.g. home charging equipment) are included in online choice engine categories and provide consumers with insight into comparative life-cycle cost of ownership (for fuel maintenance and insurance) and can provide convenient stacking of incentives.

10. The state of Maine recently released Maine Won't Wait: A Four-Year Plan for Climate Action, which outlines the state's data-driven outcomes to achieve targeted emissions reductions. The plan sets ambitious goals for beneficial electrification and points to the Trust as a key implementer of beneficial electrification through investment in electric vehicles, heat pumps, heat pump water heaters and other technologies. The Trust anticipates there will be a significant funding gap between the funds the Trust is authorized to seek and the funds required to meet the Climate Action Plan's goals. Should the Triennial Plan outline how the Trust would work to meet these goals, pending funding? How might the Trust fund the adoption of these technologies to contribute to Maine's beneficial electrification goals?

Q10 RESPONSE:

Yes, these topics should certainly be addressed in the Triennial plan, and as mentioned in previous responses, maximizing the leveraging of private capital, and establishing a state green bank that can provide credit enhancements to private lenders supporting efficiency and electrification programs is key - - using financing rather than traditional rebates can go a long way toward mitigating the funding gap.

As discussed, previously, consumer education is a critical part of advancing beneficial electrification and should be a key component of Maine's online consumer web platform, to facilitate both education and facilitate actionable consumer product sales in support of electrification policies. The online choice engine can provide product education, total cost of ownership information for many categories, including: heat pump clothes dryers, pool heaters, hot water heaters, and mini splits available in retail; electric vehicles and EVSE products; and to further reduce GHG emissions - electric lawn and garden products such as lawnmowers, hedge trimmers, leaf blowers, and chainsaws.

11. In the event that the Trust receives significant revenues from Alternative Compliance Payments through Maine's Renewable Portfolio Standard (RPS), what should be the objective(s) for the use of these revenues and what strategy or approach should be used to achieve those objectives?

Q11 RESPONSE:

The Trust should consider using the funds in ways to best leverage private investment, for example by funding a green bank. Another beneficial use would be to fund initiatives that focus on driving equitable access to energy efficient and clean energy technologies.