

Section 1: Overall Project Summary and Approach

a. Description of GHG Reduction Measures

New Bedford, Massachusetts is a historic New England industrial city of 101,079 residents. New Bedford was once the wealthiest U.S. city per capita during the 19th century peak of the whaling industry. Today, and for most of the 21st century, New Bedford Harbor boasts the number one commercial fishing port by value in the country. With the final approvals moving through, the city is about to become home to the region's offshore wind industry as well. When it comes to innovating and adapting to the changing needs of the world, the people of New Bedford know how to learn new skills and drive forward. Yet the immigrant workforce—the economic backbone—has not shared in the prosperity they have helped create. Many are energy burdened and residing in multi-family tenements that are over 100 years old.

According to the city's assessor database, 52% of the housing units in New Bedford were constructed before 1939 and 86% built before 1980.¹ With the city's population growing twice as fast as its housing stock, housing costs are on the rise² leaving 30% of homeowners housing-cost burdened.³ The City developed the *Building New Bedford* plan last year to map out a strategy to address this housing supply challenge. While a new supply of housing will help with rental and housing prices, most of the low income and disadvantaged community (LIDAC) population will still be forced to live in century old homes that bring other costs.

While these historic buildings are core to the character of New Bedford, many residents have spoken of the challenges of living affordably and comfortably in them. Minimal insulation and old windows lead to cold and expensive winters and no central air conditioning and hotter summers create public health concerns. Antiquated and sometimes unsafe systems, such as fire-prone knob and tube wiring can add extensive remediation requirements to otherwise small home improvements.

These community impacts, coupled with the fact that buildings represent the largest source of greenhouse gas (GHG) emissions in the city, put **New Bedford's Building One Stop Shop Program** (One Stop Shop) in perfect alignment with the Climate Pollution Reduction Grant (CPRG) Implementation program's goals.

Relationship to the PCAP and CPRG Goals: The City of New Bedford has been an active stakeholder in the development of the Priority Climate Action Plan (PCAP) for the Providence-Warwick Metropolitan Statistical Area. Through that process, residential heating was identified as the second largest source of emissions in the region after transportation⁴ This finding mirrors the results of the 2019 New Bedford Community Greenhouse Gas Inventory. Greenhouse gas emissions from residential electricity use and stationary combustion total 180,924 MTCO₂e or 25% of the city-wide total. While the whole

¹ City of New Bedford. March 23, 2023. *Building New Bedford: Strategies to Promote Attainable Housing for All in a Thriving New Bedford*. <https://newbedford-ma.s3.amazonaws.com/wp-content/uploads/sites/58/20230329092131/BUILDING-NEW-BEDFORD.pdf>

² MassInc. January 2024. *Housing for All: Forward-Looking Strategies for a Growing New Bedford*. <https://nbedc.org/wp-content/uploads/2024/02/NBHousingReport2024.pdf>. Accessed March 26, 2024.

³ City of New Bedford. March 23, 2023. *Building New Bedford: Strategies to Promote Attainable Housing for All in a Thriving New Bedford*. <https://newbedford-ma.s3.amazonaws.com/wp-content/uploads/sites/58/20230329092131/BUILDING-NEW-BEDFORD.pdf>

⁴ Southeastern Regional Planning and Economic Development District (SRPEDD). March 1, 2024. *Providence-Warwick Metropolitan Statistical Area Priority Climate Action Plan*. <https://srpedd.s3.amazonaws.com/wp-content/uploads/2024/03/04093134/Providence-MSA-PCAP-03-01-2024.pdf>

transportation sector is larger, GHGs from homes exceed resident's vehicles GHGs by over 38,000 MTCO₂e.⁵ These factors combined with the overall need for investment in New Bedford's existing housing stock led the City of New Bedford to develop this program concept. This program aligns with the region's PCAP Action B1: *"Fund and streamline incentive programs for building decarbonization"*, and Action B2: *"Fund and streamline energy efficiency incentive programs."* The City is confident the One Stop Shop will provide the greatest potential for GHG reduction and widespread, ongoing benefits to disadvantaged community members.

To address this major source of greenhouse gases and community expense, New Bedford will establish a One Stop Shop for home and building owners to reduce utility bills, increase energy and water efficiency, and enhance indoor air quality and comfort. It will provide residents with the technical assistance, financial resources, and contractors needed to do the work. Residents will work directly with trained Home Improvement Concierges who will be their main point of contact on a journey that takes them from initial assessment through installation of home improvement measures, verification of the achieved outcomes, and evaluation of the experience.

The Concierges will have broad expertise in both the technical and financial solutions available for New Bedford households and they will be supported by a team of financial, administrative, home assessment, and construction experts. The One Stop Shop will make it easy for New Bedford residents to access utility-sponsored incentive programs (MassSave), federal tax incentives, and other funding or financing sources under development through state-level implementation of Infrastructure Investment and Jobs Act ("IIJA") and Inflation Reduction Act ("IRA") funding. Home Improvement Concierges will provide a single point of contact for program participants throughout the entire process, and they will coordinate with other One Stop Shop staff to stay on top of work with contractors through the entire process. To ensure ongoing effectiveness and desired results, participants will be surveyed as part of the close-out process to evaluate improved comfort, physical health, and financial benefits.

Modeled after existing programs such as Philadelphia's Built-to-Last program⁶ and the many variations that began with the US Department of Energy Better Buildings Neighborhood Program⁷, the One Stop Shop will consolidate federal, state, and local incentives to support utility bill and energy and water savings, as well as home health improvements, through a stacking or braiding model, which refers to the concurrent use of a range of different funding types to accomplish a greater goal. Additional funding will be sought from a variety of programs and mechanisms. With New Bedford's Department of Housing and Community Development as a co-lead of the program, complementary programs for Lead Paint Removal; Emergency Repair for plumbing, electrical, and roof issues; and other Community Development Block Grant programs will be available to participants. There may also be unique opportunities to integrate with the existing Rental Housing Repair program to bring CPRG benefits to renters, who have been historically hard to reach with efficiency programs. With renters making up about half the households, New Bedford sought and was awarded free technical assistance from the American Council for an Energy Efficient Economy (ACEEE) that will focus on how to overcome the barriers to allowing renters access to a program

⁵ City of New Bedford. NB Resilient Dashboard, Climate and Energy, Energy Fuels.

<https://nbresilient.com/category/climate-and-energy#energy-and-fuels>. Accessed March 20, 2024.

⁶Philadelphia Energy Authority. Built-to-Last Program. <https://philaenergy.org/programs-initiatives/built-to-last/>

⁷ US Department of Energy, Energy Efficiency & Renewable Energy. Better Buildings Neighborhood Program. <https://www.energy.gov/eere/better-buildings-neighborhood-program/better-buildings-neighborhood-program>

like this. For example, if a landlord leverages this program to improve rental units, the City will need to ensure that rents are not raised within a certain period of time from the improvements. The results of this project will be instrumental in designing options for low-income and other renters through the One Stop Shop.

New Bedford is clear that other federal grant funds cannot be used for the same project for which CPRG funds are allocated. Thus, one of the key roles of the concierge service will be to develop tailored braiding of allowable combinations of funds to fill gaps for the maximum GHG reduction. New Bedford intends to focus a majority of the CPRG funds on low income and disadvantaged populations. Most of the other existing federal programs are also restricted by income. However, the City believes that with the robust Mass Save utility programs, the Concierges will be available to support all residents and eventually commercial building owners to meet their energy savings goals by providing information on relevant opportunities and streamlined application support for existing programs.

The City of New Bedford has evaluated the needs that could be addressed with this program by combining data from sources such as the Climate and Economic Justice Screening Tool (CEJST) and the Department of Energy's Low Income Energy Affordability Data (LEAD) tool with existing priorities of the City of New Bedford and its partners. More than 60% of requested funds have been allocated for direct project implementation costs in LIDAC households. The objective is to leverage CPRG funds to create a sustainable program for the community that can level-up delivery of all programs aimed at creating a resilient and efficient building stock. As program impacts are demonstrated and documented, the program will build a case for continued support from other funding sources.

Tasks, Milestones, and Potential Risks: The City of New Bedford is committed to addressing the housing affordability and energy burden challenges within the community through the One Stop Shop. The City has already received initial funds through the US Department of Energy (DOE) Energy Efficiency and Conservation Block Grant (EECBG) program to support an initial review of existing one stop shop model programs; an assessment of available funding options and their respective requirements, as well as workforce needs and capacity; coordination of key stakeholders; and a pilot for installation of weatherization and decarbonization improvements in four homes owned by LIDAC members. This is further described in Section 1b. Funding requested through the CPRG program will leverage this initial effort to build the foundation and provide a strong initial ramp up for a sustainable program that yields extensive GHG emissions reductions and community benefits. The City will apply the CPRG funds to design and launch the One Stop Shop and deliver improvements to nearly 1,000 homes in LIDAC neighborhoods. While several City departments will be involved in the design and administration of the One Stop Shop, the Office of Resilience and Environmental Stewardship (which encompasses the Energy Office) and the Office of Housing and Community Development will co-lead this program for the City. A summary of the major tasks and milestones proposed is provided in Table 1.

Table 1: Tasks and Milestones

Program Phase	Tasks/Milestones
Program Design Phase	Evaluate the results of the initial pilot project and apply as appropriate to the development of the operational workplan for the One Stop Shop
	Coordinate with utilities, community-serving agencies, and state energy programs to identify braidable incentives to deliver through the program.
	Finalize program eligibility requirements and verification procedures for participants.
	Begin procurement processes for selection of contractors for Program Administration and Construction Management
	Setup administrative systems and processes to track program expenditures and outcomes.
	Initiate the hiring process for new City staff
	Coordinate CBO and workforce development partners
Program Implementation Phase	Assess programmatic needs and opportunities to scale up program
	Launch community outreach activities
	Launch full program, conducting assessments and installations community-wide
	Conduct measurement and verification studies to evaluate program effectiveness
	Complete Semi-Annual Progress Reports
	Submit Detailed Final Report

Potential risks that could disrupt implementation of the One Stop Shop, as well as strategies that have been put in place to mitigate those risks are highlighted in Table 2 below.

Table 2. Risks and Assumptions

Potential Risks	Strategy in Place to Mitigate Risks
Minimal interest and willingness from residents and businesses to participate in the program.	New Bedford is currently collaborating with community-based organizations (CBOs) to identify the best outreach strategies to reach residents who would benefit from energy efficiency incentives that could reduce household energy burdens. Throughout the ongoing NB Resilient climate action initiative, New Bedford has engaged LIDAC members around climate action and resilience. Most recently, in March 2024, the City partnered with a local CBO to host a focus group on barriers to home improvements. Common concerns shared overall costs, were lack of trust and reliability of local contractors, and challenges with getting necessary improvements given the age of their homes.
Competition with other programs in the state	Additional programs targeting heat pump adoption and weatherization are in development at the Massachusetts state-level. Our initial research indicates these programs will be complementary to efforts working to improve equipment supply and workforce development. In addition, the One Stop Shop will be able to scale up more quickly and engage more effectively as a community driven program.
Supply of qualified workforce and equipment	Related to the previous challenge noted, there are several initiatives underway at the State level to help train the appropriate level of building trades professionals to perform high-quality work and ensure a pipeline of equipment is available to avoid delays in implementation. ⁸

⁸ Massachusetts Clean Energy Center. Press Release. March 7, 2024. *Healey-Driscoll administration announces \$8.7 million for clean energy and climate tech workforce development.* <https://www.masscec.com/press/healey-driscoll-administration-announces-87-million-clean-energy-and-climate-tech-workforce>

b. Demonstration of Funding Need

The successful implementation of a sustainable One Stop Shop requires a dedicated and comprehensive funding strategy. While there are incentive and funding opportunities, such as DOE's Home Efficiency Rebates and Home Electrification and Appliance Rebates, that can be leveraged to support building efficiency and electrification, these rebate programs assume that LIDAC members have the money to purchase the equipment. To achieve equitable GHG emissions reductions, that also uplift and empower our most vulnerable community members, significant funds are needed to defray these upfront cost burdens.

Gaps in Funding: Massachusetts is known for having some of the best ratepayer sponsored energy efficiency programs in the nation. However, multiple studies, including the Clean Energy and Climate Plan for 2025-2030⁹ and the Final Report by the Commission on Clean Heat¹⁰ have concluded that the way these programs are funded and administered, they are insufficient to drive fuel switching at the scale and speed necessary to achieve the State's decarbonization goals.

Even the highly ranked MassSave energy rebate program only reaches 3% of homes in New Bedford each year for any of their services.¹¹ Statewide, roughly 16% of participants in the program installed heat pumps as part of the project in 2022.¹² Applied to New Bedford, a rate of 0.04% of homes might be expected to decarbonize their home heating system each year. In fact, it is more likely that households that are not characterized as low-income or disadvantaged are receiving more of the benefits of existing efficiency rebate programs.

Through the development of a community-driven program, New Bedford can address this shortcoming in a way that ensures the benefits of the program go to those in greatest need¹³. This pattern is clearly observable below in Figure 1, which combines data from CEJST with participation rates from the MassSave program by Census Tract. Those tracts with the highest poverty rates have the lowest participation rates in existing programs, demonstrating the need for targeted outreach from trusted sources as well as shining a light on the fact that rebate programs are inherently inequitable as they assume the homeowner has the money to pay upfront for these improvements. With the One Stop Shop, the City of New Bedford aims to eliminate that barrier for those that cannot afford to pay out and be reimbursed.

⁹ Massachusetts Executive Office of Energy and Environmental Affairs. June 30, 2022. *Clean Energy and Climate Plan for 2025-2030*. <https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download>

¹⁰ Massachusetts Executive Office of Energy and Environmental Affairs. November 30, 2022. *Final Report by the Commission on Clean Heat*. <https://www.mass.gov/doc/massachusetts-commission-on-clean-heat-final-report-november-30-2022/download>

¹¹ MassSave Data. Geographic Participation Maps. <https://www.masssavedata.com/Public/GoogleEarth>. Accessed 3/20/2024.

¹² MassSave Data. 2022 Gas Measures Summary Report. <https://www.masssavedata.com/Public/MeasuresDetails>. Accessed 3/20/2024.

¹³ Elevate, et al. January 2024, *Guidelines for Maximizing the Benefits of Federal Investments in Buildings Community-Driven Building Retrofit Programs*. <https://www.elevatenp.org/wp-content/uploads/2023-Elevate-report-Guidelines-Federal-Investments-in-Buildings-v7.pdf>

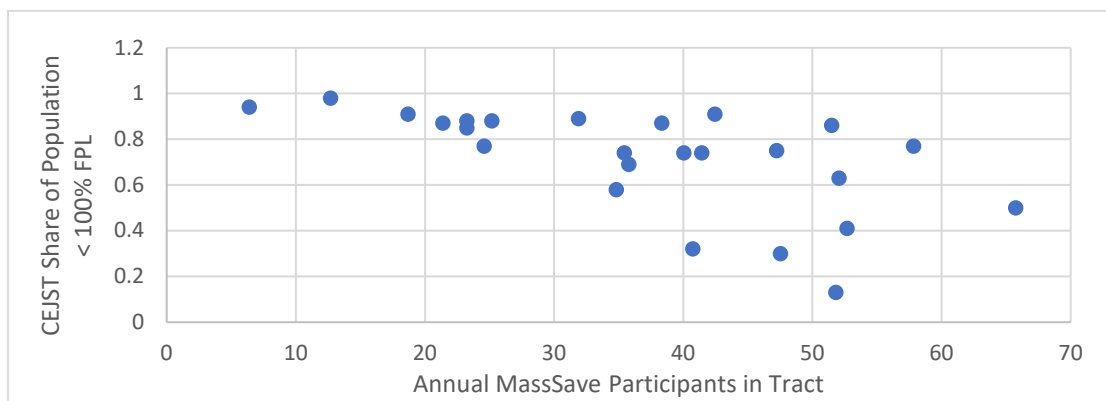


Figure 1. Low-Income Concentration vs MassSave Participation Rate by Census Tract

Additional Support: There are several federal funding opportunities that may support building electrification and efficiency but are insufficient to achieve the large-scale transformation necessary to this region. New Bedford has obtained funding to support the design and a small pilot of the One Stop Shop through the EECBG program. These funds will support an initial review of existing one stop shop model programs; an assessment of available funding options and their respective requirements, as well as workforce needs and capacity; coordination of key stakeholders; and a pilot for installation of weatherization and decarbonization improvements in four homes owned by LIDAC members.

The EECBG funds will be integral to laying some initial groundwork in preparation for the CPRG funds. Funding is being sought from CPRG to fill gaps in existing funding stacks to allow for the most disadvantaged community members to receive comprehensive upgrades at no cost. CPRG will also support the capacity of the One Stop Shop to effectively evaluate the model of coordinated program delivery such that at the end of the CPRG program, it will be well positioned to obtain ongoing support from the public sector, local philanthropy, or other sources.

c. Transformative Impact

New Bedford is confident that this CPRG Implementation Grant will provide the opportunity to scale up the pilot low-income residential energy efficiency program into a sustainable One Stop Shop that will become a model for other cities. We are prepared to demonstrate **transformative impact** in several ways:

Energy Equity – Widespread deployment of energy efficient heat pumps and other technologies will build capacity to reach under-served communities for whom the cost of energy has always been a burden and changing the paradigm hasn't been an option. Energy equity for renters has been another seemingly impossible challenge, but we believe that by engaging landlords through the ACEEE technical assistance program, we can demonstrate the benefits of this scaled up residential energy efficiency initiative and make transformative progress on the rental sector as well. Fuel switching alone will create new challenges for electricity providers who could see substantial new winter demands to keep up with newly electrified heating loads. While this will be a resilience-enhancing co-benefit; electrification will mean adding central air conditioning to homes that have never had it before. This will keep residents safer, but again will add to peak demand during future high heat events. **Ensuring beneficial electrification is paired with weatherization** is a primary focus of the One Stop Shop. This is critical to ensure protection of the electricity grid and protection to the homeowner from increases in electricity costs. It has been estimated

in the Massachusetts Decarbonization Roadmap that a focus on residential building shell improvements will reduce electricity use by as much as 11%, and result in a reduction in peak loads of 23-42% by 2050¹⁴.

Housing Affordability – Like many communities in the US today, New Bedford is experiencing a housing crisis with rising costs of property values, rents, mortgage rates, and utility costs. While New Bedford may not be able to reduce housing costs directly, reducing monthly energy costs will free up money for rent and mortgage payments, groceries, and to cover what a household needs to thrive. The One Stop Shop will prioritize delivering support to residents at risk of losing their homes, due to increased utility costs. The age and condition of the housing stock in New Bedford presents a significant challenge to bring it up to a standard where all residents are thriving. In the recently released *Building New Bedford* plan, the budgets for the Emergency Repair program were doubled through American Rescue Plan Act funds in recognition of the amount of work to be done.¹⁵ The CPRG program can help to defray some of the administrative costs of reaching homes and initiating projects, enabling those investments and others like them to be carried further. At the same time, funds from those programs will also help support CPRG outcomes by connecting to funds that address outdated and unsafe wiring or other conditional barriers that need to be fixed before energy conservation measures are installed.

Economic Diversification – New Bedford is currently on the cusp of major revitalization as the hub for Massachusetts’ offshore wind industry. Local Bristol Community College, in partnership with the State, has launched a major training initiative to prepare the area workforce for thousands of jobs in this emerging sector. The Commonwealth has also committed to providing resources to community colleges, vocational high schools and other training centers to **prepare the workforce** for jobs in new energy technologies and weatherization.

Community Health – New Bedford residents suffer from a disproportionate asthma rate. As we switch homes from oil and gas to electric, residents will experience much healthier home environments. The City has also launched an outdoor air quality monitoring program with a network of 20 monitors throughout the City. As more homes are weatherized and retrofitted, our network can benefit from the reduction in air pollutant and GHG emissions. We expect that monitoring community health over time will demonstrate a **decrease in respiratory disease**, particularly in our LIDAC communities.

With the CPRG funds, the One Stop Shop can play a vital role in ensuring New Bedford’s significant LIDAC population, which has kept the local economy alive, are able to share in the prosperity that this transition will undoubtedly bring.

¹⁴ American Council for An Energy Efficient Economy (ACEEE). July 2023. Empowering Electrification through Building Envelope Improvements. https://www.aceee.org/sites/default/files/pdfs/empowering_electrification_through_building_envelope_improvements_-_encrypt.pdf

¹⁵ City of New Bedford. March 23, 2023. *Building New Bedford: Strategies to Promote Attainable Housing for All in a Thriving New Bedford*. <https://newbedford-ma.s3.amazonaws.com/wp-content/uploads/sites/58/20230329092131/BUILDING-NEW-BEDFORD.pdf>

Section 2: Impact of GHG Reduction Measures

This section describes the magnitude of cumulative GHG emission reductions and the durability of the reductions that will be achieved through the implementation of the One Stop Shop.

a. Magnitude of GHG Reductions from 2025 through 2030

Through funding from the CPRG Program, retrofits driven by the One Stop Shop are expected to reduce GHG emissions by 24,106 MTCO₂e by 2030 through a combination of weatherization measures and fuel switching in residential homes. Calculations to determine the cumulative GHG reduction potential of homes in New Bedford are based on a combination of dynamic factors, including:

- The intended scale and speed to ramp up to upgrade homes as quickly as possible;
- Energy savings potential of a range of different retrofit options;
- Expected changes to grid carbon intensity in the near and long-term; and
- The expected life of equipment and upgrades installed directly by the program.

Total Homes Impacted: The total number of homes impacted will be dependent on the total award amount and the specific retrofit packages chosen by homeowners. However, the overall intent of this program is to deliver targeted and comprehensive home energy upgrades to low income and disadvantaged communities, as well as create a lasting platform to accelerate investments in building efficiency over the long term. If the full \$32,593,942 million is awarded, it is estimated that there will be \$20 million, or 61% of the funds, available to directly cover comprehensive retrofits. With that level of funding available for retrofits, approximately 982 homes could receive support to cover the costs of appropriate energy conservation measures. It is estimated that another 268 homes annually will benefit indirectly through additional access to information and increased awareness of existing programs provided through the One Stop Shop activities.

Household Energy Savings Potential: The primary source of data used for energy use reduction potential is the National Renewable Energy Lab (NREL) ResStock, End Use Savings Shapes (EUSS) dataset.¹⁶ The EUSS dataset allows for developing reduction estimates that capture how the weather of Massachusetts impacts the effectiveness of energy conservation measures across a range of home typologies and conditions that are likely to exist in the field.

The EUSS dataset provides several pre-defined measure packages for varying levels of weatherization/building envelope measures and electrification. This impact analysis is based on the average energy impact for select measure packages, which produces net energy savings estimates for each retrofit type. It is notable that electricity use rises significantly in all fuel switching cases, highlighting the need to implement these measures thoughtfully and always paired with weatherization. The estimated average energy savings per household for each measure package is included in Table 3 and was calculated using the average New Bedford household size of 1,952 square feet. Additional details on the EUSS Package Definitions are provided in the attached Technical Appendix.

¹⁶ National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3.
<https://resstock.nrel.gov/datasets>

Table 3. Average Annual Energy Reduction Potential of ResStock Measure Packages per Existing Heating Fuel Type

ResStock Measure Package	Gas Households		Oil Households	
	Electricity Savings per Household (kWh)	Gas Savings per Household (therms)	Electricity Savings per Household (kWh)	Oil Savings per Household (gallons)
Basic Envelope (EUSS Package 1)	345	338	409	252
High Efficiency Heat Pump (EUSS Package 4)	-7,250	998	-8,006	773
Whole Home Electrification + Conventional Envelope (EUSS Package 9)	-4,750	1,195	-4,445	854
Whole Home Electrification + Enhanced Envelope (EUSS Package 10)	-4,489	1,195	-4,127	854

It is recognized that there will be a mix of individual actions that participants opt into for a variety of logistical constraints. This analysis assumes that approximately 37% of the \$20 million in grant funds reserved for implementation will be dedicated to supporting low-income households with a comprehensive weatherization and decarbonization package, covering the entire cost of upgrades. The remaining 63% will be directed toward providing low-income households with no-regrets weatherization support. This strategy will also result in the ability to stretch program dollars further, benefiting more households. For more information on the rationale of this approach please see section 2d. The combination of measures delivered will rely on the expertise of the staff of the One Stop Shop. Modeling suggests that due to the combination of electricity costs and winter heating loads, it is likely that pursuing electrification without efficiency measures would increase household energy costs. A key aspect of the One Stop Shop staff's responsibilities will be to carefully review audits and design measure packages to ensure energy and cost savings are delivered consistently.

Program Ramp-Up: The One Stop Shop aims to upgrade 98 homes in calendar year 2025 using CPRG funds. The annual rate of projects completed will ramp up and peak during program years 2027 and 2028, and then begin to decline in 2029 to a steadier rate that other funding sources can sustain as the CPRG funding is expended. This estimated ramp up schedule is represented in Table 4.

Table 4. Estimated Ramp-Up Schedule for Direct Program Support

	2025	2026	2027	2028	2029
Share of Target Reached Each Year	10%	20%	25%	25%	20%
Calendar Year Gas Upgrades Made	79	157	197	197	157
Year-End Cumulative Gas Upgrades	79	236	432	629	786
Calendar Year Oil Upgrades Made	20	39	49	49	39
Year-End Cumulative Oil Upgrades	20	59	108	158	197
Total Calendar Year Upgrades Made	98	197	246	246	197
Total Year-End Cumulative Upgrades	98	295	541	786	982

Accounting for Cleaner Electricity: As the number of homes retrofitted and resulting energy savings steadily increase, the rate of emissions from electricity generation is expected to decline in response to a greater share of clean energy contributing to grid electricity generation. The NREL Cambium Model¹⁷ incorporates enacted legislation such as the Massachusetts Renewable Energy Portfolio Standard¹⁸ and

¹⁷ Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory. <https://scenarioviewer.nrel.gov>

¹⁸ Massachusetts Department of Energy Resources. Renewable Energy Portfolio Standard. <https://www.mass.gov/renewable-energy-portfolio-standard>

other factors to provide scenarios of future grid carbon intensity. While Cambium provides a range of grid carbon intensity scenarios for this analysis, the “Mid-Case with 95% Decarbonization by 2050” was selected as the primary scenario to be modeled as it aligns best with the outcomes for economy wide GHG reductions sought by the Inflation Reduction Act.

Cumulative GHG Reductions: Annual GHG reductions for each calendar year incorporate the total energy use reductions that result from retrofits installed that year, plus all prior year retrofits delivered through the program. Cumulative GHG reductions achieved through 2030 represent a sum of each year’s annual reduction for the program period. Annual reductions and cumulative reductions are included in Table 5 and Table 6, respectively. It is notable that electricity related GHGs are expected to rise, even with progressively cleaner electricity, however these are more than offset by reductions in GHGs from stationary combustion.

Table 5. Annual GHG Reductions (MTCO₂e / Year)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installation	Electricity	(12)	(34)	(61)	(86)	(105)	(103)
	Natural Gas	235	704	1,291	1,878	2,347	2,347
	Fuel Oil	83	249	457	664	830	830
Indirect Support	Electricity	(5)	(29)	(76)	(119)	(161)	(201)
	Natural Gas	74	446	1,190	1,933	2,676	3,420
	Fuel Oil	26	158	421	684	947	1,210

*Note totals may not sum perfectly due to rounding

Table 6. Cumulative GHG Reductions (MTCO₂e)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installations	Electricity	(12)	(46)	(107)	(194)	(299)	(402)
	Natural Gas	235	939	2,230	4,108	6,456	8,803
	Fuel Oil	83	332	789	1,453	2,283	3,113
Indirect Support	Electricity	(5)	(34)	(110)	(229)	(390)	(592)
	Natural Gas	74	520	1,710	3,643	6,319	9,739
	Fuel Oil	26	184	605	1,288	2,235	3,445
Net GHG Reduction							24,106

*Note totals may not sum perfectly due to rounding

Permanence: When assessing the future impact of energy conservation measures, it is common to incorporate considerations for the “effective useful life” of each energy conservation measure. The focus of the One Stop Shop will be weatherization measures and improvements to heating, ventilation, and air conditioning (HVAC) systems, which have effective useful lives which are longer than the 2025-2030 horizon and all savings are expected to remain intact by 2030.

b. Magnitude of GHG Reductions from 2025 through 2050

Energy saving retrofits implemented by 2030 will continue to have an impact on household energy use well beyond the CPRG Program Period. Total cumulative reductions achieved by 2050 are estimated to be 379,292 MTCO₂e with 73,079 MTCO₂e from direct implementation and 306,213 MTCO₂e in indirect impacts.

Direct Impacts: As noted in Section 2a, this program is expected to provide direct implementation of energy efficiency and fuel switching measures to 982 homes by the end of 2029. The energy savings delivered to these homes will continue even after the funds have been exhausted. Eventually some of this

impact is expected to decline as some of the equipment installed through the program reaches its effective useful life.

Indirect Impacts: In addition to driving near-term GHG reductions from buildings through the life of the CPRG program, New Bedford aims to establish the One Stop Shop as an ongoing resource to support beneficial electrification and energy efficiency. While we cannot guarantee the same level of investment that will occur in the near-term beyond the duration of CPRG funds, with many complementary funding streams and New Bedford actively seeking new ones, the program is expected to drive additional reductions through 2050. For simplicity, the annual number of retrofits that are driven by the information sharing and outreach functions of the One Stop Shop is assumed to continue at the same rate and proportion of measures taken through 2050, reaching as up to an additional 4,494 homes over that period.

c. Cost Effectiveness of GHG Reductions

Prioritizing cost-effective GHG reductions is an important consideration to ensure the maximum climate benefit of the CPRG program is achieved. The nature of the One Stop Shop will focus efforts on low-income communities and offer participants opportunities for substantial improvement to their living conditions. At this preliminary stage of program design, it is difficult to characterize the range and probability of project cost combinations in detail. However, due to the nature of the One Stop Shop, it will have the ability to continuously improve cost effectiveness by adjusting the portfolio of services unlike other projects that are focused on a single mechanism.

Some key aspects of program design will limit cost effectiveness to achieve the Justice40 outcomes desired. Using income as a test for full benefits of the program will provide an eligibility criterion that is straightforward to demonstrate and is expected to result in program dollars being effectively targeted towards communities and Census Tracts with the highest proportion of need. The tradeoff is that lower-income households have slightly lower energy reduction potential in absolute terms due to smaller house sizes and lower baseline energy use.

A key component to extending the cost effectiveness of this program is the fact that it aims explicitly to “braid” CRPG funds with other energy efficiency funding sources to deliver the highest level of benefits possible to low-income and disadvantaged communities in New Bedford. While care will be taken to avoid combining CPRG funds with other federal incentive programs, there is a significant opportunity to leverage existing utility rebate programs. At the intended level of implementation, an additional \$4.7million in investment from utility rebates alone will be used to extend the reach of the program.

As implementation details are finalized, every feasible opportunity to leverage additional resources to improve cost effectiveness will be explored. Assuming a full award of \$32,593,942 and cumulative savings of 24,106 MTCO₂e by 2030 achieved with CPRG Program Dollars; total cost effectiveness is estimated at \$1,352 per MTCO₂e.

d. Documentation of GHG Reduction Assumptions

This section briefly summarizes key assumptions used in the analysis. Additional details are provided in the attached Technical Appendix.

Household Energy Savings Potential: The energy impact of building energy retrofits is based on estimates obtained from the National Renewable Energy Lab's (NREL) ResStock End Use Savings Shapes (EUSS).¹⁹ This resource provides the most comprehensive set of energy conservation measure performance values across a range of real-world circumstances that could be matched to a mix of homes in New Bedford. Both the modeled baseline and upgrade measure package datasets were filtered to Bristol County, Massachusetts. Results were then filtered to only include single-family detached and single-family attached homes with either natural gas or oil heating fuel and to exclude buildings already equipped with ducted heat pump heating types.

Savings values from the ResStock model are drawn from an average of 272 records for gas heated homes and 205 records for oil heated homes. Some attempts were made to increase the sample size by widening the filters to include homes across the state, however this tended to increase the variability of energy impacts reported. Using Bristol County only was determined to better represent the savings potential since these results will incorporate the milder marine weather profile of a coastal community like New Bedford, relative to the rest of the State of Massachusetts.

Retrofit Cost and Program Reach: The direct reach of the proposed One Stop Shop is dependent on the total funding awarded as well as how those funds are applied across the range of energy conservation measures. The following assumptions and factors underpin the estimated impact specifically associated with the CPRG Implementation Grant:

- The share of the award applied to implementation was assumed to be 61% or \$20 million after administrative costs are taken out of the full budget request.
- Approximate costs of retrofits before other braidable rebates were estimated at \$17,690/home for weatherization and \$46,151/home for standard weatherization + whole home electrification. Costs were sampled from Lawrence Berkely National Labs compilation of measure costs.²⁰
- Additional funding from the MassSave energy rebate program were assumed to offset implementation costs. The values of the rebates were estimated at \$400/home for weatherization,²¹ \$16,000/home for heat pumps,²² and \$750/home for heat pump water heaters.²³ The combined value of these rebates is expected to reduce program costs by \$4.7 million.
- The share of the \$20 million implementation funds allocated to each type of retrofit was assumed to be 63% for weatherization and 37% for standard weatherization + whole home electrification in order to support full decarbonization of a targeted share of homes while extending the program's reach with lower-cost weatherization support. This share is based on the relative proportion of households in New Bedford identified through Department of Energy Low-Income

¹⁹ National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3. <https://resstock.nrel.gov/datasets>

²⁰ Less, et al. Lawrence Berkeley National Labs. August 2021. The Cost of Decarbonization and Energy Upgrade Retrofits for US Homes. doi:10.20357/B7FP4D. https://eta-publications.lbl.gov/sites/default/files/final_walker_-_the_cost_of_decarbonization_and_energy.pdf

²¹ Mass Save Building Insulation & Weatherization Incentives. <https://www.masssave.com/business/rebates-and-incentives/building-insulation-and-weatherization-incentives> Accessed 3/11/24.

²² Mass Save. Enhanced Heating & Cooling Equipment Rebates. <https://www.masssave.com/en/residential/programs-and-services/income-based-offers/save-with-enhanced-incentives/enhanced-incentive-heating-and-cooling> Accessed 3/11/24.

²³ Mass Save. Heat Pump Water Heaters: Rebates. <https://www.energy.gov/scep/slsc/lead-tool> Accessed 3/11/24.

Energy Affordability Data Tool (LEAD)²⁴ as below 100% for Package 9 and 200% of the FPL for Package 2. Note that this split does not imply how income criteria would be used but represents a reasonable split for funds reserved for those households with the greatest need.

Indirect Impacts: The “one-stop-shop” approach to energy rebate programs has proven to be effective at driving additional adoption of energy conservation measures than just the availability of rebates. The estimated magnitude of these effects is based on the use of a “net-to-gross ratio”, which balances free ridership against spillover and other market effects induced by the program.²⁵ It is assumed that the One Stop Shop will have wider market effects stimulating energy retrofits across all household types based on the net-to-gross ratio of 1.21, reported in the Market Effects Analysis of the US Department of Energy Better Buildings Neighborhood Program,²⁶ which follows a similar model as the intended program design of the One Stop Shop.

The net-to-gross ratio is applied to the current average annual participation rate of 1,276 households per year in the MassSave energy rebate program within New Bedford²⁷.

Given the current environment with substantial additional rebates available from other Inflation Reduction Act programs that would be promoted by the One Stop Shop, indirect impacts could be higher.

Cleaner Electricity: Forward looking projections for grid carbon intensity were obtained from the National Renewable Energy Laboratory’s (NREL) 2022 Cambium Model.²⁸ While there are many available scenarios to choose from, this analysis selected the “Mid-Case 95% Decarbonization Scenario”. Under this scenario, the projected carbon intensity of electricity in the NEWE eGRID region is 108.4 kg CO₂ per MWh in 2030 and 27.1 kg CO₂ per MWh in 2050.

Permanence: The changes made in typical home energy retrofit projects have an effective useful life of the equipment or weatherization measures resulting in diminishing future savings.

- For measures involving fuel switching, it is possible but unlikely that customers will revert back to combustion-based space conditioning, water heating, and cooking. All reductions associated with reduced stationary combustion are assumed to be permanent.
- Assumption that the impacts for weatherization will last 30 years and the impacts for heat pumps and other equipment is 12 years.²⁹
- Savings adjustments to account for effective useful life were estimated from the performance of a high-performance heat pump vs minimal efficiency (EUSS Package 4 vs Package 3) operating in a highly insulated home as opposed to the pre-weatherization condition of the home.

²⁴ U.S. Department of Energy (DOE). Low-Income Energy Affordability Data Tool (LEAD). <https://www.energy.gov/scep/slsc/lead-tool> Accessed 3/11/24.

²⁵ Violette and Rathbun. National Renewable Energy Lab. September 2014. “Estimating Net Savings: Common Practices. Uniform Methods Project, Chapter 17”. <https://www.energy.gov/sites/prod/files/2015/01/f19/UMPCChapter17-Estimating-Net-Savings.pdf>

²⁶ U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. June 2015. “Market Effects of the Better Buildings Neighborhood Program Final Evaluation Volume 5”. <https://www.energy.gov/eere/analysis/articles/market-effects-better-buildings-neighborhood-program-final-evaluation-volume>

²⁷ MassSave. Geographic Participation Maps. <https://www.masssavedata.com/Public/GoogleEarth> Accessed 2/27/24.

²⁸ Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory. <https://scenarioviewer.nrel.gov>

²⁹ Mayernick and Stenger. National Renewable Energy Laboratory. “Overview of the Inflation Reduction Act of 2022 (IRA) Home Energy Rebate Tool. Table 3. <https://www.nrel.gov/docs/fy23osti/86700.pdf>

Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures

a. Expected Outputs and Outcomes

This section describes the environmental outputs and outcomes expected to be achieved through the CPRG grant funding for the One Stop Shop. The One Stop Shop will support EPA’s Fiscal Year 2022-2026 Strategic Plan by aligning with Goal 1, “Tackle the Climate Crisis”; Objective 1.1, “Reduce Emissions that Cause Climate Change”; and Objective 1.2, “Accelerate Resilience and Adaptation to Climate Change Impacts”, as well as Goal 4, “Ensure Clean and Healthy Air for All Communities”; Objective 4.1, “Improve Air Quality and Reduce Localized Pollution and Health Impacts”; and Objective 4.2, “Reduce Exposure to Radiation and Improve Indoor Air”.

The One Stop Shop will produce the following types of **outputs** through the grant period:

- Number of people engaging with the One Stop Shop;
- Number of home or energy and health assessments;
- Number of weatherization and electrification upgrades;
- Number of energy saving pieces of equipment installed by type;
- Number of lead abatements and other home health interventions co-delivered; and
- Number of staff hired to administer the One Stop Shop and support retrofits.

The One Stop Shop is expected to generate environmental, social, and health-related **outcomes** throughout and beyond the grant period, as summarized in Table 7. As the program will use income and other qualifications to guide the level of support offered, these outcomes will be concentrated among LIDAC populations in the region.

Table 7. Expected Outcomes

Outcome	Quantification
Reduction in cumulative metric tons of GHG emissions	As summarized in Section 2, the One Stop Shop will yield GHG emissions reductions of 24,106 MTCO ₂ e from 2025 to 2030 and 379,292 from 2025 to 2050.
Lower energy demand and reduced energy bills for residents in LIDACs	Based on current residential energy rates, annual average cost savings from home efficiency and decarbonization retrofits are estimated at over \$417 per year for existing homes using natural gas and \$2,035 for homes using fuel oil.
Increased resilience to climate change impacts	Recent data suggest that a relatively small share (31%) of homes in Massachusetts have central air conditioning ³⁰ . This number is likely lower in New Bedford due to its relatively old tenement housing stock. The installation of heat pumps will result in a greater share of households with access to this

³⁰ Navigant. 2019. Massachusetts Residential Baseline Study. <https://ma-eeac.org/wp-content/uploads/RES-1-Residential-Baseline-Study-Comprehensive-Report-2019-04-30.pdf#:~:text=Central%20AC%20is%20found%20in%2031%20of,kW%20per%20home%20with%20a%20central%20AC>

	potentially lifesaving amenity as the likelihood of prolonged heatwaves in the Northeast increases. ³¹
Reduced exposure to criteria air pollutants (CAPs) and hazardous air pollutants (HAPs)	If the One Stop Shop retrofits 982 residential structures by 2030 through both direct installations and indirect support, estimated cumulative savings would cut over 3 million therms of natural gas and over 640,000 gallons of fuel oil. The reduced combustion of natural gas and fuel oil is expected to result in reductions in criteria air pollutants - NOx (19.73 tons), total particulate matter (1.29 tons), SOx (4.22 tons), VOCs (0.85 tons), CO (7.63 tons ³²), HAPs (1.75 tons ³³).
Increase in high-quality jobs	Based on industry job multipliers, ^{34,35} the program could sustain an additional 21 high skilled jobs annually, with potential multipliers leading to an additional 18 jobs in upstream manufacturing industries and another 19 local service jobs.

b. Performance Measures and Plan

This section describes the proposed performance measures that will be the mechanism to track, measure, and report progress toward achieving the expected outputs and outcomes for the One Stop Shop as described in Section 3a. Measures and their respective units are documented in Table 8. Measures will be tracked through a customer relationship management (CRM) tool, which will track outputs and outcomes at a household and enable evaluation of progress at a programmatic level. For measures that require additional calculation, including GHG reductions and CAP/HAP reductions, measures will be quantified and disclosed on an annual basis. Post-installation energy savings verification will be conducted for an appropriate sample of participants as part of a comprehensive program evaluation plan.

Table 8. Performance Measures

Measure	Unit
Homes assessed, by demographic or business type respectively	Number of homes
Homes retrofitted, by demographic or business type respectively	Number of homes
Energy, water conservation, and home health measures installed by type	Number of measures
Existing financial incentives (e.g., utility rebates, tax credits) leveraged through the program	Number of rebates, credits, etc.

³¹Massachusetts Executive Office of Energy and Environmental Affairs. December 2022. 2022 Massachusetts Climate Change Assessment. <https://www.mass.gov/doc/2022-massachusetts-climate-change-assessment-december-2022-volume-ii-statewide-report/download>

³² Includes 2-Methylnaphthalene, 3-Methylnaphthalene, 12-Dimethylbenz(a)anthracene, Acenaphthene, Acenaphthylene, Anthracene, Benz(a)anthracene, Benzene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Butane, Chrysene, Dibenzo(a,h)anthracene, Dichlorobenzene, Ethane, Ethylbenzene, Fluoranthene, Fluorene, Formaldehyde, Hexane, Indeno(1,2,3-cd)pyrene, Naphthalene, Pentane, Phenanthrene, Propane, Pyrene, Toluene, 1-Trichloroethane, o-Xylene.

³³ Air quality emissions factors sourced from AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources.

³⁴ Economic Policy Institute (2019), Updated employment multipliers for the U.S. economy. Retrieved from <https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/>

³⁵ National Renewable Energy Laboratory (2022), State-Level Employment Projections for Four Clean Energy Technologies in 2025 and 2030. Retrieved from <https://www.nrel.gov/docs/fy22osti/81486.pdf>

Highly skilled workers trained to meet program needs	Number of trainings and certifications obtained
Jobs supported	Number of total labor hours and labor hours by trade apprentices
Project level and program-wide energy and water savings delivered	MMBTUs or gallons
Project level and program-wide cost effectiveness	MMBtu/\$ and MTCO ₂ e/\$
Energy or water expenditure reductions delivered through the program	Dollars Saved
GHG reductions delivered through the program	MTCO ₂ e
CAP/HAP reductions delivered through the program	Short tons
Improved comfort, physical health, and financial condition of participants	Participants ratings

c. Authorities, Implementation Timeline, and Milestones

As this will be a voluntary program providing technical and financial assistance, the City and its partners are fully authorized to move this program forward. It is within the purview of the City's charter and the Commonwealth of Massachusetts's general laws to allow local governments to create programs for community improvement.

One Stop Shop will be administered by the City of New Bedford in coordination with local community-based organizations including People Acting in Community Endeavors (PACE) and Citizens for Citizens. Partnering organizations will contribute time to support and promote implementation and evaluation of the effectiveness of the program, with the authority to carry out marketing, outreach, and coordination efforts to increase community participation and secure community partners and contractors.

Implementation Timeline and Milestones: A detailed implementation timeline, including milestones for completing specific tasks by the end of the grant period are outlined in Table 9.

Table 9. Implementation Timeline and Milestones

Timeline	Project Tasks/Milestones
Q4 2024	Setup administrative systems and processes to track program expenditures and outcomes.
	Evaluate the results of the initial pilot project and apply as appropriate to the development of the operational workplan for the One Stop Shop
	Coordinate with utilities, community-serving agencies, and state energy programs to identify braidable incentives to deliver through the program.
	Finalize program eligibility requirements and verification procedures for participants
	Initiate hiring process within City
	Initiate procurement process to secure Program Administration and Construction Management Contractors
	Coordinate with CBO and workforce development partners
Q1 2025	Hire and train new City staff
	Select and process contracts with the Program Administration and Construction Management Contractors

Timeline	Project Tasks/Milestones
Q2 2025	Hire and train new contractor staff to support the One Stop Shop
	Begin community outreach and marketing efforts to create a wait list of interested parties
	Submit first Semi-Annual Progress Report to EPA (estimated) then ongoing twice per year
Q3 2025	Announce the official opening of the One Stop Shop to the public and begin home assessments and improvement projects
Q1 2026	Conduct initial measurement and verification studies to evaluate program effectiveness- continues on a quarterly basis
Q4 2029	Submit Detailed Final Report

Section 4: Low-Income and Disadvantaged Communities

a. Community Benefits

This section discusses and quantifies, where feasible, the direct and indirect benefits of the One Stop Shop to low-income and disadvantaged communities (LIDACs), defined in this analysis as communities identified as disadvantaged by the Climate and Economic Justice Screening Tool (CEJST).

Summary of Community Benefits: The One Stop Shop will be available throughout New Bedford to deliver maximum benefits to all residents, however, the immediate near-term focus for the program will be to reach low-income households. It is intended that the One Stop Shop will review and prioritize applications based on income levels, prioritizing lower income households. The location of low-income households overlaps significantly with the areas identified as disadvantaged by CEJST. These census tracts are listed and attached to this application. A more detailed summary of expected direct and indirect benefits to LIDACs is included in Table 10.

Table 10. Summary of Benefits to LIDACs

Benefit	Summary and/or Quantification
Reduction in the impact of climate hazards	A reduction in GHG emissions will mitigate global climate change and minimize the impact of climate hazards on the region. This is likely to yield positive benefits for LIDACs, primarily because these communities face disproportionate impacts due to climate change. In 2019, only 31% of homes in Massachusetts had central air conditioning. ³⁶ Participants of the One Stop Shop, particularly the 69% of homes without air conditioning, will see resilience benefits through improved access to cooling and be able to better withstand extreme heat events.
Lower energy demand energy and reduced energy bills	Census tracts with higher energy burden, which have been sourced from CEJST, serve to benefit the most from retrofits and are in the attached list of census tract IDs. As seen in Table 11, Federal Poverty Level 0-100% will see the greatest savings as a share of income for both gas and oil heated homes. As a

³⁶ Navigant. 2019. Massachusetts Residential Baseline Study. <https://ma-eeac.org/wp-content/uploads/RES-1-Residential-Baseline-Study-Comprehensive-Report-2019-04-30.pdf#:~:text=Central%20AC%20is%20found%20in%2031%20of,kW%20per%20home%20with%20a%20central%20AC>

for residents in LIDACs	result, this group will see a significant reduction in average energy burden of up to 4% for gas heated homes and 17% for oil heated homes.
Increased resilience to climate change impacts	By alleviating the burden of high energy expenses, as well as improving the efficiency of homes, low-income households will have additional financial resources for enhancing overall resilience. For example, the ability to afford air conditioning during the summer months will improve resilience against extreme heat.
Reduced exposure to criteria and hazardous air pollutants	The One Stop Shop is also likely to yield significant indoor air quality benefits for participants through the elimination of natural gas use. An estimation of community-wide reduction in CAPs and HAPs is included in Section 3a. Poor indoor air quality is an issue that is prevalent in LIDAC communities; this can be indicated by assessing rates of asthma prevalence as a proxy indicator as noted in the attached list of census tract IDs.

Table 11 details the current average income and energy burden by Federal Poverty Level (FPL), as well as the estimated average annual GHG emissions savings and annual cost savings per existing heating fuel type from households implementing whole-building retrofits. Households in the 0-100% FPL would benefit the most from these retrofits in terms of improved energy burden and cost savings relative to income.

Table 11. Estimated Energy Cost Reductions

Fuel Type	Federal Poverty Level	Avg. Annual MTCO ₂ e Savings ³⁷	Avg. Annual Cost Savings	Avg. Annual Income ³⁸	Savings as Share of Income	Current Avg. Energy Burden ³⁹	Improved Energy Burden
Natural Gas	0-100%	4.4	\$304	\$13,528	2%	18%	14%
	100-150%	3.2	\$453	\$23,612	2%	11%	9%
	150-200%	4.1	\$495	\$33,866	1%	8%	6%
	200-400%	3.8	\$325	\$55,283	1%	4%	4%
	400%+	4.4	\$398	\$109,976	0%	2%	2%
Fuel Oil	0-100%	5.5	\$1,676	\$10,109	17%	29%	12%
	100-150%	5.0	\$1,502	\$22,084	7%	15%	8%
	150-200%	10.2	\$2,927	\$32,108	9%	10%	0%
	200-400%	6.9	\$2,072	\$55,779	4%	6%	2%
	400%+	6.8	\$1,979	\$124,796	2%	3%	1%

Avoided Disbenefits: While the One Stop Shop aims to provide positive impacts to LIDACs, there are potential disbenefits that are important to consider and address. The potential disbenefits and mitigation strategies to ensure they are avoided are detailed below.

³⁷ Calculated from ResStock, End-Use Savings Shapes TMY3, Package 9. National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3. <https://resstock.nrel.gov/datasets>

³⁸ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. (2020). Low-Income Energy Affordability Data - LEAD Tool - 2018 Update [data set]. Retrieved from <https://dx.doi.org/10.25984/1784729>.

³⁹ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. (2020). Low-Income Energy Affordability Data - LEAD Tool - 2018 Update [data set]. Retrieved from <https://dx.doi.org/10.25984/1784729>.

Potential Disbenefit: Residents from LIDACs could face barriers in accessing services of the One Stop Shop. Barriers could include lack of awareness, language barriers, lack of access to digital materials, or limited time to be present or out of the home for upgrades.

Mitigation Strategies:

- The One Stop Shop will partner directly with community-based organizations to conduct extensive outreach and educational campaigns in multiple languages and through appropriate communication channels, as well as offer resources to overcome scheduling barriers.
- The One Stop Shop will provide offline communication channels and in-person assistance opportunities for program registration and information. Communication will be provided in multiple languages, and efforts will be made to hire multi-lingual Concierges.
- The One Stop Shop will develop partnerships with local community-based organizations, hotels, and restaurants to ensure homeowners are able live and eat comfortably outside of the home during major upgrades that take multiple days and are significantly disruptive.

Disbenefit: Even with financial incentives, the upfront costs of home or building improvements could be prohibitive for some households. Additionally, if electrification is pursued without efficiency, there is potential for increased costs for residents.

Mitigation Strategies:

- The One Stop Shop will provide grants to cover upfront costs for households, as feasible, and fill gaps in funding or financing available through existing programs available to households in lower income tiers (200% and below or other).
- The One Stop Shop will prioritize efficiency efforts first to minimize the impact of additional electricity use and associated costs for program participants.

Disbenefit: The transformative impact the program may have on the home upgrade industry could lead to job displacement if the local workforce does not have access to sufficient job training to maintain qualifications for evolving technologies and practices.

Mitigation Strategies:

- The One Stop Shop will coordinate directly with contractors, labor unions, and professional associations to support training programs to ensure opportunities for skill development.

Tracking Progress: The One Stop Shop will assess, quantify, and report on the benefits and avoided disbenefits outlined in this section, throughout the grant period on an annual basis. The performance measures outlined in Section 3 will be tracked to assess benefits and avoided disbenefits City-wide.

Additionally, a customer relationship management (CRM) tool will be used to track client intake, timelines of outreach, completion of program applications, and other stages of program participation. During the intake process, factors affecting the household, such as utility cost burdens will be noted and tracked for improvement. One Stop Shop participants will also be surveyed as part of the close-out process to evaluate benefits and potential disbenefits after receiving services. Through the systematic assessment of clients via surveys and ongoing monitoring of metrics, the One Stop Shop's effectiveness can be tracked, and the approach adjusted based on the findings.

b. Community Engagement

Community and stakeholder engagement has been a core pillar of the *NB Resilient Initiative*. During the *NB Resilient* planning process, various communication and engagement tactics were used to reach a broad and diverse audience including interviews, workshops, community events, online surveys, social media posts, newsletters, and flyers. The combination of these tactics resulted in a reach of over 15,000 community members. In order ensure inclusivity and reach specific vulnerable populations, the engagement strategy specifically targeted the following audiences: low-income, youth, seniors, immigrants/limited-English proficiency, homeless, people of color, or those who work in the fishing industry. Also, municipal leaders, content experts, and local champions were engaged as part of the Climate Action Steering Committee (CASC) and as Technical Advisors. Each target audience was reached using tailored messaging and partnerships with community organizations through both in person and digital channels. Since the adoption of the NB Resilient plan in 2020, the City's Office of Resilience and Environmental Stewardship has prioritized inclusive and equitable engagement in all its projects from those focused on green infrastructure and brownfields to resilience hubs and hazard mitigation planning. As such, the City maintains strong ties to the community and specifically the low income and disadvantaged community members.

Engagement with Key Stakeholders and Residents: Community feedback gathered during the development of the *NB Resilient* plan played a role in identifying some of the challenges the One Stop Shop will be designed to address. Through various engagement activities, residents and CBOs frequently highlighted the need for establishing programs for low-income and disadvantaged communities to participate in home electrification and efficiency upgrade programs. Survey results also indicated that residents had an interest in programs dedicated to supporting low to moderate income families with adopting renewable energy and taking advantage of incentives for energy efficiency upgrades.

In March 2024, the City partnered with People Acting in Community Endeavors (PACE), a community non-profit organization focused on low-income housing and energy assistance, to host a focus group of low to moderate income homeowners (*see image below*). There was strong interest in the community to attend, but the event was capped due to space limitations.. Fifteen homeowners joined the event and were provided a meal and \$50 as compensation for their time. The objective of this focus group was to better understand challenges faced or barriers that exist for residents related to home improvements. The most common concerns raised were costs overall, lack of trust and reliability of local contractors, and challenges related to the age of their homes. 90% of the housing units in New Bedford were built prior to 1985 and 63% of them prior to 1940. The significance of the age of these structures cannot be understated. Unique issues raised in the focus group related to the aging housing stock included, a complete lack of insulation in the walls, feeling gusts of air come through windows and floors, lacking radiators in bedrooms, and literally having roof panels curl up in extreme heat. Another challenge discussed was the lack of reputable contractors willing to work in the New Bedford area due to the lower price points the residents are able and willing to pay. It was noted



they can make far more money elsewhere. With prevailing wage requirements, a One Stop Shop funded through the CPRG program could help address this issue by bringing a steady stream of projects that pay a living wage.

The City has also been conducting an online survey targeting New Bedford homeowners to understand their experiences and challenges with home improvements. The survey was still open when this application was submitted, but within the first two weeks 63 responses were received. Of these, 73% indicated they face a moderate, considerable, or extreme financial burden with monthly utility bills. One participant shared, “Due to inflation costs, I’m finding it hard to save for necessary repairs and upgrades. Finding an affordable contractor who is both honest and reliable is extremely difficult.” This response is indicative of a larger trend as many survey respondents and focus group participants shared barriers related to cost, finding reputable contractors, and navigating permitting challenges.

During the development of the Priority Climate Action Plan (PCAP), as well as the development of this implementation grant narrative, the City has continued to leverage and build upon this solid foundation of inclusive and equitable community and stakeholder engagement.

Engagement During Program Implementation: Meaningful engagement with low-income and disadvantaged communities will be continuously included in the development and implementation of the One Stop Shop. Through the following tactics, New Bedford will ensure early and consistent inclusion of diverse perspectives:

- Developing an outreach and engagement strategy that prioritizes outreach to low-incomes and disadvantaged communities;
- Hosting an “open house” for contractors to assess their capacity;
- Implementing a transparent planning process that is overseen by the Office of Environmental Stewardship, Office of Housing and Community Development, and participating community-based organizations;
- Continuing to host focus groups and events with community-based organizations to gather input and feedback on the design and implementation of the One Stop Shop;
- Providing both web and printed materials and information about upcoming engagement opportunities in multiple languages and formats, including on the *NB Resilient* website; and
- Opening a physical office for the One Stop Shop to operate to allow direct engagement with residents in LIDACs.

Section 5: Job Quality

In alignment with Executive Order 14082: *Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022*, New Bedford is committed to supporting the creation of high-quality jobs. Aligning with the Department of Labor’s Good Jobs Principles, the One Stop Shop not only aims to mitigate environmental impact but also adhere to the principles that prioritize fair wages, safe working conditions, and inclusive economic growth. This section describes the specific strategies to ensure the implementation of the One Stop Shop generates high-quality jobs with a diverse, highly skilled workforce and supports “high road” labor practices.

The State of Massachusetts has identified the need to invest in workforce development opportunities within the environmental justice communities and in partnership with community-based organizations.⁴⁰ In addition, the Massachusetts Clean Energy Center has identified the southeast portion of the state, where New Bedford is located as having among the highest need for electricians to reach the State's decarbonization goals.⁴¹ Within New Bedford, opportunities have been identified to help strengthen programs within the local vocational schools for this specific task and there is a good opportunity for advancing those programs if integrated with opportunities to work with the One Stop Shop.

Implementing comprehensive whole-building retrofits through the One Stop Shop is expected to yield an increase of 21 high-skilled jobs necessary to perform the home and building assessments and installations, as well as an additional 37 jobs in upstream manufacturing industries and local service jobs. Beyond building trades workforce development, program administration provides substantial professional growth opportunities in non-profit management. The program aims to fill these roles with CBOs serving the program's beneficiary communities.

Strategies that have been identified to ensure high-quality jobs through implementation of the One Stop Shop include:

- Incorporating specific labor and job quality standards into procurement requirements to ensure pre-approved contractors in the program are meeting quality standards;
- Establishing specific certifications and skills competencies for selection of pre-approved contractors that aligns with Good Labor Principles and adheres to prevailing wage requirements;
- Partnering with labor unions to ensure adequate training is available for contractors to meet labor and job quality standards;
- Engaging with labor unions and community-based organizations to recruit apprentices from within the communities the program serves; and
- Collaborating with organizations to support training programs to bolster skills of contractors and/or community-based organizations needed to administer the program and perform audits, inspections, and upgrades.

Section 6: Programmatic Capability and Past Performance

a. Past Performance

In 2010, New Bedford's Energy Office launched the New Bedford Energy Now (NBEN) program, which was a scaled down version of what the City envisions for the One Stop Shop. NBEN's mission was to bring the cost reductions and associated emission benefits of energy efficiency, renewable energy, and electricity supply directly to all residents and small businesses within the city. During its tenure, this program helped over 3,500 families and small businesses enhance energy efficiency and install solar systems.

⁴⁰ Massachusetts Executive Office of Energy and Environmental Affairs. June 20, 2022. Massachusetts Clean Energy and Climate Plan for 2025-2030. <https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download>

⁴¹ Massachusetts Clean Energy Center. July 2023. Powering the Future: A Massachusetts Clean Energy Workforce Needs Assessment. [Powering the Future: A Massachusetts Clean Energy Workforce Needs Assessment Final.pdf \(masscec.com\)](https://masscec.com/Powering-the-Future-A-Massachusetts-Clean-Energy-Workforce-Needs-Assessment-Final.pdf)

In 2018, the City of New Bedford completed its first Climate Action and Resilience Plan: ***NB Resilient***.⁴² The NB Resilient vision for New Bedford is a thriving, self-sustaining community that is culturally and historically secure and is ready to implement innovative approaches to prepare for tomorrow's possibilities. Key to resilience is awareness of vulnerabilities and stressors. EPA recently awarded New Bedford a Community Air Quality Monitoring Grant that will provide equipment and expertise to gather air quality data and to document and understand disparities within the City that create or exacerbate negative health outcomes.

The knowledge gained by this program will do nothing to improve air quality if we do not use this science-based data to reshape policy and to affect physical and behavioral change. The City is actively working to obtain funding from a variety of sources to make real equitable impact. In addition to the \$391,822 EPA AQM Grant noted above, New Bedford has secured the following resources:

- \$148,890 DOE Energy Efficiency and Conservation Block Grant (EECBG) allocation to design the One Stop Shop and pilot it with 3-5 low-income, energy burdened homeowners.
- Technical assistance from the America Council for an Energy Efficient Economy (ACEEE) to engage landlords in discussions to identify ways to incentivize landlords to implement energy efficiency retrofits that will achieve renter equity.
- \$10,000 Kickstart Grant from Home Energy Efficiency Team (HEET) to explore the potential of networked neighborhood geothermal in the City.

New Bedford is in the process of designing a new elementary school and has committed to using a geothermal heat pump network in addition to on-site solar. This will provide for cooling in addition to heating while increasing efficiency and reducing carbon emissions. The savings in operations and rebates are still being calculated but rebates are anticipated at over \$3M.

The City also partnered with the Massachusetts Clean Energy Center on its EPA Solar for All grant application which is pending award. We were prepared to submit a stand-alone grant application but determined it best to align with the state to maintain local capacity while utilizing economies of scale.

New Bedford has industriously utilized its resources to equitably reach all neighborhoods and has been aggressively pursuing funding to establish sustainable programming that will positively impact our underserved communities. This CPRG funding is needed to build upon the work described above to increase capacity and carry the momentum forward.

b. Reporting Requirements

The City of New Bedford currently has three cooperative agreements with EPA and is on schedule and up to date with ACRES and other reporting:

1. Brownfields Multipurpose Grant – BF 00A00786 / 66.818: EPA awarded an \$800,000 Cooperative Agreement to complete community health monitoring, planning, assessment, and cleanup on and around the Morse Cutting Tool Brownfield site. EPA Region 1 Project Officer Will Lariviere, (617) 918-1231, Lariviere.William@epa.gov
2. Brownfield Revolving Loan Fund – BF00A00545 66.818: EPA awarded an \$800,000 Cooperative Agreement to establish a revolving loan fund to issue subgrants and loans to eligible entities to

⁴² City of New Bedford. *NB Resilient*. <https://kladashboard-clientsourcefiles.s3.amazonaws.com/New+Bedford/NB+Resilient+Plan+--+Final+3-20.pdf>

provide for the equitable redevelopment of Brownfield sites throughout the community. EPA Region 1 Project Officer Will Lariviere, (617) 918-1231, Lariviere.William@epa.gov

3. City-Wide Air Quality Monitoring – 5X 00A01104-0 / 66.034: EPA awarded a \$391,822 Cooperative Agreement to deploy 20 low-cost air monitoring sensors throughout the city to provide community education, evaluate disparities, and identify actions / policy to reduce those disparities. EPA Region 1 Project Officer Jennifer Brady, (617) 918-1698, Brady.JenniferL@epa.gov

Current State grants include:

1. Hazard Mitigation Grant Program (HMGP) – HMGP-4496-MA: MEMA awarded a \$108,000 grant to complete a Multi-Hazard Mitigation Plan and a Comprehensive Emergency Management Plan Update focused on equitable resilience to climate change and emerging hazards. MEMA Grant Manager David Woodbury, 508-820-2034, David.Woodbury@mass.gov
2. Kempton Street Corridor Green Infrastructure – Massachusetts Municipal Vulnerability Preparedness FY'24: The MVP program awarded a \$350,750 grant to permit and construct green infrastructure at the headwaters of a degraded waterway to reduce the volume of stormwater runoff, improve the quality of residual runoff, and to reduce heat island impacts in an Environmental Justice community. MVP Regional Coordinator Courtney Rocha, 617-877-3072, Courtney.Rocha@mass.gov

As we manage each of these agreements, we look to leverage opportunities between and within each grant scope.

c. Staff Expertise

We anticipate hiring four full-time staff dedicated to implementing this program: Program Manager, Building Specialist, Residential Energy Coordinator (50% time to the CPRG program and 50% to other programming), and Program Administrator. This Program Team (CRPG Team) will be supported by existing city staff as follows:

Michele Paul, New Bedford's Director of Resilience and Environmental Stewardship will oversee the CPRG Team's implementation of this Grant. Michele is an Environmental Engineer with over 30 years of experience in private practice and municipal service and nearly 20 years managing state and federal grant projects. She has been the department director for 12 years and is the Program Manager for each of the aforementioned EPA grants. She will be responsible for the overall implementation, reporting, schedule maintenance and management of this grant program and will coordinate the CPRG Team and other City department collaboration.

Joshua Amaral is the Director of New Bedford's Office of Housing and Community Development (OHCD) which oversees over \$5M annually in federal grant programs through the Department of Housing and Urban Development (HUD) and state grant funds through the Massachusetts Housing Partnership. OHCD's Community Development Division executes programming to support low-income communities including the First Time Home Buyer, Rental Housing Rehab, Housing Accessibility, Emergency Repair, and Lead Paint Programs, among others. Prior to Joshua's joining OHCD in early 2023, he served as Chief Operating Officer of PACE, a community non-profit organization focused on low-income housing and energy assistance. OHCD's Community Development Division will work closely with the CRPG Team as the One

Stop Shop to provide residents with all of the tools at their disposal and to guide them through both the implementation and financial processes.

Emily Arpke is the New Bedford City Auditor and will be the City Finance lead, ensuring compliant accounting methods, procedures and reporting. With a Master's Degree in Public Administration from Northeastern University, Emily has overseen grants management as the City Auditor for the past four years, having previously served as the Brockton Redevelopment Authority's Chief Operating Officer for 5 years.

Tyler Reis has managed New Bedford's energy programming for over 9 years including municipal budget forecasting, distributed generation data management, contract management, electric vehicle infrastructure installation and maintenance, and municipal efficiency upgrades. Tyler's previous experience is in construction management and field operations, and he will be available to assist program staff.

Kevin Fraga has managed the grant-funded programming of OHCD's Community Development Division for the past four years. He spent the previous 20 years as an Assistant Project Manager preparing bid documents and managing submittals on large school and commercial projects. Bruno Friere is the Lead Paint and Healthy Homes Program Manager for OHCD's Community Development Division and works with residents from program application through the rehabilitation process. Kevin and Bruno will work with the new CRPG Team to guide residents through the various processes to streamline the One Stop Shop concept.

Courtney Cohen is an Environmental Engineer with over 20 years of experience in private practice and municipal service. As a Health Inspector for another municipality, she worked directly with both homeowners and renters on a daily basis. She will be available to support staff dedicated to this project as needed.