

ARPA Recommendation from the Buildings/Thermal Co-Leads - December 15, 2021

The Buildings/Thermal Co-Leads of the Cross-Sector Mitigation Subcommittee recommend that \$122 million to \$147 million of the \$200 Million American Rescue Plan Act (ARPA) funds be invested (i) in weatherization and energy efficiency improvements in buildings throughout Vermont, and (ii) in expanded workforce development activities to ensure sufficient workers for completing weatherization projects.¹

As noted in the Climate Action Plan (CAP):

“Thermal energy used for buildings produces over a third of the state’s GHG emissions and represents roughly 35% of our energy expenditures. Thermal modernization of our buildings to reduce GHG emissions, in a way that recognizes the economic challenges faced by the most vulnerable Vermonters in keeping homes, businesses, and other buildings heated and comfortable is essential. With a focus on the most burdened households and businesses, Vermont can begin to address its climate challenges and pair up clean fuel options and weatherization programs to deliver comprehensive, equitable, low-carbon buildings solutions.”²

The CAP establishes a weatherization target of 120,000 Vermont homes by 2030. Its primary focus is on low- and moderate-income homeowners and renters who can benefit most from the energy cost savings and additional health and safety benefits that weatherization provides. A multi-stakeholder, Weatherization at Scale Network Action Team convened in 2021 has been working to identify the funding, financing, and programs needed to achieve this target. The target is comprised of 90,000 new weatherization projects by 2030 on top of the 30,000 homes weatherized in Vermont as of 2021.³

Presented in Table 1 is the portion of new weatherization projects needed during the years 2023 through 2026 in order to meet the eventual target of 90,000 new projects by 2030. This is the time period for first obligating (through federal fiscal year 2024) and then expending (through federal fiscal year 2026) ARPA funds. The annual targets were established in a draft *Vermont Pathways Analysis Report* under development by Cadmus/EFG, technical consultants to the Climate Action Planning process.⁴ Also included in the table are estimates of the number of workers needed to complete the weatherization projects. The weatherization workforce estimates are based on research and analysis completed for the report, *Workforce*

¹ Christine Donovan and David Farnsworth.

² <https://climatechange.vermont.gov/sites/climatecouncilsandbox/files/2021-12/Initial%20Climate%20Action%20Plan%20-%20Final%20-%202012-1-21.pdf>

³ <https://www.eanvt.org/events-and-initiatives/weatherization-action-team/>

⁴ Draft report under development as of December 15, 2021.

Development in Vermont's Thermal Sector: Challenges and Opportunities for Meeting Vermont's 2030 Climate Goals published in August 2021.⁵ According to the report:

- “The most productive crew can weatherize around 20 homes per year with 4 workers in the crew
- The least productive crew can weatherize around 11 homes per year with 5 workers in the crew
- One office staff member is needed per 10 crew members
- One energy auditor is needed per 90 buildings”

This information was obtained through interviews with multiple weatherization providers in Vermont. The information is for traditional weatherization activities, such as air and duct sealing, installing insulation, etc. To be conservative, the information above for the least productive weatherization crew was used to develop the workforce estimates in the table.

To date, building improvements needed to upgrade wiring and service panels to enable electric vehicle charging and the installation of heat pumps for space and water heating have not typically been performed by weatherization crews, and are not included in the weatherization workforce estimates below. The number of licensed electricians and related workforce needed for strategic electrification improvements beyond traditional weatherization work would be in addition to the workforce estimates below.

Table 1: Weatherization Workforce Estimates for Completing Weatherization Targets in the CAP

	2023	2024	2025	2026	Cumulative
Total Weatherization Projects (Cumulative)	36,000	41,000	48,000	57,500	57,500
New Weatherization Projects (Annual)	3,500	5,000	7,000	9,500	25,000
Crews Needed (Assuming 11 projects completed per year by a crew of 5)	318	455	637	864	864
Crew Members Needed	1,590	2,275	3,182	4,318	4,318
Office Members Needed (Assuming 1 per 10 crew members)	159	228	318	432	432
Energy Auditors Needed (Assuming 90 completed per year per auditor)	39	56	78	106	106
TOTAL NEW WORKERS – CUMULATIVE	1,788	2,559	4,215	5,720	5,720
TOTAL NEW WORKERS – ANNUAL	510⁶	771	1,616	1,505	N/A

Presented in Table 2 are estimates of the total amount of additional funding needed per year to meet weatherization targets in the CAP for years 2023 through 2026. Funding amounts in the Table are above and beyond expected traditional sources, i.e., funding from the Weatherization

⁵ <https://www.eanvt.org/wp-content/uploads/2021/09/Raquel-Smith-Workforce-Development-Final-Report-EAN.pdf>

⁶ Using the same workforce assumptions quoted from the Workforce Development report above, it is estimated 1,278 weatherization workers will be needed in 2022 to complete the target of 2,500 weatherization projects established in the CAP.

Assistance Program (WAP), Regional Greenhouse Gas Initiative (RGGI), Forward Capacity Market (FCM), and other Energy Efficiency Utility (EEU) funds, as well as additional appropriations currently used to fund weatherization in Vermont. Combined, these funding sources are not expected to be sufficient to achieve the CAP targets. The table illustrates the “delta” in total funding needed to achieve CAP targets compared to the substantially lower levels of funding expected to be available from traditional sources. The values in the table are based on modeling completed by the Weatherization at Scale Network Action Team, adapted to the most recent annual weatherization targets established for the CAP.⁷

In Table 2, the amounts of funding recommended from ARPA for new weatherization projects represent the expected shortfall for meeting CAP targets from existing funding estimates, as modeled by the Funding and Financing Work Group of the Weatherization at Scale Network Action Team. To account for uncertainty in future costs, funding ranges were calculated (and are reported) based upon a low (5%) and high (25%) increase in labor costs applied to 70% of the historic (2018-2020) average project cost (roughly estimated to be 70% labor and 30% material costs). Absent additional new sources of funding, such as ARPA funds, it is highly unlikely the weatherization targets in the CAP will be realized.

In addition, estimates are provided in Table 2 for new and expanded workforce development activities for recruiting, training, placement, and retention of weatherization workers. The current workforce shortage in Vermont is already hampering the ability to complete weatherization projects. This is expected to continue in the future in the absence of pay increases for weatherization workers and/or additional workforce development activities. The numbers in Table 2 for expanded workforce development activities are rough, order-of-magnitude suggestions that have not yet been vetted by organizations directly involved in workforce development. The estimates are offered as placeholders for now, with the expectation that further thought, and analysis will be conducted by workforce development professionals, including the Climate Workforce Coalition recently convened to better understand the workforce needs of meeting the Climate Action Plan.

Table 2: ARPA Funding Recommended to Achieve the Weatherization Projects and Level of Employment Needed to Meet the GWSA Requirements for the Buildings/Thermal Sector

	2023	2024	2025	2026	Total
Total Weatherization Projects (Cumulative)	36,000	41,000	48,000	57,500	57,500
New Weatherization Projects (Annual)	3,500	5,000	7,000	9,500	25,000
ARPA Funding Recommended to Address Shortfall from Existing Funding Sources (eg WAP, RGGI, FCM, etc.)	\$300,000-\$4M	\$21-\$26M	\$37-\$44M	\$57-\$67M	\$115-\$140M
ARPA Funding Recommended to Expand Workforce to Meet Buildings/Thermal Sector GWSA Targets	\$2 M	\$2 M	\$2 M	\$1 M	\$ 7 M
TOTAL ARPA FUNDING RECOMMENDED	\$2.3-\$6M	\$23-\$28M	\$39-\$46M	\$58-\$68M	\$122-\$147M

⁷ The underlying model was developed by the Funding & Finance Work Group of the Weatherization at Scale Network Action Team.

