

Delivering Clean-Energy Careers with Repeatable Training and Career Pathway Delivery Models – Development of the Vermont Weatherization Training Center

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ABSTRACT

Is there a single, best way for the United States to equitably train and supply the labor needed to achieve the clean-energy targets under the Inflation Reduction Act of 2021? Or is the country just too diverse, and its energy services industry too structurally fragmented to ensure low- and moderate-income people benefit (as consumers and workers) from the transition to clean energy before 2030?

This paper explores both questions via a case study of a new regional business model for clean-energy workforce training. Vermont has created a structure for a workforce training and career center that supports the state’s Weatherization Assistance Program (WAP) training and worker recruitment—and creates opportunities in non-WAP clean-energy trades by coordinating training in residential construction across New England. The Vermont model, which has examined best practices among workforce development centers across the United States, aligns sustainable training delivery with nationally recognized credentials and curricula targeting the clean-energy transition.

The model investigated the necessary community engagement for applying the business design to local needs, and defined career pathways and registered apprenticeship programs for weatherization and other climate workforce professionals. The model embedded soft-skills training for new workforce entrants, accessibility needs, language, and translation services. This paper also describes the lack of a governance structure for WAP and other local contractors to satisfy the coming clean-energy transition workforce needs and offers strategies for creating centers that combine training in nationally recognized, transferable credentials and certifications with local services, certification, and training—without compromising or duplicating them.

Introduction

The characteristics and demographics of the residential construction workforce have been rapidly transitioning for the past decades. A career in the trades has not been given the same value as a college preparatory and post-secondary education pathway for young people as it may have in previous decades. As a result, investment in and recruitment of young workers out of secondary education into the construction industry has been lagging throughout the US (ABC 2024).

At the same time, incumbent workers in the construction trades are aging out of their careers and reaching retirement age, while recruitment of adult workers from other sectors of employment has stagnated if not become non-existent (ABC 2024). Compounding these matters, the recent rise of remote working options and automation increases the pressures on the businesses operating in the construction industry to keep up with demand without incurring labor costs so high that these businesses are priced out of their markets, or pricing consumers out of access to necessary home improvements and the benefits that a transition to clean energy systems provide.

In rural states such as Vermont, these issues are magnified by the impacts of an overall small rural population, and a consistent trend over decades of young people leaving their home state to seek employment elsewhere. Equity in access to sustainable careers offering a living wage with growth potential is a primary concern for workforce recruitment in the construction industry in general as well as for the ambitions for transitioning to and/or developing a climate action workforce.

Building out a diverse and abundant climate workforce to meet the needs and potential of renewable technologies and the electrification of our built infrastructure away from fossil fuels needs to be developed on the foundation of existing trades working in the construction industry.

A Focused Opportunity to Establish a Climate Workforce Training Center

In late 2022, the Vermont Office of Economic Opportunity (OEO) was awarded a three-year Department of Energy grant (DE-EE000 2520-1586) to plan and launch a Weatherization Training Center (WxTC) to support Vermont’s goals to diversify and grow the weatherization workforce to achieve the State’s goal of weatherizing 120,000 homes by 2030. To achieve this goal, Vermont will need to rapidly grow a qualified workforce (5x) while also heeding Vermont’s *Guiding Principles for a Just Transition* (VT Climate Council 2021), as established by the State’s Climate Council. Vermont’s ability to recruit and train a qualified workforce is essential to delivering weatherization services which realize the energy savings intended.

The WxTC project funded by the grant is being developed and deployed in two phases. The first phase for which work began in the early spring of 2023 and completed in March of 2024 was focused on project research, stakeholder engagement and community outreach, training and curriculum development, business plan creation, and ultimately the development of an RFP to find an operator for phase 2 of the funding for the grant term. The work of the first phase was led by a primary project development team from VEIC working in partnership with project members from OEO, and under the oversight and in consultation with a Steering Committee established from key strategic partners in VT focused on job creation, social service, and career training. Figure 1 illustrates the project timeline.



Figure 1. Steps comprising WxTC Project Development

Phase two delivers a design for a collaborative Training Center model informed by engagement with underrepresented communities and utilizing partnerships from within existing

VT state agencies and non-profits that allows each to utilize their strengths to deliver targeted aspects of the training center core program offerings. The business plan identifies 3 models of delivery of a sustainable financial plan for a Training Center, with each model building on the core deliverables and program offerings of the other to an expansive scope.

The objectives of the full grant term with the launch of the Training Center are to train at least 600 individuals by project partners (with leveraged funds) during the first two years of project design and development, with the trainees earning at least one industry-recognized credential, and a 70% job placement rate with regional employers for these new trainees. At least 40% of new trainees will be from underrepresented groups, in alignment with the federal government's objectives of the Justice 40 Initiative.(Executive Order 14008)

By the end of the 2nd phase of the grant budget period where a Training Center Operator will be chosen and the Training Center will be launched, the Training Center and its affiliates will train and/or retrain over 500 workers, who will earn one or more industry recognized credentials, with at least 70% of new trainees successfully placed in jobs with a VT business. At least 40% of new trainees will be from underrepresented groups in weatherization.

Collectively, the 1,100 trainees will help weatherize at least 8,000 homes of low- and moderate-income Vermonters before 2030.

The Vermont WxTC project aspires to create a diversity, equity, and inclusion (DEI)-informed training center design with a sustainable business plan to launch a training center that supports black, indigenous, and people of color (BIPOC), women, opportunity youth, and other underrepresented communities in joining the workforce, while supporting the existing network of weatherization providers and the broader Residential Construction Trades employers in the state.

Local Needs Assessment and Community Outreach

The proposed plan recognizes that commitment to equity applies to both planning and implementation processes and requires that currently underserved communities have a meaningful opportunity to shape the Training Center. Attention to procedural equity requires a thoughtful, deliberative, and inclusive planning process, and thus year one was focused on engaging communities in the development of a governance structure, center design and business plan. This project will look to leverage and learn from those efforts, while working towards a sustainable, lasting infrastructure. Year two and three will support the start-up and launch of the Training Center. DOE Enhancement and Innovation Funds will support planning and start-up costs, including capital and equipment needs.

Creating and launching a training center that effectively supports Black, Indigenous, People of Color, women, opportunity youth, and other underrepresented communities in joining the workforce, while also serving the existing weatherization community required the Steering Committee and Project Team to engage a diverse and broad group of stakeholders. Climate workforce development is a hot topic at both the national and state level and Vermont stakeholders are actively engaged in these discussions.

A community engagement plan was developed to identify strategies for inclusive community engagement and stakeholder identification and to describe the community engagement milestones the Vermont WxTC project will meet. This plan is a living document with two phases that correspond to the timeline and milestones of the project's grant agreement.

Phase 1 covers the first year of community engagement to communicate project progress through identified channels, solicit project input, and support creation of the training center business model. Phase two covers the final two years of community engagement during the

launch of the training center, the build-out of key activities, the training of workers, and the project evaluation. When the WxTC is launched in Phase 2, stakeholder engagement and outreach will transfer to the WxTC operator. The expectation will be that the WxTC Operator will continue to engage these community and trade groups during the first years of the launch of the Training Center to ensure that growth and adaptation of services will meet the needs of the populace the WxTC is intending to serve.

Since Vermont adopted the Global Warming Solutions Act (GWSA) in 2020 which created aggressive targets for home weatherization, there has been a coordinated effort among lead agencies and organizations to increase qualified weatherization workforce. Over the past 3 years a strong coalition of organizations within the state focused on climate issues, job creation, and social support services have coalesced as key stakeholders for all future efforts on climate action and workforce development in Vermont. Starting with and adding to this list of stakeholders from past efforts, the Project Team and Steering Committee identified the types of organizations and individuals necessary to engage in order to gather diverse input representing the communities the WxTC seeks to serve. Some of the identified key partners for engagement included:

- Community Based Training Providers (trades training and wrap-around services for adult learners)
- Residential Construction Employers, Trade Associations, Education Providers (primary and secondary education)
- Organizations Working with Underrepresented Communities

The breadth of the Community Engagement effort was significant. The primary mechanism of engagement in outreach were surveys sent out to a broad audience identified and specific to the categories listed above. From these a select group of interviewees were identified based on characteristics and experience relative to the data being sought. These interviews allowed for more narrative feedback to the objectives for community need of training support services and methods for reaching and supporting underserved populations.

Community Outreach Methodology and Reach

- April 5th 2023 - Better Buildings by Design Conference session ~90 participants
- Interviews with 14 recent or current students of existing Wx and Trades focused training programs under way in VT
- Interviews with 10 Organizations Working With Underrepresented Communities
- Interviews with 26 Residential Construction Employers, Trade Organizations, Suppliers, and Equipment Manufacturers
- 172 Audience specific surveys have been sent to:
- 25 Residential Construction and Weatherization Employers
- 45 Community Based Training Organizations
- 14 Community Benefit Organizations
- 31 Other Interested Parties, including Federal and State Agencies and Legislators

A theme that developed out of this outreach was that there is a need in VT (and the region) for a training center that has the expertise and facilities to deliver high quality technical training that can also directly provide or partner with existing agencies in the region in

supporting new workers from various backgrounds and experience. Luckily, Vermont has many aid and community organizations that can bring the expertise of social services to enhance the outcome of delivered technical training.

National Review of Weatherization Focused Training Centers

Weatherization installation work requires specialized skills and technical knowledge, and a portion of the WAP funding stream is available for training and technical assistance (T&TA). T&TA funding is used by Grantees and subgrantees to pay training fees, travel, and labor cost of new and existing WAP workers.

The details of the WAP-reimbursable training programs differ between states and tribes, but they all use the Home Energy Professionals (HEP) Interstate Renewable Energy Council (IREC) Accredited Training, certifications, and Job Task Analyses (JTAs) as foundational learning objectives and skillsets required by the DOE WAP.

Training Center Review Methodology and Findings

According to the National Association for State Community Service Programs (NASCSPP)¹ there are twenty-one WxTCs in the U.S. that provide training services to the WAP network. In initial outreach, VEIC reviewed the publicly available information about these training centers, their posted training materials, and associations with state and other trades training programs to gather basic information about the existing WxTCs.

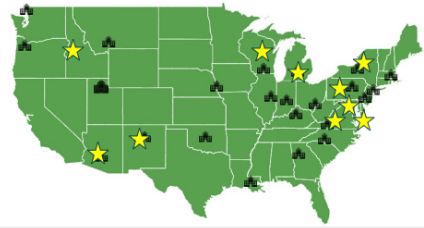
The goal of this research was to review existing available information on Wx focused training centers operating throughout the US and conduct one-on-one interviews with of a select number of these training center operators, as suggested and recommended by the VT OEO Wx Directors. A grant report of these efforts catalogued the business models, affiliations, trainings, facilities, and equipment of existing Weatherization Training Centers (WxTC). This work directly informed the development of the business plans and services offerings proposed for the WxTC in Vermont.

During the interviews (Figure 2), VEIC observed that data and metrics tracking was not consistent across the Training Centers. For example, some organizations tracked number of courses offered, and other organizations tracked number of trainees that participated in the program annually, noting that the same person could have taken multiple courses. None of the training centers that were contacted or interviewed were actively tracking the demographics of attendees nor tracking for any diversity or inclusion metrics.

¹ <https://nascsp.org/>

Review of National Training Centers Models

- Who we have talked to
 - Community Housing Partners (CHP)-Phil Hull, Andrew Woodruff
 - Energy Smart Academy -Troy Cucchiara Housing New Mexico
 - DOE Supervisory Technical Project Officer / Office of State & Community Energy Programs -Ray Judy
 - WAP Trainers Consortium / SMS-Ben Cichowski
 - New York State Weatherization Directors Association (NYSWDA)-Andy Stone
 - Community Housing Partners (CHP)- Andrew Woodruff
 - Michigan's State WAP & NASCP Board Member- Maddy Kamalay
 - Slipstream-Suzanne Harmelink
 - Clean Energy Center at Penn College-Alison Diehl
 - FLS Southwest Building Center-Vincent Pedalino
 - National Association for State Community Service Programs (NASCP)- Andrea Schroer



★ Interview Complete

Figure 2. Interviewees, by state

Different Approaches to Administration and Delivery

Weatherization Training Center Organizational Structure

All of the WxTCs interviewed have similar business administrative functions regardless of the type or size of the organization (Figure 3). If a WxTC is embedded within a larger institution, some of these tasks can be taken on within the larger administration or human resource department. Smaller organizations must contract out the work or have staff take on the administrative tasks. Administrative tasks can be designated to full-time positions, or delegated to staff that also provide training.

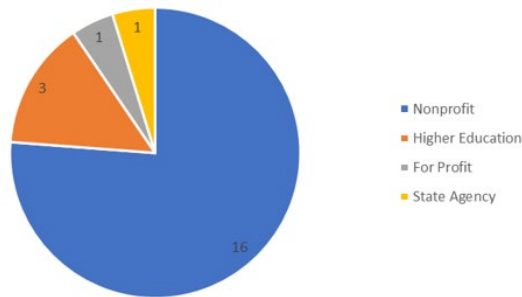


Figure 3. Organizational structures of interviewed WxTCs

Some administrative tasks are specific to operating a WxTC designed to train for WAP professionals. These WAP-specific tasks can be time consuming and come with a steep learning curve. For example, obtaining and maintaining IREC accreditation requires detailed training reporting and periodic renewal.

Most WxTCs purchase or create in-house a training management system (TMS) software that handles registration and training completion records. When externally purchased, the cost for these systems is typically a subscription model based on the number of users. In addition to the TMS, most training centers also have a learning management system (LMS). The LMS provides training participants online access to course materials and class schedules. Participants

may track their learning progress through the LMS. Common LMSs include Moodle, Blackboard, and Bespoke.

Some training centers hire instructional designers to build online content that is delivered within the LMS. The WxTCs in larger organizations can split the cost of LMS and TMS with other departments that need to collect fees, manage online course content, and track and report enrollments, course progress, and apprenticeships. WxTC staff are also responsible for managing training schedules and ensuring logistics are met to complete trainings in the classroom, in the lab, and in the field.

Delivering the Training

Curriculum Delivery by Existing Wx Training Centers

Figure 4 illustrates the training available at various WxTCs. Note that the Interstate Renewable Energy Council (IREC) provides the Home Energy Professional (HEP) certificate and the Renewable Energy certificate. Both of these options include six (6) certifications lead to Job Task Analyses (JTAs). Building Performance Institute (BPI) offers 16 certifications. Accredited programs must have a testing center used to conduct written and field exams required for IREC and BPI certifications. Interview results also indicate that some WxTC offer custom courses, e.g., Wx 101, math fundamentals, communication, time management.

	Clean Energy Center at Penn College	New York State Weatherization Directors Association	EnergySmart Academy	FSL Southwest Building Center	Slipstream	MITech Weatherization Training Center	CHP Energy Solutions
IREC HEP	x	x	x	x	x	x	x
IREC Renewable Energy	x						
BPI Test Center	x	x	x				x
BPI Courses	x	x	x		x		x
EPA LRRP	x	x				x	x
OSHA 10-hour		x					x
Radon		x					
RESNET					x		
USGBC					x		
AIA					x		
Building Operator Certification					x		
ASHRAE					x		

Figure 4. Comparison of training programs (rows) and WxTCs (columns).

IREC defines WxTC learning environments in the following categories:

- **Classroom facilities:** Classroom facilities are multimedia spaces where students and instructors gather to present, discuss, and learn core competencies and training curriculum. Classroom facilities are located at the WxTC building with offices, and lab facilities.
- **Off-site classroom facilities:** Some WxTCs have agreements with other organizations to use those organizations' classroom facilities on demand through a rental or other agreement structure.

- **Hands-on classroom / lab facilities:** These training spaces have the tools, equipment, mockups, and hardware available for a safe hands-on training experience.
- **Field training facilities:** If field training is conducted offsite. WxTC staff will identify the site characteristics needed to instruct learners effectively and verify that the sites used meet the requirements of IREC. Some WxTCs use trailers to bring equipment for field training.

Through the interviews and online research, VEIC collected the size of training facilities for seven WxTCs. The size of the training spaces ranges from approximately 7,000 square feet to 16,000 square feet. The facilities include office spaces, classrooms, and labs with HVAC equipment, wall mock-ups, and whole-house systems for hands-on learning.

Some WxTCs own stand-alone homes to use as training sites or have arrangements with homeowners to allow for the training center to bring students into their homes for training purposes. In scenarios where there is no training center facility or capacity for classroom space at a local WAP agency, the WxTC will rent classroom space.

Several of the training centers deploy mobile training platforms for hands-on training in customer/client homes of participating Wx Community Action Agencies. In a rural state or in other areas where geography and lack of mobility and transportation create inequity in access to services and opportunities, the mobile option for training can allow for greater equity in access to these training programs. Utilizing the mobile training model also allows for students to directly experience the real-case situations of installing weatherization measures in actual buildings where obstacles and physical constraints exist, as well as the reality of working outdoors in variable conditions. Hands-on training occurring in controlled environments/facilities can give a false impression of the reality of the working conditions, and many of the weatherization agency providers prefer training new workers and existing staff in the actual jobsite conditions of day to day work.

Training Center Revenue and Expenses

VEIC collected information on revenue from five of the WxTCs. The annual revenue reported by the five Centers ranged from \$575,000 to \$3 million. The primary source of revenue and ongoing annual funding for the five WxTCs is from DOE WAP T&TA funds to train subgrantee employees, provide monitoring, field mentoring, curriculum development, and administrative support for training reimbursement services for the WAP Grantee. DOE WAP T&TA funds are allocated based on need and a percentage of the individual state's overall WAP budget.

WxTC revenue can vary from year-to-year due to special initiatives and grants from DOE to support the WAP. Other WxTC revenue comes from services provided by the training center staff in three primary categories (Figure 5):

- (1) providing quality control and program oversight services for a state WAP program directly to the grantee or subgrantees.
- (2) the WxTC providing direct training programs and services to neighboring state WAPs.
- (3) the WxTC providing related training services to the private contractor market in the states in which they operate.

The predominant model of revenue generation outside of the direct T&TA funding stream is category 1 where the trainers and staff of the WxTC are contracted to provide the services of program quality control and administrative oversight that are required by DOE WAP. Many versions of this model exist depending on how the state WAP Grantee delineates the requirements of the DOE program down to its individual subgrantees.

The second category of revenue generation is the direct fee-for-service work for training services outside of contracts for in-state WAP agency training work. Of the WxTCs that pursue this contract work, the majority do not rely on this revenue to maintain their annual core budgets or staffing.

The third category of revenue generation for private, non-WAP contractor training is very minimal, unless there are mandatory training requirements or licensing requirements in the state, or neighboring state, that require private market residential contractors to send their staff to trainings and to obtain industry certifications. Absent a program or licensing requirement, there is little appetite for owners of residential construction trade contracting businesses to pay for staff to attend trainings and be out of the field.

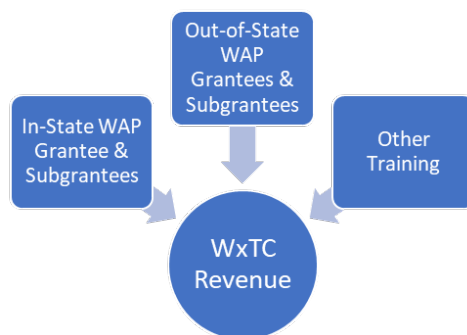


Figure 5. Revenue sources for WxTCs, based on interview results

Delivering a Training Center Framework for Vermont and Beyond

While there are many accreditation agencies that support a wide range of construction trades, four are directly identified as being of high importance for training workers in general residential construction pre-apprenticeship programs and in weatherization and renewable energy sector careers. To deliver the minimum certifications and credentials identified in the Vermont WAP field career pathway (and the National WAP matrix), a WxTC will need to meet industry accreditation requirements and have trainings and exams administered by industry approved trainers and proctors as described herein.

International Renewable Energy Council

[IREC Job Task Analyses](#) provide a foundation for credentialing programs by identifying the core knowledge, critical work functions, and skills found across various clean energy and energy efficiency careers. Although not explicitly linked to apprenticeships, IREC JTAs can be used to map a pathway from training to career readiness through an empirically valid and realistic assessment of abilities required to competently perform a job. Compliance with the IREC JTAs is required by the DOE WAP program on all jobs and as such, IREC accredited training programs are recognized by DOE WAP for federal funding.

[IREC accredits training programs and certifies trainers](#) for delivering courses that meet the IREC JTAs. IREC training provider accreditation is based on IREC Standard 01023 and IREC trainer certification is based on IREC Standard 01024:2013.(IREC 2013) Both the training provider and trainer certification are five-year credentials. The trainer certification has two levels of designation: the instructor and the master trainer.

Building Performance Institute (BPI)

BPI standards for certification are based on the IREC JTAs for weatherization, and as such BPI certifications are used to validate worker competency in the JTAs. BPI exams are administered by [BPI Test Centers using BPI Proctors](#). In order to deliver BPI exams, the WxTC will need to become a BPI Test Center and hire BPI Proctors for exam administration.

Home Builders Institute (HBI)

HBI’s Pre-Apprenticeship Certificate Training (PACT) curriculum integrates performance-based learning in the building trades with vocational and academic skills training and includes life skills, career development, and on-the-job training. PACT curriculum aligns closely with STEM, is based on NAHB’s Green Building Standard™ and National Skills Standards, and is one of three pre-apprenticeship curricula recognized by the U.S. DOL.

National Center for Construction Education and Research (NCCER)

NCCER’s Core: Introduction to Basic Construction Skills prepares individuals for entry-level positions on project sites by providing the basics in safety, hand and power tools, construction math, materials handling, construction drawings, rigging and employability skills.

This competency-based program can be used as a pre-apprenticeship program, meets Perkins funding requirements, and is recognized throughout the country by the construction industry.

Weatherization / WAP Career Pathway

Building upon the Vermont Weatherization Career Pathway developed in 2021 by incorporating community member and Steering Committee feedback, VEIC identified the career pathway for WAP field workers shown in Figure 6.



Figure 6. Vermont WAP fieldworker career pathway

A Weatherization and Training Certification Matrix was developed that outlines the full breadth of training topics to be mastered by weatherization industry professionals in each phase of the career pathway. The matrix also provides the estimated training duration, the minimum certification and credentialing needed to demonstrate proficiency, and the high-level core competencies necessary for worker success in each training topic. This matrix maps out clearly defined industry recognized credentials via a variety of delivery methods that align with DOE WAP standards and other state Wx and clean energy programs.

Recognizing not all workers will be able to earn the minimum certification and the overlap of content from other existing programs, the matrix also lists alternative ways of demonstrating competency for each training topic. Training programs may choose to update their training curricula to align with the WAP career pathway and become affiliate members of the WxTC in delivering WAP-approved trainings.

Four training matrixes for Weatherization were developed that define training topics, applicable pre-requisites, competencies, minimum nationally recognized certification upon completion, and equivalent competencies for the key job positions required of the WAP program. These matrixes also map directly to the career progression and necessary skill sets required for private sector Weatherization workers.

The competencies and earned certifications for Weatherization map directly to and are intended to be incorporated in US DOL Registered Apprenticeships for Weatherization Installer and Residential Energy Auditor. The training matrix for new workers entering the Weatherization field incorporate registered pre-apprenticeship curriculum from NCCER and HBI. Crew Leader, Quality Control Inspector, and Trainer (train the trainer) matrixes were developed as well to track to the career progression available in WAP, with the direct need of these roles to be filled for the VT WAP agencies to meet DOE obligations.

Beyond the curriculum and training content development for Weatherization, training and certification matrixes were developed for other trades and areas of expertise identified as key needs for a Climate Ready Workforce. Utilizing the same methodology taken for developing the Weatherization matrixes, these additional areas of focus utilize industry recognized credentials, certifications, and accreditations to accomplish the outcome of workers trained in these critical roles. Credentialed learning pathways were developed for:

- Industrialized weatherization
- Historic Building Weatherization
- Building Management Systems & Integrated Control Technologies (Smart Homes) Basics
- Building & Product Certification, Standards & Codes
- HVAC Design
- HVAC Installation and Commissioning
- HVAC Installation and Commissioning, Hydronics
- Domestic Hot Water Systems
- Renewable Energy System Design and Installation
- Residential Construction 201
- Building Science Applications
- Running a Weatherization Business

Bringing a Plan Together – Business Plan and RFP launch

As the Project Team and Steering Committee consolidated all of the research data for the project and continued to engage with and solicit feedback from the core identified community and trade organizations, there was recognition that the development of the full potential of this training center would likely need to be built forth in phases. Concurrent to project term of the Weatherization Training Center development there were multiple other groups and committees representing trade groups, building code and state policy administrators, and business owners within the construction industry meeting throughout the past year discussing labor issues and the

relevance and/or need for “required” training for the needs of the construction industry. These committees and conversations were spurred by a triennial update to the State of Vermont energy code in 2022.

The State of Vermont does not license residential contractors for typical single family residential construction, nor are there any state agencies overseeing universal requirements for businesses operating specific to the residential construction industry. This lack of required licensing and overall lack of agency mandating requirements or credentials of businesses and individuals operating in the residential construction market create a condition where the demand for industry training and certification is minimal, except where mandated by specific federally or state supported utility programs.

A WxTC needs to be designed and delivered with intention of long term viability and sustainability for mission. The objective of this particular project was to utilize the opportunity of the DOE grant to develop and launch the facilities and concept, but to also have a viable business plan that will sustain the operation of the Center and the delivery of services based on current and future market demand. The Project Team learned from our national review of other training centers that where there was little or no state or municipal level mandates for construction professionals to be trained, licensed, and or credentialed in order to operate in these localities, demand for training and certifications from the private construction business sector was very low. Many if not most training centers interviewed only delivered training and services in direct support of their state’s (or other states) DOE funded WAP programs.

Seeing this as a risk to be managed for, the business plan (Figure 7) reflects a phased structure for delivered services and future growth. Initial focus for launch are the direct (and minimum) needs of the Vermont WAP Program. The second phase and structure for delivery accounts for accreditation of the Weatherization Training Center with key identified industry recognized credentialing entities and trade specific DOL-aligned apprenticeship models. The third phase and structure for delivery incorporates the direct delivery of support and wrap-around social services in support of new workers and utilizes the Training Center as a hub comprehensively managing training, services, and funding for all levels of trades training in VT and as a regional training resource.



Figure 7. Phased Business Model for the WxTC

WAP-Centric – Minimum Objective Deliverables Model

Immediate demand for services and objective deliverables from the training center are the key trainings and certifications required by the VT WAP agencies to meet the obligations of continued participation in the DOE WAP program. These core model will deliver the minimum required technical trainings and associated support trainings needed to maintain and increase capacity for the 5 Community Action Programs delivering the low-income WAP services in VT. This model was built on the expectation of delivering training and support services for the identified existing staffing, and anticipated future staffing needs for the VT WAP program for the next 3 years. The budget development and funding projections for this model take into account the available one-time grant money funds from DOE to build out and launch the Training Center, the annual funding allocation for Training and Technical Assistance budgeted for by VT OEO, targeted funding to support the growth of numbers of employees in the VT WAP program, and for anticipated engagement (sending staff for training in VT) by out of state regional state-run WAP programs in neighboring NE states.

Phase 2: Accredited Training Center

In addition to delivering the core training and services defined in Phase 1, Phase 2 will move the Weatherization Training Center to become an **Accredited Training Provider**. Accreditation offers alignment and positioning with US DOL registered Apprenticeships and eligibility for funding opportunities from the US DOE. The Accreditation model also delivers on the comprehensive trade training that expands beyond Weatherization to HVAC, Renewables, and Building Science. Phase 2 will involve the necessary steps for the Training Center to become Accredited with IREC, BPI, HBI, and NCCER as noted in the previous section

In Phase 2 development, the Training Center would expand service offerings and partner with affiliate agencies in Vermont to provide trainees with job placement assistance and other support services that will allow needs to be met for these individuals to transition into the Climate Workforce. Becoming an accredited training provider will require a Training Center Operator to create internal processes and procedures to secure and maintain accreditation, as well as adapt facilities to meet the obligations for training environments for each of these accrediting entities. During this time, a Training Center Operator will also develop a process for facilitating US DOL Registered Apprenticeships for the Weatherization trades, and to support other residential construction employers interested in administering an apprenticeship program within their companies.

Phase 3: Comprehensive Training and Career Services

Phase 3 would continue to deliver all the programs and services defined in Phases 1 and 2 and would expand to become a hub for delivering and tracking trades training for the residential market in Vermont as well as for neighboring states. Phase 3 would fully integrate comprehensive wrap-around services in support of new and transitioning workers (stipends, childcare, transportation, life skills, language and translation services, housing support, community liaisons, etc.). Expanding from a single training location anticipated in Phases 1 and 2, Phase 3 would grow the training delivered to be more mobile in ability to address geographic and demographic equity. Oversight of the Training Center would expand to the formation of a

Board of Directors representing major trade associations, state agencies, and community benefit organizations.

Diversity in Funding and Revenue Streams

Having a key stream of funding that is guaranteed annually is necessary for the development and continuation of training for weatherization. Importantly, federal funds through the Bipartisan Infrastructure Law and the Inflation Reduction Act are available until exhausted. WxTCs that rely on DOE WAP T&TA funds have a predictable and reliable revenue stream that allows the WxTC to be sustainable. Absent local licensing and training requirements, there is not a lot of private funding for the residential sector. However, access to multiple streams of funding is critical to reduce dependency on federal funding cycles and to create a foundation for market rate adoption of training and contracting.

WxTC revenue can vary from year-to-year due to special initiatives and grants from DOE to support the WAP. Other WxTC revenue comes from services provided by the training center staff in three primary categories: (1) providing quality control and program oversight services for a state WAP program directly to the grantee or subgrantees, (2) the WxTC providing direct training programs and services to neighboring state WAPs, and (3) the WxTC providing related training services to the private contractor market in the states in which they operate. An ideal funding structure would combine the stability of top-down federal and state governmental resources and a bottom-up stream through fee for services and memberships.

Based on data provided by Weatherization Training Center Operators delivering WAP focused training in other states on revenue generated per participant collected annually, the Vermont WxTC could see between \$446,800 and \$1,440,000 in years 1-2 based on the goal of training 600 students. This estimate does not consider the different services offered by training centers and more research is needed to accurately assess revenue per participant based on the curriculum offered.

Conclusion

The success of climate policies and goals are inextricably tied to the growth of and reinvestment in the construction trades. Great minds and great skills are needed to maintain and transform our built environment and to make significant impact on the known targets needed for GHG and carbon reductions. The construction trades offer a career that brings the STEM curriculums to life in real form every day. A career in the trades and Climate Workforce is a rewarding and redeeming career, with the potential for great personal and professional satisfaction and the ability to be a successful self-employed small business owner. Reinvestment in the value of a career in the trades is of paramount importance for our younger generations and for those seeking a transition in their working life.

There are many well established modalities for technical and career training in the trades, and especially in the fields of building science and mechanical systems. Equitable access to these resources can be challenging to establish, especially in states and regions where policies and mandates do not require verified training, certification, or licensing. The DOE WAP has operated with a model of accountability for objective deliverables of services to households served by the WAP programs, and for the accountability to those employed by partnering state WAP agencies. Establishing a Weatherization Training Center built on the foundation and career development aligned with DOE WAP requirements creates a model to build forth a broader more

comprehensive Climate Workforce training program. The hope is that the Vermont model being established will allow for that development beyond the WAP need to occur, and for funding and investment to expand and be developed to meet these larger needs.

Success will require strong partnerships with outside agencies that can provide the necessary social service support and outreach to meet the needs of a diverse field of candidates to this career field. These partnerships are necessary for the strategic alignment of social and economic needs surrounding the maintenance of a viable construction industry. Industry recognized credentials and certifications offer the ability for a newly trained workforce to show proficiency and value for emerging trade needs that are transferable and marketable across trades and across states. The framework for delivery of these credentials established by the Weatherization Training Center model offers a roadmap for other states as an example of career growth and trajectory for a growing Climate Workforce.

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